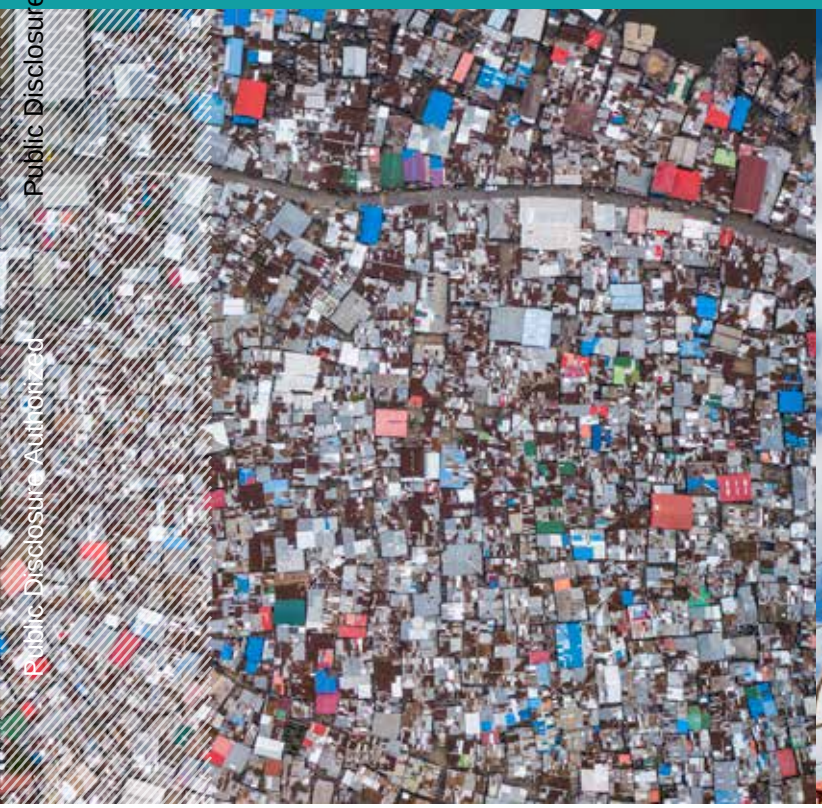
Building Regulations in Sub-Saharan Africa

A STATUS REVIEW OF THE BUILDING REGULATORY ENVIRONMENT



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Foreword

Sub-Saharan Africa has experienced both rapid population growth and rapid urbanization over the last few decades. These trends are expected to continue, and by 2050, the population of the region is predicted to double, reaching 2.1 billion, with two in three people in Africa living in cities. This rapid growth is leading to the construction of many new buildings, which create opportunities for Sub-Saharan African countries to make their cities safer, more resilient, green, and inclusive for future generations. In the next few decades, the impacts of climate change on the population and the buildings in which they live and work are expected to be challenging: these impacts include extreme heat, sea level rise, and the increased frequency and severity of storm and flooding. It is critical to act now to improve the safety and resilience of the built environment to counter the increased exposure to climate and disaster risk. Otherwise, the region could be locked into an inefficient and unsustainable development pathway.

Worldwide, building regulations have proven to be effective tools to improve the safety and resilience of the built environment, and to reduce the risk from disasters such as earthquakes, floods, and storms. Well-designed buildings and effective enforcement of building regulations also reduce the risk of contained and deadly events, such as fire or spontaneous building collapse.

Most people in urban areas live in informal settlements that have been constructed outside formal regulatory control; these are often overcrowded, unsafe, and lack access to basic services such as electricity, water, and sanitation. Outside cities, most buildings are often constructed using traditional methods. To help enhance safety and resilience of buildings that house the majority of people in Sub-Saharan Africa, it is important to reflect country specific context in building regulations, and to consider the reality of who builds, how, and where they build, and what is affordable. The use of imported building materials and the adoption of construction techniques from countries outside the region are often done without adequate knowledge transfer or quality control mechanisms, contributing to low safety and resilience.

This publication presents a unique dataset of building regulations that illustrates the current situation across Sub-Saharan African countries. It includes good practices to improve building regulations, which may be replicated across the region. Finally, the report presents recommendations to set up and/or strengthen building regulations in Sub-Saharan Africa, as a measure to drive green, resilient, and inclusive growth over the coming decades.

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Abbreviations

ASCE	American Society of Civil Engineers
ASTM	American Society for Testing and Materials, currently known as ASTM International
BCA	building consent authorities (New Zealand)
BCPG	Building Collapse Prevention Guild (Nigeria)
BEEC	Building Energy Efficiency Code (Nigeria)
BRCA	Building Regulatory Capacity Assessment
BRR	Building Regulation for Resilience Program
3CP	Cities and Climate Change Project
CCODE	Centre for Community Organization and Development (Malawi)
DFID	Department for International Development (United Kingdom)
DRM	disaster risk management
ECOWAS	Economic Community of West African States
ECSA	Engineering Council of South Africa
GBC	Green Building Council
GDP	gross domestic product
GEM	Global Earthquake Model
GFDRR	Global Facility for Disaster Reduction and Recovery
GHG	greenhouse gas
GIS	geographic information system
HVAC	heating, ventilation, and air conditioning
IBC	International Building Code
ICC	International Code Council
ISO	International Organization for Standardization
JRC	Joint Research Centre (European Commission)
LASBCA	Lagos State Building Control Agency
MBIE	Ministry of Business, Innovation & Employment (New Zealand)
MCE	Maximum Considered Earthquake
MDTF	Multi-Donor Trust Fund

MEP services	mechanical, electrical, and plumbing services
NFPA	National Fire Protection Association
NGO	nongovernmental organization
NSET	National Society for Earthquake Technology Nepal
PGA	peak ground acceleration
RECs	African Union's Regional Economic Communities
SADC	Southern African Development Community
SDG	Sustainable Development Goal
SNI	Indonesian National Standard
S_s	short period spectral acceleration
SSP	Shared Socioeconomic Pathway
TEVETA	Technical Entrepreneurial and Vocational Education and Training Authority (Malawi)
ToT	training of trainers
UNEP	United Nations Environment Programme
UNISDR	United Nations Office for Disaster Risk Reduction (now known as UNDRR)

All dollar amounts are US dollars unless otherwise indicated.

Glossary

Act » a high-level measure passed through the law-making process of the legislative arm of a national government, such as Parliament. Distinct from case law created by courts.

Building codes » a set of legal requirements for the design and construction of buildings, promulgated by local or national governments, which often refer to or incorporate other standards documents (for example, for design using certain building materials, or for material quality), thus making those standards legal requirements to be followed in all design and construction work that takes place in that building code's jurisdiction. (See also the definitions of *building material standards* and *design standards*.)

Building material standards » address the performance, quality, design installation, testing, and maintenance of various types of materials, systems, and products for construction. When specific standards are referenced in a building code that is adopted into law, these standards become legally enforceable.

Building regulatory framework » the complex set of laws, regulatory documents, compliance mechanisms, education and training requirements, product testing and certification processes, professional qualifications, and licensing schemes that support a safe, sustainable, and resilient built environment. It has two core components: (1) legislation and regulations that together form building regulatory systems, including legal acts that reference the planning regulations, building design codes and standards, and building control regulations; and (2) implementation mechanisms and capacity.

Climate change adaptation » the process of adjusting to actual or expected changes in climate and their effects. In human systems, adaptation seeks to moderate or avoid harm or exploit beneficial opportunities. In some natural systems, human intervention may facilitate adjustment to the expected climate change and its effects.

Chronic risk » a risk distributed over time and space, such as the occurrence of individual building fires or spontaneous building collapses (rather than larger-scale disasters). This risk does not stem from one isolated event but arises from repeated events, where the risk accumulates over time.

Climate change mitigation » actions to prevent or reduce the emission of heat-trapping greenhouse gases into the atmosphere to slow down the rise in global average temperatures.

Compliance documents » the legally binding implementation regulations of a building code. A design code may form part of a suite of compliance documents.

Design standards » technical provisions that cover structural design, fire safety, universal access, moisture control, services and facilities, green building requirements, and other aspects of building design. They are often integrated as part of a building code, in close reference to other specific standards or provisions such as material standards.

Disaster » a serious disruption of the functioning of a system, community, or society at any scale caused by a hazardous event interacting with conditions of exposure, vulnerability, and capacity, leading to human, material, economic, and/or environmental damage and impacts.

Disaster risk management » the concept and practice of reducing disaster risks through systematic efforts to analyze and manage their causal factors, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events.

Exposure » the situation of people, infrastructure, buildings, production capacities, and other tangible human assets located in hazard-prone areas.

Fire regulations » a set of provisions and standards intended to significantly reduce the likelihood and severity of damages caused by fire, for example, the ignition of an uncontrolled fire, or the spread and effects of a fire after it starts. Fire risk reduction provisions may be embodied in different types of regulatory documents (for example, the building code and standards, Fire Service Acts and regulations, and so on).

Green building provisions » design requirements for buildings to be more sustainable and resource efficient throughout their life cycle—from siting, design, and construction to operation, maintenance, renovation and demolition. These include measures to improve the energy efficiency and water efficiency of building services and systems as well as methods to assess and reduce the environmental footprint of building materials and construction activities.

Hazard » a natural or anthropogenic phenomenon that may cause loss of life, injury or other health impacts, property damage, social and economic disruption, or environmental degradation. *Natural hazards* relate to natural processes (such as floods, storms, droughts, earthquakes, and so on) and may be single, sequential, or combined in their origin and effects. They may differ in intensity or magnitude, scale, and frequency and are often classified by cause, such as hydrometeorological or geological. *Anthropogenic hazards* relate to hazards caused by human activity.

Informal construction » a structure built without obtaining formal planning or construction permission; and/or a semi-permanent structure that does not meet building regulations. Informal buildings are most frequently self-built, either by low-income households themselves or by landowners for rental properties.

Land use regulations » any type of ordinances, laws, or rules governing the development and use of land. This includes, for example, the permitted use of land; the density or intensity of use; subdivision requirements; the maximum height and size of proposed buildings; and the provisions for reservation or dedication of land for public purposes. Regulations not only control existing buildings and uses but also guide future development. Land use maps and development plans form an essential part of land use regulations at all territorial scales.

Life safety performance » a level of building performance where a building can sustain significant damage to both structural and nonstructural components, for example during a design earthquake, yet retains a margin of safety against either partial or total structural collapse. This assures a low risk of loss of life, life-threatening injuries, or entrapment.

Non-engineered construction » buildings that have been designed and constructed with little or no input from architects or engineers. In some cases, modern construction materials are used, and, in some cases, construction of these buildings follows traditional building practices. The latter type is also referred to as "vernacular" construction.

Performance-based design » an engineering approach to designing elements of a building based on meeting specific performance goals, such as for energy efficiency or seismic performance objectives, without prescribing a method by which to achieve these goals.

Policy » a plan or course of action, typically developed by a governing body such as a government, adopted with the aim of guiding individual and societal decisions and behaviors toward certain intended rational outcomes.

Resilience » the capacity of a system, building, community, or society to absorb shocks and stresses such as natural or anthropogenic hazards, and still be able to maintain function. For a social system, resilience is determined by the degree to which it is capable of learning from past or current disasters and organizing itself or installing preventive or protective measures to reduce the impact and duration of future shocks and stresses.

Return period » the mean (average) time between occurrences to obtain an exceedance of a certain level of hazard (for example, a certain level of flooding at a site). It is the inverse of the annual probability of exceedance.

Risk » the potential loss of life, injury, and destruction or damage to assets that could occur in a system, society, or community in a specific period and can be defined through the combination of three terms: *hazard, exposure,* and *vulnerability*.

Seismic hazard » the hazard associated with potential earthquakes in a particular geographic area. It is defined as the probability that an earthquake will occur in a given area, within a given window of time, and with ground motion intensity that exceeds a particular threshold.

Systemic risk » the risk or probability of a major disruption in an entire system, as opposed to a breakdown in just one individual component of it.

Universal accessibility » ease of independent approach, entry, evacuation, and/or use of a building and its services and facilities by all of the building's potential users—including people of all ages and abilities—with an assurance of individual health, safety, and welfare during the course of those activities.

Vernacular construction » small-scale buildings designed and built using local materials and methods passed down through tradition and community knowledge.

Vulnerability » the conditions determined by physical, social, economic, and environmental factors or processes that determine the level of damages from hazards suffered by an individual, a community, assets, or systems.

Executive **Summary**

Buildings should provide safe, comfortable, and healthy environments for people to live and work. They are an essential component of societies and economies, housing critical infrastructure necessary to keep governments and businesses in operation. At the same time, buildings are the first line of defense against natural hazards and climate impacts for the general population.

Every year, individuals, as well as the public and private sector, make substantial investments in the construction of new buildings and the upgrading of existing buildings. However, a lack of comprehensive building regulations and building control processes can lead to construction on inappropriate sites, poor quality during the design or construction phase, and/or a lack of clarity about how buildings should be assessed and maintained once they are occupied. In the 48 countries[1] of the Sub-Saharan Africa region, as in several other regions of the Global South, building collapses are a common and tragic occurrence that can often be traced back to deficiencies in the building regulatory framework.

The population in Sub-Saharan Africa is predicted to grow from 1.1 billion in 2021 to 2.1 billion by 2050 (UN DESA 2022). This will lead to a demand for hundreds of millions of new buildings. Much of this demand will be driven by rapid urbanization. Improved building regulatory frameworks can help alleviate some of the challenges faced by cities in the region through a reduction in losses from disasters, climate change mitigation and adaptation; the construction of safe and affordable housing in densely populated city centers; and the upgrading of low-quality infrastructure. A cost-benefit analysis by the United States National Institute of Building Sciences found that adopting and implementing up-to-date, risk-informed building codes reduces disaster risk while yielding a $11 national benefit for every $1 invested (Multi-Hazard Mitigation Council 2019). Governments and other actors along the building and construction value chain should act to ensure that, through adequate regulatory frameworks, buildings and other physical assets are well-conceived, well-constructed, and well-managed in order to meet society's expectations for a safe, secure built environment.

This report provides a snapshot of the status of building regulatory frameworks in the Sub-Saharan Africa region. It aims to support policy makers, city officials, building industry professionals, researchers, and planners in identifying entry points for national dialogue to improve building regulatory frameworks and implementation mechanisms. The report presents findings derived from data gathered from desktop review, interviews, and questionnaires administered to public and private sector experts and a range of stakeholders in projects the World Bank Group has implemented in the region. The study was led by the Africa Urban, Disaster Risk Management, Resilience and Land team at the World Bank and the Global Facility for Disaster Risk Reduction and Recovery (GFDRR) through the Building Regulation for Resilience[2] (BRR) team.

PURPOSE AND SCOPE OF THE EVALUATION

This report has three main objectives:

1. To establish a baseline for the current status of building regulations in Sub-Saharan Africa, present a comparative analysis of the regulations, and suggest best practices to fill the gaps in building regulatory frameworks in the region.
2. To help governments and development partners in the region identify opportunities for effective risk

[1] Angola, Benin, Botswana, Burkina Faso, Burundi, Cabo Verde, Cameroon, the Central African Republic, Chad, Comoros, the Democratic Republic of Congo, the Republic of Congo, Côte d'Ivoire, Equatorial Guinea, Eritrea, Eswatini, Ethiopia, Gabon, The Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, São Tomé and Príncipe, Senegal, the Seychelles, Sierra Leone, Somalia, South Africa, South Sudan, Sudan, Tanzania (excluding the semi-autonomous region of Zanzibar), Togo, Uganda, Zambia, and Zimbabwe.

[2] For more information, see GFDRR's Building Regulation for Resilience at https://www.gfdrr.org/en/building-regulation-for-resilience.

reduction through building regulatory reforms, such as future code improvements, enhancement of code compliance mechanisms, and increased technical capacity of building professionals.

3. To raise awareness about the benefits of comprehensive building regulatory frameworks and how their effective implementation can improve the quality and resilience of the built environment in the region.

The scope of this report is limited to regulatory frameworks in Sub-Saharan Africa countries, with a focus on buildings rather than on specialized construction types such as infrastructure for water, energy, transport, or communications. The report focuses on the technical aspects of the regulatory frameworks: market and financial solutions fall beyond its scope.

Chapter 1 of the report describes the components, concepts, and desired outcomes of building regulatory frameworks.

Chapter 2 explains the evolution of the building regulation environment in Sub-Saharan Africa and the region-specific hazards and risks that the regulatory environment must respond to.

Chapter 3 presents data on the building regulatory environment for each country in the region. It covers all aspects of the building regulatory cycle: from the legally adopted building regulations that exist, to what they cover, to the implementation of regulations through compliance and enforcement mechanisms.

Chapter 4 offers guidance on how to improve and update building regulatory frameworks.

Chapter 5 contains region-specific conclusions and recommendations for strengthening building regulatory frameworks as a result of the analyses carried out in Chapters 3 and 4.

Additionally, Appendix A summarizes key data for each country.

METHODOLOGY

The data presented in this report were obtained through a combination of desk research, surveys, and interviews where the target population was public sector building regulatory and control agencies, and private sector design and construction experts in Sub-Saharan countries. Desk research included the examination of domestic laws, regulations, and administrative requirements of all countries, as well as the review of published studies that cover building regulations and their implementation in the region. The survey was conducted by administering questionnaires to government agencies and experienced private sector experts (architects, engineers, construction professionals) in each country, asking them to characterize building regulatory frameworks and their implementation in practice.[3] In some cases, additional data were collected through follow-up consultations with experts by phone and in writing. Out of 556 questionnaires sent, 112 were returned (on average 2.4 per country, with a range of one to four responses where questionnaires were returned). No questionnaire responses were received from one country (Eritrea).

Data were validated primarily through a detailed reading of the relevant laws and regulations, supplemented by respondent questionnaire data on what is done in practice. If these documents were not available or accessible online, they were collected from the respondents. Data based on in-practice experience were validated by consulting with multiple experts, especially private sector practitioners. Data validation was more challenging in the few cases where the study team was unable to review the regulation documents.[4] Here the data were validated by ensuring that public and private sector experts were reporting consistent answers in questionnaires and follow-up interviews.[5] In rare cases where it was not possible to confirm that a legally adopted building regulatory framework was in place (for example, for Eritrea), these data were recorded as unavailable. In sections of the report where de jure and de facto data are presented (for example, section 3.2:

[3] Contributors were identified from previous World Bank in-country contacts, from internet searches, and through recommendations from other contributors.

[4] This was sometimes the case if the documents were not accessible online and were not shared by the public or private sector experts.

[5] Building control regulations are frequently subject to updates and amendments, and we encourage readers to send feedback to buildingregulationsafrica@worldbank.org if they identify any incorrect information, or if there have been updates to regulations, or if they wish to request access to the underlying data set.

Compliance and Enforcement Mechanisms), de facto data were collected from experienced private sector practitioners, based on their practical involvement in implementation.

The next section presents key findings and recommendations for the region. As progress is made in developing and strengthening building regulatory frameworks, further studies will be required that address individual topics or countries in greater detail. This report, by contrast, presents a comprehensive and holistic overview of the current status, highlighting regional-level common themes.

KEY FINDINGS

• Influences

Sub-Saharan Africa has a legacy of colonial-era regulations. The building regulatory frameworks currently in the region are heavily influenced by the legacy of the colonial era. In many countries, the frameworks are based on outdated regulations inherited from pre-independence; often these have not been adapted to the country context in terms of planning, zoning practices, design for local climates and hazards, or common construction typologies. Because strong ties still exist to European building and construction practices, many countries have sought to update their regulations by adopting current European codes (for example, Eurocodes).[6] Challenges remain in adapting these codes and standards so they are appropriate for each country's specific context, including the country's local hazard environment, zoning practices, design and construction practices, and available expertise and resources.

• Comprehensiveness

Building regulatory frameworks need improvement. Although most countries in the region have some elements of a building regulatory framework, significant gaps in the regulations exist (see map ES.1). For example, although 45 countries have some form of legally adopted building regulations related to planning and building control, the regulations of only 25 countries contain any building design provisions, and of these, 8 have very limited regulations that, for example, may not include provisions for structural design or basic sanitation.

There is a lack of risk-informed, up-to-date planning and design regulations. Although the eastern coast of Sub-Saharan Africa is subject to strong winds from frequent cyclones, only one country in the region (South Africa) considers strong wind events in its design code. Similarly, several countries in the region have moderate to high levels of seismic hazard (for example, from the East Africa rift zone), yet only four countries—Ghana, Rwanda, South Africa, and Uganda—have updated their seismic design provisions in the last two decades. In addition, regulations often have inadequate coverage of design for universal accessibility and green building requirements, including energy efficiency. For example, only seven countries (Côte d'Ivoire, Eswatini, Ghana, Niger, Rwanda, Senegal, and Uganda) have any provisions in key areas related to universal accessibility,[7] and only four (Côte d'Ivoire, Ghana, Rwanda, and Uganda) have provisions in most key areas related to green buildings.[8] Refer to figure 1.1 for the key areas considered for universal accessibility and green building provisions.

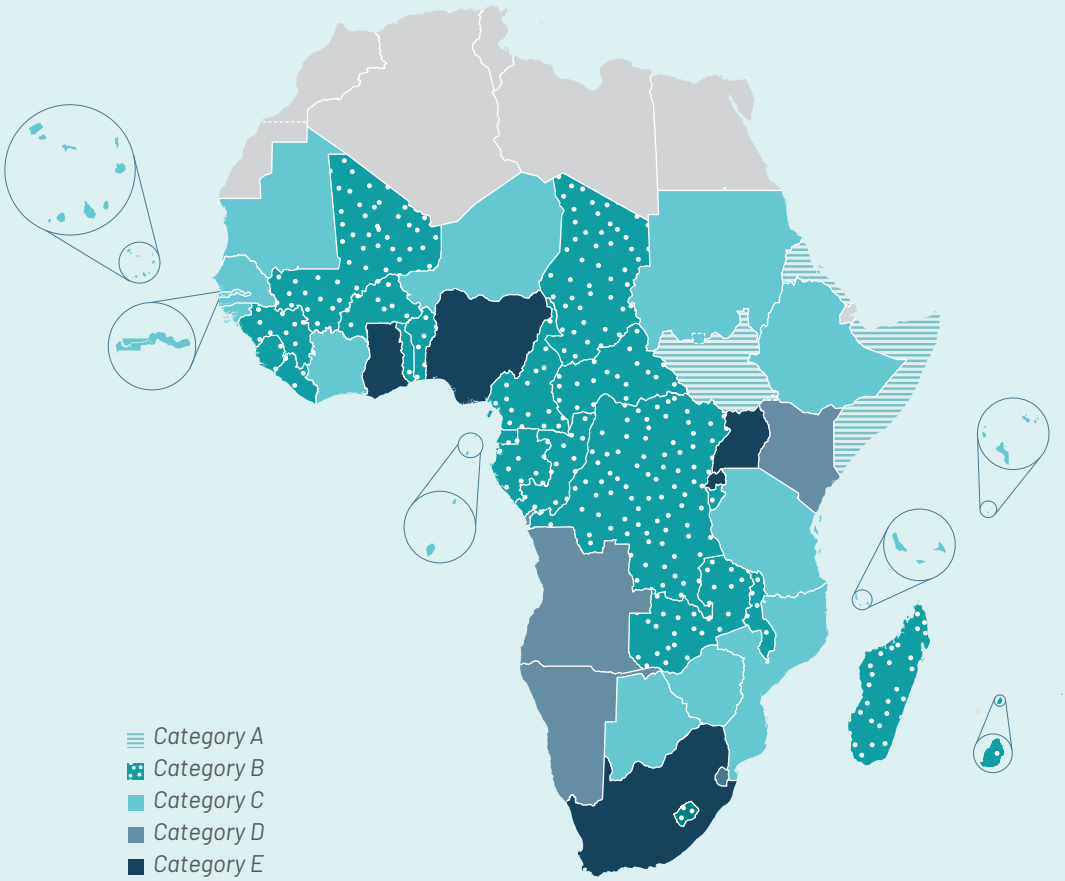
Building design regulations often lack simplified provisions for common, small-scale types of construction. In much of Africa, most of the building stock consists of small-scale residential buildings built using non-engineered or vernacular construction methods by local community builders. These buildings are typically designed and constructed without input from engineers or architects, and are sometimes considered to be outside the scope of building regulations. Specific, simplified design provisions and complementary guidelines are necessary to improve the safety, resilience, and green building aspects of such buildings.

• Effectiveness

Building regulations need to be easily accessible and widely disseminated. The administration of building regulations varies from country to country. Most countries in the region have a centralized building regulation authority at the national level, but in some cases

[6] Further information on Eurocodes can be found at https://eurocodes.jrc.ec.europa.eu.
[7] Access routes and means, accessibility and usability of internal facilities, and fixtures and signals.
[8] Natural ventilation and insulation, green building construction materials, and energy and water-efficient design methods.

Map ES.1 // Coverage of Building Regulatory Frameworks in Sub-Saharan Africa



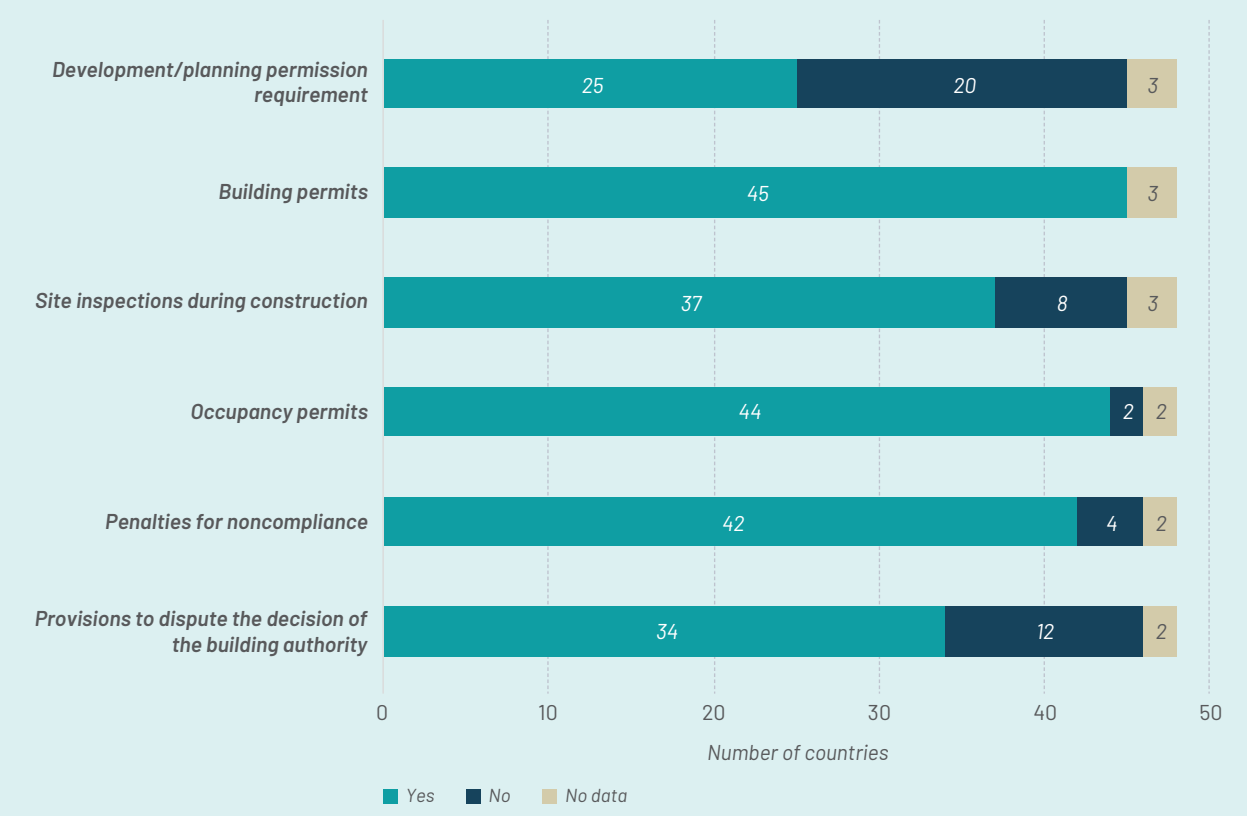
Category A: No legally adopted building regulatory framework was identified.
Category B: Legally adopted planning and building control regulations, no building design provisions within the regulations.
Category C: Legally adopted building regulatory framework for planning, design, and building control, but lacking comprehensive design provisions, last updated before 2000.
Category D: Legally adopted building regulatory framework for planning, design, and building control, more comprehensive design provisions, last updated before 2000.
Category E: All components of a legally adopted building regulatory framework in place with more comprehensive design provisions, updated since 2000.
Source: Original map developed for this publication, based on World Bank data (2022)
Note: The countries with more comprehensive design provisions had to satisfy two criteria:
1. At least 15 different types of design provisions are defined in their regulations (out of a total of 33 categories). Refer to figure 1.1 for how the categories of design provisions were classified.
2. Among those 15 design requirements, the following elements must be included:
   a. Use and occupancy classifications
   b. Structural design provisions for normal loading
   c. Provisions related to wind actions
   d. Fire resistance performance requirements
   e. Means of access and egress
   f. Access routes and means for people with disabilities
   g. Plumbing and sanitary systems
   h. Natural insulation and ventilation

regulations are set by district- or city-level authorities, or power is shared between national and local governments, with different types of regulations administered at different levels. In the 25 countries where some design standards are in place, fewer than one-third of them have a unified document or a coordinated set of documents for their design provisions. In 20 of these countries, design standards are available online and are usually free. In 30 countries, regulations for planning and building control are available online. Desktop review and interviews with in-country practitioners and government officials made it clear that there is a need to improve the clarity, organization, and accessibility of building regulations.

Types of building control processes and requirements vary in the region. A robust construction-permitting regime requires adequate regulatory processes and resources to support implementation and enforcement (see figure ES.1). This includes providing adequate capacity and capability in building control agencies, as well as training and capacity building for private sector professionals and the construction sector. In some countries, a development permit is required before applying for a building permit because of the need to determine whether the site location conforms to land use plans and zoning requirements. Only 25 countries require a development permit before a building permit application can be made; in 6 of these countries, hazard and risk-zoning information in the development permit is mandatory.

All countries in the region that have some form of legally adopted building regulatory framework require a building permit for new construction. Once this is obtained and construction starts, site inspection requirements allow building control authorities to assess whether the construction is proceeding according to the permit and other requirements. However, survey respondents from only 17 countries reported that such inspections are usually conducted in practice. In addition, any new construction usually requires an occupancy permit once construction is completed; this confirms compliance with code requirements, proper installation of

Figure ES.1 // Types of Compliance Mechanisms for Building Regulations in Sub-Saharan Africa



Source: World Bank Group data (2022)
Note: Data are presented for the countries where it was verified that a legally adopted building regulatory framework is in place.

utilities, and in some cases conditions for insurance, financing, and builder liability. In the region, 41 countries require the issuance of occupancy permits. In almost all of them, the occupancy permit is issued after an inspection. However, survey respondents from only 17 countries reported that these inspections usually occur in practice.

In summary, many compliance mechanisms are in place as part of regulatory frameworks, but the area of risk-informed development planning needs strengthening, and additional resources are needed to support compliance and enforcement mechanisms in general.

Building control staff should have appropriate qualifications and competencies. Building control in the region is largely in the hands of local building authorities, who are the main actors in reviewing and granting permits, as well as enforcing the quality of construction. Involvement of private sector actors in the review and enforcement process is very limited. Local building authorities are often stretched thin and face growing backlogs in planning and construction approval, inspection, and permitting processes. And while nearly all the countries require that the professional responsible for enforcing compliance has at minimum a degree in architecture, engineering, or other relevant field, fewer countries have any other requirements that are more rigorous than this, such as that building control staff be licensed and registered members of professional architecture or engineering bodies with a certain number of years of experience, or that they pass certification exams. In general, countries require more stringent staff qualifications for plan check and development controls than for inspections during construction or for the issuance of occupancy permits.

Dispute resolution mechanisms need to be independent of the building control authority. Independent, professional, and effective dispute resolution mechanisms are a key element of an effective building regulatory system. While 35 countries in the region have some form of dispute resolution mechanism, only in 15 countries are disputes related to building control resolved by an independent tribunal or board. Cost-effective, independent dispute resolution bodies with appropriate expertise have the potential to increase compliance, trust, and accountability.

RECOMMENDATIONS

Recommendation 1 // Develop more comprehensive and up-to-date building design codes that are appropriately tailored for the country context.

There is a pressing need in many countries in the region for more up-to-date, comprehensive building design regulations—to reduce the risk to populations from country-specific hazards; mitigate and adapt to the impacts of climate change; and provide safer, more accessible, energy-efficient, and comfortable buildings. Where design and construction skills and capacity vary, regulations should include specific, simplified design provisions to improve the safety, resilience, universal accessibility, and green building aspects of common, small-scale construction types. At the same time, more rigorous design provisions are needed for complex and higher-risk building types such as tall buildings, emergency response facilities, hospitals, schools, and critical infrastructure.

Building design regulations must be tailored to the country context. This includes the consideration of local construction methods and materials, the availability of resources, the capabilities of building sector professionals, and the country-specific hazard and risk context. If other international or regional codes are adopted, they must be reviewed and adapted carefully to suit the country context.

Building design regulations must be kept up to date to reflect changing needs, meet the requirements of all users, and account for new types of construction or changes in technology and market conditions. This creates opportunities to integrate locally adapted green building design and construction practices, provide climate mitigation and resilience, and improve accessibility in order to create a more inclusive built environment that meets the needs of people of all ages and abilities.

Recommendation 2 // Strengthen building regulatory measures to reduce the incidence of construction on risky or inappropriate sites.

As a result of rapid urbanization and population growth, many buildings in the region are constructed on inappropriate sites—for example, sites that are prone to flooding or have soil conditions that are inadequate to support safe construction. To prevent this, countries should invest in the development of hazard maps, ensure that development plans (land use or zoning regulations) are informed by these maps, and ensure that

building control authorities condition or restrict any development according to the level of exposure and risk in different areas.

Furthermore, gaps in the scope of legislation and regulations need to be filled so as to define clear roles and coordination mechanisms among the agencies in charge of building regulations, agencies in charge of land use and spatial planning, and other bodies that regulate and control the building and construction sector.

Recommendation 3 // Ensure that building regulatory frameworks address the prevalence of non-engineered construction in the region.

Regulations and guidelines for common types of small-scale buildings (including vernacular construction), guidance materials such as construction booklets and manuals, and awareness-raising campaigns can help provide safe and affordable buildings for low-income people. Countries should identify types of vernacular construction that are more resilient to disaster risks and promote their use. Development plans could designate certain selected areas in cities for self-build or community-build construction and support these developments with infrastructure and services. This could incentivize new settlements in lower-hazard areas (as identified by hazard maps).

Since many buildings have been developed outside formal regulatory control, regulations and guidance need to address how to upgrade and regularize existing buildings to improve essential services—water, power, sanitation, and so forth—and address safety and resilience gaps. These regulations will need to be more flexible and incremental than those applicable to new buildings.

Recommendation 4 // Improve the accessibility and efficiency of building regulations and building control processes.

Regulations and building control processes for applicants should be widely disseminated, easily accessible online, and available for free. Many countries in the region have made efforts to make their building regulations more easily accessible. Building control processes and requirements should be simple to follow and omit unnecessary steps that add time, cost, and complexity for applicants and building control officials. Digitization of processes and data management systems can allow building control authorities to use their resources more efficiently, improve ease of use for applicants, reduce costs, and increase transparency and traceability.

Recommendation 5 // Adopt risk-based approaches to building control.

Many countries in the region face challenges in delivering building control services because of financial, operational, and human resources constraints. These pressures can be alleviated in a systematic way by ensuring that building control agencies focus on those buildings with the highest risks. The level of permitting requirements and the inspections required during construction can be linked to the risk category of the building. These risk categories could be assigned, for example, based on building usage type, level of occupancy, plan area, number of stories, and/or level of construction complexity.

Recommendation 6 // Invest in capacity development for building regulation implementation, in both the public and private sectors.

The successful implementation of building regulatory frameworks requires continuous investment in capacity building—in the form of clear and accessible regulations; well-qualified and equipped building control staff; continuous guidance and training in the public and private sectors; public communication campaigns to produce a societal demand for safety, resilience, energy efficiency, and accessibility in the built environment; robust professional licensing mechanisms; improved capacity for assuring the quality of construction materials; and improved capacity for site soil testing (including test facilities and additional qualified professionals). Proactive support from governments is critical to create an enabling environment, particularly when new regulations, guidance, or building control systems are introduced.

Further institution building is needed in the region to increase the capability and capacity of building control authorities. This will require expanding the number of professionally qualified staff and improving their training. In addition, independent entities tasked with resolving disputes that arise in the building regulatory process should be created or supported.

Countries could consider increasing capacity by involving the private sector to perform plan checks

and inspection activities. For this to be successful, the regulatory environment must provide strict vetting and qualification requirements for third-party inspectors, and robust oversight and quality control by public authorities (World Bank 2018).

The educational sector and professional organizations also have important roles to play. Further development of vocational and university curricula, and more stringent licensing requirements for design and construction professionals, will be needed as the regulatory environment evolves.

Recommendation 7 // Increase knowledge sharing and cross-regional collaboration.
Some countries in the region are further along than others in their design and implementation of regulatory frameworks. Increased knowledge sharing across the region would therefore be beneficial. This should involve governments, academic institutions, building professional societies, and the construction sector. Regional synergies could also support ambitious coordinated solutions at scale—for example, a shared process to update regulations, regional standards, and guidance, complemented by final tailoring to specific country needs and implementation capacity. A strategic focus at the regional level could also drive approaches to energy efficiency and sustainability using building regulatory frameworks as a tool.

More detailed recommendations are provided in Chapter 5, including good practice examples and priority recommendations for groups of countries in the region, depending on the maturity of their building regulatory frameworks.

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1. Introduction

The safety and quality of the built environment are essential for the well-being of Africa's population. Africa's urban population, expected to increase from 588 million in 2020 to 1.5 billion by 2050 (OECD 2020; Statista n.d.), is growing at an average rate of 4.1 percent per year, with one-half of the population expected to be living in cities by 2030 (World Bank 2018).

With two-thirds of urban buildings in the region expected to be built in the next 30 years, proactive policy choices are needed to drive a resilient, climate-smart, and inclusive urban transition. This transition must engage with the following performance goals:

- **Safety and resilience.** People expect that buildings will be safe and well built, and that they will provide a certain level of protection for occupants during extreme weather and natural hazard events.[9] The structural collapse of buildings—both under normal loading and due to flooding, earthquakes, and other hazards—is a chronic problem in the region (refer to box 3.2).
- **Green buildings.** Buildings should be designed, constructed, and used in ways that promote environmental sustainability in energy, materials, water use, and waste management. In 2018, Africa's building sector accounted for 61 percent of the continent's total final energy consumption and 32 percent of its total CO_2 emissions (GlobalABC, IEA, and UNEP 2019).[10] Sustainable or green building policies and practices offer cost-effective opportunities to curb the growth of energy and water demand, and would drive a substantial reduction in CO_2 emissions. This will be essential to achieving the targets set in the Paris Agreement.

[9] Most building regulations will aim to protect the life-safety of occupants for events such as rare earthquakes or floods but will allow damage. The resulting damage may prevent the building remaining operational or even from being economical to repair after the event. In some cases, regulations have more stringent performance requirements for critical buildings to have a higher level of resilience under rare hazard events.

[10] *Final energy consumption* covers all energy supplied to the final consumer for all energy uses. It is usually disaggregated into the final end-use sectors: industry, transport, households, services, and agriculture. See https://www.eea.europa.eu/data-and-maps/indicators/final-energy-consumption-outlook-from-iea for more details. *CO_2 emissions* here exclude emissions from the manufacture of building materials.

» **Social inclusion and wellness.** Access to safe, decent, and affordable housing for low-income groups remains a challenge in many African countries, and 54 percent of Sub-Saharan Africa's urban population currently live in informally constructed settlements. The built environment should be inclusive, affordable, and accessible to all, and should promote the occupants' health, physical independence, and well-being, as well as the preservation of social and cultural values.

Effective building regulatory frameworks help to ensure that these goals are achieved. Thus, regulatory frameworks that drive sustainable and safe practices are an essential step toward creating functional, livable cities, improving the safety and health of people and the environment in surrounding areas, and reducing the effects of poverty. To unlock the potential of the built environment in Sub-Saharan Africa, clear and ambitious policy actions on regulatory frameworks must address technical challenges, socioeconomic imbalances, and existing market failures, and encourage economies of scale.

1.1 THE IMPORTANCE OF BUILDING REGULATORY FRAMEWORKS

Building regulatory frameworks are cost-effective mechanisms for reducing disaster risk. A cost-benefit analysis undertaken in a US context found that every $1 invested in a comprehensive building code framework yielded $11 in reduced losses, and every $1 invested in risk-informed rehabilitation of existing buildings yielded $4 in reduced losses (Multi-Hazard Mitigation Council 2019). Government-enforced building regulations are an effective tool for raising the performance of the building sector, for the following reasons:[11]

» A well-regulated building sector delivers benefits both to the population and to the environment. Good building regulatory frameworks can help protect the public from poor building practices and environmental risks by reducing errors during design and construction and mandating safe practices.

» Regulations need to reflect societal expectations about health and safety, risk reduction, and system-wide coordination in the construction sector. Thus, there is a role for government to set standards for the performance of the construction sector.

» Building regulations protect consumers because construction industry service providers often have much more detailed information than individual consumers about how to ensure quality and what cost-benefit tradeoffs to make.

An efficient and transparent building regulatory process incentivizes investment in the construction sector. It reduces the cost of compliance by providing a clear set of design and construction requirements, quality standards, and performance expectations, and by promoting investor confidence in the value and safety of physical assets. Clear regulations that are well adapted to the country context reduce confusion among both builders and building control authorities as well as unnecessary delays, disputes, and uncertainty in the investment environment. The construction sector, of which the building industry is a part, is one of the key drivers of growth in Sub-Saharan Africa's economy. Although data on the sector in the region are limited, according to Kirchberger (2020), the value added in the construction sector in the region grew from 3.4 percent in 1995 to 6.0 percent in 2015, which was just above the global average of 5.8 percent at the time.

Building regulations can be leveraged to support the integration of other social and environmental objectives into the design and construction of the built environment. These include universal accessibility, affordability and green building provisions as part of a climate change adaptation and mitigation agenda (refer to box 1.1). Investing in comprehensive and locally appropriate regulations is a cost-effective way to mitigate risks and an opportunity to consolidate long-term frameworks that support safer, more sustainable, and more inclusive urbanization processes.

[11] The building sector is made up of the institutions and markets involved in the building, construction, and maintenance of commercial and residential properties. It covers (i) direct service providers, such as designers, architects, engineers, builders, and product suppliers; (ii) financial institutions, such as banks and insurance companies; (iii) research agencies and universities; (iv) quality assurance and compliance organizations, such as local authorities, building consent authorities, and conformity assessment bodies; (v) residential and commercial building owners and developers; and (vi) building users.

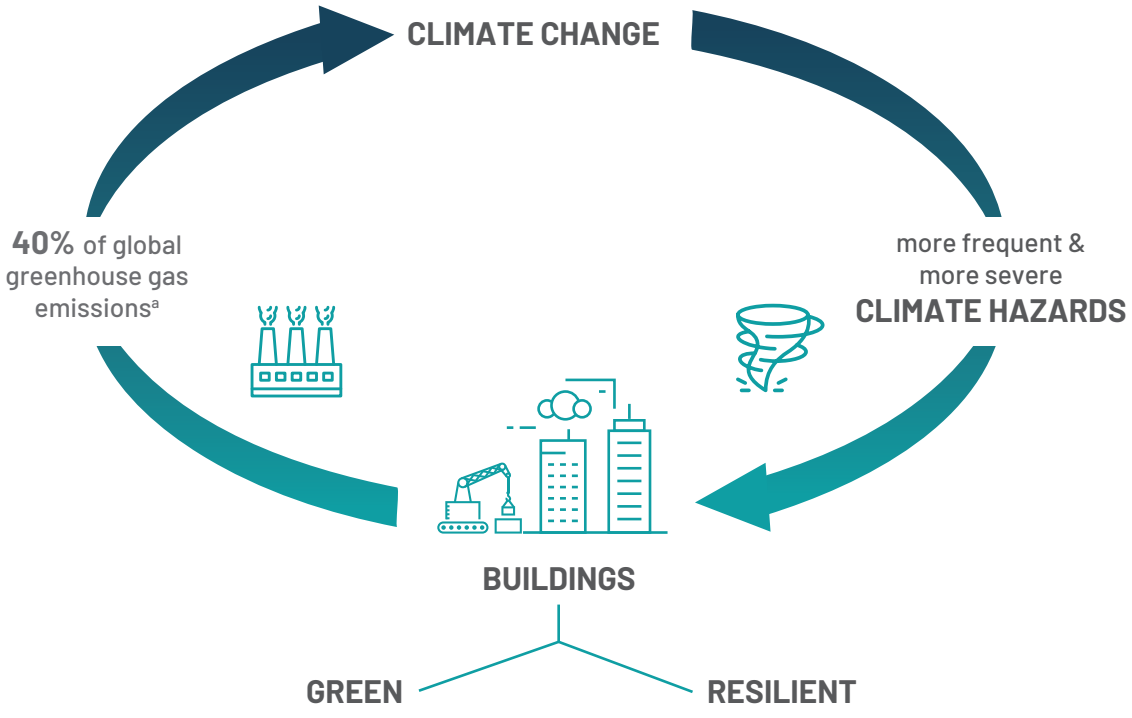
Box 1.1 // Building Regulatory Frameworks: Leveraging Sustainable Development and the Sustainable Development Goals

Effective regulations, in addition to providing clear standards for resilient, sustainable buildings by promoting green and inclusive growth, provide benefits beyond safety and efficiency. People benefit from sustainable building standards because they encourage safer processes during construction and healthier lifestyles for occupants.

Sustainable buildings help to protect scarce water resources, lower local pollution levels, and promote clean, affordable energy. Reshaping building regulations has the potential to create jobs and opportunities to reskill and upskill workers. Moreover, one of the concepts underlying sustainable construction is that such buildings encourage responsible production and consumption, in line with a circular economy. Thus, sustainable buildings have the potential to lower inequality and are a key part of the actions against climate change. In a broader sense, they also contribute to Goal 15 of the Sustainable Development Goals (SDGs), life on land (World Green Building Council 2021).

Climate change effects are making it harder and more expensive to construct comfortable, fit-for-purpose buildings. More frequent extreme weather events, rising sea levels, and the degradation of land and coastal systems can lead to increased wind loading, precipitation, and flooding in areas where such events were previously rare or nonexistent. Moreover, climate change consequences are altering global thermal patterns, making it harder to adequately heat and cool buildings and to manage overall energy demands. Such climate change impacts result in higher levels of mortality, injury, illness, relocation, and displacement for occupants, as well as economic downturns that can have grave financial consequences (UNEP 2021).

Figure B1.1.1 // Building Sector Emissions and Resilience Cycle



Source: Figure adapted from an original World Bank figure
Note: a. Emissions including embodied carbon.

1.2 INTRODUCING THE CONCEPT OF BUILDING REGULATORY FRAMEWORKS

Laws and regulations related to the design, construction, and maintenance of buildings have been developed by societies since as early as the Code of Hammurabi (1750 BCE) in Babylon,[12] **which dictated punishments for those who constructed unsafe buildings.** China in the twelfth century had standards for public buildings to ensure architectural conformity as well as adequate performance to resist strong winds and earthquakes (Glahn 1981). Other examples are found in the basic design provisions set in reaction to events such as fires, earthquakes, or epidemics in the nineteenth century in the United States and Europe. Over time, design requirements and building control practices have become more comprehensive, detailed, and well-coordinated. Some countries have adopted sophisticated approaches in their design codes, such as performance-based design;[13] others have developed streamlined, digital platforms for building control process, such as e-permitting systems.

1.2.1 The components of a building regulatory framework

A building regulatory framework establishes the provisions for building design and functional requirements, as well as construction practices. More broadly, it refers to the complex set of laws, regulatory documents, compliance mechanisms, education and training requirements, product testing and certification, professional qualifications, and licensing schemes that support a safe, sustainable, and resilient built environment. Building regulatory frameworks also rely on an ecosystem of supporting institutions and system-level elements such as mortgage finance systems, frameworks for secure land tenure, property and tax regimes, professional societies, and training institutions for the labor force.

A building regulatory framework is composed of two core components: (i) legislation and regulations that work together as the building regulatory system, including legislative acts that reference the planning regulations, building design codes and standards, and building control regulations; and (ii) implementation mechanisms and capacity.

There are three main types of building regulations:

- Planning regulations and related land use maps and development plans: these prescribe where development is permitted, and for which types of buildings and building usages. These plans and maps should be risk-informed to prevent development on higher risk sites or require site mitigations as a condition of development.
- Building design regulations: these set minimum levels of building performance covering such areas as structural stability, fire safety, heating, lighting, ventilation, plumbing, sanitary facilities, indoor air quality, green building requirements including energy efficiency, and universal accessibility requirements.
- Building control regulations: these establish requirements and processes for checks during the construction process, such as building permits and site inspections. They also define the roles and responsibilities of building control authorities and construction sector professionals.

Building regulations should work together and be coordinated; they can be set in one main document, a coordinated group of documents, or separate legal documents.[14] Figure 1.1 presents the core components of building regulatory frameworks analyzed in this study; figure 1.2 illustrates typical building control processes for each stage of design, construction, and operation.

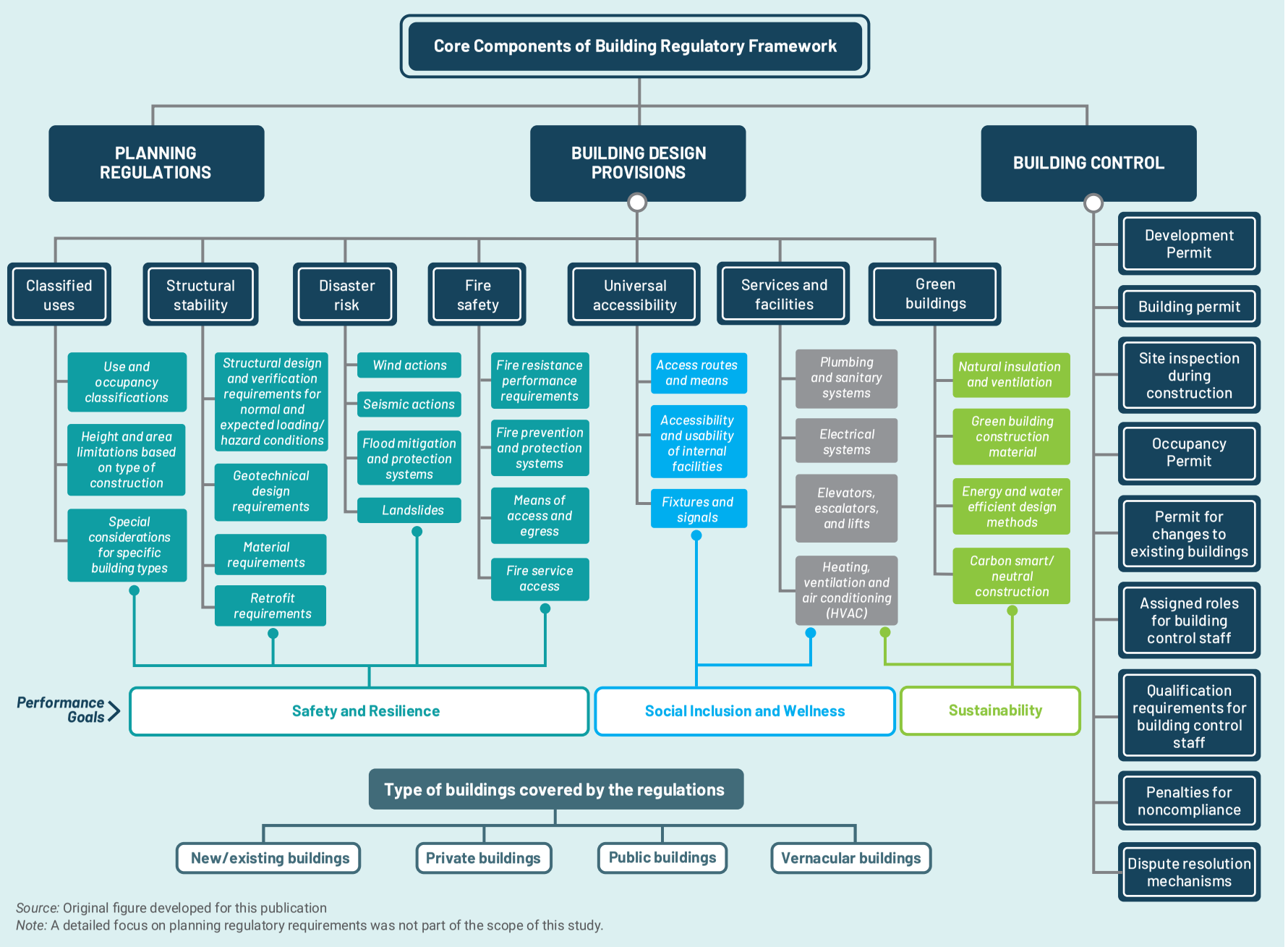
Regulations also cover other activities and functions for construction sector professionals and the wider construction sector. These rules can include minimum

[12] *The Code of Hammurabi*, translated by L. W. King, is available from the Avalon Project at the Yale Law School, Lillian Goldman Law Library, at https://avalon.law.yale.edu/ancient/hamframe.asp.

[13] Rather than taking a prescriptive approach to design provisions, performance-based design reverses the design process by defining the end goal as the starting point. Optimal solutions to multiple, and sometimes competing, objectives are identified and tested through analysis and simulation to verify that performance goals and objectives have been achieved.

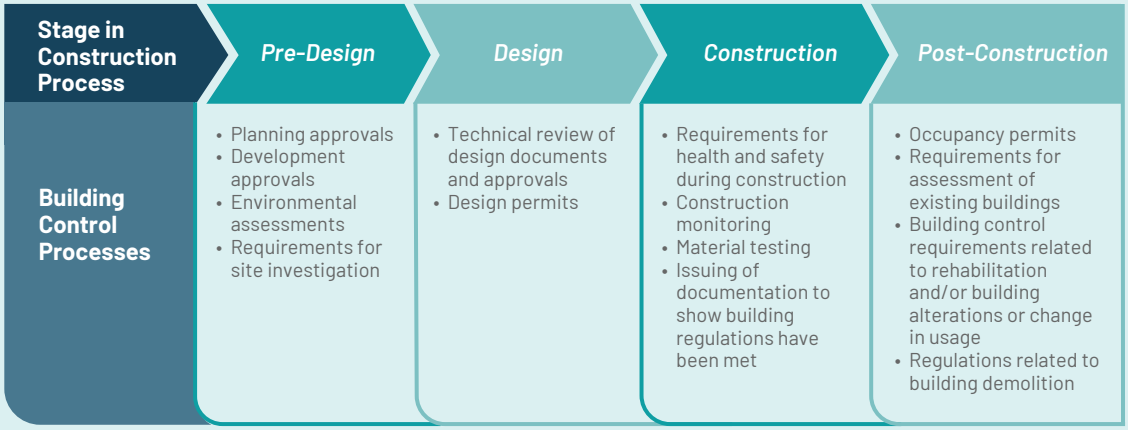
[14] In some countries, such as Australia, there is a division between building codes and regulations, where building codes relate to technical building provisions or construction requirements (see ABCB, Standards and Protocols. n.d. available at https://www.abcb.gov.au/resources/filter/standards-and-protocols) and regulations concentrating on administrative processes such as building and planning permits (for example, the New South Wales Environmental Planning and Assessment Act, 1979).

Figure 1.1 // The Core Components of Building Regulatory Frameworks Analyzed in Sub-Saharan Africa*



Source: Original figure developed for this publication
Note: A detailed focus on planning regulatory requirements was not part of the scope of this study.

Figure 1.2 // Selected Building Control Processes during Design, Construction, and Operation



Source: Original figure developed for this publication

qualifications and/or permitted roles and responsibilities for licensed building practitioners, surveyors, electrical workers, plumbers, gasfitters and drainlayers, registered architects, chartered professional engineers, and building owners.

1.2.2 Administration of building regulatory frameworks

Building regulatory frameworks can be administered at a national level, regional/state level, or municipal/local level. Different countries adopt different approaches and institutional arrangements depending on their type of government, definition of roles and responsibilities, and country-specific context. Refer to figure 1.3 for an example. A building regulatory framework set at the national level has certain major advantages such as uniformity in delivery, certainty in the market (for designers, suppliers, contractors), and consumer confidence. In countries where a diverse range of hazards and climatic conditions need to be considered, building regulatory frameworks set at the regional or city level are advantageous because they allow the authorities to implement only those provisions that are locally pertinent.

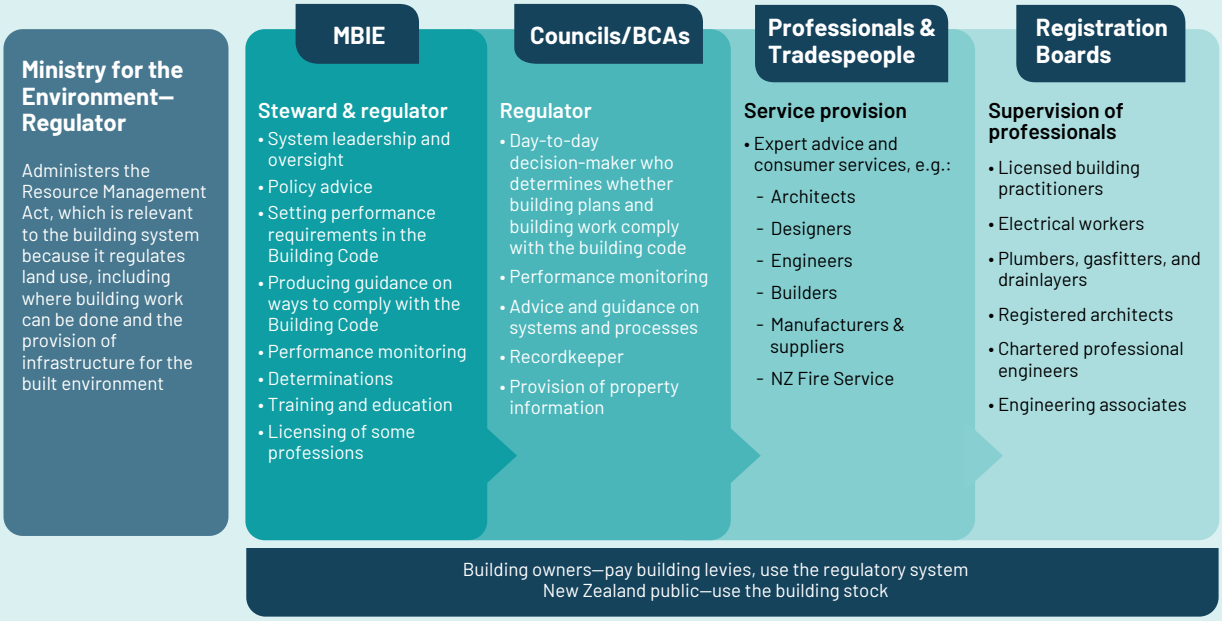
Typically, local governments play the fundamental role of building control authorities: issuing building permits, undertaking inspections during construction, and issuing building occupancy certificates. In some cases, building control authorities engage the private sector to perform certain activities—site inspections during construction, for example. To ensure quality control, strict qualification requirements and robust performance-monitoring mechanisms must be in place for private sector actors.

The effective administration of building control regulations requires clear roles and responsibilities, along with adequate capacity and resources. Robust recordkeeping and information management systems are essential. In addition to organizing, sharing, and archiving documents and other data, these systems can increase the overall efficiency of processes by improving communication among parties involved in building control processes. They also increase transparency and traceability. In recent years, many countries have digitized their information management systems—for example, using web-based, one-stop shops or other types of e-permitting systems (World Bank 2019).

1.2.3 Building regulatory frameworks as powerful synergistic tools for resilience

In a well-designed building regulatory framework, the synergies between planning controls and building regulations can be very powerful in reducing disaster risk and the impacts of climate change. While a deep analysis of planning and risk-sensitive land use planning practices lies beyond the scope of this report, it is important to highlight the difference between planning regulations and building regulations and how they work together. The purpose of planning regulations is to shape overall patterns of development and construction; building regulations set provisions

Figure 1.3 // Regulatory Agencies and Their Roles in New Zealand



Source: Based on MBIE n.d.
Note: Most territorial authorities are BCAs. BCA = building consent authority; MBIE = Ministry of Business, Innovation & Employment.

for the design and construction of the building itself and its immediate site. The synergies between these aspects are particularly important in the areas of risk reduction—where land use planning, development controls, and urban redevelopment provide opportunities for reducing disaster risk, and climate change mitigation—where synergies between land use planning and green building regulations function as a resource multiplier in addressing some of the region's most pressing challenges.

For example, zoning is the legal backbone of land use planning and the most powerful tool to regulate the form of a city and the use of its buildings (commercial versus residential, for instance), and to set requirements for building plan areas and/or the overall size, general dimensions, and density of development. In addition, zoning and other development planning requirements can define set-back measures to protect coastal areas and direct development away from inundation-prone floodplains in order to reduce risks from sea-level rise and flooding. Incentive programs such as tax advantages or other benefits (for example, density bonuses) are another type of instrument that can be used to encourage specific urban planning outcomes. For example, incentives and financial instruments for development control can discourage development in higher-risk areas or promote desirable practices that come with added costs (for example, support green building practices or design to a level above the code minimum in order to increase resilience).

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2. The Sub-Saharan Africa Context

If they are to be effective, regulatory frameworks must be tailored to each set of country-specific and local contexts in terms of building typologies and construction methods, shocks and stresses from natural and climate hazards, social and health vulnerabilities, and the country's institutional structure and available resources.

In addition, these frameworks must account for the differences in application in the urban and rural contexts, as well as differences between engineered buildings and small traditional buildings with limited engineering knowledge applied, either using traditional materials (vernacular buildings) or more modern materials (non-engineered buildings). This chapter explores how building regulations have evolved in Sub-Saharan Africa and looks at the risk profile of the region—including hazards, the characteristics of risk exposure in the region, and common construction typologies and vulnerabilities.

2.1 THE EVOLUTION OF BUILDING REGULATIONS

In many countries in Sub-Saharan Africa, the regulatory environment has been influenced and informed by regulations that were first used during periods of colonization. It is therefore important to understand the precolonial state of governance, settlement patterns, and construction environment, as well as how the current regulatory challenges relate to this transition. During the precolonial period, governance in the region often took the form of centralized authorities of large territories or medium-sized city-states with links to neighboring allies, trading partners, and widely dispersed populations governed collectively at the village and town levels (Sesay 2014). Settlement patterns were predominantly rural and agrarian, but they also included both nomadic peoples and established urban societies. Towns and cities often formed as centers of trade or of spiritual or political authority; sometimes they formed in response to external threats (Hull 1976).

African urbanism in the precolonial period was distinguished by spatial layouts linked to social organization, as well as a strong connection to agrarian living. For example, buildings were seldom more than one story and were often spatially arranged to reflect kinship ties and/or in concentric rings around the seat of a central authority. Although urban centers could have inhabitants numbering in the thousands, they did not lose their ties to agrarian life: space was left between buildings, with room for trees and plots for growing food and keeping animals. Precolonial construction

typologies reflected locally available materials: some societies constructed in stone, fired brick, or with larger timbers in forested areas, but most buildings were made with some combination of earth, poles, and other forms of vegetative materials. These construction types were typically limited in height and needed frequent maintenance or renewal (Hull 1976).

Colonial influence in the period from the late 1800s through the 1930s brought European-style town planning, regulatory structures, and new types of construction to the region. During this period, most colonial towns had segregated zoning patterns based on administrative functions, commercial activities, and separate residential districts for colonial settlers and native populations. In some African cities and towns, this settlement pattern is still visible today. Colonial powers also imported regulatory frameworks from Europe for city planning, building regulations, and public health laws.

Colonial powers also introduced new concepts of land ownership. Before the colonial authorities arrived, the African land tenure system was based on communal stewardship, and land ownership was an alien concept. In the customary system, the value of land was determined by the use to which its temporary custodians put it. The sale of land was forbidden. In practice, a system of formal land ownership was often restricted to the colonial cities and towns, with communal land tenure practices continuing outside those urban centers (Njoh 2007).

In addition to vernacular forms of construction designed using local materials and with methods passed down through tradition and community knowledge, buildings began to be designed using imported materials and construction methods and in conformity with imported regulations (refer to figure 2.1).[15] Imported colonial construction typologies ranged from defensive forts and utilitarian administrative buildings to buildings in neoclassical styles constructed in stone and brick masonry (Micots 2015) and other common forms of European architecture. Often, construction included the use of imported building materials. For example, the "Cape Dutch" style in South Africa imitated gabled buildings in the Netherlands but was constructed with a combination of brick and timber (Shellekens 1997). These typologies were not necessarily appropriate for the local climate or local hazard environment. Over time, adaptations began to blend European styles with vernacular forms—using local materials such as sun-dried mud brick in place of stone if stone was not available—and began to be better adapted to local climatic conditions (such as the addition of a veranda to a classical German-style

Figure 2.1 // Examples of Colonial-Era Buildings

a. French Colonial Building, Saint Louis, Senegal, Africa

b. Colonial-Era Building in Simon's Town, South Africa

Source: Panel a: ©Pierre Laborde | shutterstock.com; Panel b: ©Jeremy Richards | istock.com

[15] This transition went hand in hand with imported legal systems from colonial powers that either overrode or coexisted with customary law. Customary laws can be defined as "locally recognized principles, and more specific norms or rules, which are orally held and transmitted, and applied by community institutions to internally govern or guide all aspects of life" (Research Planning Workshop 2005). Typically, construction is not formally regulated under this system and is carried out by community builders.

building to provide shade from the heat) (Weigend 1985).

From the 1930s to the present, the legacy of colonial-era regulations has persisted in many Sub-Saharan African countries. For example, Sierra Leone's Freetown Improvement Act (1960) is based on colonial-era regulations: it links planning requirements for building setbacks to colonial-era wards and restricts construction methods masonry or reinforced concrete walls.[16] Kenya's Building Code, based on old British Standards, dates to 1968 and lacks country-specific hazard-informed design criteria such as seismic hazards or wind maps.[17] Regulations based on the European model of strict zoning and single-family housing units often do not consider flexibility in usage, such as allowing small businesses to be operated in residential districts or multigenerational housing arrangements in design requirements. Since independence, countries in the region have sometimes adopted codes and standards from other countries uncritically, without fully adapting them for their specific country's climate and natural hazard context, societal needs, or available resources.

In addition, most building regulations in the region lack simplified rules or guidelines for smaller-scale, common construction types or vernacular construction. Instead, in the last few decades, incentivized by free-market reforms, there has been a rapid transition to imported building materials and construction methods yet without adequate technology and knowledge transfer to support this radical transition. Overall, the legacy of alien regulations, combined with the rapid transition to imported materials and construction methods, has increased the vulnerability of building stock and is a major driver of risk in the region.

2.2 THE RISK PROFILE OF THE REGION

Understanding risks at national and local scales is essential to ensuring that building regulations are tailored appropriately for each country. Building regulations must respond to the country's risk environment to have appropriate building design provisions for wind, flooding, seismic hazard, extreme temperature events, and other hazards. This section therefore describes the risk profile for the Sub-Saharan Africa region and its implications for the building regulatory environment.

Africa's demographic shift, development trends, and climate change are altering the continent's disaster risk profile. Rapid urbanization is changing the disaster risk profiles of Sub-Saharan African countries from predominantly rural, with drought and food security challenges, to predominantly urban, with heightened impacts from climate hazards, other natural hazards, fire, and structural collapse. The climate hazards include extreme weather events such as floods, heatwaves, and storms, as well as slow-onset events such as droughts and sea-level rise—all of which are expected to worsen in the next decades because of climate change. Other natural hazards include geophysical hazards such as earthquakes, landslides, and coastal erosion. Urban land footprints in Africa are predicted to increase by 500 percent versus the expected urban population growth of 120 percent between 2000 and 2030 (Seto, Güneralp, and Hutyra 2012). The unprecedented impacts of climate change in the region are becoming an urgent threat to the physical, social, and economic life of the people. In addition, urbanization is driving an increase in greenhouse gas (GHG) emissions, in addition to increased vulnerability to physical climate risks. Without climate-informed policies and investments, by 2030, 43 million people could fall further into climate-induced poverty (Hallegatte, Rentschler, and Rozenberg 2019). Because much of the urban infrastructure in Africa is yet to be built, this presents an opportunity to support governments and cities in their efforts to integrate green, resilient, and inclusive measures into planning and building development for sustainable growth.

In Sub-Saharan Africa, disaster risk is rapidly evolving. This has three major drivers: (i) natural hazards, in particular hydrometeorological hazards, which are expected to become more frequent and intense under the effects of climate change such as floods, strong winds from cyclones or hurricanes, heatwaves, and droughts, as well as slow-onset events such as sea-level rise; (ii) rapid population growth, coupled with inadequately planned urban expansion, along with the region's overall increase in exposure to natural and

[16] Sierra Leone's Freetown Improvement Act of 1960 can be found at https://www.slurc.org/uploads/1/6/9/1/16915440/freetown-improvement-act-1960.pdf.

[17] Kenya's Building Code can be found at https://eregulations.invest.go.ke/media/BUILDING%20CODE.pdf.

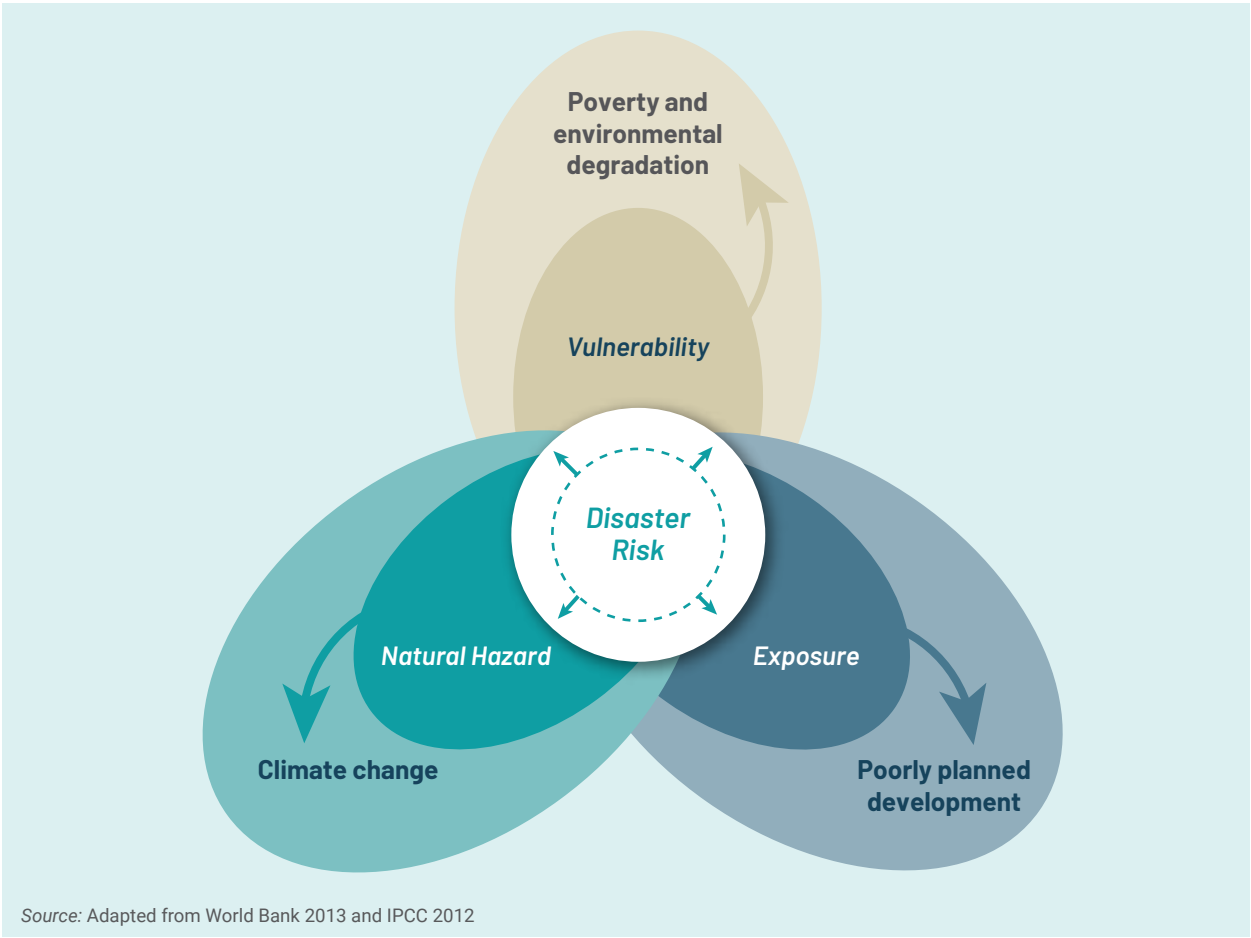
climate hazards, with heightened climate impacts from extreme weather events; and (iii) poorly developed building regulations and a lack of enforcement mechanisms, poverty, environmental degradation, and other socioeconomic factors that can further compound vulnerability conditions (see figure 2.2).

2.2.1 Hazard context of Sub-Saharan Africa

Sub-Saharan Africa is exposed to a range of natural hazards and related losses. Of these, rapid-onset events typically cause the most damage to buildings and infrastructure; see figure 2.3, panels a. and b. These include geophysical hazards such as earthquakes, volcanic eruptions, and landslides, and events influenced by climate change such as cyclones and floods.[18] From 1970 to 2021, floods were the most common type of natural disaster in Sub-Saharan Africa, followed by droughts and tropical storms/high wind events. Earthquakes, landslides, wildfires, heatwaves, volcanic activity, and tsunamis were less frequent. Drought caused by far the highest loss of life, as these events often lead to famines and water scarcity. Earthquakes, although rare in the region, resulted in a similar number of deaths to floods. The disasters that caused the most economic damage in the region were storms/high wind events, followed by floods, droughts, and earthquakes, respectively (Guha-Sapir, Below, and Hoyois n.d.).

Sub-Saharan Africa is considered by many experts to be the region in the world most vulnerable to the negative impacts of climate change. Specifically, it is projected that this region will suffer from an increasing number and severity of heatwaves, droughts, storms, and flooding from heavy rainfall events. These shocks

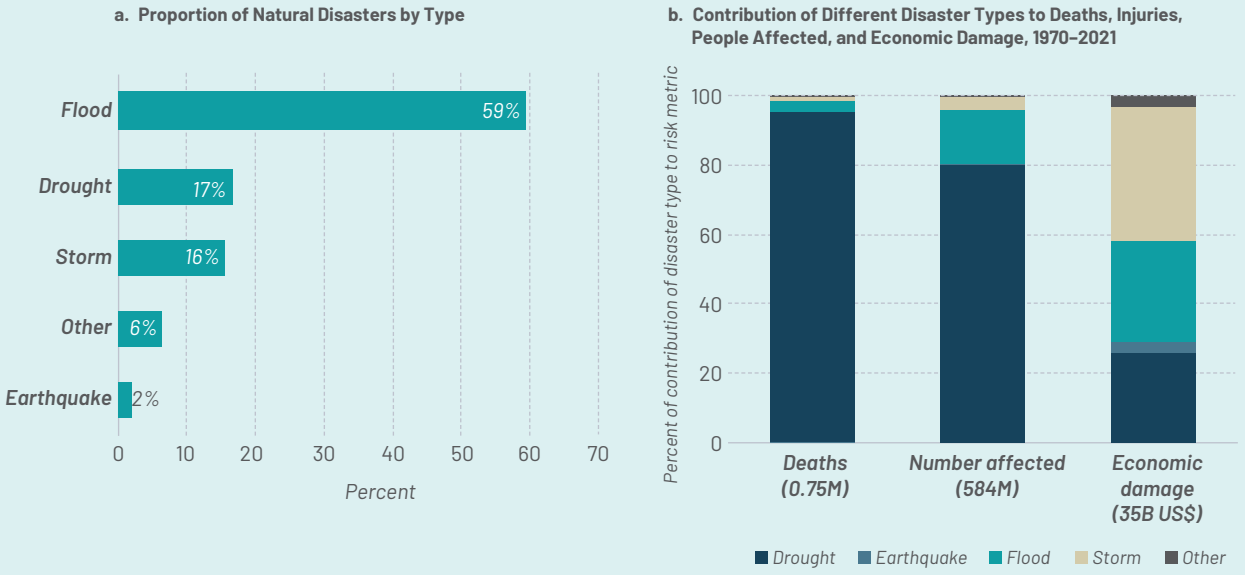
Figure 2.2 // The Dynamics Driving Disaster Risk



Source: Adapted from World Bank 2013 and IPCC 2012

[18] Floods here include those of a pluvial, fluvial, or coastal nature. Note that events such as droughts and extreme temperatures, through the phenomenon of shrinkage-swelling of clays, can also damage buildings.

Figure 2.3 // Sub-Saharan Africa Disasters



Source: Guha-Sapir, Below, and Hoyois. n.d.; data from Emergency Events Database (EM-DAT), available at https://www.emdat.be
Notes:
1. The category *Other* includes landslides, wildfires, extreme temperature events, tsunamis, and volcanic activity.
2. The category *Storm* includes cyclones.
3. Economic damage is reported in billion US$, adjusted to 2020 values.

and stresses affect health, food security, and the integrity and safety of physical infrastructure (Sono, Wei, and Jin 2021).

Geophysical hazards: earthquakes, volcanic eruptions, and landslides

In Sub-Saharan Africa, earthquakes and volcanism are hazards primarily localized in the eastern part of the continent, along the East African Rift System. See map 2.1, panel a. This large system, which extends over 3,000 kilometers from the southern end of the Red Sea to Mozambique, is composed of several active rift zones that pose a threat to the population and physical infrastructure. Other parts of the region exhibit varying levels of seismic and magmatic activity, highlighting the heterogeneity of hazards throughout Africa.

Earthquake- and rainfall-triggered landslides have been reported throughout the continent. See map 2.1, panel b. These events may occur because of the localized failure of steep slopes, or the lateral spreading and loss of stability of flat sediment plains due to soil liquefaction during an earthquake. Protecting against such events requires understanding the soil and terrain characteristics where buildings are sited, and implementing appropriate, risk-informed, land use regulations.

Strong winds: hurricanes, cyclones, and storms

Hurricanes and cyclones that affect Sub-Saharan Africa occur mainly in the North and South Indian Ocean basins. Countries such as Comoros, Madagascar, Mauritius, and Mozambique are among the most affected.[19] West Africa is also a hotspot for the formation of so-called Cabo Verde hurricanes, which form near that country before heading west. While these are the regions that suffer the most from strong windstorms, the continent also suffers from convective storms that bring in heavy rains and strong winds; see map 2.2, panel a.

Flooding

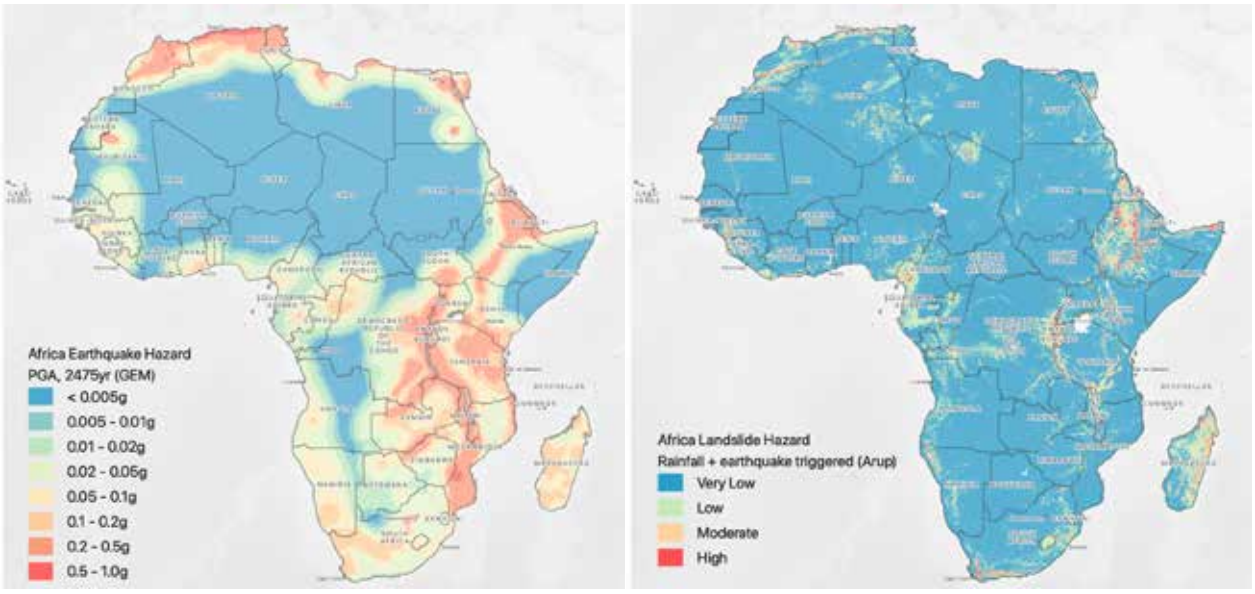
Extreme rainfall and flooding are among the most prevalent natural hazards affecting the Sub-Saharan Africa

[19] The only difference between a hurricane and a cyclone is that they occur in different geographical locations. A tropical system with maximum sustained surface winds of 74 mph or greater is called a *hurricane* in the Atlantic Ocean and a *cyclone* in the Indian Ocean.

Map 2.1 // Earthquake and Landslide Hazards in Africa

a. 2475-Year Earthquake Ground Shaking

b. Landslide Hazard

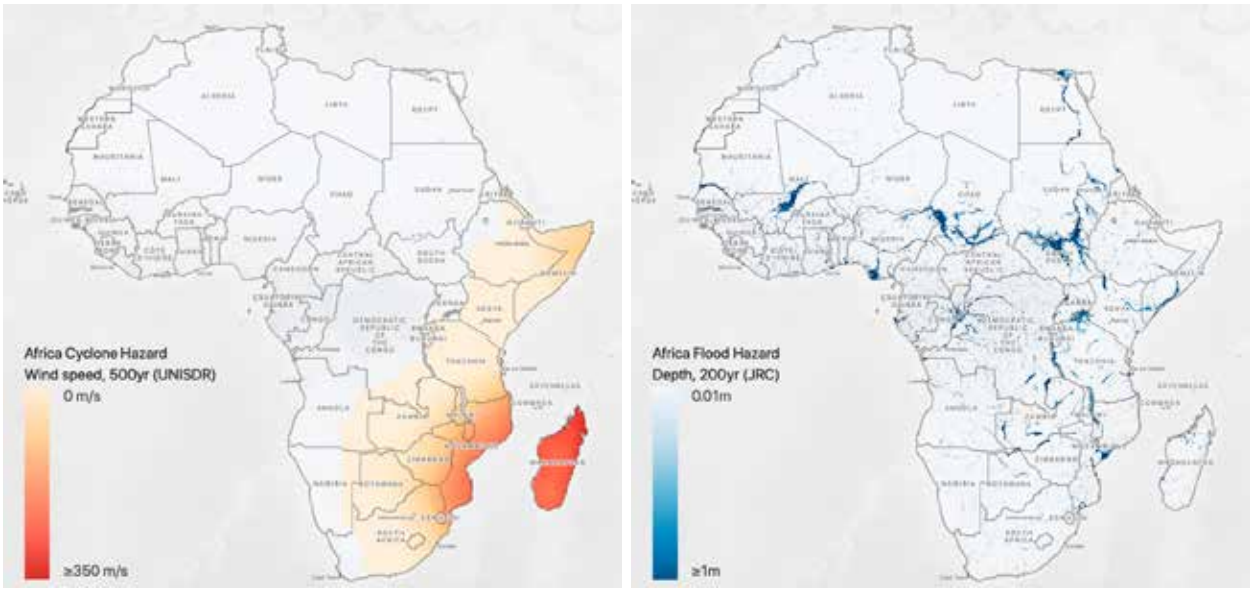


Source: Panel a: Paul, Silva, and Amo-Oduro 2022, adapted from Pagani et al. 2020; panel b: Paul, Silva, and Amo-Oduro 2022, adapted from Arup 2020
Note: Arup is an engineering consulting company. GEM = Global Earthquake Model; PGA = peak ground acceleration.

Map 2.2 // Cyclone and Flood Hazards in Africa

a. Hazard Map for 500-Year Cyclone Wind Speeds

b. Hazard Map for 200-Year Flood Depths



Source: Panel a: Paul, Silva, and Amo-Oduro 2022, adapted from UNDRR 2016; panel b: Paul, Silva, and Amo-Oduro 2022, adapted from Dottori et al. 2016
Note: JRC = European Commission's Joint Research Centre; UNISDR = United Nations Office for Disaster Risk Reduction.

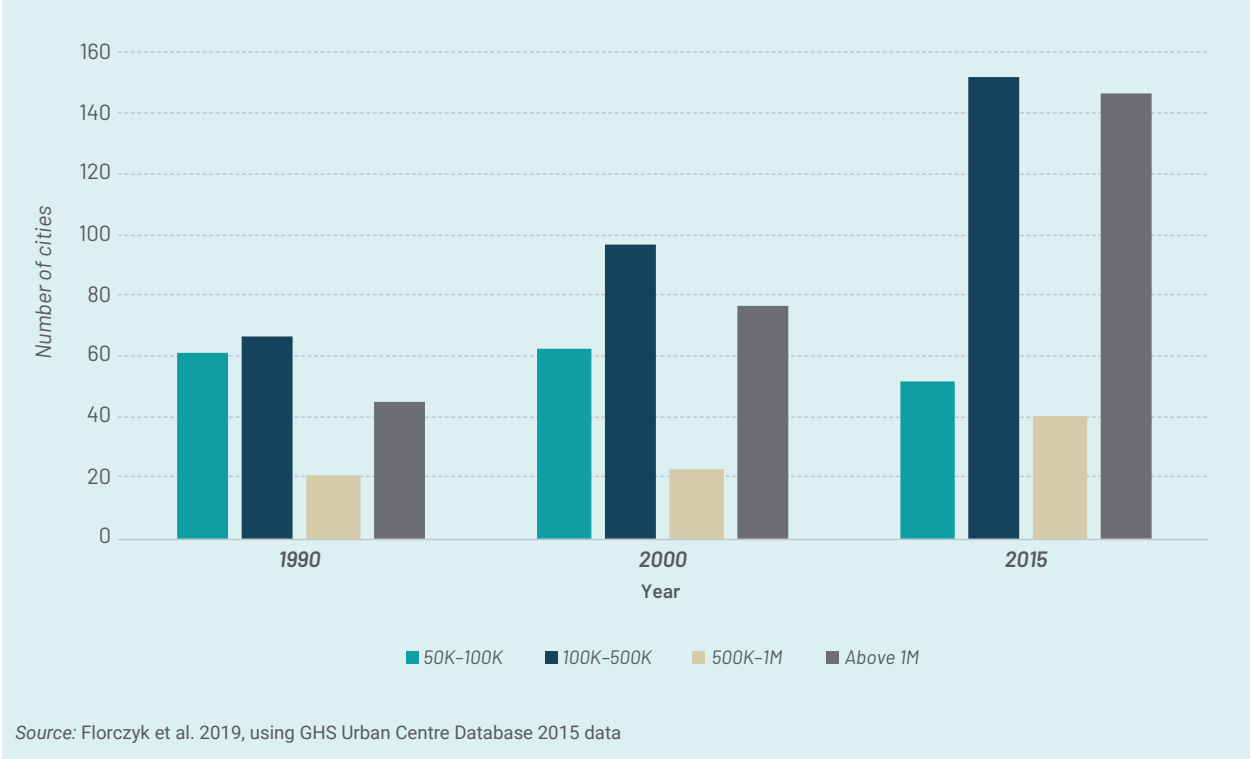
region. See map 2.2, panel b. From a climate standpoint, these events are linked to the Intertropical Convergence Zone and the El Niño–Southern Oscillation phenomena, which drive rainfall patterns on the continent.[20] Three types of flooding affect the region: fluvial, pluvial, and coastal. Fluvial flooding occurs when heavy rainfall or snowmelt causes rivers to overflow, affecting rural and urban populations living close to rivers and water bodies. Pluvial flooding occurs when surface water accumulates and cannot be absorbed by the soil; this is a threat throughout the region—especially with extreme rainfall in urban areas where impervious soil prevails and with inadequate drainage systems. Coastal flooding is caused by extreme sea levels due to waves, storm surges, and high tides in coastal areas. Around 60 percent of natural disasters in the region over the last 50 years have been floods.

2.2.2 Exposure

Sub-Saharan Africa's population is predicted to grow from 1.1 billion in 2021 to 2.2 billion by 2050 (UN DESA 2019). In addition to population growth, rapid urbanization in the region increases the level of exposure to hazards—particularly from rapid-onset events. Cities with more than 1 million inhabitants are increasing in number and growing in population size, population density, and built-up areas: see figure 2.4. This growth is reflected in the steady increase in the proportion of the urban population in the region—from 11 percent in 1950 to 41 percent in 2020 (UN DESA 2019). Over this period, the urban population growth rate remained twice that of the rural population growth rate: see figure 2.5.

Urban population and built-up area growth will continue, and this increase in exposure constitutes a major driver of future risk. Although the future is inherently uncertain, estimates based on different scenarios show that by 2100, built-up areas could increase in size between three times (under the Sustainability Shared Socioeconomic Pathway SSP1) and five times (under the Inequality SSP4 or the Fossil-fueled SSP5) (Chen

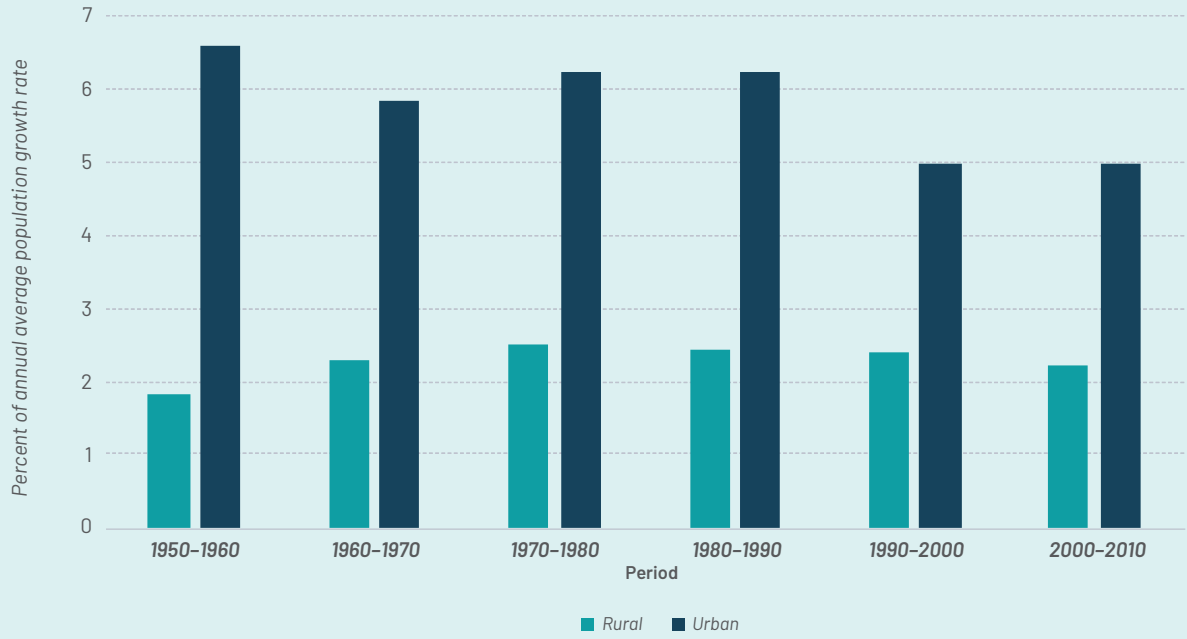
Figure 2.4 // City Sizes in Sub-Saharan Africa, 1990–2015



Source: Florczyk et al. 2019, using GHS Urban Centre Database 2015 data

[20] The Intertropical Convergence Zone is a global scale area of convergence between dry air masses. The interface of the warm air with dry stable air forms clouds and rains, which occur as major seasonal features and intense localized thunderstorms. El Niño—Southern Oscillation is a quasi-periodic climate pattern that occurs across the tropical Pacific Ocean on average every five years. It is characterized by warming or cooling of temperature known as El Niño and La Niña, respectively (World Bank Group 2016).

Figure 2.5 // Urban and Rural Population Growth Rates in Sub-Saharan Africa



Source: UN DESA 2018 data

et al. 2020).[21] On the other hand, populations will continue increasing, although population growth rates are projected to slightly decrease from the current rate of around 4.00 percent per year to around 3.75 percent per year by 2035 (UN DESA 2019).

2.2.3 Vulnerability to adverse natural events

Vulnerability is a key characteristic that influences the level of damage suffered from adverse natural events. Communities are less vulnerable to natural hazards if they have more resilient physical assets (good building design), social capital (community structures, trust, and family networks), and political support (ability to get government help and affect policies and decisions) (World Bank and United Nations 2010).

Social and health factors influence the vulnerability of the Sub-Saharan Africa region. High levels of poverty and a lack of basic services such as clean water, electricity, and affordable transport, combined with limited institutional capacity, have increased the impact of, and losses from, shocks and stresses (Van Niekerk and Nemakonde 2017). In addition, certain groups, such as people with disabilities, women, and children, are more vulnerable to shocks and stresses. Because more than 90 percent of the population in the region rely on burning biomass for domestic cooking and heating (Njenga et al. 2019), the resulting high level of indoor air pollution worsens many health problems and increases the population's disability rate and overall vulnerability. Overcrowded housing and a lack of ventilation also contribute to the spread of communicable disease, as was observed worldwide during the COVID-19 pandemic.

Vulnerability is also affected by the types of buildings commonly found in the region (refer also to box 2.1). Vulnerability, in the context of risk to physical assets such as buildings, can be understood as the relationship between the intensity of a given hazard (for example, ground shaking for earthquakes, wind speed for tropical cyclones, and so on) and the possible damage to an asset. In terms of buildings, the relationships between intensity and possible damage will vary by the type of peril and the characteristics of each asset. For example, vernacular construction types using lightweight vegetative materials typically perform well under

[21] Shared Socioeconomic Pathways (SSPs) are five scenarios of projected socioeconomic global changes: Sustainability (SSP1), Middle of the Road (SSP2), Regional Rivalry (SSP3), Inequality (SSP4), and Fossil-Fueled Development (SSP5) (Chen et al. 2020).

Box 2.1 // Building Vulnerability in Sub-Saharan Africa

Figure B2.1.1 shows typical construction typologies in Sub-Saharan Africa. The most common types of construction in the region include unreinforced masonry (using fired bricks, concrete blocks, or stone); earth block masonry or rammed earth, wattle, and daub; cast-in-place concrete frame with masonry infill; confined masonry; vernacular forms of construction using straw/vegetative materials and informal construction—often using a combination of light sheet metal, timber, and other salvaged materials (Paul, Silva, and Amo-Oduro 2022). In major urban centers, a small proportion of building stock consists of mid- to high-rise construction, often with reinforced concrete as the main material.

Figure B2.1.1 // Examples of Typical Construction Typologies in Sub-Saharan Africa

a. Unreinforced Masonry House in Malawi

Vulnerability/damage characteristics:
Seismic: High; non-ductile system.
Flood: Moderate; depends on quality of walls and erosion and damage from flood waters.
Strong winds: Moderate; lack of tying and roof detailing to resist wind.
Source: ©Viviana Novelli | SAFER PREPARE

b. Earth Block House in Malawi

Vulnerability/damage characteristics:
Seismic: High; weak, non-ductile system.
Flood: High; severe erosion and damage from flood waters.
Strong winds: High; lack of tying and integrity in roof to resist wind.
Source: ©tschuma417 | istock.com

c. Wattle and Daub House in Botswana

Vulnerability/damage characteristics:
Seismic: Low; light-weight, flexible system.
Flood: High; severe erosion and damage from flood waters.
Strong winds: High; lack of tying and integrity in roof to resist wind, large overhangs.
Source: ©andyKRAKOVSKI | istock.com

d. Cast-in-Place Concrete Frame with Masonry Infill in Uganda

Vulnerability/damage characteristics:
Seismic: Low to moderate; depends on material quality and detailing as seismically confined masonry.
Flood: Moderate: depends on quality of walls, erosion, and damage from flood waters.
Strong winds: Low to moderate: depends on tying to walls and roof detailing to resist wind.
Source: ©UgandAid

e. Straw/Vegetative House in Ethiopia

Vulnerability/damage characteristics:
Seismic: Low; light weight, flexible system.
Flood: High; severe erosion and damage from flood waters.
Strong winds: High; lack of tying and integrity in roof to resist wind, large overhangs.
Source: ©narvikk | istock.com

f. Informal Construction in Cape Town, South Africa

Vulnerability/damage characteristics:
Seismic: Moderate to high; fragile but sometimes lightweight systems, lack of tying, lack of adequate foundations.
Flood: High; lack of structural integrity makes severe damage or collapse likely.
Strong winds: High; lack of wall integrity, lack of tying and roof detailing to resist wind.
Source: ©NLink | istock.com

g. Mid- to High-Rise Construction Typologies in Urban City Centers: City Center, Lagos, Nigeria

Vulnerability/damage characteristics:
Mid- to high-rise buildings form a small proportion of overall building stock in the region. These buildings are more likely to conform to formal building regulations and/or other international standards. These types of buildings have been constructed since the 1960s in major urban centers in the region. Typical structural systems include cast-in-place concrete frames with infill walls (similar to the typology shown in panel d), cast-in-place concrete frames, and concrete shear walls. Steel construction is relatively rare in the region and is mostly used for longer span industrial structures and very occasionally in high-rise design.
Source: ©peeterv | istock.com

earthquake loads and pose a lower risk to occupants than imported masonry construction types, which can fail in a brittle and sudden manner. In addition to the structural components that influence vulnerability, nonstructural components must be considered in terms of their influence on building performance under hazards. For example, improperly designed nonstructural infill walls can negatively affect building performance during an earthquake, whereas during a flood event, the layout and accessibility of electrical services can determine the level of damage and disruption. Different kinds of buildings can be classified in typologies according to the characteristics that define their vulnerability, which helps in identifying the most vulnerable structures and targets for interventions or policy actions.

In Sub-Saharan Africa, a significant amount of construction takes place outside the formal regulatory environment. In 2020, 56 percent of existing urban development in Sub-Saharan Africa was estimated to have been constructed informally, which hampers the ability to gain a robust understanding of building vulnerability at regional levels (UN-Habitat 2020). For construction carried out within the formal regulatory environment, regulations display highly differentiated levels of coverage and completeness from country to country (see Chapter 3 for a detailed assessment). Gaps also exist in the ability to enforce the regulations that are in place. For example, this study found that only 25 countries in the region have regulations that include some design provisions for buildings, a key element to ensuring building safety. Refer to section 3.2.1 for more details.

In many of Sub-Saharan Africa's cities, the pace of construction has not matched population growth, which can lead to factors that raise building vulnerability. An increased demand for places to live and work can lead to construction on risky sites, as well as more wear and tear on existing buildings. Urban growth in the region is often characterized by low density, low-rise development (Williams, Marcello, and Klopp 2014). This puts additional pressure on the availability of land, which, combined with a lack of appropriate geotechnical investigations and risk-sensitive land use planning techniques, increases the likelihood of development in risk-prone areas. Overall, these factors lead to a higher vulnerability of buildings, greater exposure to natural hazards, and structural failures under normal loading due to the use of substandard materials, poor design, construction defects, and/or a lack of maintenance. Refer to box 3.2.

2.2.4 Understanding systemic risk

In addition to considering individual risks, it is important to recognize the potential for cascading risks that can damage systems that society depends on, such as health, food, energy and water supply, and transport. This is often referred to as systemic risk, that is, "the risk or probability of breakdowns in an entire system, as opposed to the breakdowns in individual parts or components" (Kaufman and Scott 2003). For example, in Sub-Saharan Africa's urban context, the aggregation of exposure in cities leads to more complex systems and risk concentrations: a disaster such as a flood could disrupt transport and communications networks as well as create unsafe living conditions and lead to outbreaks of waterborne disease, hampering recovery.

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3. The Status of Building Regulations in Sub-Saharan Africa

3.1 BUILDING REGULATORY FRAMEWORKS

This section examines building regulation framework components, administration, organization, and accessibility, as well as types of construction and technical aspects covered by these regulations.

3.1.1 Components of existing building regulatory frameworks

The building regulatory frameworks in many countries in the region lack essential components.

To facilitate the construction of safe and resilient buildings, comprehensive and effective building regulatory frameworks are needed. Such frameworks provide a cost-effective mechanism for optimizing risk reduction and can also support a range of other societal objectives. Those objectives include (i) accessibility and usability for people of all ages and abilities, (ii) climate change mitigation through energy-efficient buildings, (iii) climate change adaptation and risk reduction through promoting buildings that are resilient to natural hazards, and (iv) the preservation of historic buildings. An efficient and transparent building regulations process can also incentivize economic investment in the construction sector by providing the market with a clear set of design and construction requirements, quality standards, and competency expectations (World Bank Group 2019).

Forty-five countries in Sub-Saharan Africa (94 percent) have some components of a legally adopted building regulatory framework in place. These components typically include land use and planning regulations, building design provisions, and building control regulations related to the issuing of permits and inspections. Table 3.1, for example, presents the primary regulation documents for Uganda. Three of the 48 countries reviewed—Eritrea, Somalia, and South Sudan—had no legally adopted regulations.[22] For regulations to be

[22] For South Sudan and Somalia, some in-country respondents reported elements of a building regulatory framework, but we were unable to verify that these regulations had been legally adopted. For example, it was reported that building authorities in South Sudan use an internal building design regulation, but this is not publicly available and no legal basis for it was found. For Eritrea, no data could be collected.

Table 3.1 // Main Building Regulation Documents for Uganda

Regulations (date)	Purpose
Physical Planning Act (2010) (revised in 2020)	Defines the main rules for the land use and urban planning.
Building Control Act (2013)	Defines the building authorities and their competences and establishes the legal basis for the main regulations on permits and building controls.
National Building Code (2019)	Defines the standards and technical requirements for buildings, including design provisions.
Building Control Regulations (2020)	Sets out requirements for professionals participating in construction; establishes procedures related to building design and permits, controls, and inspections; and provides processes for appealing the decisions of building control authorities.

Source: Original table developed for this publication
Note: In addition, in 2020, the government of Uganda published an Implementation Guide for the Building Control Act; this guide sets out all laws and regulations as part of the framework and the roles and responsibilities for implementation, sample checklists for building control officers, and overall guidance for how to comply with the regulations.

legally adopted and for the jurisdiction to legally enforce their provisions and procedures, they need to be tied to a legislative act or to a set of laws.

Although most countries have some components of a regulatory framework, only 25 countries (52 percent) have frameworks that include legally adopted building design standards. Refer to table 3.2 and map 3.1 for details.

Many of the design standards that do exist are not comprehensive or up to date. Comprehensive, legally enforced building design and material standards are essential components of building regulatory frameworks, and are needed to ensure building safety. Of the countries with design standards, 16 (one-third) have limited design provisions: Botswana, Cabo Verde, Comoros, Côte d'Ivoire, Ethiopia, The Gambia, Guinea-Bissau, Mauritania, Mozambique, Niger, São Tomé and Príncipe, Senegal, the Seychelles, Sudan, Tanzania, and Zimbabwe.[23] These provisions are often based on out-of-date regulations inherited from the colonial era. Of the 9 countries with more comprehensive design provisions, only 5 have updated their building codes since 2000. Refer to figure 3.1.

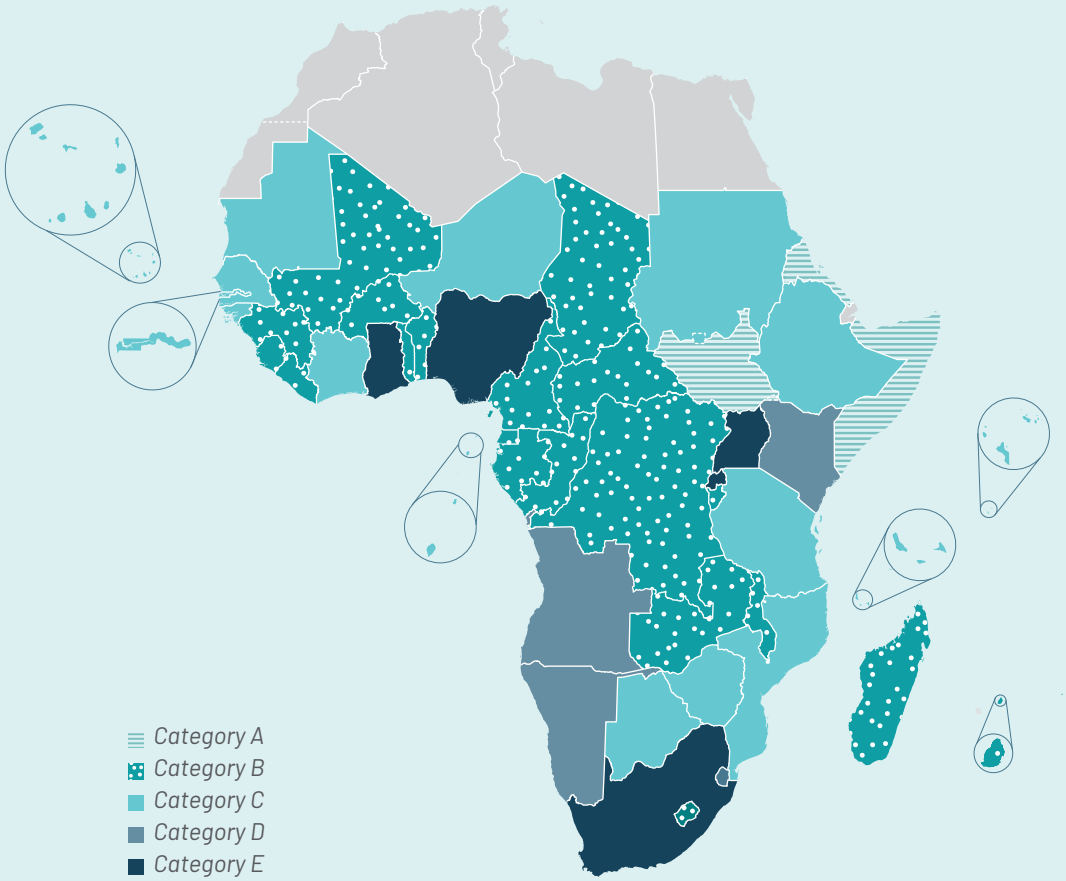
Table 3.2 // Legally Adopted Building Regulatory Frameworks in Sub-Saharan Africa

	Angola	Benin	Botswana	Burkina Faso	Burundi	Cabo Verde	Cameroon	Central African Republic	Chad	Comoros	Congo, Dem. Rep.	Congo, Rep.	Côte d'Ivoire	Equatorial Guinea	Eritrea[a.]	Eswatini	Ethiopia	Gabon	Gambia, The	Ghana	Guinea	Guinea-Bissau	Kenya	Lesotho	Liberia	Madagascar	Malawi	Mali	Mauritania	Mauritius	Mozambique	Namibia	Niger	Nigeria	Rwanda	São Tomé and Príncipe	Senegal	Seychelles	Sierra Leone	Somalia[b.]	South Africa	South Sudan[b.]	Sudan	Tanzania	Togo	Uganda	Zambia	Zimbabwe
Legally adopted building design regulations	x		x			x				x			x			x	x		x	x		x	x						x		x	x	x	x	x	x	x	x			x		x	x		x		x
Legally adopted planning, permitting, and building control regulations	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x		x	x	x	x	x	x
No legal building regulatory framework															x																									x		x						

Source: World Bank Group data (2022)
Note: a. No data available. b. No evidence of a legally adopted building regulatory framework has been found.

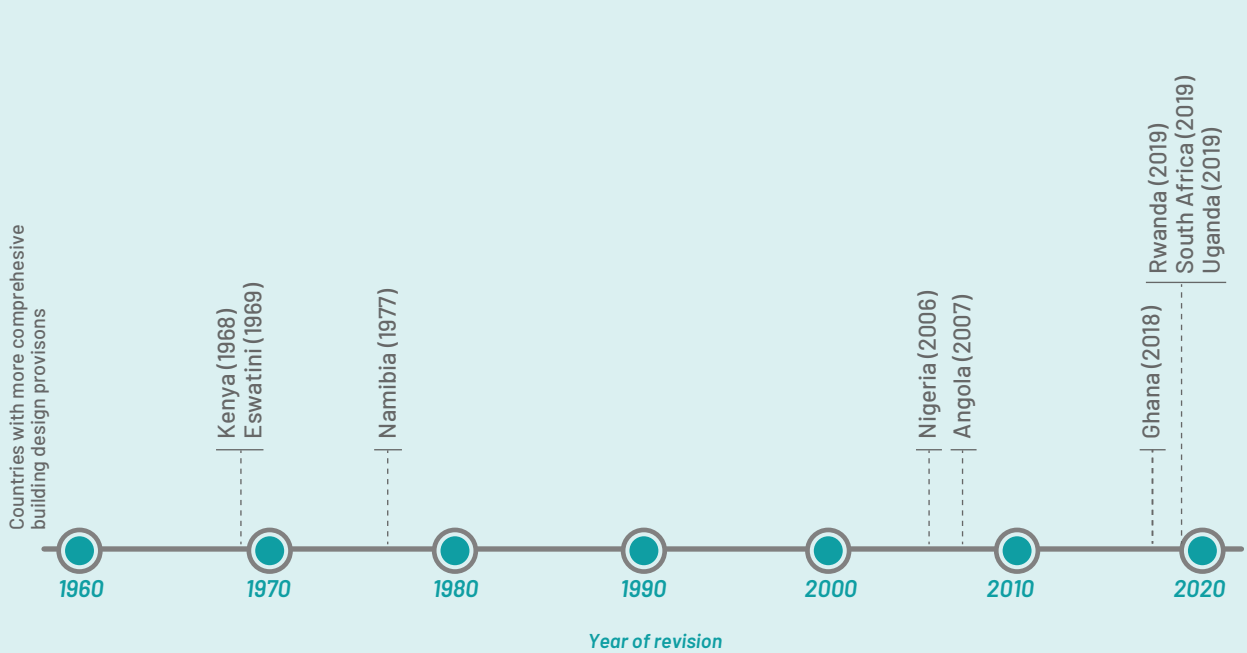
[23] The countries with more comprehensive design provisions were selected using two criteria. First, the country must have at least 15 different types of design provisions defined in their regulations. Second, among the 15, the following design requirements must be included: use and occupancy classifications; structural design provisions for normal loading; provisions related to wind actions; fire resistance performance requirements; means of access and egress; access routes and means for people with disabilities; plumbing and sanitary systems; and natural insulation and ventilation.

Map 3.1 // Coverage of Building Regulatory Frameworks in Sub-Saharan Africa



Category A: No legally adopted building regulatory framework was identified.
Category B: Legally adopted planning and building control regulations, no building design provisions within the regulations.
Category C: Legally adopted building regulatory framework for planning, design, and building control, but lacking comprehensive design provisions, last updated before 2000.
Category D: Legally adopted building regulatory framework for planning, design, and building control, more comprehensive design provisions, last updated before 2000.
Category E: All components of a legally adopted building regulatory framework in place with more comprehensive design provisions, updated since 2000.
Source: Original map developed for this publication, based on World Bank data (2022)
Note: The countries with more comprehensive design provisions had to satisfy two criteria:
1. At least 15 different types of design provisions are defined in their regulations (out of a total of 33 categories). Refer to figure 1.1 for how the categories of design provisions were classified.
2. Among those 15 design requirements, the following elements must be included:
   a. Use and occupancy classifications
   b. Structural design provisions for normal loading
   c. Provisions related to wind actions
   d. Fire resistance performance requirements
   e. Means of access and egress
   f. Access routes and means for people with disabilities
   g. Plumbing and sanitary systems
   h. Natural insulation and ventilation

Figure 3.1 // Latest Year of Revision for Building Design Regulations in Sub-Saharan Africa



Source: World Bank Group data (2022)
Note: For the definition of more comprehesive design provisions, refer to Map 3.1.

3.1.2 Administration of building regulations

Countries in the region take different approaches to administering their building regulatory frameworks.

In two-thirds of Sub-Saharan countries, building policy is centralized and the national government is responsible for setting building regulations. By contrast, in federal republics such as Nigeria, building regulations are predominantly set by the state governments.[24] In other countries, the local and national governments share the responsibilities (see table 3.3). For example, such sharing may occur where major cities or local government jurisdictions oversee the administration of the regulations based on a national-level framework, or where some regulations, such as protected areas and/or planning laws, are set at the national level but building control processes are administered at the local level.

Table 3.3 // Authority Responsible for Setting Building Regulations in Sub-Saharan Africa

	Angola	Benin	Botswana	Burkina Faso	Burundi	Cabo Verde	Cameroon	Central African Republic	Chad	Comoros	Congo, Dem. Rep.	Congo, Rep.	Côte d'Ivoire	Equatorial Guinea	Eritrea[a.]	Eswatini	Ethiopia	Gabon	Gambia, The	Ghana	Guinea	Guinea-Bissau	Kenya	Lesotho	Liberia	Madagascar	Malawi	Mali	Mauritania	Mauritius	Mozambique	Namibia	Niger	Nigeria	Rwanda	São Tomé and Príncipe	Senegal	Seychelles	Sierra Leone	Somalia[b.]	South Africa	South Sudan[b.]	Sudan	Tanzania	Togo	Uganda	Zambia	Zimbabwe
National goverment	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x		x	x	x	x	x	x
Local government							x			x	x		x			x	x			x			x		x		x							x	x		x											

Source: World Bank Group data (2022)
Note: a. No data available. b. No evidence of a legally adopted building regulatory framework has been found.

[24] Nigeria's national-level building code, adopted in 2006, is mandated for federal buildings only.

3.1.3 Organization of building design regulations

Few countries in the region organize building design regulations in a single document or in a single coordinated set of documents.

Easily accessible, coordinated, and harmonized building design documents are critical. When these documents are hard to find, are uncoordinated, or contain conflicting requirements, it can be challenging for building professionals to achieve compliance. It can also be challenging for building controllers to keep track of fragmented regulations that they need to implement, for example, if they have undergone frequent amendments. Building design regulations can be organized in different ways: as a single comprehensive document, often in the form of a building design code; as a coordinated set of documents that address different technical aspects of construction, such as a set of standards; or as separate documents for different types of buildings, jurisdictions, or technical topics.

Of the countries in the region with building design provisions, in only eight are the design provisions contained in one unified document or a coordinated set of documents. The organization of documents for these eight countries mainly falls into three categories: (i) there are some limited design provisions contained within a wide-ranging building regulation based on colonial-era regulations (as in São Tomé and Príncipe); (ii) the country has developed a comprehensive, stand-alone building code document (as in Ghana and Rwanda); or (iii) the country has a coordinated set of building code standards (as in Eswatini and South Africa). Refer to table 3.4.

The situation in Kenya illustrates the importance of having a clear, coordinated, comprehensive, and widely disseminated set of building design regulations. Kenya's most recent, legally adopted building code—Local Government Building Order (1968)—covers design for normal structural loads but does not cover hazard-related aspects of building design, such as seismic design provisions. For seismic design, a separate document—The Code of Practice for the Design & Construction of Buildings and Other Structures in Relation to Earthquakes (1973)—is officially used. In addition to being out of date, this document is hard to access. The result is that, in practice, seismic design is in many cases not considered in Kenya. The situation is further complicated by the existence of a draft Kenya Building Code (2009) that is sometimes used in practice but has yet to be legally adopted and is still lacking in seismic design provisions. At present, Kenya is in the process of developing a new Kenya Building Code (2020), which has yet to be finalized.

3.1.4 Public availability of regulations

Regulatory documents are publicly available for free in most countries in the region.

Another key aspect of the regulatory framework is publicly available regulatory documents. Regulations must be easy to access and free of charge. If the public cannot access the regulations, compliance is unlikely.

Table 3.4 // Organization of Building Design Documents in Sub-Saharan Africa

Angola	Botswana	Cabo Verde	Comoros	Côte d'Ivoire	Eswatini	Ethiopia	Gambia, The	Ghana	Guinea-Bissau	Kenya	Mauritania	Mozambique	Namibia	Niger	Nigeria	Rwanda	São Tomé and Príncipe	Senegal	Seychelles	South Africa	Sudan	Tanzania	Uganda	Zimbabwe
One document																								
								x								x	x							
Set of documents																								
	x				x		x								x					x				
Separated documents																								
x		x	x	x		x			x	x	x	x	x	x				x	x		x	x	x	x

Source: World Bank Group data (2022)

Table 3.5 // Availability of Regulations in Sub-Saharan Africa

	Angola	Benin	Botswana	Burkina Faso	Burundi	Cabo Verde	Cameroon	Central African Republic	Chad	Comoros	Congo, Dem. Rep.	Congo, Rep.	Côte d'Ivoire	Equatorial Guinea	Eritrea[a.]	Eswatini	Ethiopia	Gabon	Gambia, The	Ghana	Guinea	Guinea-Bissau	Kenya	Lesotho	Liberia	Madagascar	Malawi	Mali	Mauritania	Mauritius	Mozambique	Namibia	Niger	Nigeria	Rwanda	São Tomé and Príncipe	Senegal	Seychelles	Sierra Leone	Somalia[b.]	South Africa	South Sudan[b.]	Sudan	Tanzania	Togo	Uganda	Zambia	Zimbabwe
Availability of building design regulations	x		x			x							x			x	x			x			x						x		x	x	x	x	x		x	x			x		x	x		x		
Availability of planning and permitting regulations	x	x	x	x	x	x	x		x			x	x	x		x	x	x		x	x		x	x		x		x	x	x	x	x	x	x		x	x	x		x		x	x	x	x	x	
Availability of information on building control processes for applicants	x	x	x	x	x	x	x				x	x	x			x	x	x		x	x		x	x				x		x	x	x	x	x	x			x			x		x	x	x	x	x	x

Source: World Bank Group data (2022)
Note: a. No data available. b. No evidence of a legally adopted building regulatory framework has been found.

Similarly, it is important that the processes for obtaining a building permit and other building control requirements be publicly available.

In the 25 countries with design provisions in their regulations, 20 have documents available. South Africa is the only country that charges a fee for obtaining the design code.[25]

In 30 of the countries (62 percent), information on the planning, development controls, construction permitting, and verification process is clearly stated and publicly available—either on a website or in pamphlets or brochures available at the permitting authority offices. Refer to table 3.5. For example, in the case of Mauritius, all relevant information related to building control is easily available on the website of the City Council of Port Louis. The website also has the *Building and Land Use Permit Guide*, a detailed document that offers step-by-step guidance on the permitting process.

In countries where regulations are not publicly available, this lack of accessibility creates significant barriers for designers, builders, and developers to comply with the requirements of the regulatory framework.

3.1.5 Types of construction covered by building regulations

Building regulations primarily apply to new construction but, in some cases, they apply to certain types of alterations to existing buildings or for building demolition.

In Sub-Saharan Africa, most countries have regulations that apply to all new private or public buildings, but there are some exceptions—see table 3.6. In Botswana and Ghana, for example, certain government buildings, such as defense-related buildings, are exempt from adhering to building regulations.[26] In the Central African Republic, only new private buildings with a floor area of more than 70.0 square meters must comply with building regulations; and in the Seychelles, dwellings with a plan area of less than 92.9 square meters are exempt from building regulations.[27]

In the region, the regulations of 26 countries include basic provisions for the construction of vernacular

[25] In some countries, such as Rwanda, although the building design regulations are publicly available at no cost, access to the technical standards requires a fee.

[26] In the case of Botswana, exemptions such as temporary structures or buildings constructed by the ministry are listed under section 5 of part II of the country's Building Control Regulations, available at https://www.botswanalaws.com/consolidated-statutes/subsidiary-legislation/building-control-subsidiary-legislation.

[27] The exemption holds unless the Chief Planning Officer considers the building to be dangerous. In that case, the officer can require actions from the owner or occupant. See the Town and Country Planning (Building) Regulations, section 32, articles 1.2 and 77–81, available at https://faolex.fao.org/docs/pdf/sey117061.pdf.

buildings or designate them as exempt from adhering to regulations. See box 3.1. Vernacular buildings, which are often referred to as traditional buildings in the regulations, are typically small-scale buildings constructed using traditional materials and methods by local communities without the input of an engineer or architect. In Côte d'Ivoire, on the other hand, these buildings are allowed only in rural areas and only on the condition

Box 3.1 // Reducing Risk in Informal and Rural Areas by Implementing Construction Guidelines for Safer Housing in Malawi

The government of Malawi is developing a new building code, but it has yet to be finalized and officially adopted. At present, much of the construction industry in Malawi operates outside of a regulated building framework. The majority of small-scale buildings, including an estimated 76 percent of buildings in the capital Lilongwe, were constructed without the input of qualified building professionals. In informal and rural areas, construction is done mainly by community members with limited technical skills (see figure B3.1.1).

Following a series of damaging earthquakes in Karonga and some areas of Chitipa Districts in December 2009, the Ministry of Lands, Housing and Urban Development initiated the development of Safer House Construction Guidelines through a participatory process involving hundreds of stakeholders engaged in the construction industry, public administration, and local nongovernmental organizations (NGOs), including other government departments, the Malawi Institute of Engineers, and development partners such as the World Bank. An extensive, country-wide field survey helped define country-specific hazards, good practices, and local construction techniques to inform the guidelines, which awere updated in 2021. The revised guidelines further promote local practices, affordable solutions that use vernacular construction techniques, and strategies for multi-hazard risk reduction. They also introduce slight variations in local technologies, where appropriate, to strengthen construction and prolong the design life of buildings.

Training and Ways Forward

With World Bank support, the government of Malawi initiated a training-focused technical assistance program to promote disaster resilience through the guidelines.[a] To raise awareness and disseminate this information locally, the assistance provided: 1) training of trainers; 2) training of 60 district technical officers for 15 districts chosen according to their vulnerability to natural hazards; and 3) awareness-raising training of local leaders. Going forward, Malawi should continue efforts to make the guidelines more accessible to different stakeholders by translating them and their supporting materials into local languages. Increased training efforts and wider dissemination will increase the impact and reach of the guidelines, ensuring safer construction measures and practices.

Figure B3.1.1 // Typical Examples of Non-Engineered Construction in Malawi

Source: ©Viviana Novelli | SAFER PREPARE (2022)

Note: a. This support fell under the Malawi Floods Emergency Recovery Project (P154803) and the Disaster Risk Management Development Policy Financing, with a Deferred Drawdown Option for Catastrophe Risk (P165056).

Table 3.6 // Types of New Construction Covered by Codes, Regulations, and Standards in Sub-Saharan Africa

	Angola	Benin	Botswana	Burkina Faso	Burundi	Cabo Verde	Cameroon	Central African Republic	Chad	Comoros	Congo, Dem. Rep.	Congo, Rep.	Côte d'Ivoire	Equatorial Guinea	Eritrea[a.]	Eswatini	Ethiopia	Gabon	Gambia, The	Ghana	Guinea	Guinea-Bissau	Kenya	Lesotho	Liberia	Madagascar	Malawi	Mali	Mauritania	Mauritius	Mozambique	Namibia	Niger	Nigeria	Rwanda	São Tomé and Príncipe	Senegal	Seychelles	Sierra Leone	Somalia[b.]	South Africa	South Sudan[b.]	Sudan	Tanzania	Togo	Uganda	Zambia	Zimbabwe
Private buildings (engineered)	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x		x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x		x		x	x	x	x	x	x
Public buildings	x	x	x	x	x	x	x	x	x	x		x	x	x		x	x		x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x		x		x	x	x	x	x	x
Vernacular buildings	x				x	x		x		x			x			x	x				x	x		x					x	x	x	x	x	x	x	x		x	x		x			x	x	x		x

Source: World Bank Group data (2022)
Note: a. No data available. b. No evidence of a legally adopted building regulatory framework has been found.

that their construction complies with the safety rules and characteristics of the building materials.[28]

In addition to ensuring basic safety when making alterations to existing buildings, rehabilitation and retrofit[29] regulations can help improve the resilience of existing building stock to natural disasters and other shocks and stresses. For this reason, it is necessary to determine whether building regulations have specific provisions for the following: (i) minor alterations and repairs; (ii) rehabilitation or retrofit; (iii) building extensions; (iv) change of use; and (v) special considerations for culturally or historically important buildings (GFDRR and World Bank 2017, 23, 59) (refer to table 3.7). A critical challenge for policy makers is that the cost of disaster-resilient design is much less for new buildings (5 to 10 percent of the building's value) than the disaster-resilient retrofit of existing vulnerable buildings (where the cost can range from 10 to 50 percent of the building's value). Indeed, in some cases, it can be uneconomic to retrofit an existing building to meet the code level for new buildings. Removing, replacing, and retrofitting existing unregulated and unsafe buildings therefore requires an incremental approach that reduces risk over a longer period at a feasible cost, and that can minimize disruption to normal building operations (GFDRR and World Bank 2015, 79). Some jurisdictions require existing buildings to be assessed and upgraded periodically, whereas in others this is voluntary. A first and relatively cost-effective step to managing existing building risk is to ensure that building regulation provisions cover modifications to existing buildings.

Although most countries in the region have moderate to good coverage of regulations for modifications to existing buildings (see figure 3.2)**, this coverage does not necessarily include design provisions related to assessment and the retrofitting of existing buildings.** It is typically more focused on permitting requirements for change of use or modifications to existing buildings. For example, the Rwanda Building Code of 2019, in addressing this topic,[30] stipulates that a new certificate of occupancy shall be required when a change of occupancy involves the change of building classification by

[28] See the Côte d'Ivoire Building Code, articles 352 and 353 (*Code de la Construction et de l'Habitat - Loi n°2019-576 du 26 juin 2019*). There are some exceptions concerning the construction of traditional buildings in urban areas.

[29] Improvements to existing buildings can include (i) minor alterations and repairs, which are generally nonstructural changes to selected elements; (ii) rehabilitation, which aims to restore the building to its original level of performance (both structural and nonstructural elements); and (iii) retrofit, which aims to improve the building's performance level (both structural and nonstructural elements). In some cases, regulatory documents allow modifications to existing buildings to meet a more relaxed standard than the requirements for a new design.

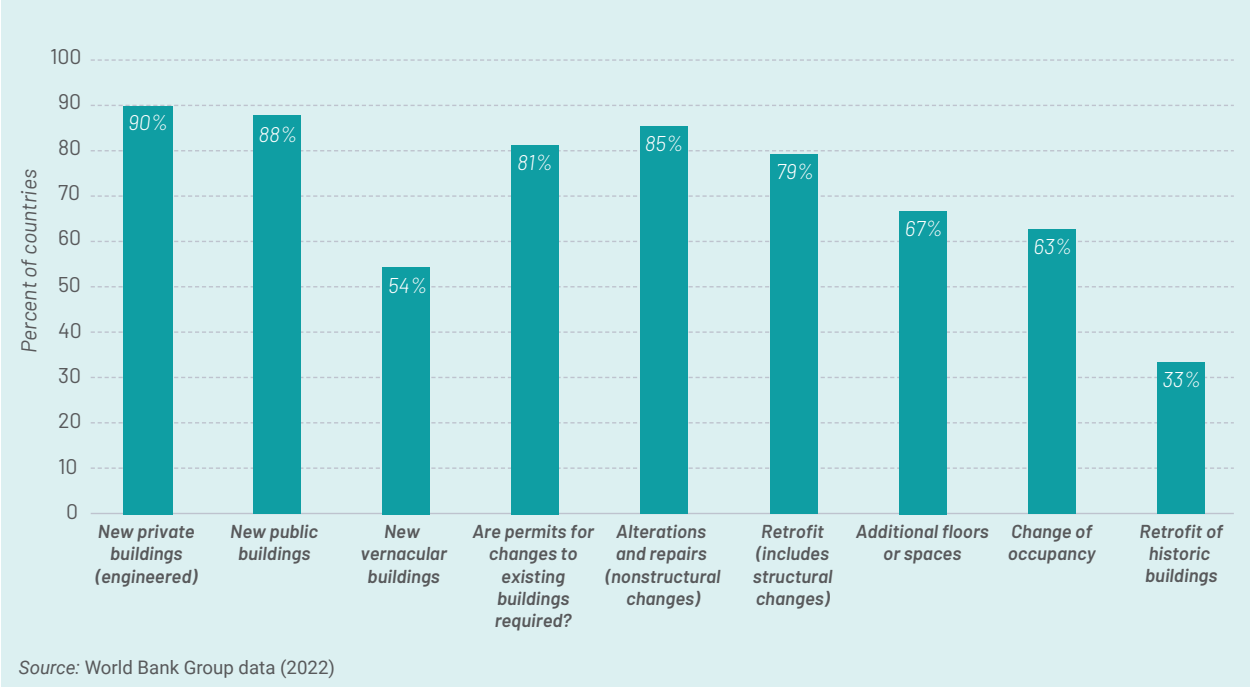
[30] Rwanda Building Code of 2019, chapter 5 (Construction Safety, Inspection, Maintenance and Disaster Risk Management), part 13 on Existing Structures, available at http://197.243.22.137/rhanew/fileadmin/user_upload/documents/General_documents/Laws_And_Regulations/rwanda_building_code_2019.pdf.

Table 3.7 // Types of Alterations to Existing Buildings Covered by Codes, Regulations, and Standards in Sub-Saharan Africa

	Angola	Benin	Botswana	Burkina Faso	Burundi	Cabo Verde	Cameroon	Central African Republic	Chad	Comoros	Congo, Dem. Rep.	Congo, Rep.	Côte d'Ivoire	Equatorial Guinea	Eritrea[a]	Eswatini	Ethiopia	Gabon	Gambia, The	Ghana	Guinea	Guinea-Bissau	Kenya	Lesotho	Liberia	Madagascar	Malawi	Mali	Mauritania	Mauritius	Mozambique	Namibia	Niger	Nigeria	Rwanda	São Tomé and Príncipe	Senegal	Seychelles	Sierra Leone	Somalia[b]	South Africa	South Sudan[b]	Sudan	Tanzania	Togo	Uganda	Zambia	Zimbabwe
Retrofit (includes structural changes)	x	x	x	x	x	x	x			x	x	x	x	x		x	x		x	x	x	x		x	x		x	x		x	x	x	x	x	x	x	x	x		x			x	x	x	x	x
Alterations and repairs (non-structural change)	x	x	x	x	x	x	x		x	x	x	x	x	x		x	x		x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x			x	x	x	x	x
Change of occupancy	x	x	x	x		x	x				x	x	x	x		x	x			x	x	x			x		x				x	x	x		x	x		x	x		x		x	x		x	x	x
Additional floors or spaces	x		x	x	x	x	x		x	x	x	x	x	x		x				x	x	x		x	x	x	x		x		x	x	x			x	x				x			x	x	x	x	x
Retrofit of historic buildings	x					x	x			x	x	x					x		x		x	x			x		x				x		x		x			x										
Are permits for changes to existing buildings required?	x	x	x	x	x	x	x	x	x		x	x	x			x	x	x	x	x	x	x		x	x	x		x	x	x	x	x		x	x	x	x	x	x		x			x	x	x	x	x

Source: World Bank Group data (2022)
Note: a. No data available. b. No evidence of a legally adopted building regulatory framework has been found.

Figure 3.2 // Types of Building Construction and Rehabilitation Requirements Covered by Regulations in Sub-Saharan Africa



Source: World Bank Group data (2022)

type of use and occupancy, as provided in part 4, section 2 of the code.

3.1.6 Technical aspects of design and construction covered in building regulations

Basic design provisions for classified uses, sanitation, structural stability under gravity loads, natural ventilation, and fire safety are generally included in the regulations of 25 countries in the region. In these countries, however, provisions for resilience to disaster risk, universal accessibility, and green buildings are limited.

A set of minimum building performance standards is needed to ensure occupant safety and the provision of building services, universal accessibility, and green building practices, as well as resilience to disasters. Left solely to the market, there could be significant variation in the perceived minimum acceptable level of building performance across different communities and building uses. Figure 3.3 gives technical areas typically covered by a comprehensive building regulation. If a robust building regulation is not in place, the quality of buildings and the performance they deliver can be questionable, and additional investment will be required to address the gap (GFDRR and World Bank 2017).

Building classification

Where countries have building design provisions in place, most include a building classification system tied to these provisions.

Defining a building classification system within the regulations—typically based on building use, occupancy, type of construction, and/or risk level—contributes to building safety and provides clarity to builders. In Sub-Saharan Africa, just under 50 percent of the countries (23) have a building use and occupancy classification in their regulatory documents, and around 42 percent (20) have special considerations for higher-risk or higher-importance building types (for example, hospitals, schools, public buildings, and buildings containing hazardous materials). Only 25 percent of them have any standards on building height and area limitations based on type of construction (refer to table 3.8).

Provisions for structural stability

The lack of comprehensive design provisions for common structural systems is a major weakness of building regulations in the region.

The coverage of structural design provisions to ensure stability is at the core of good building regulatory practice. The availability of structural design and verification requirements for normal and expected loading/hazard conditions (for example, dead loads, live loads, wind, earthquake, and so on), geotechnical design requirements, and material requirements (for example, soil strength, testing, quality) serve as minimum standards for the design, construction, maintenance, and renovation of buildings. These provisions set the acceptable level of risk and offer a shared platform of understanding for building professionals, owners, and regulators.

Table 3.8 // Technical Aspects of Design and Construction: Classified Uses in Sub-Saharan Africa

	Angola	Benin	Botswana	Burkina Faso	Burundi	Cabo Verde	Cameroon	Central African Republic	Chad	Comoros	Congo, Dem. Rep.	Congo, Rep.	Côte d'Ivoire	Equatorial Guinea	Eritrea[a.]	Eswatini	Ethiopia	Gabon	Gambia, The	Ghana	Guinea	Guinea-Bissau	Kenya	Lesotho	Liberia	Madagascar	Malawi	Mali	Mauritania	Mauritius	Mozambique	Namibia	Niger	Nigeria	Rwanda	São Tomé and Príncipe	Senegal	Seychelles	Sierra Leone	Somalia[b.]	South Africa	South Sudan[b.]	Sudan	Tanzania	Togo	Uganda	Zambia	Zimbabwe
Use and occupancy classifications	x		x			x				x			x			x			x	x		x	x						x			x	x	x	x	x	x	x			x		x	x		x		x
Height and area limitations based on type of construction										x			x			x				x									x				x	x	x	x	x	x							x		
Special considerations for specific building types	x					x				x			x			x			x	x		x	x						x		x		x	x		x	x	x			x	x		x		x

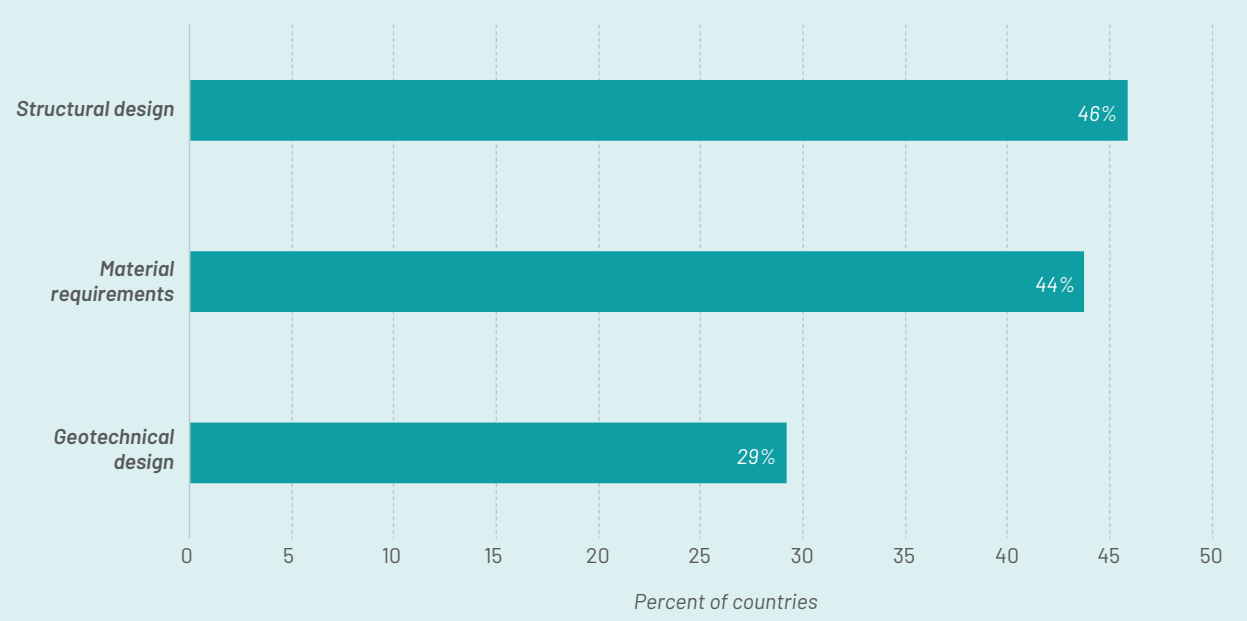
Source: World Bank Group data (2022)
Note: a. No data available. b. No evidence of a legally adopted building regulatory framework has been found.

Figure 3.3 // Core Technical Standards Covered in Building Regulations

Source: Original figure developed for this publication

Basic structural design provisions are often missing in the building regulations in the region or are very limited in scope. Fewer than one-half of the countries in the region (22) have structural design aspects covered in their building regulations, and again, fewer than one-half (21) have design provisions for material requirements (refer to figure 3.4 and table 3.9). Fewer than one-third (14) have elements of geotechnical

Figure 3.4 // Technical Aspects of Design and Construction: Provisions Related to Structural Stability in Sub-Saharan Africa



Source: World Bank Group data (2022)

Table 3.9 // Technical Aspects of Design and Construction: Structural Stability in Sub-Saharan Africa

	Angola	Benin	Botswana	Burkina Faso	Burundi	Cabo Verde	Cameroon	Central African Republic	Chad	Comoros	Congo, Dem. Rep.	Congo, Rep.	Côte d'Ivoire	Equatorial Guinea	Eritrea[a.]	Eswatini	Ethiopia	Gabon	Gambia, The	Ghana	Guinea	Guinea-Bissau	Kenya	Lesotho	Liberia	Madagascar	Malawi	Mali	Mauritania	Mauritius	Mozambique	Namibia	Niger	Nigeria	Rwanda	São Tomé and Príncipe	Senegal	Seychelles	Sierra Leone	Somalia[b.]	South Africa	South Sudan[b.]	Sudan	Tanzania	Togo	Uganda	Zambia	Zimbabwe
Structural design	x		x			x										x	x		x	x		x	x						x		x	x	x	x	x	x		x			x		x	x		x		x
Geotechnical design																x	x			x		x	x								x	x	x	x	x	x					x		x			x		x
Material requirements	x		x			x										x	x			x		x	x						x		x	x	x	x	x	x	x				x			x		x		x

Source: World Bank Group data (2022)
Note: a. No data available. b. No evidence of a legally adopted building regulatory framework has been found.

design requirements. Some countries have very limited structural design provisions, typically carried over from colonial-era regulations, such as in the case of Angola, Cabo Verde, The Gambia, and Mauritania. The building regulations of Ghana, Rwanda, and South Africa are good examples of more comprehensive structural, geotechnical, and material requirements, including coverage of new construction techniques and materials.

Types of structural systems covered

Provisions for the design of steel, reinforced concrete, and masonry structures are covered in about one-half of the countries. The region can improve in its coverage of local construction types, and simplified provisions, and rules of thumb for common types of small-scale buildings.

To ensure compliance, building regulations must cover commonly used building typologies and construction materials. The region has inherited a legacy of colonial-era building regulations that were typically based on regulations in European countries and tailored for European construction typologies. Furthermore, many regulations contain limited provisions. The lack of comprehensive structural provisions contributes to chronic problems such as spontaneous collapse (refer to box 3.2). To make regulations more accessible and encourage compliance, the regulations would benefit from including simplified provisions and/or rules of thumb for common types of regular, small-scale buildings.

Gaps still exist in the design provisions for imported structural types, such as masonry, concrete, and steel systems, and few countries address common local construction types, such as construction using earthen materials (adobe, earth block, or rammed earth). Refer to figure 3.5.

Box 3.2 // Building Collapse in Lagos, Nigeria: A Persistent Problem

In Lagos, the capital of Nigeria, building collapses due to substandard design and construction have been a chronic problem over the last several decades. Lagos is the most populous city in Africa and has one of the fastest urban growth rates in the world; the city's urban footprint increased in area by a factor of 2.5 from 1990 to 2021 (Koko et al. 2021). A recent study established that 167 structural collapses occurred in Lagos between 2000 and 2021, of which more than 75 percent were residential buildings, 13 percent commercial buildings, and the rest special purpose buildings (schools, health facilities, and other public buildings) (Okunlola 2022). In addition to the tragic loss of lives, injuries, and lasting trauma caused by building collapses, a lack of trust in the safety of construction operations discourages investment and can impact wider economic growth in the affected cities. The persistent problem of building collapse in Lagos has been recognized as a serious risk by the government, building professionals, and the public, and efforts are being made to understand the root causes and take policy actions to reduce the risk.

Based on past studies and consultations with the government and key stakeholders, the main drivers for building collapses in Lagos are:

- **The absence of a legally adopted building design code** in Lagos State.[a] This contributes to poor quality design and construction, increasing vulnerability and reducing building design life.
- **Limited land available for development, combined with a lack of risk-informed site selection.** As land in Lagos is scarce, some builders, particularly the poor, are forced to choose risky sites for construction. In addition, site-specific risk information is not readily available. As a result, many building collapses occur during the rainy season because of construction on inappropriate sites and/or flood damage to the structures and foundations.
- **Unqualified professionals involved in the design and construction of buildings.** It was reported in stakeholder consultations that unqualified individuals often assume technical roles in design and construction, resulting in a lack of quality control and contributing to building failures.
- **Gaps and loopholes in the permitting process.** During stakeholder consultations, it was reported that only about 10 percent of sites obtain building permits, and even where permits are in fact obtained, final construction can still deviate from the permit requirements.
- **Lack of human and financial resources for construction monitoring and site inspections.** The building control authority is under-resourced and lacks adequate transportation and equipment to carry out effective site monitoring and inspection.
- **Lack of systems to ensure the quality of construction materials**. Materials in the marketplace often do not meet the Nigerian national standards, which include minimum material standards, certification mechanisms, and testing requirements. In addition, material testing facilities in Lagos have limited capacity.

To address these factors, the government has instituted several measures. For instance, the Lagos State Building Control Agency (LASBCA) has increased their

Note: a. Although Nigeria has a national building code, it has not yet been legally adopted by Lagos State. Lagos State has legally adopted building regulations, but they do not contain building design provisions.

Box 3.2 (*continued*)

Figure B3.2.1 // Building Collapse in Lagos, 2021

Source: ©REUTERS/Alamy Stock Photo
Note: In November 2021, a 21-story building collapsed at Gerrard Road, Ikoyi District, Lagos, while under construction.

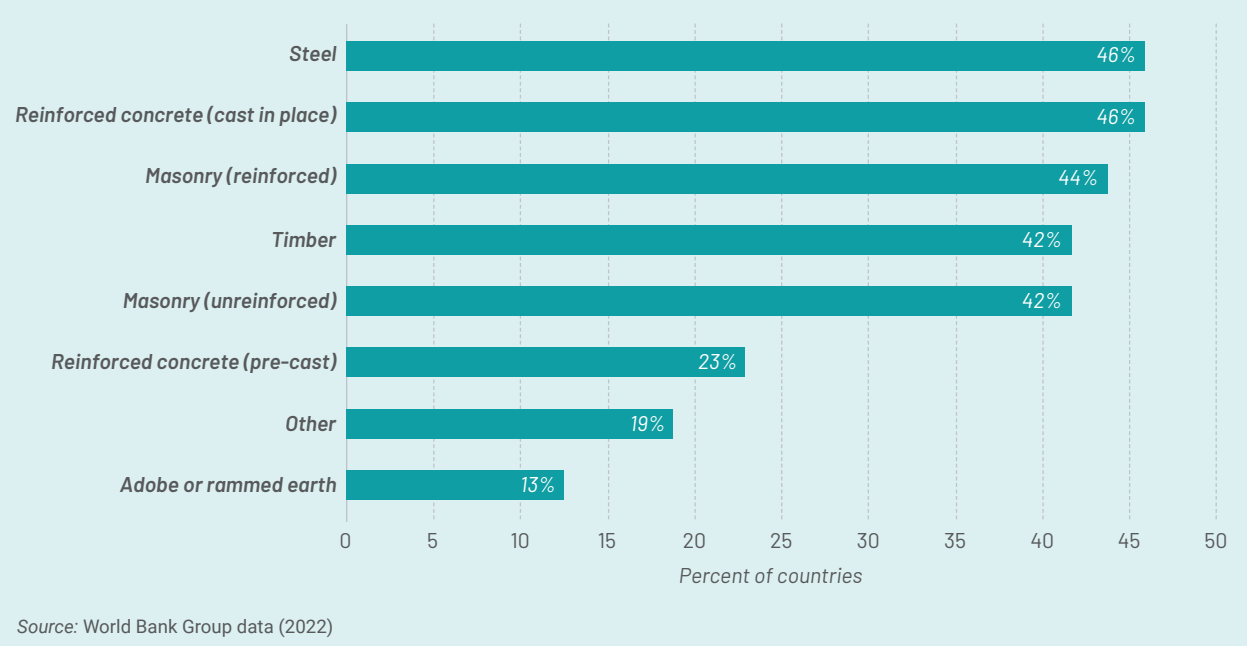
number of staff and implemented a tracked and mobile-friendly approvals process, with the target of processing approvals in 10 days. An anonymous whistle-blowing line has been set up where anyone can alert the agency about suspected unsafe buildings or construction sites. This line is widely used; each government building control office receives around 250 calls per week.

In addition, the government has organized temporary camps to house people evacuated from unsafe residential buildings, carry out assessments of at-risk buildings, and publish a list of distressed buildings in local newspapers. Where a developer is found culpable of irregularities related to a collapse, formal inquiries are undertaken, financial penalties can be applied, and the land can be seized by the government. In 2011, private sector design and construction professionals in Lagos formed the Building Collapse Prevention Guild (BCPG) to raise public awareness about the issue of structural collapse, provide the government with technical expertise, and voluntarily monitor at-risk construction sites and buildings.

The experience of Lagos in tackling the issue of structural collapse can be considered as an example for the wider region. It is recognized that this is a complex issue that requires the cooperation of the government and private sector stakeholders, as well as bottom-up efforts to engage and inform communities about the risks linked to low-quality design and construction.

Just 20 Sub-Saharan African countries cover the use of reinforced masonry in construction in their building regulations, and just under one-half of the countries have regulations that include design provisions for unreinforced masonry, steel, and cast-in-place concrete systems. Coverage of timber, pre-cast concrete, and earth construction exists for 42 percent, 23 percent, and 13 percent of countries, respectively. The data reveal that, in the case of 52 percent (24) of the countries, the testing of construction materials is mandatory (refer to table 3.10).

Figure 3.5 // Types of Structural Systems Covered by Regulations in Sub-Saharan Africa



Source: World Bank Group data (2022)

Table 3.10 // Types of Structural Systems Covered by Regulations in Sub-Saharan Africa

	Angola	Benin	Botswana	Burkina Faso	Burundi	Cabo Verde	Cameroon	Central African Republic	Chad	Comoros	Congo, Dem. Rep.	Congo, Rep.	Côte d'Ivoire	Equatorial Guinea	Eritrea[a.]	Eswatini	Ethiopia	Gabon	Gambia, The	Ghana	Guinea	Guinea-Bissau	Kenya	Lesotho	Liberia	Madagascar	Malawi	Mali	Mauritania	Mauritius	Mozambique	Namibia	Niger	Nigeria	Rwanda	São Tomé and Príncipe	Senegal	Seychelles	Sierra Leone	Somalia[b.]	South Africa	South Sudan[b.]	Sudan	Tanzania	Togo	Uganda	Zambia	Zimbabwe
Masonry (unreinforced)	x		x			x										x	x		x	x		x	x						x		x	x		x	x	x					x			x		x
Masonry (reinforced)	x		x			x										x	x		x	x		x	x						x		x	x		x	x	x					x			x		x
Reinforced concrete (cast in place)	x		x			x										x	x		x	x		x	x						x		x	x		x	x	x	x	x			x			x		x
Reinforced concrete (Pre-cast)			x																x	x			x								x	x			x		x				x						x
Steel	x		x			x										x	x		x	x		x	x						x		x	x	x	x	x	x					x			x		x	x
Adobe or rammed earth																x	x			x															x	x	x											
Timber			x			x										x	x		x	x		x	x						x	x	x	x		x	x	x					x			x		x	x
Other	x															x				x									x		x				x	x						x					x
Mandated material testing	x		x			x	x						x			x			x	x	x	x					x			x	x	x	x	x	x	x	x			x		x	x		x	x

Source: World Bank Group data (2022)
Note: a. No data available. b. No evidence of a legally adopted building regulatory framework has been found.

Provisions to mitigate risk from natural hazards

Few countries in the region have risk-informed regulations to reduce development on hazardous sites, or building design provisions to limit damage and losses from country-specific hazards.

Without effective adherence to land use and building regulations, urban development inevitably leads to hazardous sites and the construction of unsafe, vulnerable settlements. Risk-informed, land use planning and the implementation and enforcement of building codes are typically the weakest part of building regulatory systems because of a lack of human and financial resources allocated to these functions (Wason 2001).

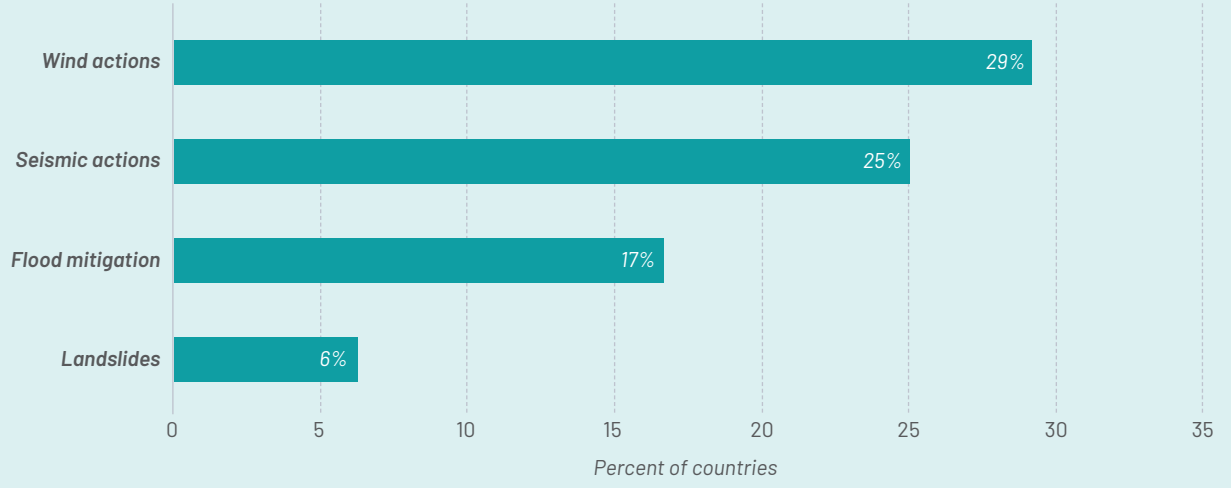
Building regulatory frameworks to enable risk-informed development have not been widely prioritized in the region. The rapid pace of climate change, coupled with the use of codes with inappropriate geographical and hazard contexts and limited availability of hazard data, means that building regulations lag years if not decades behind the reality of current and future hazards.

Design and planning regulations that reduce the impact of disaster risk are limited in the region. Nearly three-fourths of the countries have no design provisions at all relating to wind, and many do not have provisions that develop country-specific design wind loading. Even though East Africa's coast, and islands such as Comoros, are at significant risk from extreme wind events such as cyclones, only South Africa was found to have included separate design criteria for such events in their design wind maps. One-fourth of countries have some seismic design provisions, but only four—Ghana, Rwanda, South Africa, and Uganda—have somewhat more comprehensive provisions[31] that have been updated in the last two decades. Even fewer countries have any regulations related to floods or landslides. In some cases, these hazards are mentioned as a consideration in planning regulations, but no specific guidance is provided on how to reduce flood or landslide risk, and no reference is given on how to find risk-informed, land use maps. For example, Rwanda's regulations mention landslides but give no specific landslide-related provisions (see figure 3.6 and table 3.11).

Provisions for fire safety

Provisions to reduce fire risk are essential for the Sub-Saharan Africa region, where rapid urbanization, the use of fires for indoor heating and cooking, the prevalence of informal development, and climate change impacts have combined to increase the incidence of

Figure 3.6 // Provisions to Address Risk from Strong Winds, Earthquakes, Landslides, and Flooding in Sub-Saharan Africa



Source: World Bank Group data (2022)

[31] Even for the countries with more comprehensive seismic provisions, gaps still exist. For example, the Ghanaian code does not specify complete seismic hazard design criteria.

Table 3.11 // Technical Aspects of Design and Construction: Disaster Risk in Sub-Saharan Africa

	Angola	Benin	Botswana	Burkina Faso	Burundi	Cabo Verde	Cameroon	Central African Republic	Chad	Comoros	Congo, Dem. Rep.	Congo, Rep.	Côte d'Ivoire	Equatorial Guinea	Eritrea[a.]	Eswatini	Ethiopia	Gabon	Gambia, The	Ghana	Guinea	Guinea-Bissau	Kenya	Lesotho	Liberia	Madagascar	Malawi	Mali	Mauritania	Mauritius	Mozambique	Namibia	Niger	Nigeria	Rwanda	São Tomé and Príncipe	Senegal	Seychelles	Sierra Leone	Somalia[b.]	South Africa	South Sudan[b.]	Sudan	Tanzania	Togo	Uganda	Zambia	Zimbabwe
Wind actions	x					x							x			x	x			x			x								x		x	x		x	x			x					x		
Seismic actions	x					x							x				x			x			x								x	x		x	x						x					x		
Flood mitigation													x			x				x									x					x	x	x			x								
Landslides																				x													x		x												

Source: World Bank Group data (2022)
Note: a. No data available. b. No evidence of a legally adopted building regulatory framework has been found.

fires and related losses. Inadequate urban planning, substandard infrastructure, and improper construction practices related to fire prevention and mitigation can significantly increase the potential for fire ignition and fire spread. Reducing fire risk requires improved urban planning; improved infrastructure; better building design, construction, and materials; fire suppression capability; and education and training. Proven approaches to fire risk reduction include appropriate enabling legislation, well-designed and implemented building and fire regulations, and adequate capacity to undertake the review of building fire safety plans and construction inspections (GFDRR and World Bank 2000).

In 50 percent of the countries in the region, building regulatory documents include some fire resistance performance requirements, and 25 countries (52 percent) have some provisions that cover fire prevention. Refer to box 3.3. Slightly less than 50 percent of the countries have provisions regarding material fire resistance, and 19 countries (40 percent) have provisions that include aspects of access to and egress from buildings and necessary access for fire services (refer to figure 3.7 and table 3.12).

In Botswana, CAP65:02: Building Control—Subsidiary Legislation, Part VI on Structural Fire Precautions includes provisions and requirements for compartment walls and floors, fire resistance, the provision of exits and requirements for them, access to buildings for fire-fighting purposes, the provision of fire mains, and occupant capacity.

Provisions for universal accessibility

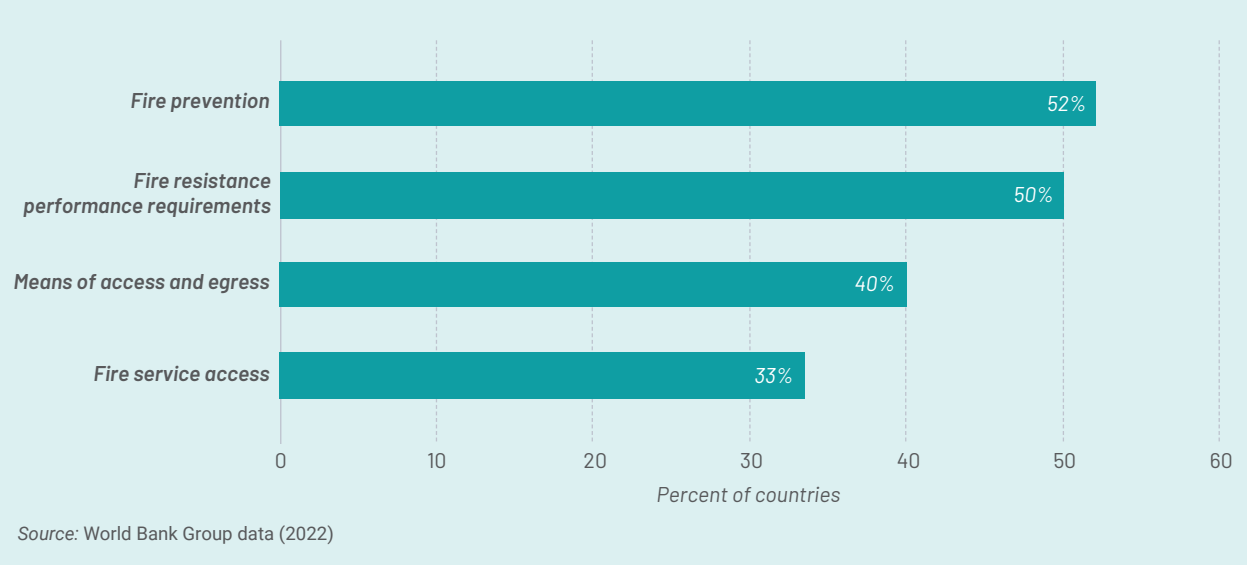
Building regulatory frameworks can ensure accessibility and usability for people of all ages and abilities. This guarantees everyone the ability to use the facilities and provides appropriate evacuation strategies in case of emergencies (refer to figure 3.8 for a best-practice example from New Zealand). The World Bank estimates that 15 percent of the world's population have some kind of disability, 80 percent of them in developing countries. Effective implementation of building and urban development standards for universal accessibility and protection of persons with disabilities requires policies and principles to be translated into actual change in the configuration of the built environment (GFDRR and World Bank 2017, 9). Provisions in regulations should include the design of accessible routes within buildings and for egress, including auxiliary stairs for evacuation as well as considerations in the design of nonstructural elements such as fixtures, fittings, and signage. Furthermore, it is crucial to guarantee accessibility, safety, and an efficient evacuation process during rare events, such as fires and earthquakes.

Table 3.12 // Fire Safety Provisions in Building Regulations in Sub-Saharan Africa

	Angola	Benin	Botswana	Burkina Faso	Burundi	Cabo Verde	Cameroon	Central African Republic	Chad	Comoros	Congo, Dem. Rep.	Congo, Rep.	Côte d'Ivoire	Equatorial Guinea	Eritrea[a.]	Eswatini	Ethiopia	Gabon	Gambia, The	Ghana	Guinea	Guinea-Bissau	Kenya	Lesotho	Liberia	Madagascar	Malawi	Mali	Mauritania	Mauritius	Mozambique	Namibia	Niger	Nigeria	Rwanda	São Tomé and Príncipe	Senegal	Seychelles	Sierra Leone	Somalia[b.]	South Africa	South Sudan[b.]	Sudan	Tanzania	Togo	Uganda	Zambia	Zimbabwe
Fire resistance performance requirements	x		x			x				x			x			x	x		x	x		x	x						x		x	x	x	x	x	x	x				x			x		x
Fire prevention	x		x			x				x			x			x	x		x	x		x	x						x		x	x	x	x	x	x	x				x		x	x		x	x
Means of access and egress	x		x							x			x			x				x			x						x		x	x	x	x	x		x	x			x		x			x	x
Fire service access			x							x			x			x				x			x						x		x		x	x	x		x	x					x			x	x

Source: World Bank Group data (2022)
Note: a. No data available. b. No evidence of a legally adopted building regulatory framework has been found.

Figure 3.7 // Type of Technical Requirements Covered for Fire Safety in Sub-Saharan Africa



Source: World Bank Group data (2022)

Box 3.3 // Case Study: Urban Fire Risk and Regulatory Frameworks in South Africa

Compared to most other Sub-Saharan African countries, South Africa has a well-established building regulatory framework and technical engineering capabilities. However, fire safety competency in South Africa often lags other technical fields. The reasons include the fact that professional engineering qualifications for fire safety have been developed only in recent years. The Engineering Council of South Africa is implementing a framework and certification system specifically for consulting fire engineers, but full adoption and implementation will take several years.

As part of these advancements, South Africa has adopted a performance-based[a] code for fire risk, which requires high technical expertise to leverage. Considering the country's diverse built environment, from high-rise buildings to small-scale buildings, South Africa can be considered to have a dual system of more complex performance-based and simplified prescriptive provisions for building designers to choose from, according to their knowledge and capability.

Codes and standards are important for regulating fire safety, but some countries have found that international standards can complicate the design process or require resource levels beyond the reach of average communities. Thus, the issue of urban fire safety remains an ongoing concern in low- and middle-income countries.

South Africa has made considerable progress in improving fire safety, both in high-end or industrial projects and in some municipalities. For example, through a public-private partnership, the Municipality of Kouga piloted an initiative to inspect all the fire hydrants in the municipality, in close coordination with Fire Services and Water Services Departments (Kouga Local Municipality 2020). The growing availability of industry-standard technology and fire safety products has also allowed developers in some sectors to adhere to international standards, gradually raising the baseline toward a broader adoption of fire regulations.

Figure B3.3.1 // Fire Disaster in Imizamo Yethu Informal Settlement, Cape Town, South Africa, 2017

Source: ©Aletta Harrison | GroundUp

Source: Information is based on Appendix F "Fire Safety Environment and Regulatory Systems in Developing Countries: A Case Study on South Africa" of the World Bank's Urban FRAME Diagnostic (World Bank 2020a). The original case study was developed by Professor Richard Walls from the Engineering Research Unit of Stellenbosch University (FireSUN), South Africa.
Note: a. Regulations can be functional, performance-based, or prescriptive. (i) *Functional* requirements define the main objectives but there is no determination method, performance level, or reference to solutions or materials. (ii) *Performance-based* requirements express the level of performance in quantitative terms and define the determination method. (iii) *Prescriptive* requirements lay down a specific design.

Figure 3.8 // Examples of Universal Accessibility Requirements

ACCESS: BUILDING FOR EVERYONE: DESIGNING FOR ACCES AND USABILITY

- Building user activity
- Surrounding area and transport
- Pedestrian circulation
- Vehicle circulation and parking
- Building entrances and exits
- Internal circulation
- Interior space
- Fixtures and fittings
- Buidling types
- Means of escape
- Building management

Source: Adapted from MBIE n.d.

Regulations in the region often lack adequate provisions related to the universal accessibility of buildings and facilities that can accommodate people of all ages and abilities. In Sub-Saharan Africa, only 21 countries (44 percent) include provisions on access routes and means for persons with disabilities, and only 18 include provisions on accessibility and usability features within buildings (for example, toilets, elevators, and so on). Even fewer countries (9) include provisions in their regulations on accessibility features such as fixtures (for example, sanitary fittings, seating), and signals.

One example of a code with more comprehensive coverage is the Rwanda Building Code (2019).[32] It contains provisions for initial access to buildings, parking, ramps, dropped curbs, and lifts for persons with disabilities, as well as adequate spacing design requirements for doors, corridors and lobbies; toilet cubicles and the provision of handrails; wheelchair spaces in public areas of buildings; and the protection of openings with a barrier to prevent falls. See figure 3.9 and table 3.13.

Provisions for building services

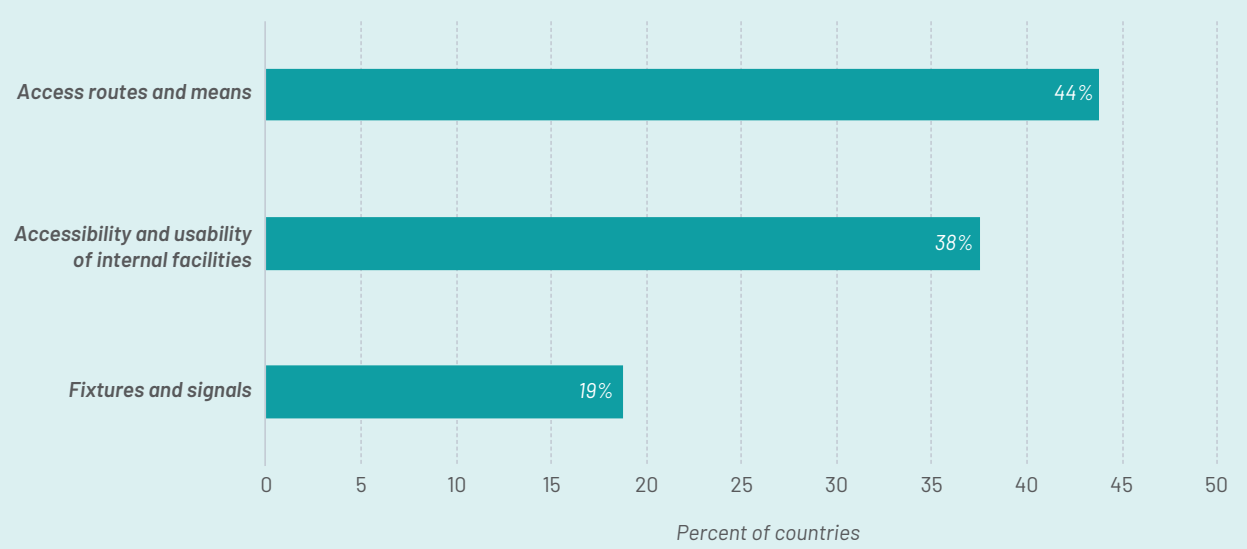
Building services are a core area of building regulation standards. They include provisions for plumbing, sanitation, mechanical and electrical systems, and elevators and escalators.[33] Only one-third of the countries analyzed have coverage of key aspects of building services design in their regulations. Fewer than one-half (21) have some provisions related to heating, ventilation, and air conditioning (HVAC) and only 20 countries (42 percent) have standards related to plumbing and sanitary systems. About one-third have standards related to electrical systems and special provisions regarding elevators and escalators (see figure 3.10 and table 3.14). Examples of countries that cover most aspects of services design include Rwanda and Nigeria. The Rwanda Building Code 2019, chapter 4, part 11—Building Services—provides technical standards on Electrical Installations (section 3), Lifts and Elevators (section 7), and Plumbing and Drainage (section 10). The Nigeria Building Code 2006,[34] section 9 has Services Design Requirements that include mechanical, electrical, and

[32] See the Rwanda Building Code, 2019, part 5 (Development Planning and General Requirements), section 12—Planning for persons with disability, available at http://197.243.22.137/rhanew/fileadmin/user_upload/documents/General_documents/Laws_And_Regulations/rwanda_building_code_2019.pdf.

[33] Building services are also referred to as *heating, ventilation, and air conditioning* (HVAC) or *mechanical, electrical, and plumbing* (MEP) services.

[34] This code has been set at the national level, but currently is legally required only for public buildings. The government has encouraged local administrations to consider adopting the national code.

Figure 3.9 // Types of Technical Requirements Covered in Regulations for Universal Accessibility in Sub-Saharan Africa



Source: World Bank Group data (2022)

Table 3.13 // Universal Accessibility Requirements in Sub-Saharan Africa

	Angola	Benin	Botswana	Burkina Faso	Burundi	Cabo Verde	Cameroon	Central African Republic	Chad	Comoros	Congo, Dem. Rep.	Congo, Rep.	Côte d'Ivoire	Equatorial Guinea	Eritrea[a.]	Eswatini	Ethiopia	Gabon	Gambia, The	Ghana	Guinea	Guinea-Bissau	Kenya	Lesotho	Liberia	Madagascar	Malawi	Mali	Mauritania	Mauritius	Mozambique	Namibia	Niger	Nigeria	Rwanda	São Tomé and Príncipe	Senegal	Seychelles	Sierra Leone	Somalia[b.]	South Africa	South Sudan[b.]	Sudan	Tanzania	Togo	Uganda	Zambia	Zimbabwe
Access routes and means	x		x			x				x			x			x			x	x		x	x						x			x	x	x	x	x	x				x		x	x		x		
Accessibility and usability of internal facilities	x		x			x							x			x				x		x							x		x	x	x	x	x	x				x			x		x		
Fixtures and signals													x			x				x			x									x		x		x									x		x

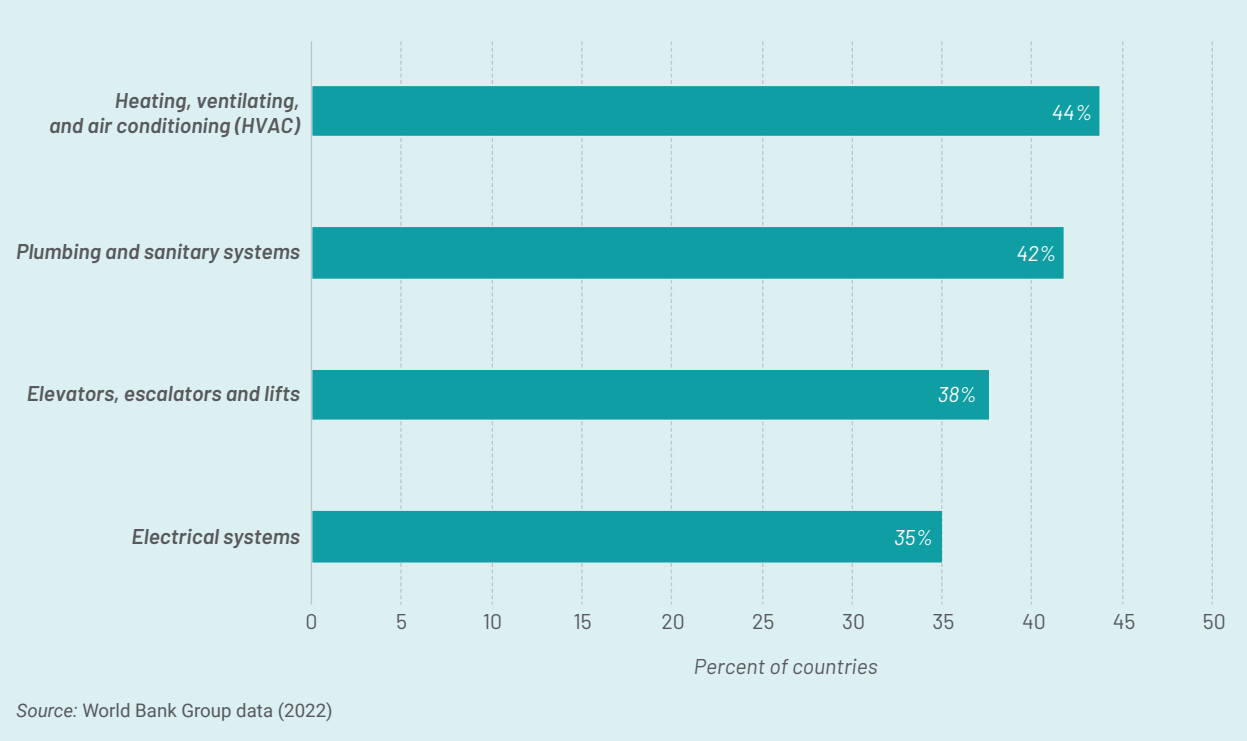
Source: World Bank Group data (2022)
Note: a. No data available. b. No evidence of a legally adopted building regulatory framework has been found

plumbing (MEP) design provisions and provisions that cover elevators and escalators.

Provisions for green buildings

Regulations that support increased energy and water efficiency and other green building strategies are an essential tool for fighting climate change. Globally, buildings account for 33 percent of total final energy consumption and 40 percent of all global GHG emissions (Weigert 2018). The United Nations Environment Programme (UNEP) projects that an additional 230 billion square meters of buildings will need to be built to accommodate the world population by 2060. Sub-Saharan Africa alone will need to build 88 billion square meters to accommodate its estimated population growth by 2060 (Weigert 2018).

Figure 3.10 // Types of Technical Requirements for Building Services in Sub-Saharan Africa



Source: World Bank Group data (2022)

Table 3.14 // Building Services Provisions in Sub-Saharan Africa

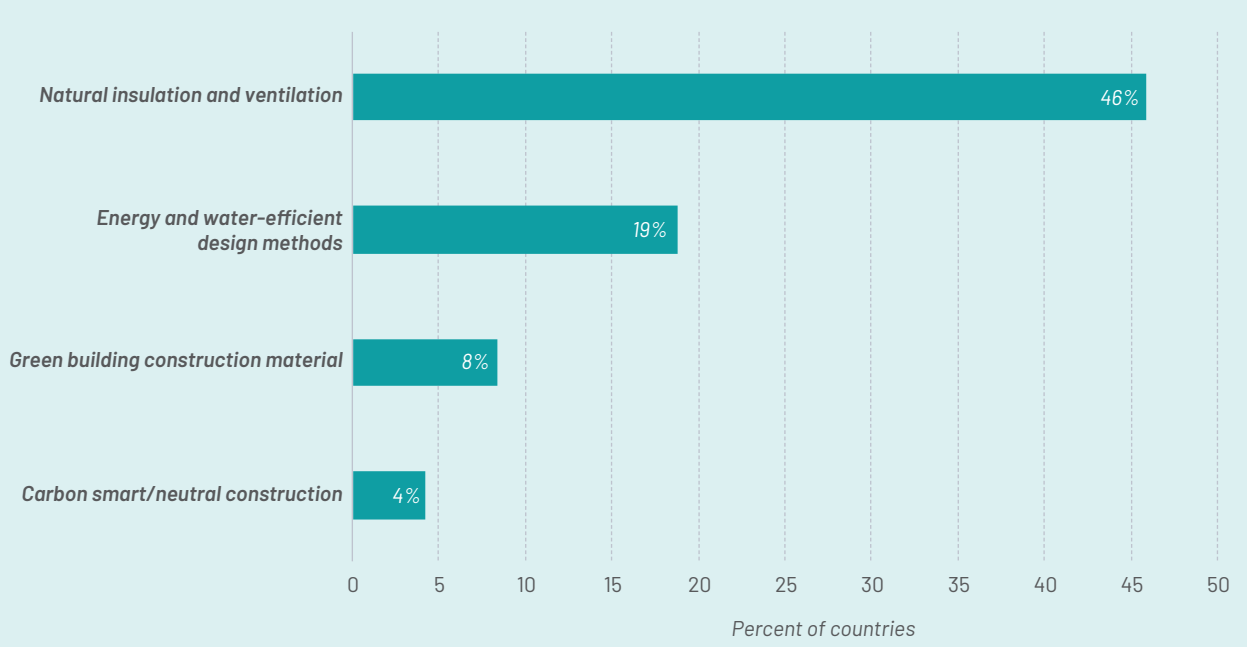
	Angola	Benin	Botswana	Burkina Faso	Burundi	Cabo Verde	Cameroon	Central African Republic	Chad	Comoros	Congo, Dem. Rep.	Congo, Rep.	Côte d'Ivoire	Equatorial Guinea	Eritrea[a.]	Eswatini	Ethiopia	Gabon	Gambia, The	Ghana	Guinea	Guinea-Bissau	Kenya	Lesotho	Liberia	Madagascar	Malawi	Mali	Mauritania	Mauritius	Mozambique	Namibia	Niger	Nigeria	Rwanda	São Tomé and Príncipe	Senegal	Seychelles	Sierra Leone	Somalia[b.]	South Africa	South Sudan[b.]	Sudan	Tanzania	Togo	Uganda	Zambia	Zimbabwe
Plumbing and sanitary systems	x		x			x				x			x			x	x			x		x	x						x		x	x		x	x	x	x				x				x		x
Electrical systems			x			x							x			x	x			x		x	x						x			x		x	x	x	x				x		x			x	
Elevators, escalators, and lifts	x					x				x			x			x			x	x		x	x						x		x	x		x	x	x	x				x				x		
Heating, ventilating, and air conditioning	x		x			x				x			x			x	x		x	x		x	x								x	x		x	x	x	x	x				x				x		x

Source: World Bank Group data (2022)
Note: a. No data available. b. No evidence of a legally adopted building regulatory framework has been found.

The development of regulations, codes, and standards for green buildings is still in a nascent stage in Sub-Saharan Africa. Although just under one-half of countries in the region have some elements of natural insulation and ventilation included in their building regulatory documents, only Côte d'Ivoire, Ghana, Rwanda, and South Africa (8 percent of the total countries) have standards on green building materials to reduce the embodied carbon footprint of construction (refer to box 3.4). Just nine countries in the region

have standards on energy and water-efficient design methods, and only Côte d'Ivoire and Ghana have regulations on carbon-smart/carbon-neutral construction where the carbon footprint of the entire construction cycle is considered, including the operation of the building over its lifetime. Refer to figure 3.11 and table 3.15.

Figure 3.11 // Types of Technical Requirements for Green Buildings in Sub-Saharan Africa



Source: World Bank Group data (2022)

Table 3.15 // Types of Technical Requirements for Green Buildings in Sub-Saharan Africa

	Angola	Benin	Botswana	Burkina Faso	Burundi	Cabo Verde	Cameroon	Central African Republic	Chad	Comoros	Congo, Dem. Rep.	Congo, Rep.	Côte d'Ivoire	Equatorial Guinea	Eritrea[a.]	Eswatini	Ethiopia	Gabon	Gambia, The	Ghana	Guinea	Guinea-Bissau	Kenya	Lesotho	Liberia	Madagascar	Malawi	Mali	Mauritania	Mauritius	Mozambique	Namibia	Niger	Nigeria	Rwanda	São Tomé and Príncipe	Senegal	Seychelles	Sierra Leone	Somalia[b.]	South Africa	South Sudan[b.]	Sudan	Tanzania	Togo	Uganda	Zambia	Zimbabwe
Natural insulation and ventilation	x		x			x				x			x			x	x		x	x		x	x								x	x		x	x	x	x	x			x			x			x
Green building construction material													x							x															x											x		
Energy and water efficient design methods													x			x				x												x		x	x		x				x					x		
Carbon smart/neutral construction													x							x																												

Source: World Bank Group data (2022)
Note: a. No data available. b. No evidence of a legally adopted building regulatory framework has been found.

Box 3.4 // Recent Policy Actions on Green Building Requirements in Sub-Saharan Africa: Examples

South Africa

South Africa's National Building Regulation has many standards (such as SANS 10400-X and SANS 10400-XA) that cover requirements for environmental sustainability and energy usage.[a] Energy usage requirements are prescribed under the standards for the building envelope and hot water supply. The design requirements for energy efficiency in buildings, which address building orientation, building design, building sealing, services, and mechanical ventilation and air conditioning, are provided under the South Africa National Building Standards 204:2011.[b]

Rwanda

The Rwanda Building Code was amended in 2019 to add the Green Building Minimum Compliance system as an annex.[c] This is a points-based system that aims to help developers and building owners choose indicators based on the applicability to their construction project. A total of 29 green building indicators are included in five modules: energy efficiency, water efficiency, environmental protection, indoor environmental quality, and other green features.

Ghana

The Ghana Building Code GS1207 of 2018[d] has a chapter dedicated to energy efficiency (part 14). It presents requirements applicable to private buildings throughout Ghana that exceed 5,000 square meters in total gross floor area, and public buildings located in all three regional capitals—Accra, Kumasi, and Takoradi—with total gross floor area above 500 square meters. The energy efficiency requirements include passive design strategies such as natural ventilation, passive cooling, and daylighting.

Nigeria

The Building Energy Efficiency Code (BEEC), launched in 2017, sets minimum standards for the energy efficiency of new residential and office buildings.[e] Under the BEEC, two compliance methods are possible: prescriptive and performance. For the prescriptive option, projects must adhere to all the requirements as a checklist. The performance option involves energy calculations and energy simulation software. As an incentive for building owners and developers to comply with the BEEC, a comparative building label has been developed that rates a building depending on how many of the BEEC initiatives have been implemented.

Notes:

a. An example is the National Building Regulations Part X: Environmental sustainability Part XA: Energy usage in buildings (SANS 10400-XA:2021), available at https://www.sans10400.co.za/energy-usage.
b. The South African Bureau of Standards 2011 Energy Efficiency in Buildings (SANS 204:2011) is available for a fee at https://store.sabs.co.za/catalog/product/view/id/203544/s/sans-204-2011-ed-1-00.
c. The Rwanda Building Code is available at http://197.243.22.137/rhanew/fileadmin/user_upload/documents/General_documents/Laws_And_Regulations/rwanda_building_code_2019.pdf.
d. The Ghana Building Code of 2018 is available at https://ghis.org.gh/wp-content/uploads/2021/09/BUILDING-CODE-GS-1207_2018-Complete-Complementary-Copy.pdf.
e. The BEEC is available at https://rise.esmap.org/data/files/library/nigeria/Energy%20Efficiency/Supporting%20Documentation/Nigeria_BEEC-National%20Building%20Energy%20Efficiency%20Code.pdf.

3.2 COMPLIANCE AND ENFORCEMENT MECHANISMS

Most building regulatory frameworks in the region have basic mechanisms for compliance and enforcement in place, but the resources to ensure adequate compliance in practice are often lacking.

It is essential to have adequate regulatory processes and resources to support the implementation and enforcement of building regulations. This includes adequate capacity at building control agencies, as well as continuous training and capacity building for professionals and others in the construction sector. If procedures are too complicated or costly to implement, designers and builders tend to bypass the regulatory system altogether (Moullier 2009). Refer to figure 1.2 for an explanation of common types of building control processes. Because the construction permitting process typically involves fulfilling the licensing requirements of several different agencies, those seeking permits must interact with several different bureaucracies, which can create greater opportunities for corruption and rent-seeking behavior.

If mobile phone and internet services are widely accessible, digitizing the building control and permitting process can improve efficiency, transparency, and traceability, for example, by implementing an e-permitting system. For these systems, records are

automatically created and stored, and direct payments can be made electronically. Figure 3.12 shows common types of building control activities in the region and how often they are conducted in practice, based on respondent survey data.

3.2.1 Development/planning permission

Most countries in the region lack risk-informed development permit requirements.

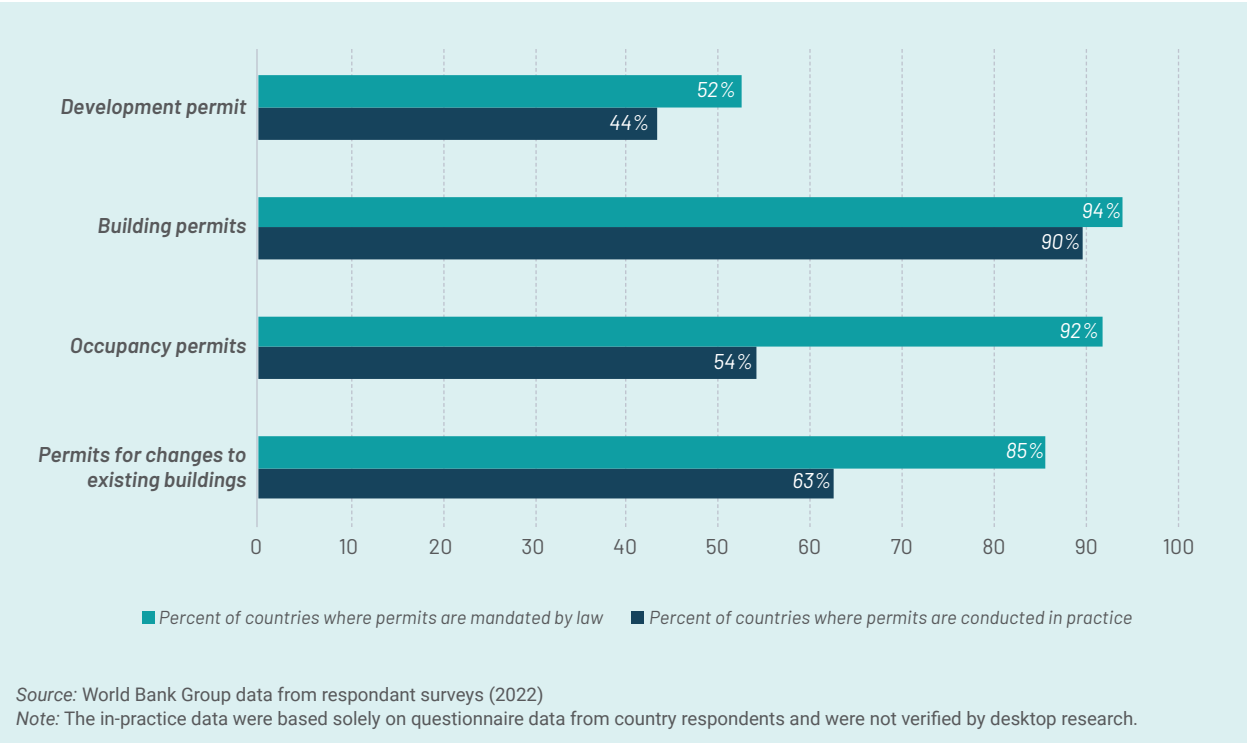
Requiring development or planning permission prior to construction is important to protect the public from natural and environmental hazards, and to ensure that development is compliant with land use plans. This ensures that building development complies with land-planning requirements, thus avoiding zones for restricted development and ensuring conformity to the types of building or activity that are allowed. As part of this process, public authorities need to have consistent, up-to-date, risk-informed land use and development planning maps (GFDRR and World Bank 2017, 40). If such maps are available, the decision to issue a development/planning permit is generally straightforward and the development/planning permitting process is sometimes simply incorporated into the building permit process.

In Sub-Saharan Africa, requirements for construction permits differ from country to country; only 6 countries in the region integrate hazard information into their development planning. Only 25 countries mandate the issuance of a development permit before the request of a building permit. Furthermore, among those 25 countries, only in 6 does the development/planning permission process take account of hazards and risks; in the other cases development permit permission is simply based on, for example, the types of building usage permissible in each zone. Many countries in the region have development plans that define the zones where buildings can be constructed, as well as which types of construction are allowed for different types of site conditions (refer to table 3.16).

3.2.2 Building permits

All countries in the region with some form of legally adopted building regulatory framework include a building permit requirement ahead of construction for a new building, as well as processes for reviewing

Figure 3.12 // Types of Permits Mandated in Regulations and Conducted in Practice in Sub-Saharan Africa



Source: World Bank Group data from respondant surveys (2022)
Note: The in-practice data were based solely on questionnaire data from country respondents and were not verified by desktop research.

Table 3.16 // Countries That Require a Development Permit Before a Building Permit in Sub-Saharan Africa

	Angola	Benin	Botswana	Burkina Faso	Burundi	Cabo Verde	Cameroon	Central African Republic	Chad	Comoros	Congo, Dem. Rep.	Congo, Rep.	Côte d'Ivoire	Equatorial Guinea	Eritrea[a.]	Eswatini	Ethiopia	Gabon	Gambia, The	Ghana	Guinea	Guinea-Bissau	Kenya	Lesotho	Liberia	Madagascar	Malawi	Mali	Mauritania	Mauritius	Mozambique	Namibia	Niger	Nigeria	Rwanda	São Tomé and Príncipe	Senegal	Seychelles	Sierra Leone	Somalia[b.]	South Africa	South Sudan[b.]	Sudan	Tanzania	Togo	Uganda	Zambia	Zimbabwe
Yes			x	x	x		x		x				x				x	x				x	x	x	x		x							x	x	x	x	x			x		x	x	x	x	x
No	x	x				x		x		x	x	x		x		x			x	x	x					x		x	x	x	x	x	x					x									
Hazard information taken into account									x				x							x														x										x	x		

Source: World Bank Group data (2022)
Note: a. No data available. b. No evidence of a legally adopted building regulatory framework has been found.

and obtaining such permits.[35] Refer to figure 3.13 for examples.

The main purpose of a building permit requirement is to ensure that the building is safe. By presenting to the competent authorities a comprehensive dossier, including the address, required construction plans, and building characteristics, builders enable the authorities to assess whether the planned construction is safe and feasible in the determined location. Moreover, a well-regulated building permit issuance system provides transparency and traceability—important elements for the site and occupancy inspections. Usually after development and planning permission have been granted, building permit processes are divided into three steps: submission of a building application to the relevant authority, review by the authority, and issuance of the permit. To summarize the three steps:

» **Submission of a building application.** This process usually requires the applicant to submit to the building control authority information about who will perform the work, what work will be done, where the building will be located, and how it will be built. Architectural and engineering building drawings, proof of land rights, geotechnical reports, and any other relevant documentation of the proposed work must be submitted for review.

» **Review process.** The building official, or an accredited third-party plan reviewer, determines the project's compliance. This includes evaluating whether it adheres to local planning and land use requirements and design and construction codes, as well as other requirements set by public agencies. The reviewing authority or accredited agent is expected to have the basic technical capacity to carry out compliance checks at the design stage.

» **Issuance of the building permit.** When compliance with codes, zoning, and other applicable regulations has been confirmed, the building control authority, typically at the local government level, approves the application and issues the permit. A fee is usually collected to cover municipal costs associated with the time building officials spent in the application process, the technical review of plans, and the various site inspections (GFDRR and World Bank 2015, 65).

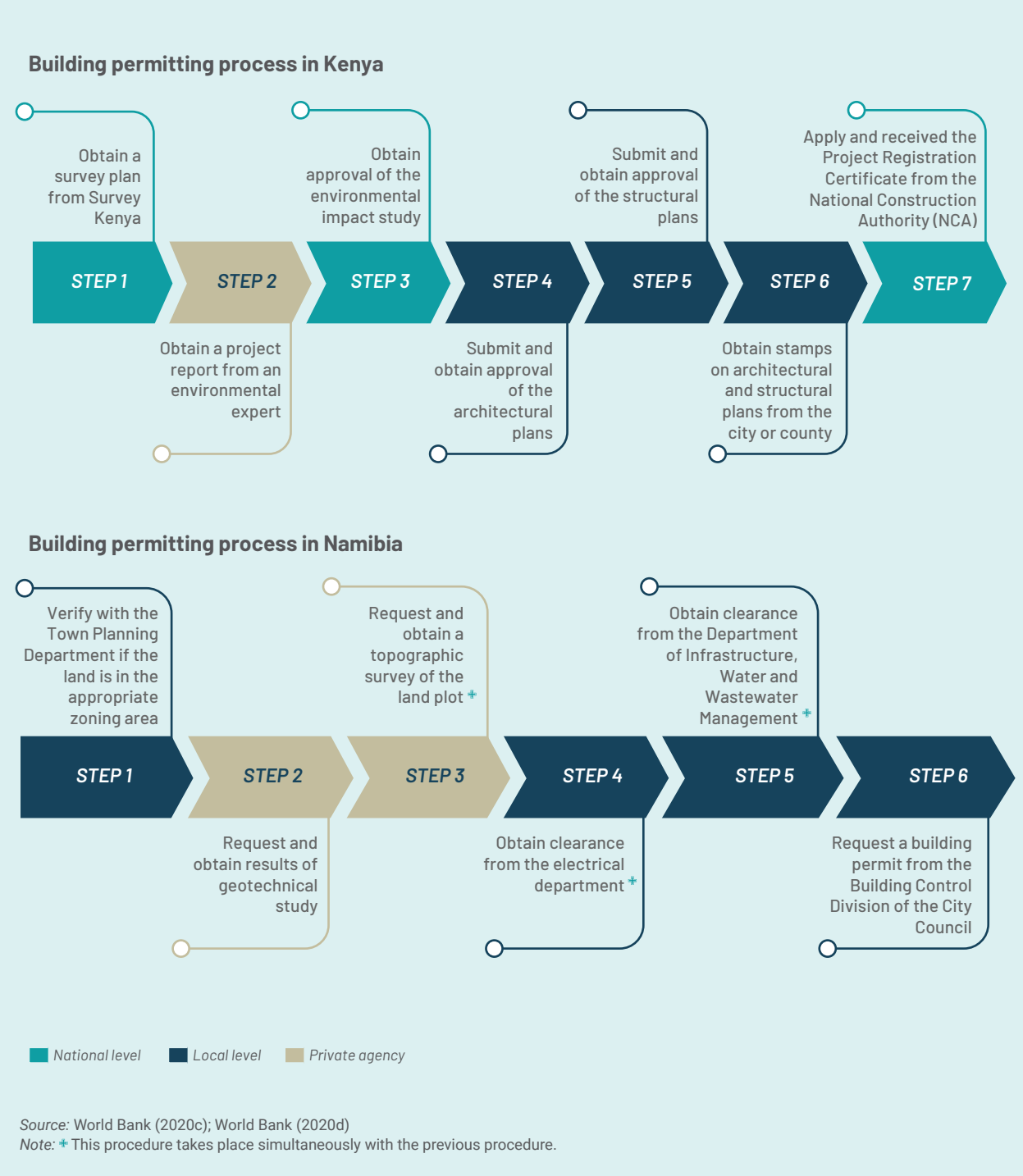
3.2.3 Site inspections during construction

Almost all countries in the region require site inspections during construction, but in practice, the inspections may not always occur.

Carrying out inspections during the construction phase allows building control authorities to assess

[35] The only countries in the region where the existence of a legally adopted building regulatory framework could not be verified are Eritrea, Somalia, and South Sudan.

Figure 3.13 // Examples of the Building Permitting Process in Kenya and Namibia



Source: World Bank (2020c); World Bank (2020d)
Note: * This procedure takes place simultaneously with the previous procedure.

whether the building is being constructed in accordance with the building permit and other legal requirements. Each major phase of a construction can be inspected by qualified building control authority architects, engineers, or technicians, or by their private accredited agents, to guarantee that the work done complies with the building permit, the approved building plans, and the relevant laws, codes, regulations, and standards. The decision to conduct an inspection by the building control authorities can be determined through a risk-based category system that includes criteria such as the characteristics of the location, the

type of construction, the materials, the track record of the builder, and other factors relevant to a risk assessment (GFDRR and World Bank 2015, 65). This risk-based inspection approach can be helpful in prioritizing the selective use of building authority resources where they are scarce.

Types of inspections during construction

The most common types of inspection required in the region are random inspections, applicable in 28 countries (58 percent), and inspections by phase of construction, applicable in 22 countries (46 percent). Types of technical inspections commonly include electrical, mechanical, and fire safety inspections. Inspections for accessibility, or to review green building provisions, are rarely required. See table 3.17.

Although inspections are mandated by law, there is a clear problem of enforcement in the region. In all countries with a legally adopted building regulatory

Table 3.17 // Types of Mandatory Inspections in Sub-Saharan Africa

	Angola	Benin	Botswana	Burkina Faso	Burundi	Cabo Verde	Cameroon	Central African Republic	Chad	Comoros	Congo, Dem. Rep.	Congo, Rep.	Côte d'Ivoire	Equatorial Guinea	Eritrea[a.]	Eswatini	Ethiopia	Gabon	Gambia, The	Ghana	Guinea	Guinea-Bissau	Kenya	Lesotho	Liberia	Madagascar	Malawi	Mali	Mauritania	Mauritius	Mozambique	Namibia	Niger	Nigeria	Rwanda	São Tomé and Príncipe	Senegal	Seychelles	Sierra Leone	Somalia[b.]	South Africa	South Sudan[b.]	Sudan	Tanzania	Togo	Uganda	Zambia	Zimbabwe
Random inspections	x	x	x			x		x	x	x		x				x	x	x	x			x	x	x	x	x		x	x				x		x	x	x	x		x		x		x		x	
Phased inspections for foundation/plinth/floors		x		x			x			x	x	x	x			x	x		x	x		x					x	x		x		x			x			x			x			x		x		x
Inspection before pouring concrete				x									x			x	x		x	x	x	x	x									x		x	x			x			x			x		x	
Risk-based inspections																	x			x	x		x							x						x			x									
Inspection of construction materials			x										x			x	x			x		x							x	x		x					x		x						x			
Electrical inspections							x										x		x	x	x	x	x											x				x			x					x		
Mechanical inspections																	x		x		x		x											x				x								x		
Plumbing inspections							x									x	x		x	x		x										x					x			x			x		x		x
Fire safety inspection				x			x										x			x	x		x							x			x		x			x			x			x			
Health and safety																	x		x	x	x		x							x					x			x			x			x			x
Accessibility																	x													x								x									
Energy performance audits/assessments																				x																											

Source: World Bank Group data (2022)
Note: a. No data available. b. No evidence of a legally adopted building regulatory framework has been found.

framework in place, except Burundi,[36] regulations mandate site inspections during construction. Survey data indicate, however, that in practice these occur in just 17 countries. Respondents reported that this is mainly due to a lack of financial and staffing resources at building control agencies. Similarly, the laws in 41 countries mandate a final inspection before occupancy but, in practice, in only 17 of these countries are these inspections normally carried out. Almost 50 percent of the countries analyzed (25) have regulations that require material testing at construction sites, but according to the survey data, in 14 countries the required tests are not usually performed. Refer to table 3.17 for country-specific data.[37].

3.2.4 Occupancy permits

Almost all countries require occupancy permits but this may not be enforced in practice.

All countries in the region with legally adopted building regulations require the issuance of occupancy permits, except the Central African Republic and Sierra Leone.[38] An occupancy permit confirms that the building complies with code requirements, conditions for insurance and financing, and builder liability conditions.[39] These permits are usually issued by local building authorities, sometimes in consultation with other public agencies (GFDRR and World Bank 2015, 65). In almost all cases, the occupancy certificate is issued after an inspection—the exceptions are Equatorial Guinea, Madagascar, and Zambia. Almost all countries in the region have legislation that requires that an occupancy permit must be obtained before the building is occupied, but in practice, this is usually enforced in only 17 countries.

3.2.5 Permits and inspections for alterations to existing buildings

Most countries in the region have some building control requirements related to work on alterations to existing buildings.

Building regulations typically apply only to new construction, unless major alterations are made to an existing building. A robust building regulatory framework will identify what types of alterations require the upgrading of some or all buildings to meet current requirements. Historically or culturally protected buildings may have exemptions from some regulations (GFDRR and World Bank 2017, 38). Provisions typically are linked to the following classification of work on existing buildings: minor alterations and repairs, renovations, structural retrofit, extensions, and change of use (GFDRR and World Bank 2017, 38).

Of the 45 countries in the region that mandate building permits for new buildings, 41 also require building permits for changes in existing buildings. (The exceptions are Comoros, Malawi, Niger, and Sudan.) In practice, however, this is typically enforced in only 30 of the 41 countries.

3.2.6 Roles and responsibilities in the permit review and approval process

The bodies responsible for construction monitoring and building compliance vary from country to country.

One of the greatest challenges faced by planning and building code enforcement agencies in low- and middle-income countries is carrying out their mandates with extremely scarce resources. These agencies face severe and growing backlogs in planning and construction approval, inspection, and permitting processes, and have responsibilities in ever-growing and ever-riskier cities. Given the better pay structure and career prospects of the private sector, they also struggle to attract and retain well-trained, capable engineers and other technical staff.

Reforming countries have seen the limitations of relying solely on public resources in building code enforcement. Over the past decades, therefore, they have explored different forms of collaboration with private building professionals to pursue code compliance

[36] No legally adopted building regulatory frameworks or evidence of mandatory inspections could be confirmed for Eritrea, Somalia, or South Sudan.

[37] The data are based on the experience of respondents from the private and public sectors and typically reflect their understanding of what happens in practice in the capital or in the most populated city of each country.

[38] In Eritrea no data were found, and for Somalia and South Sudan we were unable to verify the existence of a legally adopted building regulatory framework.

[39] Some regulations refer to an occupancy permit as a certificate of occupancy.

strategies, such as contracting out some control functions and establishing peer-review mechanisms. Refer to figure 3.14 for an example. However, most developing countries have not yet taken this path. They have not tapped into the resources of skilled private engineers and building technicians that could be productively associated with more innovative code implementation systems (GFDRR and World Bank 2015, 52). For this to be successful, however, the regulatory environment must create a process of strict vetting and qualification requirements for third-party inspectors, along with robust oversight and quality control (World Bank 2018).

In Sub-Saharan Africa, local building authorities are the main actors in reviewing and issuing permits and in verifying compliance. In most cases, the various permits related to construction activities are reviewed only by local building control and/or other government authorities. Refer to figure 3.15. In some cases, building control authorities third-party party actors (private sector participation) to ensure compliance with building regulations. For example, in Senegal, a private third party must approve the permit application before it is submitted to the public sector building control authority for final approval. In Ethiopia, the regulations allow the local authority to hire a registered professional to review the plans.

In the 43 countries, the review and issuing of building permits are exclusive responsibilities of the public sector. In 28 of these countries, a local authority is the sole responsible actor. In 4 countries—Côte d'Ivoire, Nigeria, São Tomé and Príncipe, and the Seychelles—another type of authority is responsible, and in the other 11 countries—Benin, Chad, the Democratic Republic of Congo, Gabon, Guinea, Kenya, Liberia, Madagascar, Mali, South Sudan, and Togo—the responsibility is shared between the local authority and another authority.

The bodies responsible for construction monitoring and building compliance certificates vary from country to country. In the Democratic Republic of Congo and Côte d'Ivoire, the responsibility is delegated to a private sector third party, whereas Madagascar and Zimbabwe rely on self-certification by the project architect or engineer, without requiring any other verification. Even though Botswana, Burkina Faso, Cameroon, South Africa, and Sudan also rely on self-certification by the project architect or engineer, the public authorities there, in most cases, are still required by law to conduct inspections.

The building control authority is typically responsible for verifying compliance with the applicable regulations before issuing the occupation permit. Only in the case of Chad is self-certification by an architect or engineer accepted without requiring any other verification. In Côte d'Ivoire, a third-party private inspector is in charge of verifying the occupancy permit.

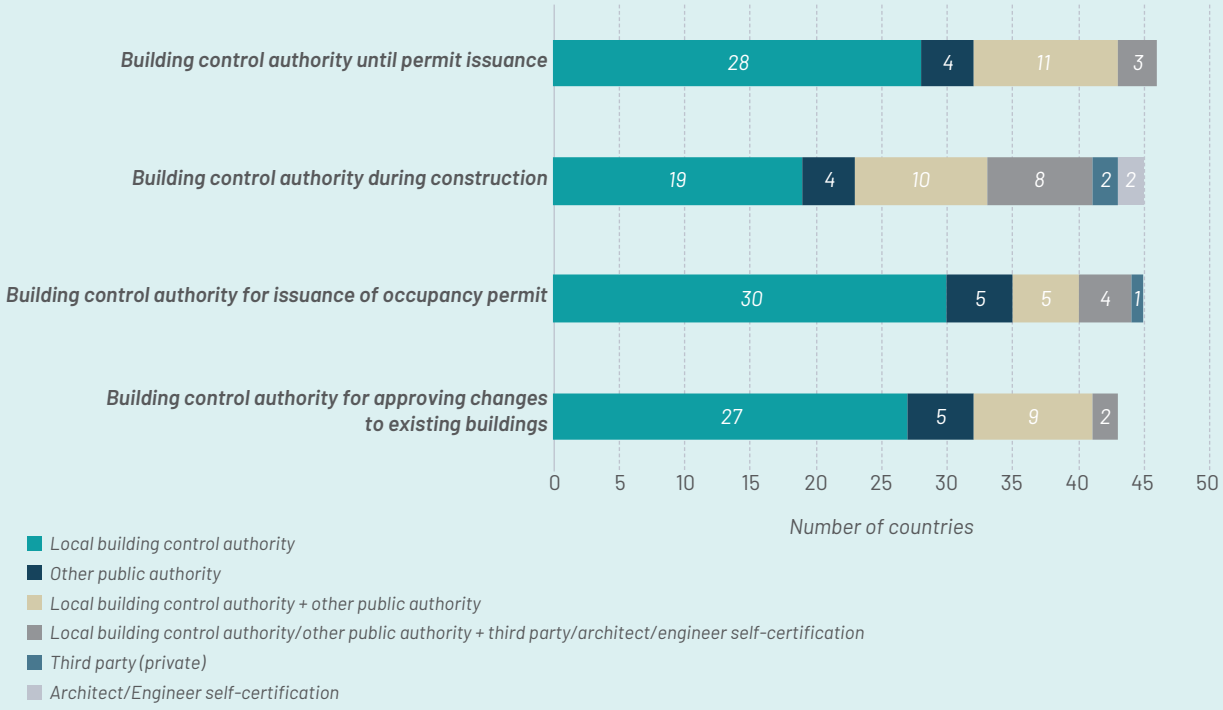
The scenario is similar for the authorities in charge of approving changes to existing buildings (when such regulation is mandated, which is not always the case). Only in Burundi and Chad is self-certification by the project architect or engineer accepted without any other requirements, and there is no third-party verification in any country in the region.

Figure 3.14 // Building Control Authorities in Côte d'Ivoire

Agency or third party	*Area of responsibility*
National government: Urban Ministry through the One-Stop Shop for building permit (*Guichet Unique du permits de construire*)	Building control authority until permit issuance
Third party: Building Supervisor (*Contrôleur des constructions*)	Building control authority during construction
Third party: Building Supervisor (*Contrôleur des constructions*)	Building control authority for issuance of occupancy permit
National government or local government: urban ministry or municipality	Building control authority for approving changes to existing buildings

Source: Original figure developed for this publication

Figure 3.15 // Authorities Responsible for Building Control in Sub-Saharan Africa



Source: World Bank Group data (2022)
Note: No data were available for Eritrea and Somalia. For Mauritania, no data were available for the *Building control authority during construction* category. For Liberia, no data were available for the *Building control authority for issuance of occupancy permit* category. For Malawi, Mali, and Mauritania, no data were available for the *Building control authority for approving changes to existing buildings* category.

3.2.7 Qualifications of the staff who enforce regulations

Most countries in the region could benefit from having more rigorous qualification requirements for building control staff.

Building design and construction rely heavily on the expertise of designers and contractors, especially for more complex and higher-risk buildings. Where heavy reliance is placed on professional designers, they must be qualified in building design, building science, and relevant building codes and standards. Similarly, where heavy reliance is placed on the building contractor, the contractor must be able to read plans and specifications and understand the construction materials, methods, and monitoring required during construction.

Over the past two decades, reforming countries have been shifting the responsibility for quality assurance in construction from public building authorities toward private practitioners. This has some advantages because it reduces delays and bottlenecks faced by capacity-constrained local building authorities. The result, however, is greater reliance on the expertise of private sector designers and engineers. The competency of professionals involved in building control activities is therefore a key aspect of building regulatory systems and requires a robust system of qualification and licensing for those professionals. Regulations also often determine the required qualifications of professionals who review plans prior to issuing building permits, as well as those of the professionals conducting site inspections.

All countries with building regulatory frameworks in the region have set minimum requirements for professionals responsible for enforcement and compliance, but only about 23 percent have rigorous requirements for building control staff.[40] In Comoros, Madagascar, and the Seychelles, only a university

[40] The phrase *rigorous requirements* is defined as having at least four requirements, for example, a university degree, a minimum number of years of experience, a professional license, and successfully passing a certification exam.

degree is required. In 28 countries, at least one other qualification is required in addition to a university degree in engineering, architecture, or other relevant field. Only 11 countries—Botswana, Côte d'Ivoire, Kenya, Liberia, Malawi, Mali, Nigeria, Sudan, Tanzania, Zambia, and Zimbabwe—require that, in addition to holding a relevant university degree, the professionals in charge before and during the building permit process pass a certification exam, are registered members of the national professional body of architects or engineers, and have a certain number of years of experience.

Countries in the region tend to have more stringent qualification requirements for their staff for plan check/development control than for inspections during construction, or for the issuance of occupancy permits. Refer to figure 3.16.

3.2.8 Mandatory regulation compliance strategies and enforcement bodies

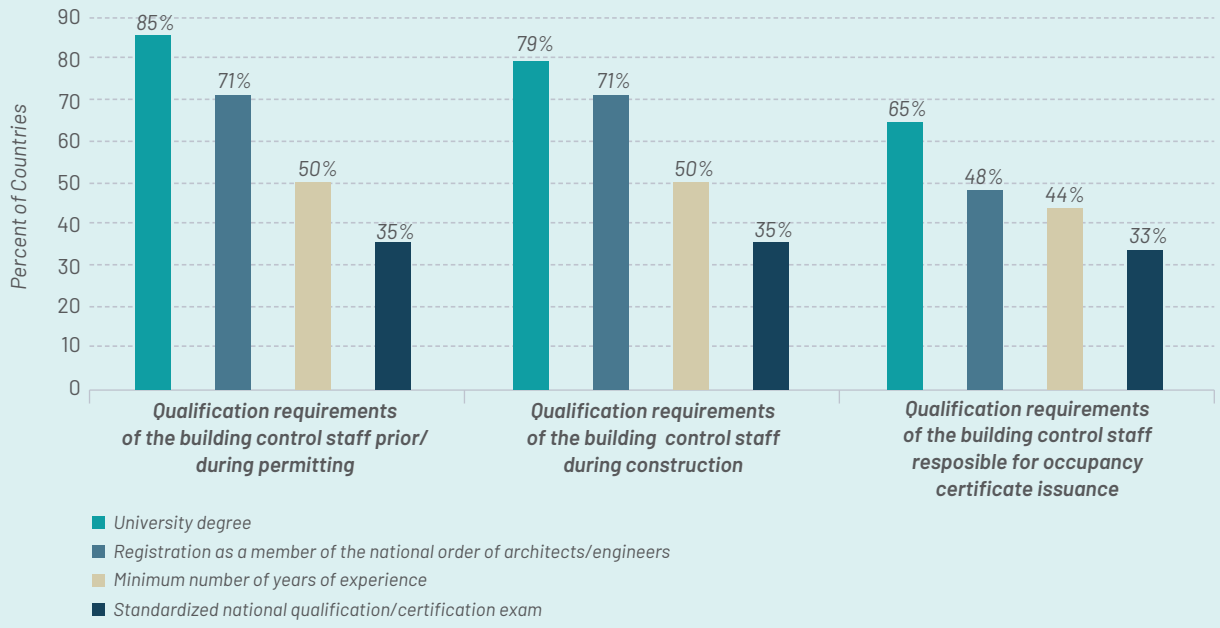
The majority of countries in the region (41) issue fines for noncompliance, but more resources are needed for building control authorities to carry out enforcement activities and to provide broader implementation support across the public and private sectors.

Effective building regulation compliance strategies are based on a balanced approach between procedural legitimacy and punitive enforcement. The objective of building regulation is to diminish health and safety risks. However, public authorities sometimes draft and adopt regulations without proper consideration of how likely or feasible compliance will be. Punishment and sanctions are drivers of compliance, but not decisive ones, because top-down dissuasion attempts do not always lead to the desired outcomes (Blanc, Macrae, and Ottimofiore 2015). Exclusive reliance on aggressive enforcement may even discourage compliance with regulations, "especially when enforcement involves abusive arbitrary discretion, lack of transparency, disrespectful treatment, excessive bureaucracy, and refusal to consider appeals" (GFDRR and World Bank 2015, 77). On the other hand, "research has consistently shown that the degree to which regulated subjects find authorities and rules legitimate is one of the strongest drivers of compliance" (GFDRR and World Bank 2015, 77).

Penalties for noncompliance

An effective building control strategy must include fair and reasonable regulations but also noncompliance

Figure 3.16 // Qualifications and Requirements of Building Control Staff in Sub-Saharan Africa



Source: Data are based on a desk review of regulatory documents and other building control agency sources. Where more recent data were not found, data were taken from the World Bank's *Doing Business 2020 Report* (World Bank 2020b)

enforcement measures. In 41 countries, the building regulations mandate fines or other penalties in the case of noncompliance. The exceptions among countries with regulatory frameworks are Liberia, Nigeria, and São Tomé and Príncipe.[41] In most cases, specified penalties are in the form of fines, but they can also include stop-work and demolition notices.

Support for the building sector to improve compliance

To improve building safety and compliance with regulations, proactive support is crucial to address gaps in capacity by providing guidance and training for both the public and private sectors. The responsible ministries as well as the local building authorities must be proactive in supporting the capacity of actors in the construction sector to comply with building code provisions (GFDRR and World Bank 2015, 86). Support can include easily accessible regulatory documents; guidance documents on regulations; training for building control departments; training for building design professionals, contractors, and self-builders; and educating the public about the importance of complying with regulations. Professional organizations also have an important role to play by offering licensing schemes, holding their members to a code of conduct, and requiring members to keep up to date with training and other professional development activities. Support and capacity building for implementation are continuous processes that require ongoing investment.

In 30 countries, some form of implementation support is provided (refer to table 3.18). Of this group, 16 offer more than one kind of support. The most common kind of support offered in 22 countries is easy access to all regulatory documents and information about regulatory requirements and processes (either free or for a modest fee).

For example, in Burkina Faso, Cameroon, Ethiopia, Nigeria, Uganda, and Zimbabwe, code commentary (and/or guidelines) is available to provide guidance on how to use the codes. Also, in nine countries (Burkina Faso, Cameroon, the Central Africa Republic, Comoros, Ghana, Kenya, Nigeria, Rwanda, and Senegal) the authorities offer workshops and training. Cabo Verde, Cameroon, Ghana, Kenya, Lesotho, Namibia, Nigeria, the Seychelles, and South Africa have open and transparent public consultation processes to address suggestions and concerns from practitioners. Eleven countries (Cameroon, Ethiopia, Ghana, Lesotho, Mozambique, Namibia, Rwanda, the Republic of Congo, Sierra Leone, Tanzania, and Zimbabwe) offer consultation services to improve the readiness of documents before development or building permit applications are submitted. Botswana offers one-on-one consultations during the design phase. As an example of building code implementation support, the efforts made by Nepal (see box 3.5)—a country with many of the same constraints as some Sub-Saharan Africa countries—illustrate the importance of continuous investment in this area.

3.3 DISPUTE RESOLUTION MECHANISMS

Most countries in the region include dispute resolution mechanisms in their building regulatory framework.

The absence of independent, professional, or effective dispute resolution mechanisms can discourage building permit applicants and builders from compliance with legally required building regulations. Building sector practitioners can arrive at interpretations of regulations that sometimes differ from those of permitting agencies and inspectors, leading to delays and uncertainty during construction. A lack of dispute resolution mechanisms can lead to lengthy disputes, bottlenecks in permit issuance, and inadequate building safety guarantees (GFDRR and World Bank 2015, 54). Therefore, an effective mechanism for dispute resolution is essential for enhancing compliance, procedural fairness, transparency, and the timely issuing of approvals. Moreover, the existence of an effective, professional dispute resolution mechanism increases accountability (GFDRR and World Bank 2015, 79). It is essential, too, that dispute resolution bodies have the technical expertise required to resolve construction disputes.

In the region, 35 countries (73 percent) have some form of dispute resolution mechanism in place. Figure 3.17 gives the percentage of countries with different types of bodies in charge of settling disputes: the building control authority, an independent tribunal

[41] For Niger and Malawi, data were not available on the topic of noncompliance enforcement measures.

Box 3.5 // Ongoing Investment in Code Implementation: The Case of Nepal

Nepal has a varied and challenging geography and natural hazard environment. The Himalayan mountains run along its length, transitioning into foothills, valleys, and then plains bordering India to the southwest. These mountains are formed by the world's largest active continental mega-thrust fault, which produces a significant seismic hazard for most of the country. Many communities are rural and remote, with the main urban areas concentrated in and around Kathmandu, the capital. The Nepal Building Code was developed in 1994 and legally adopted in the 1998 Nepal Building Act to address the country's hazard environment as well as locally prevalent construction types, including non-engineered vernacular structures. Most buildings in Nepal are built by owner-builders or local tradesmen.

Based on the level of expertise of building regulatory authorities and practitioners, the team charged with developing the code chose to set realistic objectives for the design of technical standards and guidance materials. For simple, small-scale construction, the code proposed technical guidance as "rules of thumb" on the assumption that simple but essential structural details could be checked by the non-specialist staff of municipal building departments.

Over the last few decades, the government, in partnership with the National Society for Earthquake Technology Nepal (NSET), has supported the implementation of this updated building code with an ongoing program of capacity building (refer to figure B3.5.1). With support from international donors, their implementation approach combines community awareness exercises; trainings for engineers, architects, and builders; monitoring construction practice across districts; promoting knowledge sharing among stakeholders; and gauging risk perception among political leaders.

The devastating impact of the 2015 earthquakes that killed more than 9,000 people and destroyed thousands of buildings in and around Kathmandu Valley provided an early test of Nepal's innovative approach to building code implementation. These events demonstrated that improvement in building and construction standards and safety requires ongoing commitment, continuous effort, and sustained resources. After the earthquakes, a new seismic hazard study was performed, and the national code was updated to improve structural design standards and increase the required seismic resistance levels for all building types.

Figure B3.5.1 // NSET Program of Capacity Building: Training and Retrofitting

a. Masons Receiving Hands-On Training on Retrofitting

b. Representatives from a Rural Municipality Observing the Ongoing Retrofitting of a Typical Rural Stone Masonry Building

Source: ©NSET
Note: NSET = National Society for Earthquake Technology Nepal; see https://www.nset.org.np/nset2012/.

Sources:

1. GFDRR and World Bank (Global Facility for Disaster Reduction and Recovery and World Bank). 2015. Building Regulation for Resilience: Managing Risks for Safer Cities. Washington, DC: World Bank. https://www.gfdrr.org/en/publication/building-regulation-resilience-0.
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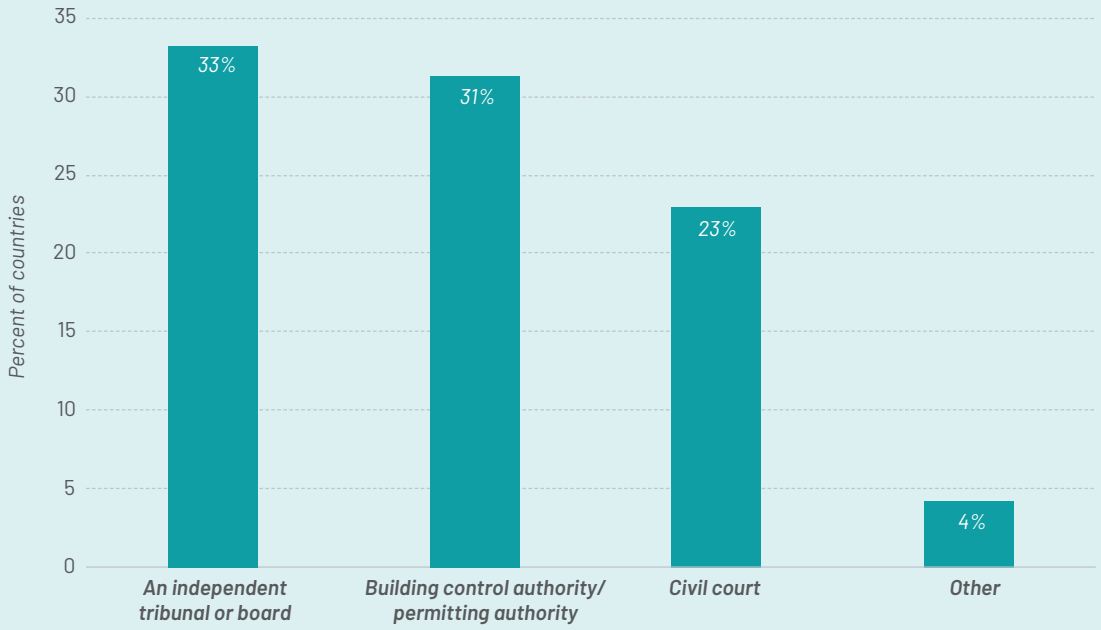
3. Dhungel, R. et al. 2020. "Efforts and Impacts of Socio-Technical Assistance for Retrofitting in Post-Earthquake Reconstruction in Nepal." 17th World Conference on Earthquake Engineering, Sendai, Japan.

Figure 3.17 // Types of Agency in Charge of Dispute Resolution in Sub-Saharan Africa



Source: World Bank Group data (2022)

or board, a civil court, or other government body.[42] Refer to table 3.18.

Even where appeal mechanisms are formally in place, they may not be sufficiently established to offer effective dispute resolution (GFDRR and World Bank 2015, 54). In the 11 countries where regulations allow the appeal of decisions from permitting or building authorities through the court system, there is no guarantee that the courts have the expertise necessary to resolve disputes on construction and building permit issues. Moreover, costly and procedurally rigid systems can make dispute resolution through the regular courts impractical. The existence of an independent body specializing in resolving these types of disputes is preferred.

Ideally, the dispute resolution body should address the full cycle of the building regulatory process and ensure that resources are focused on the most common types of disputes. Countries that are setting up dispute resolution mechanisms should start by including the most common types of disputes that arise, such as the issuance of building and occupancy permits. Then, as they gather data on other concerns, the bodies can gradually increase the scope of issues they address, alleviating the workload of the courts and, at the same time, bringing more expertise to the resolution process.

[42] In The Gambia, appeals can be directed to the State Minister for Lands, for example.

Table 3.18 // Support to the Building Sector to Enable Compliance in Sub-Saharan Africa

	Angola	Benin	Botswana	Burkina Faso	Burundi	Cabo Verde	Cameroon	Central African Republic	Chad	Comoros	Congo, Dem. Rep.	Congo, Rep.	Côte d'Ivoire	Equatorial Guinea	Eritrea[a.]	Eswatini	Ethiopia	Gabon	Gambia, The	Ghana	Guinea	Guinea-Bissau	Kenya	Lesotho	Liberia	Madagascar	Malawi	Mali	Mauritania	Mauritius	Mozambique	Namibia	Niger	Nigeria	Rwanda	São Tomé and Príncipe	Senegal	Seychelles	Sierra Leone	Somalia[b.]	South Africa	South Sudan[b.]	Sudan	Tanzania	Togo	Uganda	Zambia	Zimbabwe
Accessibility of all required information for code compliance	X		X		X	X	X	X									X	X		X	X		X	X		X				X	X	X	X		X								X		X	X	X
Availability of code commentary				X			X										X																	X											X		X
Training and workshops				X			X	X		X										X			X											X	X		X									
Open and transparent public consultation process						X	X													X			X	X								X		X				X			X						
Consultation services to improve readiness of documents							X					X					X			X				X								X	X		X			X				X				X	
One-on-one consultations			X																																												

Source: World Bank Group data (2022)
Note: a. No data available. b. No evidence of a legally adopted building regulatory framework has been found.

Table 3.19 // Dispute Resolution Entity in Sub Saharan Africa

	Angola	Botswana	Cabo Verde	Cameroon	Chad	Congo, Dem. Rep.	Congo, Rep.	Côte d'Ivoire	Equatorial Guinea	Ethiopia	Gabon	Gambia, The	Ghana	Guinea	Guinea-Bissau	Kenya	Lesotho	Madagascar	Malawi	Mauritania	Mauritius	Mozambique	Niger	Nigeria	Senegal	Seychelles	Sierra Leone	South Africa	Sudan	Rwanda	Tanzania	Togo	Uganda	Zambia	Zimbabwe
An independent tribunal or Board	X	X			X					X			X	X	X		X	X			X			X		X		X		X			X	X	
Building Control Authority/Permitting Authority	X	X		X		X	X	X			X	X	X	X		X			X			X	X												
Civil Court			X						X				X												X	X	X	X	X		X	X			X
Other												X								X															

Source: World Bank Group data (2022)

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4. Improving Building Regulatory Frameworks

This chapter gives the status of the development of building regulations for countries in Sub-Saharan Africa during the study period, as well as guidance on the steps and resources involved in developing risk-informed building regulations. In addition, it summarizes key areas for improving building regulatory frameworks in the region based on data gathered through interviews with practitioners in the region.

4.1 SUB-SAHARAN AFRICAN REGULATIONS UNDER DEVELOPMENT

Around one-half the countries in the region are in the process of updating or developing building regulations.

Building regulatory frameworks evolve and are updated periodically to incorporate improvements based on user feedback and in response to new technologies and construction trends, as well as to adapt building requirements to the changing hazard environment. For example, the recently updated Ghana Building Code (2018) now addresses the challenge of more frequent, intense heatwaves and flooding due to climate change;[43] Rwanda, in addition to adopting an updated, comprehensive Rwanda Building Code (2019),[44] is in the process of updating its regulations to include more stringent energy efficiency requirements to achieve a more sustainable built environment as well as cost savings for building operation.

Updating building regulations requires planning, coordination among a diverse group of stakeholders, adequate resources, and long-term commitment from governments. Some countries include, within their building regulatory framework, requirements and resource allocations for the periodic updating of regulatory documents. The process is a long-term commitment because it requires technical work as part of a deliberative process with a wider group of stakeholders. Often, working groups and/or steering committees

[43] See several provisions of the Ghana Building Code (2018), including articles 1.4.10.1, 1.12.3.3, and 1.12.3.11.1, available at https://ghis.org.gh/wp-content/uploads/2021/09/BUILDING-CODE-GS-1207_2018-Complete-Complementary-Copy.pdf.

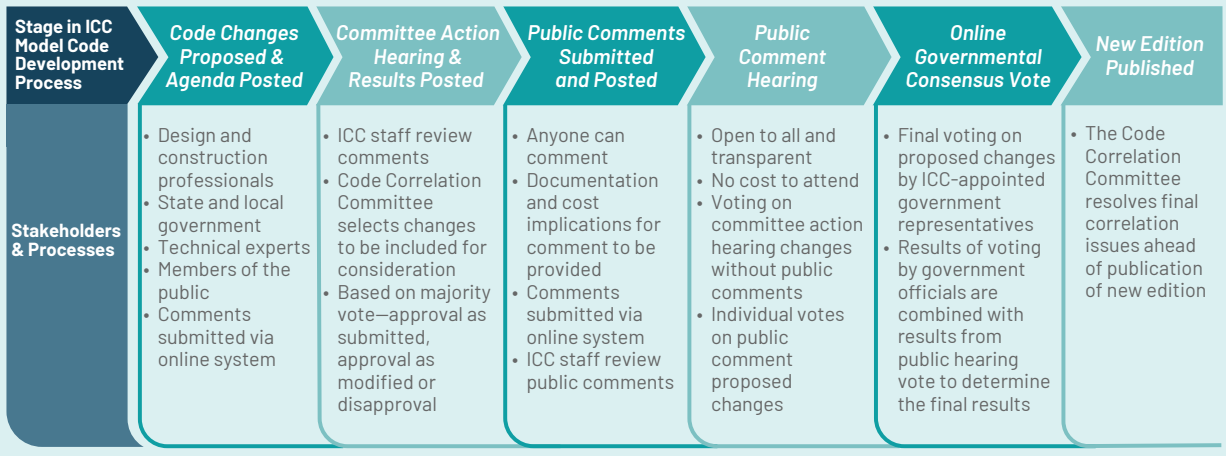
[44] The Rwanda Building Code is available at https://rwandalii.africanlii.org/sites/default/files/gazette/OG%2Bno%2BSpecial%2Bof%2B16%2B04%2B2019.pdf.

are formed to lead the development of regulatory documents. Indeed, it is not uncommon for a building design code update to take several years to complete. The phases involved in the development and updating of regulations are numerous. They include initial planning, a consultation phase, technical preparation of a draft that engages further feedback from key stakeholders and public consultations, drafting of updated regulatory documents from the legal point of view, further consultation, preparation of a regulatory impact study for lawmakers to consider, verification by stakeholders, and legislative approval. As an example, the process by the International Code Council (ICC) to update model building codes in the United States is presented in figure 4.1. In addition, box 4.1 presents a case study for Eswatini, and section 4.2 gives general guidance on developing risk-informed building regulations.

When countries adopt international codes, considerable effort is needed to tailor the code to the specific context of that country. Rather than develop or update a building design code from scratch, many countries choose to adopt codes or selected provisions from already existing international codes, such as the EU's Eurocodes or the International Building Code (IBC) and related referenced US design standards. Although this offers the advantage of using an internationally recognized and tested set of design provisions, care needs to be taken to review and adapt these codes so they can be successfully applied in the context of the adopting country. For example, international codes may not cover common construction types and materials in the country, and may assume different levels of material quality control. Additionally, most international design codes require a high level of professional expertise in order for design and construction professionals to be able to comply with the code. This creates a challenge for countries where a large proportion of buildings are constructed with little input from architects or engineers, and simplified provisions and/or rules of thumb are needed for common types of small-scale construction. In addition, country-specific design criteria for hazards and risks need to be developed as part of adopting an international code.[45] In some cases, countries pick and choose provisions from a mix of different international codes. This is generally discouraged because different codes use different assumptions as a basis for their design provisions. These assumptions can be mutually incompatible and therefore lead to unsafe designs.

As the scope and sophistication of building regulations grow, professional qualifications need to grow alongside them. This requires curriculum development

Figure 4.1 // The International Code Council Model Code Development Process in the US: An Example



Source: Original figure developed for this publication
Note: ICC = International Code Council.

[45] An example would be country-specific annexes containing seismic hazard design parameters and so on if Eurocodes were to be adopted.

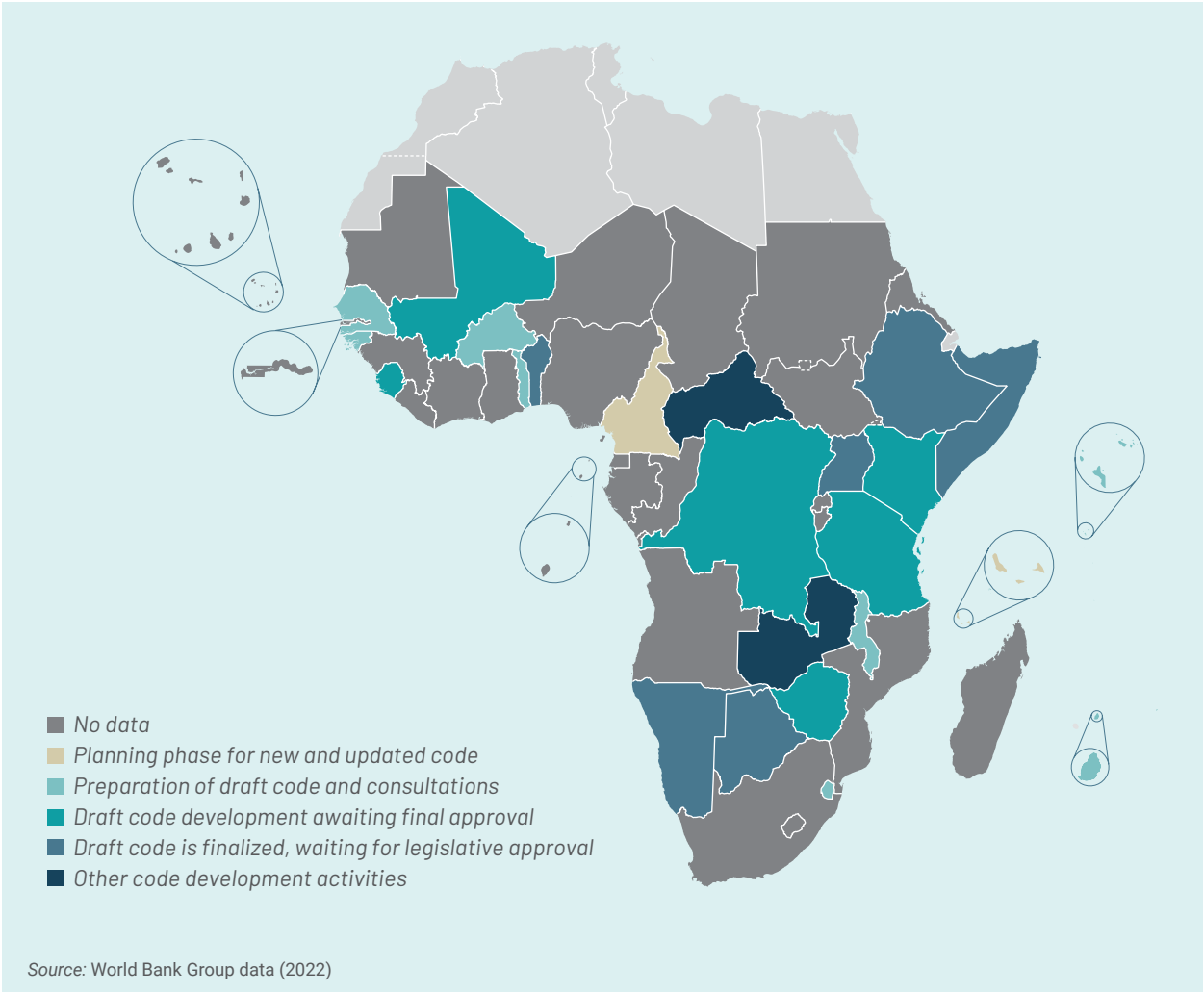
in vocational colleges and universities, and continuous training for construction professionals and building control officers. The minimum qualification standards for roles and responsibilities set out in legislation or in the building regulations may also need updating over time.

At the time of data collection for this study, survey respondents reported that 23 countries in the region were in the process of either developing a new building code or regulations, or updating the existing ones. Eight countries (Burkina Faso, Eswatini, Guinea-Bissau, Malawi, Mauritius, Senegal, the Seychelles, and Togo) were in the consultation and preparation of draft code phase. In Togo, for example, an update of the 1967 code is intended to regroup urban laws, decrees, and bylaws. The updating process is in a more advanced stage in 5 countries (the Democratic Republic of Congo, Mali, Sierra Leone, Tanzania, and Zimbabwe), where the draft code is awaiting final approval; and in another 6 countries (Benin, Botswana, Ethiopia, Kenya, Namibia, and Uganda), the finalized draft code is awaiting legislative clearance. In Botswana, obtaining approvals has been a prolonged process—note, for example, that the new code was originally drafted in 2007. Refer to map 4.1.

4.2 THE DEVELOPMENT OF RISK-INFORMED BUILDING REGULATIONS

The development of regulations requires a combination of technical input, consultations, and cooperation with diverse stakeholders and an understanding of the country's context.

Map 4.1 // Code Development Status



Source: World Bank Group data (2022)

Box 4.1 // The Process of Updating Building Regulations and Legal Frameworks in Eswatini

Eswatini is a small, landlocked country bordering South Africa and Mozambique, with a population of about 1.1 million. Approximately three-fourths of the population lived in rural areas in 2020 (World Bank 2018).[a] The capital, Mbabane, has fewer than 100,000 residents. In 2017 Eswatini initiated a reform of the Eswatini Building Regulations, jointly led by the Ministry of Housing and Urban Development and the Mbabane Department of Technical Services. The current regulations are based on Building Act 34 of 1968, the Standard Building Regulations of 1969, Article 37, and associated bylaws.

The need for new regulations

The government has recognized that the existing regulations are cumbersome, do not reflect current design and construction practices, have out-of-date penalty fines, and refer to old codes such as the superseded South African Standard Building Regulations.[b] Although officially the existing regulations apply to the entire country, in practice they have been consistently implemented only in urban areas. Representatives of Mbabane Municipal Council have also raised the need to clarify the roles to be played by each category of professionals who are involved in design and construction (engineers, architects, and technicians).

Developing the new regulations and integrating green building concepts

The new regulations will be comprised of a primary Building Act as well as bylaws to be approved by local constituencies at a later stage. To build on the current regulations related to green building requirements, such as specifications for natural lighting and ventilation for new buildings, the updated regulations will group and expand the green building provisions under a new chapter.

The way forward

Currently, the proposed legislation has been delivered by the Ministry of Housing and Urban Development to the Attorney General's Office of Eswatini. After the Attorney General completes the review, the draft will be reviewed by other ministries before being submitted for legislative approval. The new Building Act is expected to be approved in 2023. If there is a change in government leadership in the 2023 elections for the House of Assembly, there is a risk of a lack of sustained support to finalize the regulations.

Improvements and challenges expected by the reformers

The new building regulations are expected to bring more clarity and agility to private sector projects. They will set clear guidelines and define minimum qualifications for the roles, responsibilities, and activities of building sector professionals and increase the penalties for noncompliance. They are also expected to improve the safety, resilience, and sustainability of new construction.

Despite these progressive steps, further efforts will be needed to successfully adapt and implement the building regulations in rural areas. The updated design regulations should include specific provisions and related guidance for vernacular building types, such as construction with vegetative and earthen materials. Some provisions already exist for earthen construction in local bylaws that could be adopted and adapted as part of this. Another remaining challenge relates to implementation: according to public officials in Mbabane, although the building regulations apply to the entire country, due to the lack of capacity for inspection and control in rural areas, most buildings there are constructed without first obtaining building permits.

Note:

a. Data are from the World Bank Databank, Urban population (% of total population) – Eswatini, based on the United Nations Population Division, World Urbanization Prospects: 2018 Revisions, https://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS?locations=SZ&name_desc=false.
b. For example, articles 28, 29, 30, 31, and 32 of the Standard Building Regulations base Eswatini regulations for loads, foundations, and materials on outdated South African Standard Building Regulations.

To improve safety for people and the built environment, building regulations must address the key risks that exist at national and local levels. These can range from natural hazards such as severe storms and earthquakes to more chronic problems such as periodic flooding, urban fire risk, and health impacts from indoor air pollution. Risk-informed land use planning and development permissions reduce the incidence of construction on unsafe sites, and thus reduce the risks from flooding, landslides, earthquake-induced ground failures, and environmental hazards. Building regulations can ensure that buildings themselves are

designed for context-specific hazards—for instance, to ensure life safety performance for design-level earthquake ground shaking (see box 4.2 for an example of developing seismic risk hazard maps), to ensure that no damage is sustained under expected wind loads, or to require materials and design layouts that minimize flood damage.

Building regulations must also address projected changes in climate conditions over the expected design life of buildings,[46] rather than relying on historical data. Changes in climate conditions are increasing the frequency and intensity of storm and flood events. This underscores the importance of undertaking regular, risk-informed updates to building regulations.

Care must be taken to ensure that the building regulatory ecosystem operates as a coherent whole. Building regulations operate within a broader regulatory environment that includes urban planning and environmental protection. This ecosystem requires proper assessment of the potential impacts of existing laws on proposed building regulation changes and vice versa, and therefore must consider the views of various stakeholders (World Bank 2015).

In addition to inputs from technical experts for code development, key issues should be identified through an open, participatory process that involves government stakeholders, local communities, and building practitioners. In addition to setting acceptable levels of risk, depending on the level of importance for various asset categories, the standards set need to be affordable and consistent with national investment capacity and local income levels and resources. In some cases, it can be better to focus on essential requirements that are possible to meet rather than more ambitious provisions that may be unachievable in the local context. Provisions in building regulations to reduce risk should also be consistent with local skills and capabilities (Payne and Majale 2004).

For design provisions, it is important to ensure that local construction types, practices, and available materials are covered. Simplified provisions or rules of thumb for non-engineered and vernacular forms of construction should be included in the regulations or guidance documents to enhance compliance with basic safety requirements and to strengthen the resilience and sustainability of common forms of construction. Local practices such as the incremental construction of buildings should be addressed in the provisions (Payne and Majale 2004).

Regulations should be accessible, clear, and understandable for building officials and design and construction practitioners. If international standards are fully or partially adopted, they must be adapted for the local context, and locally appropriate design parameters and criteria must be set. If other standards are referenced, they must be easily obtainable by users at low or no cost. In many countries, especially those with rapidly growing urban centers, unregulated informal development is a challenge. A separate set of standards for upgrading informal areas with relaxed requirements could be considered in order to achieve incremental progress in risk reduction and in improving safety and the quality of services in those areas.

Continuous investment in a program of capacity building and training for users of building regulations and building control officials is essential for compliance. As part of the capacity-building program, feedback can be gathered from building practitioners and other stakeholders about how to improve the regulations for future updates. A timescale, resources, and assigned roles and responsibilities should be set out as part of the periodic updating of the regulations. These updates should reflect any incremental progress made in related areas, such as skills development, new technologies and building materials, emerging risks, and evolving income levels.

[46] The design life of buildings is typically assumed to be 50 years in many building codes. In practice, however, buildings are expected by their owners, facility managers, and the public to have a much longer design life.

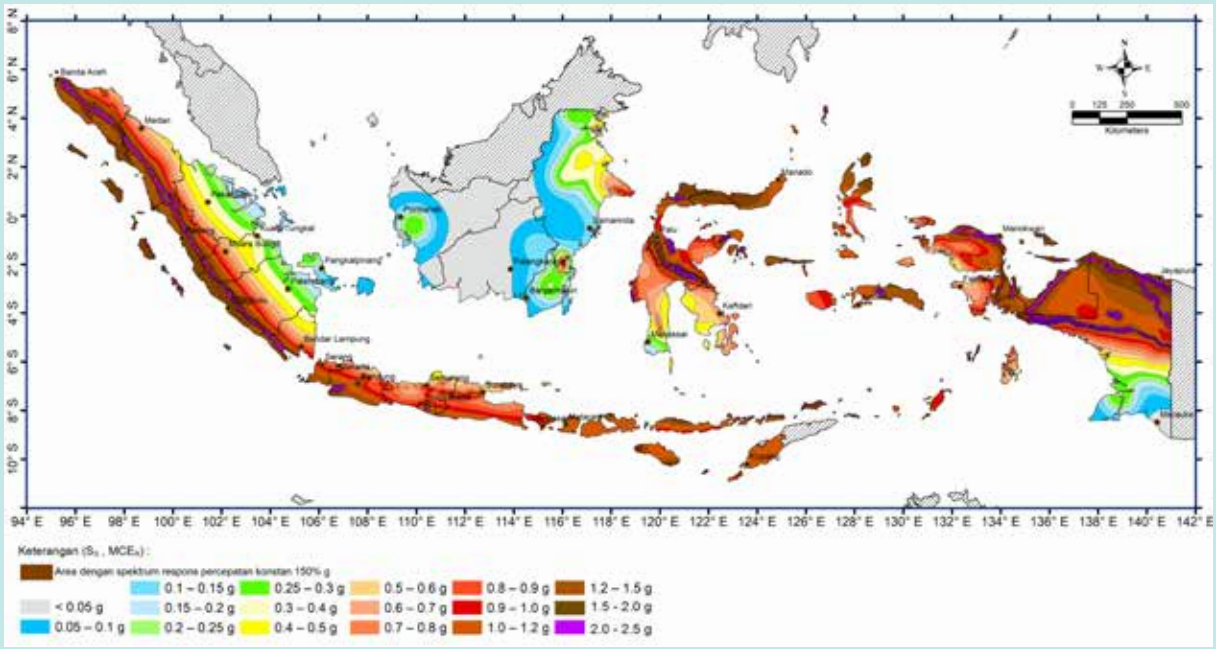
Box 4.2 // Developing Seismic Hazard Maps for Building Regulations

Building regulations must address hazards that are specific to the jurisdiction they cover. For seismic design, one key component of the design criteria is specifying the level of seismic hazard at the site. *Seismic hazard* is the hazard associated with potential earthquakes in a particular geographic area. It is defined as the probability that an earthquake will occur in a given area, within a given window of time, and with ground motion intensity that exceeds a particular threshold. This is then combined with methods laid out in the code to account for the influence of site soil effects, near-source effects, and other factors to determine seismic hazard at a specific site. Typically, building codes and regulations specify seismic hazard using a seismic hazard map: see Map B4.2.1 for an example.

Developing or updating a countrywide seismic hazard map requires adequate resources; close collaboration among technical experts, government agencies, and construction professionals; and a realistic schedule. It is not unrealistic to expect that the process could take as long as one to three years. The steps involved typically include these:

1. Develop a seismic catalogue of past earthquake events
2. Define the structural map (geology and tectonics); in some cases, fieldwork will be required to define fault sources and to characterize tectonics
3. Define a seismogenic zones and fault sources
4. Assess recurrence relations (magnitude-frequency of earthquake events for each zone or fault source)
5. Choose relevant ground motion prediction equations (attenuation laws) for use in the country
6. Carry out a probabilistic seismic hazard analysis by
   6.1 Defining a seismic hazard logic tree
   6.2 Evaluating probabilistic seismic hazard in rock
   6.3 Developing hazard curves and uniform hazard spectra
7. Compare to other studies/validation
8. Evaluate seismic hazard maps and spectral values for building code (translating hazard information into the building code parameters including acceptable risk levels)
9. Approve and implement code (McGuire 2004).

Map B4.2.1 // Seismic Hazard Map for Indonesia



Source: SNI 1726, Earthquake Resistant Design for Building and Non-Building Structures
Note: The map shows the short period spectral acceleration (S_S) for MCE earthquake (2 percent in 50 years return period) per SNI 1726-2019. MCE = Maximum Considered Earthquake, which is an earthquake with a 2 percent probability of exceedance in 50 years (a 2,475-year return period); SNI = Indonesian National Standard; S_S = short period spectral acceleration.

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5. Conclusions and Way Forward

This report presents the first comprehensive review and comparative analysis of building regulatory frameworks for Sub-Saharan African countries. The report aims to help governments and development partners in the region identify opportunities for effective risk reduction through building regulatory reforms, such as future code improvements, enhancement of code compliance mechanisms, capacity building for building professionals, and other technical assistance opportunities. In addition, this report can assist design and construction professionals in both the public and private sectors to better understand building regulatory requirements for each country in the region.

Effective building regulatory frameworks are an essential tool to improve the safety, comfort, sustainability, and accessibility of the built environment. They also form a key component of strategies to reduce disaster risk and promote measures to mitigate the negative impacts of climate change. Such frameworks are especially important to reduce the vulnerability of the built environment in Sub-Saharan Africa, given the rising risk in the region. This increase in risk is driven by several ongoing trends, particularly rapid urbanization and population growth, combined with an increase in natural hazards due to climate change.

Below are key findings and recommendations for the region. As Sub-Saharan Africa makes progress in developing and strengthening its building regulatory frameworks, further studies will be required that treat individual topics or countries in greater detail. This report, by contrast, presents a comprehensive and holistic overview of the current status, highlighting a number of common themes at the regional scale.

5.1 KEY FINDINGS

Sub-Saharan Africa has a legacy of colonial-era regulations. The building regulatory frameworks currently in the region are heavily influenced by the legacy of the colonial era. In many countries, the frameworks are based on outdated regulations inherited from pre-independence; often these have not been adapted to the country context in terms of planning, zoning practices, design for local climates and hazards, or

common construction typologies. Because strong ties still exist to European building and construction practice, many countries have sought to update their regulations by adopting current European codes (for example, Eurocodes).[47] Challenges remain in adapting these codes and standards so that they are appropriate for each country's specific context, including its local hazard environment, zoning practices, design and construction practices, and available expertise and resources.

Building regulatory frameworks need improvement. Although most countries in the region have some elements of a building regulatory framework, significant gaps in the regulations exist (see map 5.1). For example, although 45 countries have some form of legally adopted building regulations related to planning and building control, the regulations of only 25 countries contain any building design provisions, and of these, 8 have very limited regulations that, for example, may not include provisions for structural design or basic sanitation.

There is a lack of risk-informed, up-to-date planning and design regulations. Although the eastern coast of Sub-Saharan Africa is subject to strong winds from frequent cyclones, only one country in the region (South Africa) considers strong wind events in its design code. Similarly, several countries in the region have moderate to high levels of seismic hazard (for example, from the East Africa rift zone), yet only four countries—Ghana, Rwanda, South Africa, and Uganda—have updated their seismic design provisions in the last two decades. In addition, regulations often have inadequate coverage of design for universal accessibility and green building requirements, including energy efficiency. For example, only seven countries—Côte d'Ivoire, Eswatini, Ghana, Niger, Rwanda, Senegal and Uganda—have any provisions in key areas related to universal accessibility[48] and only four—Côte d'Ivoire, Ghana, Rwanda, and Uganda—have provisions in most key areas related to green buildings.[49]

Building design regulations often lack simplified provisions for common, small-scale types of construction. In much of Africa, most of the building stock consists of small-scale residential buildings built using non-engineered or vernacular construction methods by local community builders. These buildings are typically designed and constructed without input from engineers or architects, and are sometimes considered to be outside the scope of building regulations. Specific, simplified design provisions and complementary guidelines are necessary to improve the safety, resilience, and green building aspects of such buildings.

Building regulations need to be easily accessible and widely disseminated. The administration of building regulations varies from country to country. Most countries in the region have a centralized building regulation authority at the national level, but in some cases regulations are set by district- or city-level authorities, or power is shared between national and local governments, with different types of regulation administered at different levels. In the 25 countries where some design standards are in place, fewer than one-third of them have a unified document or a coordinated set of documents for their design provisions. In 20 of these countries, design standards are available online and are usually free. In 30 countries, regulations for planning and building control are available online. Desktop review and interviews with in-country practitioners and government officials made it clear that there is a need to improve the clarity, organization, and accessibility of building regulations.

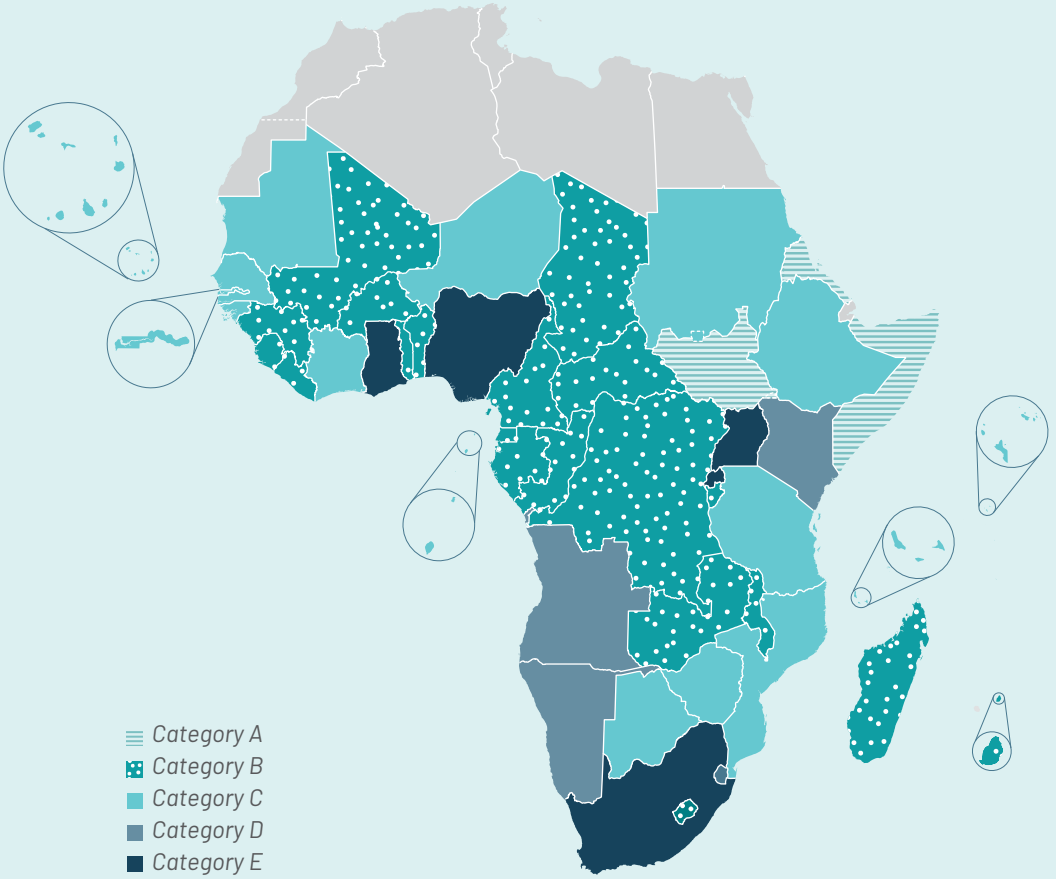
Types of building control processes and requirements vary in the region. A robust construction-permitting regime requires adequate regulatory processes and resources to support implementation and enforcement (see figure 5.1). This includes providing adequate capacity and capability in building control agencies, as well as training and capacity building for private sector professionals and the construction sector. In some countries, a development permit is required before applying for a building permit because of the need to determine whether the site location conforms to land use plans and zoning requirements. Only 25 countries require a development permit before a building permit application can be made; in 6 of these countries, hazard and risk-zoning information in the development permit is mandatory.

[47] Further information on Eurocodes can be found at https://eurocodes.jrc.ec.europa.eu.

[48] Access routes and means, accessibility and usability of internal facilities, and fixtures and signals.

[49] Natural ventilation and insulation, green building construction materials, and energy and water-efficient design methods.

Map 5.1 // Coverage of Building Regulatory Frameworks in Sub-Saharan Africa



Category A: No legally adopted building regulatory framework was identified.
Category B: Legally adopted planning and building control regulations, no building design provisions within the regulations.
Category C: Legally adopted building regulatory framework for planning, design, and building control, but lacking comprehensive design provisions, last updated before 2000.
Category D: Legally adopted building regulatory framework for planning, design, and building control, more comprehensive design provisions, last updated before 2000.
Category E: All components of a legally adopted building regulatory framework in place with more comprehensive design provisions, updated since 2000.
Source: Original map developed for this publication, based on World Bank data (2022)
Note: The countries with more comprehensive design provisions had to satisfy two criteria:
1. At least 15 different types of design provisions are defined in their regulations (out of a total of 33 categories). Refer to figure 1.1 for how the categories of design provisions were classified.
2. Among those 15 design requirements, the following elements must be included:
   a. Use and occupancy classifications
   b. Structural design provisions for normal loading
   c. Provisions related to wind actions
   d. Fire resistance performance requirements
   e. Means of access and egress
   f. Access routes and means for people with disabilities
   g. Plumbing and sanitary systems
   h. Natural insulation and ventilation

All countries in the region that have some form of legally adopted building regulatory framework require a building permit for new construction. Once this is obtained and construction starts, site inspection requirements allow building control authorities to assess whether the construction is proceeding according to permits and other requirements. However, survey respondents from only 17 countries reported that such inspections are usually conducted in practice. In addition, any new construction usually requires an occupancy permit once construction is completed; this confirms compliance with code requirements, proper installation of

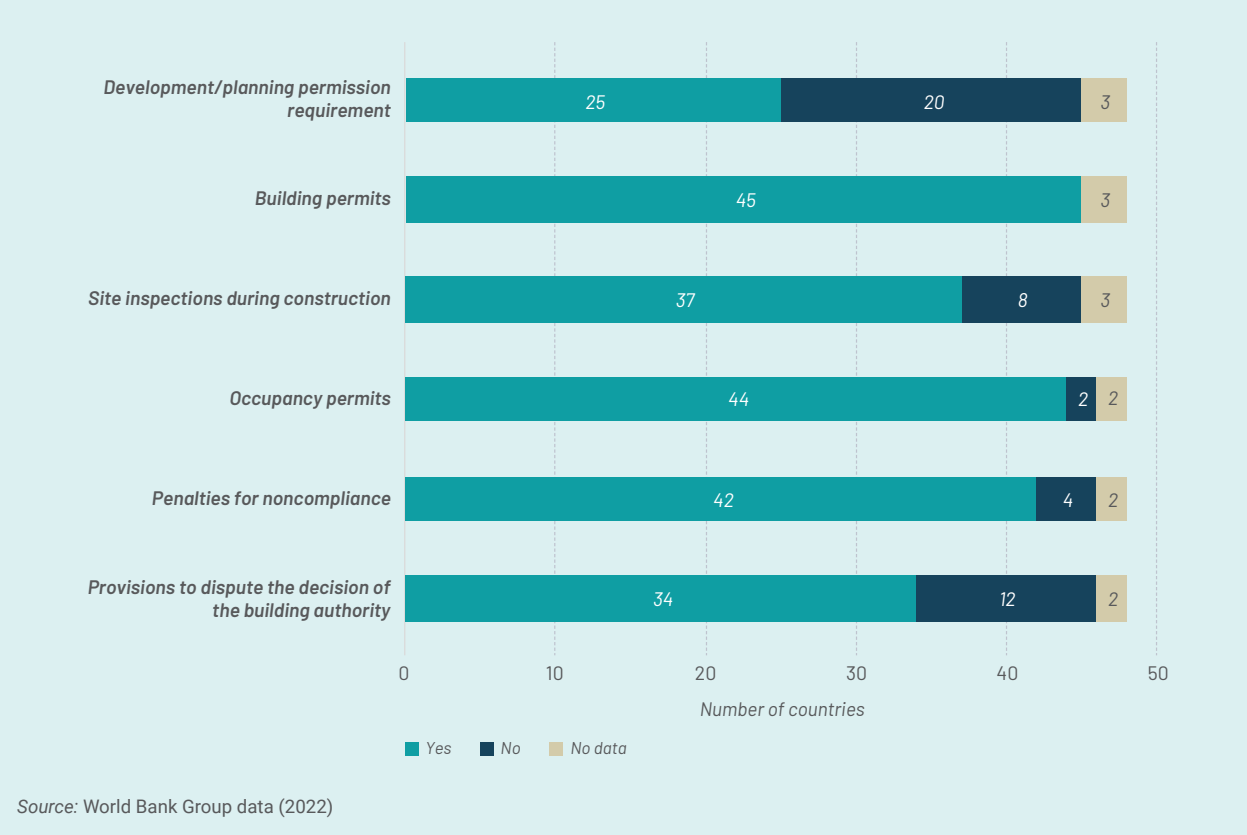
utilities, and in some cases conditions for insurance, financing, and builder liability. In the region, 41 countries require the issuance of occupancy permits. In almost all of them, the occupancy permit is issued after an inspection. However, survey respondents from only 17 countries reported that these inspections usually occur in practice.

In summary, many compliance mechanisms are in place as part of regulatory frameworks, but the area of risk-informed development planning needs strengthening, and additional resources are needed to support compliance and enforcement mechanisms in general.

Building control staff should have appropriate qualifications and competencies. Building control in the region is largely in the hands of local building authorities, who are the main actors in reviewing and granting permits, as well as enforcing the quality of construction. Involvement of private sector actors in the review and enforcement process is very limited. Local building authorities are often stretched thin and face backlogs in planning and construction approval, inspection, and permit approvals. And while nearly all the countries require that the professional responsible for enforcing compliance has at minimum a degree in architecture, engineering, or other relevant field, fewer countries have any other requirements that are more rigorous than this, such as that building control staff be licensed and registered members of professional architecture or engineering bodies with a certain number of years of experience, or that they pass certification exams. In general, countries require more stringent staff qualifications for plan check and development control than for inspections during construction or for the issuance of occupancy permits.

Dispute resolution mechanisms need to be independent of the building control authority. Independent, professional, and effective dispute resolution mechanisms are a key element of an effective building regulatory system. While 35 countries in the region have some form of dispute resolution mechanism, only in 15 countries are disputes related to building control resolved by an independent tribunal or board. Cost-effective, independent dispute resolution bodies with appropriate expertise have the potential to increase compliance, trust, and accountability.

Figure 5.1 // Types of Compliance Mechanisms for Building Regulations in Sub-Saharan Africa



Source: World Bank Group data (2022)

5.2 RECOMMENDATIONS

Based on the findings of the survey on building regulatory frameworks and their implementation in Sub-Saharan Africa, the following recommendations have been identified:

Recommendation 1: Develop more comprehensive and up-to-date building design codes that are appropriately tailored for the country context.

There is a pressing need in many countries in the region for more up-to-date, comprehensive, building design regulations—to reduce the risk to populations from country-specific hazards, mitigate and adapt to the impacts of climate change, and provide safer, more accessible, energy-efficient, and comfortable buildings. Where design and construction skills and capacity vary, regulations should include specific, simplified design provisions to improve the safety, resilience, universal accessibility, and green building aspects of common, small-scale construction types. At the same time, more rigorous design provisions are needed for complex and higher-risk building types such as tall buildings, emergency response facilities, hospitals, schools, and critical infrastructure.

Building design regulations must be tailored to the country context. This includes consideration of local construction methods and materials, the availability of resources, the capabilities of building sector professionals, and the country-specific hazard and risk context. If other international or regional codes are adopted, they must be reviewed and adapted carefully to suit the country context.

Building design regulations must be kept up to date to reflect changing needs, meet the requirements of all users, and account for new types of construction or changes in technology and market conditions. This creates opportunities to integrate locally adapted green building design and construction practices, provide climate mitigation and resilience, and improve accessibility in order to create a more inclusive built environment that meets the needs of people with special requirements.

For example, the recently updated Ghana Building Code (2018) gives simplified seismic analysis methods for buildings that meet regularity requirements, allows the use of local materials such as bamboo, and has integrated green building strategies into the building code, such as provisions for new energy-efficient technologies and green roofs to mitigate heat island effects.

Recommendation 2: Strengthen building regulatory measures to reduce construction on risky or inappropriate sites.

As a result of rapid urbanization and population growth, many buildings in the region are constructed on inappropriate sites—for example, sites that are prone to flooding or have soil conditions that are inadequate to support safe construction. To prevent this, countries should invest in the development of hazard maps, ensure that development plans (land use or zoning regulations) are informed by these maps, and ensure that building control authorities condition or restrict any development according to the level of exposure and risk in different areas.

For example, in 2016 an updated land use plan was prepared as a pilot project in Malawi's Karanga District to integrate the latest knowledge on relevant hazards and risks. With input from local communities and technical experts, risk mapping was carried out and incorporated into the new plan to reduce illegal development on floodplains and to protect areas from deforestation (UNDP 2022).

Furthermore, gaps in the scope of legislation and regulations need to be filled so as to define clear roles and coordination mechanisms among the agencies in charge of building regulations, agencies in charge of land use and spatial planning, and other bodies that regulate and control the building and construction sector.

Recommendation 3: Ensure that building regulatory frameworks address the prevalence of non-engineered construction in the region.

Regulations and guidelines for common types of small-scale buildings (including vernacular construction), guidance materials such as construction booklets and manuals, and awareness-raising campaigns can help to provide safe and affordable buildings for low-income people. For example, Malawi has developed the Safer House Construction Guidelines and has a program of capacity building and training to promote its adoption and use by small-scale builders and communities (refer to box 3.1). Countries should identify types of vernacular construction that are more resilient to disaster risks and promote their use. Development

plans could designate certain selected areas in cities for self-build or community-build construction, and support these developments with infrastructure and services. This could incentivize new settlements in lower-hazard areas (as identified by hazard maps).

Since many buildings have been developed outside formal regulatory control, regulations and guidance need to address how to upgrade and regularize existing buildings to improve essential services—water, power, sanitation, and so forth—and address safety and resilience gaps. These regulations will need to be more flexible and incremental than those applicable to new buildings.

For example, since 2009, South Africa has implemented a program of community-driven, incremental upgrades of informal housing, including providing shared or individual toilets, upgrading the fire resistance of structures, and densification with two-story detached extensions (World Bank 2016).

Recommendation 4: Improve the accessibility and efficiency of building regulations and building control processes.

Regulations and building control processes for applicants should be widely disseminated, easily accessible online, and available for free. Many countries in the region have made efforts to make their building regulations more easily accessible. For example, in Eswatini, guidance and regulations related to construction permits were made available online at no cost (World Bank 2020).

Building control processes and requirements should be simple to follow and omit unnecessary steps that add time, cost, and complexity for applicants and building control officials. For example, Angola has made administering construction permits easier and less time-consuming by improving systems for building permit applications (World Bank 2018).

Digitization of processes and data management systems can allow building control authorities to use their resources more efficiently, improve ease of use for applicants, reduce costs, and increase transparency and traceability. For example, in Rwanda, the city of Kigali has implemented an online Building Permits Management Information System (BPMIS) to digitize permitting and inspection processes. This has allowed more efficient data management and access to archived data, registration of professionals, automated reporting, and the use of smartphones to capture and upload building inspection data directly to the system.

Recommendation 5: Adopt risk-based approaches to building control.

Many countries in the region face challenges in delivering building control services because of financial, operational, and human resources constraints. These pressures can be alleviated in a systematic way by ensuring that building control agencies focus on those buildings with the highest risks. The level of permitting requirements, and the inspections required during construction, can be linked to the risk category of the building.

For example, Rwanda has embedded a risk classification matrix with eight categories in its 2018 Building Code to prioritize plan reviews and inspections. Building risk categories are classified by usage type, occupancy levels, and total floor plan area.

Recommendation 6: Invest in capacity development for building regulation implementation, in both the public and private sectors.

Successful implementation of building regulatory frameworks requires continuous investment in capacity building—in the form of clear and accessible regulations; well-qualified and equipped building control staff; continuous guidance and training in the public and private sectors; public communication campaigns to produce a societal demand for safety, resilience, energy efficiency, and accessibility in the built environment; robust professional licensing mechanisms; and an improved capacity for assuring the quality of construction materials. Proactive support from governments is critical to create an enabling environment, particularly when new regulations, guidance, or building control systems are introduced.

For example, in Nigeria, the city of Lagos has begun to address the chronic problem of building collapses by launching public awareness campaigns on the importance of adhering to building regulations and establishing an anonymous whistleblower line to report unsafe structures (refer to box 3.2). The case of Nepal has demonstrated the importance of continuous capacity building efforts by the government and professional organizations for building code compliance since the

introduction of its first building code in 1998 (refer to box 3.5).

Further institution building is needed in the region to increase the capability and capacity of building control authorities. This will require expanding the number of professionally qualified staff and improving their training. In addition, independent entities tasked with resolving disputes that arise in the building regulatory process should be created or supported. In addition, the study found that there was a need to increase the capacity of countries' testing facilities for construction materials, as well as for site soil testing.

Countries could consider increasing capacity by involving the private sector to perform plan checks and inspection activities. For this to be successful, the regulatory environment must provide strict vetting and qualification requirements for third-party inspectors, and robust oversight and quality control by public authorities (World Bank 2018). For example, in Germany, where private engineers are engaged by the local building authorities to perform plan checks and site inspections, the engineers must be independent and must meet stringent qualification requirements, including a minimum of 10 years' professional experience, and a minimum of 1 year of site experience (Meijer and Visscher 2014).

The educational sector and professional organizations also have important roles to play. Further development of vocational and university curricula, and more stringent licensing requirements for design and construction professionals, will be needed as the regulatory environment evolves.

Recommendation 7: Increase knowledge sharing and cross-regional collaboration.

Some countries in the region are further along than others in their design and implementation of regulatory frameworks. Increased knowledge sharing across the region would therefore be beneficial. This should involve governments, academic institutions, building professional societies, and the construction sector. Regional synergies could also support ambitious coordinated solutions at scale—for example, a shared process to update regulations, regional standards, and guidance, complemented by final tailoring to specific country needs and implementation capacity. For example, the East Africa Community (EAC) has developed construction material standards (EASs) for the East Africa region that have been adopted by several member countries, including Kenya, Uganda, and Rwanda.

A strategic focus at the regional level could also drive approaches to energy efficiency and sustainability using building regulatory frameworks as a tool. For example, this could be actioned by countries such as Ghana, Kenya, Mauritius, Namibia, Rwanda, Tanzania, and Zambia that have Green Building Councils (GBCs) as part of the World Green Building Council's global network (Deloitte 2019).

In addition, table 5.1 presents prioritized recommendations for groups of countries depending on the level of maturity of their building regulatory frameworks.

5.3 NEXT STEPS

Sub-Saharan Africa is at a crossroads in its urbanization 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.

Partnerships are needed to advance the agenda of building regulatory framework reform at scale. Support could come from international code development bodies, such as the European Commission (for Eurocodes) and the International Code Council (for US codes and standards), and from international material standards bodies, such as the International Organization for Standardization (ISO) and ASTM International (ASTM). Regional cooperation and knowledge sharing in the area of building regulations could be facilitated by regional organizations such as the East African Community (EAC), the African Union's Regional Economic Communities (RECs), the Economic Community of West African States (ECOWAS), the Southern African Development Community (SADC), and others.[50] Increased cross-regional collaboration among governments as well as technical and professional bodies, can help share lessons learned and

[50] More information about these regional organizations is available from the Federal Ministry of the Republic of Austria, European and International Affairs, at https://www.bmeia.gv.at/en/european-foreign-policy/foreign-policy/africa-south-of-the-sahara/regional-organisations/.

Table 5.1 // Priority Recommendations by Maturity Stage of Building Regulatory Framework

Maturity Stage of Framework	Countries	Priority Recommendations
Category A No legally adopted building regulatory framework was identified	❑ Eritrea ❑ Somalia ❑ South Sudan	❑ In absence of a building design code, prioritize the development of guidelines for common forms of small-scale construction, with a focus on essential requirements for safety and basic services. Carry out a complementary program of capacity building and training to promote the use of the guidelines. For other building types: ❑ Understand the country context that the building regulatory environment needs to respond to. Specific priorities include identification of key hazards and risks (including future projections related to climate change), and understanding of the construction environment, including common building types and local materials, market conditions, and a level of professional expertise. ❑ Review and/or develop hazard and risk studies to inform the development of up-to-date land use plans and regulations, as well as to set country-specific building design criteria. ❑ Review any existing building regulations and consider if other international and regional regulations and standards could be adapted for the country, for example, Eurocodes or examples of regional best practice. ❑ Establish working groups with both technical and nontechnical members to conceptualize and progress the development of building regulatory documents, including building design provisions. ❑ Assess the roles, responsibilities, and capacity of various institutions at national and local levels to act as building control authorities. Evaluate if this capacity could benefit from private sector support for plan checks and/or inspections. ❑ Evaluate the efficiency and accessibility of all new and/or updated building regulatory requirements and processes, for example, information made available online for free, or the digitization of processes. ❑ Assess any currently adopted material standards and quality assurance mechanisms for local and imported materials, as well as material testing facilities in the country. ❑ Conduct consultations with a wide range of stakeholders, including at community level, to understand current practice and key gaps.
Category B Legally adopted planning and building control regulations, no building design provisions within the regulations	❑ Benin ❑ Burkina Faso ❑ Burundi ❑ Cameroon ❑ Central African Republic ❑ Chad ❑ Congo, Dem. Rep. ❑ Congo, Rep. ❑ Equatorial Guinea ❑ Gabon ❑ Guinea ❑ Lesotho ❑ Liberia ❑ Madagascar ❑ Malawi ❑ Mali ❑ Mauritius ❑ Sierra Leone ❑ Togo ❑ Zambia	❑ Use the recommendations from Category A to assess the status of planning and building control regulations and to better tailor the overall building regulatory framework to the country context. Key priorities for this group will be to: ❑ Prioritize the above-recommended activities that relate to the development of building regulations for new design codes and standards, with a focus on risk-informed design provisions. Develop complementary guidelines for common types of small-scale construction. ❑ Harmonize any inconsistencies in existing building regulations with each other and/or other related laws. ❑ When updating regulations, ensure that enough resources are available and that plans are put in place for periodic future updates. ❑ Assess whether the efficiency and accessibility of existing planning and building control processes can be improved, for example, by simplifying and/or digitizing processes. ❑ If building control staff resources are limited, then assess whether a risk-targeted approach for permitting and for inspections may be helpful. ❑ To improve regulatory compliance, initiate public awareness campaigns, capacity building, and training for public and private actors in the construction sector. This includes updating and improving technical qualifications in vocational schools and university degree programs.

Table 5.1 (*continued*)

Maturity Stage of Framework	Countries	Priority Recommendations
Category C Legally adopted building regulatory framework for planning, design, and building control, but lacking comprehensive design provisions, last updated before 2000	❑ Botswana ❑ Cabo Verde ❑ Comoros ❑ Côte d'Ivoire ❑ Ethiopia ❑ Gambia, The ❑ Guinea-Bissau ❑ Mauritania ❑ Mozambique ❑ Niger ❑ São Tomé and Príncipe ❑ Senegal ❑ Seychelles ❑ Sudan ❑ Tanzania ❑ Zimbabwe	❑ Although these countries' building regulations include some design provisions, these are largely based on outdated, colonial-era regulations and are no longer fit for purpose. The priorities for this group are therefore similar to those in Category B.
Category D Legally adopted building regulatory framework for planning, design, and building control, more comprehensive design provisions, last updated before 2000	❑ Angola ❑ Eswatini ❑ Kenya ❑ Namibia	❑ Use the recommendations from Category A to assess the status of planning and building control regulations and to better tailor the overall building regulatory framework to the country context. ❑ Depending on the country, design regulations can be more advanced or less advanced. ❑ Resources for regulatory development and capacity building should be targeted at major gaps in the regulations and their implementation for each country.
Category E All components of a legally adopted building regulatory framework in place, with more comprehensive design provisions, updated since 2000	❑ Ghana ❑ Nigeria ❑ Rwanda ❑ South Africa ❑ Uganda	❑ Where building regulatory frameworks are more mature, a close analysis of what is working well and what requires improvement can be performed. For example, from the findings of this study, even the most up-to-date and complete design regulations in the region have some gaps and inconsistencies, such as a lack of up-to-date design criteria for key hazards such as earthquakes and strong winds and/or a lack of simplified provisions for common types of construction. ❑ Continuous investment in capacity building for regulatory compliance remains a priority. ❑ Countries that have more mature building regulatory environments should take the lead on sharing their experiences and approaches with other countries in the region.

Note: To develop more specific recommendations for each country, a Building Regulatory Capacity Assessment (BRCA) can be performed as a high-level, diagnostic exercise to understand the status of a country's building regulatory framework and its implementation in practice. Refer to https://www.gfdrr.org/en/building-regulation-for-resilience for more details.

examples in the areas of regulatory development and implementation.

To promote safe, green, and inclusive built environments, the World Bank and the Global Facility for Disaster Reduction and Recovery (GFDRR) in 2016 initiated a global line of work Building Regulation for Resilience (BRR). This report is one resource among several others developed by the BRR team. Although its goal is not to provide country-specific advice in full technical detail, this can be generated through other processes and methods, some of which the BRR team offers. For example, to develop targeted and actionable recommendations for building regulatory frameworks, an in-depth assessment following the BRR's Building Regulatory Capacity Assessment methodology can be performed to collect baseline information about a jurisdiction's building regulatory framework and implementation capacity, benchmarked against international best practice.[51] Furthermore, the BRR team works with World Bank country task teams to provide technical assistance to governments in designing,

[51] For more information about the methodology, see GFDRR's Building Regulation for Resilience at https://www.gfdrr.org/en/building-regulation-for-resilience.

implementing, and monitoring activities that enhance specific elements of building regulatory frameworks and implementation capacity for a safer, greener, healthier, and more inclusive built environment. To do this, the BRR team draws on an international network of experts and partners to broaden the foundation of global knowledge and provide targeted expertise when responding to specific country needs.

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Appendix A. Country Profiles

Appendix A contains Country Profiles developed to present a summary of key data for each country, based on the results of this study. Each Country Profile contains information about components of the legally adopted building regulatory framework in place, key building regulation documents, types of buildings, and technical aspects covered by the regulations, by the building control processes in place, and by selected data on compliance mechanisms. Country Profiles for Eritrea, Somalia, and South Sudan were not developed because the study was unable to verify if a legally adopted building regulatory framework was in place.

In the Country Profiles, a checkmark (✔) indicates that the building regulatory framework includes this item; an (✗) indicates that it is not included. For the Technical Aspects Covered by the Building Regulations, a checkmark (✔) indicates that some regulatory provisions for the country were identified related to the topic. The comprehensiveness and quality of the provisions in each topic area have not been evaluated. An (✗) indicates that no provisions related to the topic were identified within the regulations.

Angola

QUICK FACTS

33.9m
Population

7.8m
Capital city population

67.5
% of total population living in urban areas

4.5%
Average urban growth (2010–2020)

BUILDING REGULATORY FRAMEWORK

Types of Regulations			Key Documents
Planning/ Development Regulations	Building Design Regulations	Building Control Regulations	❑ Law No. 3 "Lei do Ordenamento do territorio e do Urbanismo" of June 24, 2004 ❑ Decree No. 13 "Regulamento Geral das Edificações Urbanas" of February 26, 2007 ❑ Decree No. 80 "Regulamento de Licenciamento das Operações e Loteamento, Obras de Urbanização e Obras de Construção" of October 30, 2006
✔	✔	✔	

TYPES OF CONSTRUCTION COVERED

New Buildings		Existing Buildings	
Private buildings	✔	Minor alternations and repairs	✔
Public buildings	✔	Change of occupancy	✔
Vernacular buildings	✔	Addition of floors or extensions	✔
		Retrofit (incl. structural changes)	✔

✔ *The building regulatory framework includes this item*
✗ *The building regulatory framework does not include this item.*

TECHNICAL ASPECTS COVERED BY BUILDING REGULATIONS

Classified uses	Use and occupancy classifications ✔	Special considerations for specific building types ✔
	Height and area limitations based on type of construction ✗	
Structural stability	Structural design and verification requirements for normal and expected loading ✔	
	Geo-technical design requirements ✗	Material requirements (e.g., strength, testing, quality, etc.) ✔
Disaster risk	Hurricane/wind actions ✗	Seismic actions ✔
	Flood mitigation and protection systems ✗	Landslides ✗
Fire safety	Fire resistance performance requirements ✔	Fire prevention ✔
	Means of access and egress ✔	Fire service access ✗
Inclusive accessibility	Access routes and means ✔	Fixtures and signals ✗
	Accessibility and usability of internal facilities (e.g., toilets, elevators, etc.) ✔	
Services	Plumbing and sanitary systems ✔	Elevators, escalators, and lifts ✔
	Electrical systems ✗	Heating, ventilation and air conditioning (HVAC) ✔
Green buildings	Natural insulation and ventilation ✔	Green building construction materials ✗
	Energy and water efficient design methods ✗	Carbon smart/neutral construction management ✗

✔ Indicates that the country has some regulatory provisions related to the topic. The comprehensiveness and quality of the provisions in each topic area have not been evaluated. ✗ Indicates that no provisions related to this topic were found.

BUILDING CONTROL PROCESSES

Phases	Development Planning	Design	Construction	Pre-Occupancy	Post-Occupancy
	Development permit ✗	Building permit ✔	Site inspection during construction ✔	Occupancy permit ✔	Permit for changes to existing buildings ✔

COMPLIANCE MECHANISMS

Dispute resolution mechanism in place ✔	Penalties ✔

Benin

QUICK FACTS

12.5m
Population

0.3m
Capital city population

49.0
% of total population living in urban areas

3.9%
Average urban growth (2010–2020)

BUILDING REGULATORY FRAMEWORK

Types of Regulations			Key Documents
Planning/ Development Regulations	Building Design Regulations	Building Control Regulations	❑ Decree N. 2020-056 "Portant réglementation du permis de construire et du permis de démolir" of 2020 ❑ Arrêté Interministériel No. 038 "Portant definition des prescriptions minimales a observer en matiere d'operations de lotissement et des operations foncieres urbaines de remembrement en Republique du Benin"
✔	✗	✔	

TYPES OF CONSTRUCTION COVERED

New Buildings		Existing Buildings	
Private buildings	✔	Minor alternations and repairs	✗
Public buildings	✔	Change of occupancy	✔
Vernacular buildings	✗	Addition of floors or extensions	✗
		Retrofit (incl. structural changes)	✗

✔ *The building regulatory framework includes this item*
✗ *The building regulatory framework does not include this item.*

TECHNICAL ASPECTS COVERED BY BUILDING REGULATIONS

Classified uses	Use and occupancy classifications	✗	Special considerations for specific building types	✗
	Height and area limitations based on type of construction			✗
Structural stability	Structural design and verification requirements for normal and expected loading			✗
	Geo-technical design requirements	✗	Material requirements (e.g., strength, testing, quality, etc.)	✗
Disaster risk	Hurricane/wind actions	✗	Seismic actions	✗
	Flood mitigation and protection systems	✗	Landslides	✗
Fire safety	Fire resistance performance requirements	✗	Fire prevention	✗
	Means of access and egress	✗	Fire service access	✗
Inclusive accessibility	Access routes and means	✗	Fixtures and signals	✗
	Accessibility and usability of internal facilities (e.g., toilets, elevators, etc.)			✗
Services	Plumbing and sanitary systems	✗	Elevators, escalators, and lifts	✗
	Electrical systems	✗	Heating, ventilation and air conditioning (HVAC)	✗
Green buildings	Natural insulation and ventilation	✗	Green building construction materials	✗
	Energy and water efficient design methods	✗	Carbon smart/neutral construction management	✗

✔ Indicates that the country has some regulatory provisions related to the topic. The comprehensiveness and quality of the provisions in each topic area have not been evaluated. ✗ Indicates that no provisions related to this topic were found.

BUILDING CONTROL PROCESSES

Phases	Development Planning	Design	Construction	Pre-Occupancy	Post-Occupancy
	Development permit	Building permit	Site inspection during construction	Occupancy permit	Permit for changes to existing buildings
	✗	✔	✔	✔	✔

COMPLIANCE MECHANISMS

Dispute resolution mechanism in place	Penalties
✗	✔

Botswana

QUICK FACTS

2.4m
Population

0.3m
Capital city population

71.6
% of total population living in urban areas

3.0%
Average urban growth (2010–2020)

BUILDING REGULATORY FRAMEWORK

Types of Regulations			Key Documents
Planning/ Development Regulations	Building Design Regulations	Building Control Regulations	
✔	✔	✔	❑ Town and Country Planning Act No. 4/2013 ❑ Building Control Act 1961 (Incorporating Building Control Regulations 1981)

TYPES OF CONSTRUCTION COVERED

New Buildings		Existing Buildings	
Private buildings	✔	Minor alternations and repairs	✔
Public buildings	✔	Change of occupancy	✔
Vernacular buildings	✗	Addition of floors or extensions	✔
		Retrofit (incl. structural changes)	✔

✔ *The building regulatory framework includes this item*
✗ *The building regulatory framework does not include this item.*

TECHNICAL ASPECTS COVERED BY BUILDING REGULATIONS

Classified uses	Use and occupancy classifications	✔	Special considerations for specific building types	✗
	Height and area limitations based on type of construction			✗
Structural stability	Structural design and verification requirements for normal and expected loading			✔
	Geo-technical design requirements	✗	Material requirements (e.g., strength, testing, quality, etc.)	✔
Disaster risk	Hurricane/wind actions	✗	Seismic actions	✗
	Flood mitigation and protection systems	✗	Landslides	✗
Fire safety	Fire resistance performance requirements	✔	Fire prevention	✔
	Means of access and egress	✔	Fire service access	✔
Inclusive accessibility	Access routes and means	✔	Fixtures and signals	✗
	Accessibility and usability of internal facilities (e.g., toilets, elevators, etc.)			✔
Services	Plumbing and sanitary systems	✔	Elevators, escalators, and lifts	✗
	Electrical systems	✔	Heating, ventilation and air conditioning (HVAC)	✔
Green buildings	Natural insulation and ventilation	✔	Green building construction materials	✗
	Energy and water efficient design methods	✗	Carbon smart/neutral construction management	✗

✔ Indicates that the country has some regulatory provisions related to the topic. The comprehensiveness and quality of the provisions in each topic area have not been evaluated. ✗ Indicates that no provisions related to this topic were found.

BUILDING CONTROL PROCESSES

Phases	Development Planning	Design	Construction	Pre-Occupancy	Post-Occupancy
	Development permit ✔	Building permit ✔	Site inspection during construction ✔	Occupancy permit ✔	Permit for changes to existing buildings ✔

COMPLIANCE MECHANISMS

Dispute resolution mechanism in place	Penalties
✔	✔

Burkina Faso

QUICK FACTS

21.5m
Population

2.5m
Capital city population

31.2
% of total population living in urban areas

5.1%
Average urban growth (2010–2020)

BUILDING REGULATORY FRAMEWORK

Types of Regulations			Key Documents
Planning/ Development Regulations	Building Design Regulations	Building Control Regulations	❑ Law No. 017 of 2006 "Code de l'urbanisme et de la construction"
✔	✗	✔	

TYPES OF CONSTRUCTION COVERED

New Buildings		Existing Buildings	
Private buildings	✔	Minor alternations and repairs	✔
Public buildings	✔	Change of occupancy	✔
Vernacular buildings	✗	Addition of floors or extensions	✔
		Retrofit (incl. structural changes)	✔

✔ *The building regulatory framework includes this item*
✗ *The building regulatory framework does not include this item.*

TECHNICAL ASPECTS COVERED BY BUILDING REGULATIONS

Classified uses	Use and occupancy classifications	✗	Special considerations for specific building types	✗
	Height and area limitations based on type of construction			✗
Structural stability	Structural design and verification requirements for normal and expected loading			✗
	Geo-technical design requirements	✗	Material requirements (e.g., strength, testing, quality, etc.)	✗
Disaster risk	Hurricane/wind actions	✗	Seismic actions	✗
	Flood mitigation and protection systems	✗	Landslides	✗
Fire safety	Fire resistance performance requirements	✗	Fire prevention	✗
	Means of access and egress	✗	Fire service access	✗
Inclusive accessibility	Access routes and means	✗	Fixtures and signals	✗
	Accessibility and usability of internal facilities (e.g., toilets, elevators, etc.)			✗
Services	Plumbing and sanitary systems	✗	Elevators, escalators, and lifts	✗
	Electrical systems	✗	Heating, ventilation and air conditioning (HVAC)	✗
Green buildings	Natural insulation and ventilation	✗	Green building construction materials	✗
	Energy and water efficient design methods	✗	Carbon smart/neutral construction management	✗

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BUILDING CONTROL PROCESSES

Phases	Development Planning	Design	Construction	Pre-Occupancy	Post-Occupancy
	Development permit ✔	Building permit ✔	Site inspection during construction ✔	Occupancy permit ✔	Permit for changes to existing buildings ✔

COMPLIANCE MECHANISMS

Dispute resolution mechanism in place	Penalties
✗	✔

Burundi

QUICK FACTS

12.3m
Population

0.9m
Capital city population

14.1
% of total population living in urban areas

5.7%
Average urban growth (2010–2020)

BUILDING REGULATORY FRAMEWORK

Types of Regulations			Key Documents
Planning/ Development Regulations	Building Design Regulations	Building Control Regulations	
✔	✗	✔	❑ Law No. 1/09 2016 "Portant code de l'urbanisme, de l'habitat et de la construction"

TYPES OF CONSTRUCTION COVERED

New Buildings		Existing Buildings	
Private buildings	✔	Minor alternations and repairs	✔
Public buildings	✔	Change of occupancy	✗
Vernacular buildings	✔	Addition of floors or extensions	✔
		Retrofit (incl. structural changes)	✔

✔ *The building regulatory framework includes this item*
✗ *The building regulatory framework does not include this item.*

TECHNICAL ASPECTS COVERED BY BUILDING REGULATIONS

Classified uses	Use and occupancy classifications	✗	Special considerations for specific building types	✗
	Height and area limitations based on type of construction	✗		
Structural stability	Structural design and verification requirements for normal and expected loading	✗		
	Geo-technical design requirements	✗	Material requirements (e.g., strength, testing, quality, etc.)	✗
Disaster risk	Hurricane/wind actions	✗	Seismic actions	✗
	Flood mitigation and protection systems	✗	Landslides	✗
Fire safety	Fire resistance performance requirements	✗	Fire prevention	✗
	Means of access and egress	✗	Fire service access	✗
Inclusive accessibility	Access routes and means	✗	Fixtures and signals	✗
	Accessibility and usability of internal facilities (e.g., toilets, elevators, etc.)	✗		
Services	Plumbing and sanitary systems	✗	Elevators, escalators, and lifts	✗
	Electrical systems	✗	Heating, ventilation and air conditioning (HVAC)	✗
Green buildings	Natural insulation and ventilation	✗	Green building construction materials	✗
	Energy and water efficient design methods	✗	Carbon smart/neutral construction management	✗

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BUILDING CONTROL PROCESSES

Phases	Development Planning	Design	Construction	Pre-Occupancy	Post-Occupancy
	Development permit	Building permit	Site inspection during construction	Occupancy permit	Permit for changes to existing buildings
	✔	✔	✗	✔	✔

COMPLIANCE MECHANISMS

Dispute resolution mechanism in place	Penalties
✗	✔

Cabo Verde

QUICK FACTS

0.6m
Population

0.2m
Capital city population

67.1
% of total population living in urban areas

2.0%
Average urban growth (2010–2020)

BUILDING REGULATORY FRAMEWORK

Types of Regulations			Key Documents
Planning/ Development Regulations	Building Design Regulations	Building Control Regulations	
✔	✔	✔	❑ Decree No. 1 "Lei de Bases do Ordenamento do Território e Planeamento Urbano" of February 13, 2006; Decree-Law No. 43 "Regulamento Nacional do Ordenamento do Território e Planeamento Urbano" ❑ Portaria conjunta No. 4 "Código Técnico de Edificaçao" of January 12, 2012; Portaria No.24 "Código de Eficiência Energética em Edifícios" of June 3, 2020 ❑ Decree No. 18 "Regulamento Geral de Costruçao de Habitaçao Urbana" of February 28, 2011

TYPES OF CONSTRUCTION COVERED

New Buildings		Existing Buildings	
Private buildings	✔	Minor alternations and repairs	✔
Public buildings	✔	Change of occupancy	✔
Vernacular buildings	✔	Addition of floors or extensions	✔
		Retrofit (incl. structural changes)	✔

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✗ *The building regulatory framework does not include this item.*

TECHNICAL ASPECTS COVERED BY BUILDING REGULATIONS

Classified uses	Use and occupancy classifications	✔	Special considerations for specific building types	✔
	Height and area limitations based on type of construction	✗		
Structural stability	Structural design and verification requirements for normal and expected loading	✔		
	Geo-technical design requirements	✗	Material requirements (e.g., strength, testing, quality, etc.)	✔
Disaster risk	Hurricane/wind actions	✔	Seismic actions	✔
	Flood mitigation and protection systems	✗	Landslides	✗
Fire safety	Fire resistance performance requirements	✔	Fire prevention	✔
	Means of access and egress	✗	Fire service access	✗
Inclusive accessibility	Access routes and means	✔	Fixtures and signals	✗
	Accessibility and usability of internal facilities (e.g., toilets, elevators, etc.)	✔		
Services	Plumbing and sanitary systems	✔	Elevators, escalators, and lifts	✔
	Electrical systems	✔	Heating, ventilation and air conditioning (HVAC)	✔
Green buildings	Natural insulation and ventilation	✔	Green building construction materials	✗
	Energy and water efficient design methods	✗	Carbon smart/neutral construction management	✗

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BUILDING CONTROL PROCESSES

Phases	Development Planning	Design	Construction	Pre-Occupancy	Post-Occupancy
	Development permit	Building permit	Site inspection during construction	Occupancy permit	Permit for changes to existing buildings
	✗	✔	✔	✔	✔

COMPLIANCE MECHANISMS

Dispute resolution mechanism in place	Penalties
✔	✔

Cameroon

QUICK FACTS

27.2m
Population

3.7m
Capital city population

58.2
% of total population living in urban areas

3.8%
Average urban growth (2010–2020)

BUILDING REGULATORY FRAMEWORK

Types of Regulations			Key Documents
Planning/ Development Regulations	Building Design Regulations	Building Control Regulations	❑ Law No. 2004-003 "Régissant l'urbanisme au Cameroun" ❑ Decree 2016/3058/PM "Fixant les règles d'utilisation du sol et de la construction"
✔	✗	✔	

TYPES OF CONSTRUCTION COVERED

New Buildings		Existing Buildings	
Private buildings	✔	Minor alternations and repairs	✔
Public buildings	✔	Change of occupancy	✔
Vernacular buildings	✗	Addition of floors or extensions	✔
		Retrofit (incl. structural changes)	✔

✔ *The building regulatory framework includes this item*
✗ *The building regulatory framework does not include this item.*

TECHNICAL ASPECTS COVERED BY BUILDING REGULATIONS

Classified uses	Use and occupancy classifications	✗	Special considerations for specific building types	✗
	Height and area limitations based on type of construction	✗		
Structural stability	Structural design and verification requirements for normal and expected loading	✗		
	Geo-technical design requirements	✗	Material requirements (e.g., strength, testing, quality, etc.)	✗
Disaster risk	Hurricane/wind actions	✗	Seismic actions	✗
	Flood mitigation and protection systems	✗	Landslides	✗
Fire safety	Fire resistance performance requirements	✗	Fire prevention	✗
	Means of access and egress	✗	Fire service access	✗
Inclusive accessibility	Access routes and means	✗	Fixtures and signals	✗
	Accessibility and usability of internal facilities (e.g., toilets, elevators, etc.)	✗		
Services	Plumbing and sanitary systems	✗	Elevators, escalators, and lifts	✗
	Electrical systems	✗	Heating, ventilation and air conditioning (HVAC)	✗
Green buildings	Natural insulation and ventilation	✗	Green building construction materials	✗
	Energy and water efficient design methods	✗	Carbon smart/neutral construction management	✗

✔ Indicates that the country has some regulatory provisions related to the topic. The comprehensiveness and quality of the provisions in each topic area have not been evaluated. ✗ Indicates that no provisions related to this topic were found.

BUILDING CONTROL PROCESSES

Phases	Development Planning	Design	Construction	Pre-Occupancy	Post-Occupancy
	Development permit ✔	Building permit ✔	Site inspection during construction ✔	Occupancy permit ✔	Permit for changes to existing buildings ✔

COMPLIANCE MECHANISMS

Dispute resolution mechanism in place ✔	Penalties ✔

The Central African Republic

QUICK FACTS

4.9m
Population

0.9m
Capital city population

42.7
% of total population living in urban areas

1.9%
Average urban growth (2010–2020)

BUILDING REGULATORY FRAMEWORK

Types of Regulations			Key Documents
Planning/ Development Regulations	Building Design Regulations	Building Control Regulations	❑ Loi nº 61-263 relative à l'urbanisme
✔	✗	✔	

TYPES OF CONSTRUCTION COVERED

New Buildings		Existing Buildings	
Private buildings	✔	Minor alternations and repairs	✗
Public buildings	✔	Change of occupancy	✗
Vernacular buildings	✔	Addition of floors or extensions	✗
		Retrofit (incl. structural changes)	✗

✔ *The building regulatory framework includes this item*
✗ *The building regulatory framework does not include this item.*

TECHNICAL ASPECTS COVERED BY BUILDING REGULATIONS

Classified uses	Use and occupancy classifications	✗	Special considerations for specific building types	✗
	Height and area limitations based on type of construction			✗
Structural stability	Structural design and verification requirements for normal and expected loading			✗
	Geo-technical design requirements	✗	Material requirements (e.g., strength, testing, quality, etc.)	✗
Disaster risk	Hurricane/wind actions	✗	Seismic actions	✗
	Flood mitigation and protection systems	✗	Landslides	✗
Fire safety	Fire resistance performance requirements	✗	Fire prevention	✗
	Means of access and egress	✗	Fire service access	✗
Inclusive accessibility	Access routes and means	✗	Fixtures and signals	✗
	Accessibility and usability of internal facilities (e.g., toilets, elevators, etc.)			✗
Services	Plumbing and sanitary systems	✗	Elevators, escalators, and lifts	✗
	Electrical systems	✗	Heating, ventilation and air conditioning (HVAC)	✗
Green buildings	Natural insulation and ventilation	✗	Green building construction materials	✗
	Energy and water efficient design methods	✗	Carbon smart/neutral construction management	✗

✔ Indicates that the country has some regulatory provisions related to the topic. The comprehensiveness and quality of the provisions in each topic area have not been evaluated. ✗ Indicates that no provisions related to this topic were found.

BUILDING CONTROL PROCESSES

Phases	Development Planning	Design	Construction	Pre-Occupancy	Post-Occupancy
	Development permit	Building permit	Site inspection during construction	Occupancy permit	Permit for changes to existing buildings
	✗	✔	✗	✗	✔

COMPLIANCE MECHANISMS

Dispute resolution mechanism in place	Penalties
✗	✔

Chad

QUICK FACTS

16.9m
Population

1.3m
Capital city population

23.8
% of total population living in urban areas

3.9%
Average urban growth (2010–2020)

BUILDING REGULATORY FRAMEWORK

Types of Regulations		
Planning/ Development Regulations	Building Design Regulations	Building Control Regulations
✔	✗	✔

Key Documents

- Law 006/PR/2010 "Fixant les Principes Fondamentaux Applicables en Matiere d'Urbanisme"
- Law 004/PR/2010 "Loi relative à la construction"; Decree No. 1399/2018 "Portant-reglementation-de-deliverance-des-actes-durbanisme"

TYPES OF CONSTRUCTION COVERED

New Buildings		Existing Buildings	
Private buildings	✔	Minor alternations and repairs	✔
Public buildings	✔	Change of occupancy	✗
Vernacular buildings	✗	Addition of floors or extensions	✔
		Retrofit (incl. structural changes)	✗

✔ *The building regulatory framework includes this item*
✗ *The building regulatory framework does not include this item.*

TECHNICAL ASPECTS COVERED BY BUILDING REGULATIONS

Classified uses	Use and occupancy classifications	✗	Special considerations for specific building types	✗
	Height and area limitations based on type of construction	✗		
Structural stability	Structural design and verification requirements for normal and expected loading	✗		
	Geo-technical design requirements	✗	Material requirements (e.g., strength, testing, quality, etc.)	✗
Disaster risk	Hurricane/wind actions	✗	Seismic actions	✗
	Flood mitigation and protection systems	✗	Landslides	✗
Fire safety	Fire resistance performance requirements	✗	Fire prevention	✗
	Means of access and egress	✗	Fire service access	✗
Inclusive accessibility	Access routes and means	✗	Fixtures and signals	✗
	Accessibility and usability of internal facilities (e.g., toilets, elevators, etc.)	✗		
Services	Plumbing and sanitary systems	✗	Elevators, escalators, and lifts	✗
	Electrical systems	✗	Heating, ventilation and air conditioning (HVAC)	✗
Green buildings	Natural insulation and ventilation	✗	Green building construction materials	✗
	Energy and water efficient design methods	✗	Carbon smart/neutral construction management	✗

✔ Indicates that the country has some regulatory provisions related to the topic. The comprehensiveness and quality of the provisions in each topic area have not been evaluated. ✗ Indicates that no provisions related to this topic were found.

BUILDING CONTROL PROCESSES

Phases	Development Planning	Design	Construction	Pre-Occupancy	Post-Occupancy
	Development permit ✔	Building permit ✔	Site inspection during construction ✔	Occupancy permit ✔	Permit for changes to existing buildings ✔

COMPLIANCE MECHANISMS

Dispute resolution mechanism in place ✔	Penalties ✔

Comoros

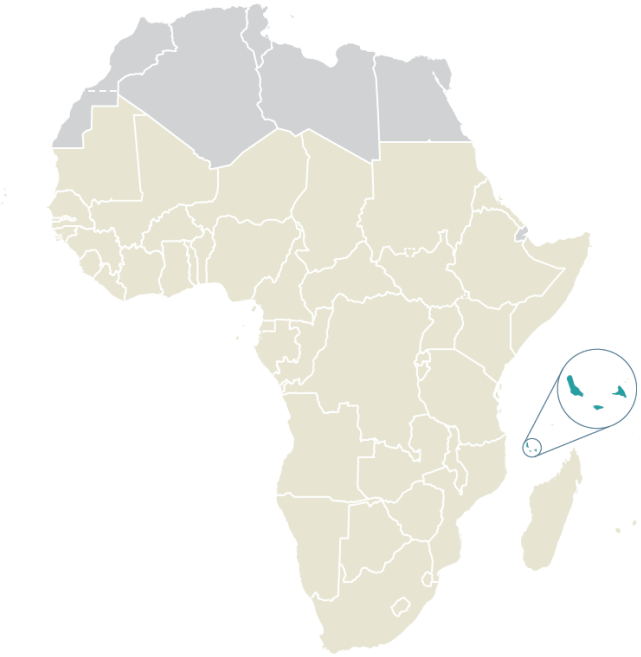
QUICK FACTS

0.9m
Population

0.1m
Capital city population

29.6
% of total population living in urban areas

2.8%
Average urban growth (2010–2020)



BUILDING REGULATORY FRAMEWORK

Types of Regulations			Key Documents
Planning/ Development Regulations	Building Design Regulations	Building Control Regulations	❑ Decree No. 12-026/PR: "Relative à l'Urbanisme et à la Construction en Union des Comores" of 2012
✔	✔	✔	

TYPES OF CONSTRUCTION COVERED

New Buildings		Existing Buildings	
Private buildings	✔	Minor alternations and repairs	✔
Public buildings	✔	Change of occupancy	✗
Vernacular buildings	✔	Addition of floors or extensions	✔
		Retrofit (incl. structural changes)	✗

✔ *The building regulatory framework includes this item*
✗ *The building regulatory framework does not include this item.*

TECHNICAL ASPECTS COVERED BY BUILDING REGULATIONS

Classified uses	Use and occupancy classifications	✔	Special considerations for specific building types	✔
	Height and area limitations based on type of construction	✔		
Structural stability	Structural design and verification requirements for normal and expected loading	✗		
	Geo-technical design requirements	✗	Material requirements (e.g., strength, testing, quality, etc.)	✗
Disaster risk	Hurricane/wind actions	✗	Seismic actions	✗
	Flood mitigation and protection systems	✗	Landslides	✗
Fire safety	Fire resistance performance requirements	✔	Fire prevention	✔
	Means of access and egress	✔	Fire service access	✔
Inclusive accessibility	Access routes and means	✔	Fixtures and signals	✗
	Accessibility and usability of internal facilities (e.g., toilets, elevators, etc.)	✗		
Services	Plumbing and sanitary systems	✔	Elevators, escalators, and lifts	✔
	Electrical systems	✗	Heating, ventilation and air conditioning (HVAC)	✔
Green buildings	Natural insulation and ventilation	✔	Green building construction materials	✗
	Energy and water efficient design methods	✗	Carbon smart/neutral construction management	✗

✔ Indicates that the country has some regulatory provisions related to the topic. The comprehensiveness and quality of the provisions in each topic area have not been evaluated. ✗ Indicates that no provisions related to this topic were found.

BUILDING CONTROL PROCESSES

Phases	Development Planning	Design	Construction	Pre-Occupancy	Post-Occupancy
	Development permit	Building permit	Site inspection during construction	Occupancy permit	Permit for changes to existing buildings
	✗	✔	✗	✔	✗

COMPLIANCE MECHANISMS

Dispute resolution mechanism in place	Penalties
✗	✔

Côte d'Ivoire

QUICK FACTS

27.1m
Population

0.2m
Capital city population

52.2
% of total population living in urban areas

3.4%
Average urban growth (2010–2020)

BUILDING REGULATORY FRAMEWORK

Types of Regulations			Key Documents
Planning/ Development Regulations	Building Design Regulations	Building Control Regulations	❑ Law No. 2019-576 "Code de la Construction et de l'Habitat" of 2019 ❑ Decree No. 2019-594 du 03-07-19 "Portant réglementation du Permis de Construire" of 2019
✔	✔	✔	

TYPES OF CONSTRUCTION COVERED

New Buildings		Existing Buildings	
Private buildings	✔	Minor alternations and repairs	✔
Public buildings	✔	Change of occupancy	✔
Vernacular buildings	✔	Addition of floors or extensions	✔
		Retrofit (incl. structural changes)	✔

✔ *The building regulatory framework includes this item*
✗ *The building regulatory framework does not include this item.*

TECHNICAL ASPECTS COVERED BY BUILDING REGULATIONS

Classified uses	Use and occupancy classifications ✔	Special considerations for specific building types ✔
	Height and area limitations based on type of construction ✔	
Structural stability	Structural design and verification requirements for normal and expected loading ✗	
	Geo-technical design requirements ✗	Material requirements (e.g., strength, testing, quality, etc.) ✗
Disaster risk	Hurricane/wind actions ✔	Seismic actions ✔
	Flood mitigation and protection systems ✔	Landslides ✗
Fire safety	Fire resistance performance requirements ✔	Fire prevention ✔
	Means of access and egress ✔	Fire service access ✔
Inclusive accessibility	Access routes and means ✔	Fixtures and signals ✔
	Accessibility and usability of internal facilities (e.g., toilets, elevators, etc.) ✔	
Services	Plumbing and sanitary systems ✔	Elevators, escalators, and lifts ✔
	Electrical systems ✔	Heating, ventilation and air conditioning (HVAC) ✔
Green buildings	Natural insulation and ventilation ✔	Green building construction materials ✔
	Energy and water efficient design methods ✔	Carbon smart/neutral construction management ✔

✔ Indicates that the country has some regulatory provisions related to the topic. The comprehensiveness and quality of the provisions in each topic area have not been evaluated. ✗ Indicates that no provisions related to this topic were found.

BUILDING CONTROL PROCESSES

Phases	Development Planning	Design	Construction	Pre-Occupancy	Post-Occupancy
	Development permit ✔	Building permit ✔	Site inspection during construction ✔	Occupancy permit ✔	Permit for changes to existing buildings ✔

COMPLIANCE MECHANISMS

Dispute resolution mechanism in place ✔	Penalties ✔

The Democratic Republic of Congo

QUICK FACTS

92.4m
Population

13.2m
Capital city population

46.2
% of total population living in urban areas

4.6%
Average urban growth (2010–2020)

BUILDING REGULATORY FRAMEWORK

Types of Regulations			Key Documents
Planning/ Development Regulations	Building Design Regulations	Building Control Regulations	❑ Décret du 20 juin 1957 sur l'Urbanisme ❑ By-law of May 31 2018 ("Arrêté du 31 Mai 2018")
✔	✗	✔	

TYPES OF CONSTRUCTION COVERED

New Buildings		Existing Buildings	
Private buildings	✔	Minor alternations and repairs	✔
Public buildings	✗	Change of occupancy	✔
Vernacular buildings	✗	Addition of floors or extensions	✔
		Retrofit (incl. structural changes)	✗

✔ *The building regulatory framework includes this item*
✗ *The building regulatory framework does not include this item.*

TECHNICAL ASPECTS COVERED BY BUILDING REGULATIONS

Classified uses	Use and occupancy classifications ✗	Special considerations for specific building types ✗
	Height and area limitations based on type of construction ✗	
Structural stability	Structural design and verification requirements for normal and expected loading ✗	
	Geo-technical design requirements ✗	Material requirements (e.g., strength, testing, quality, etc.) ✗
Disaster risk	Hurricane/wind actions ✗	Seismic actions ✗
	Flood mitigation and protection systems ✗	Landslides ✗
Fire safety	Fire resistance performance requirements ✗	Fire prevention ✗
	Means of access and egress ✗	Fire service access ✗
Inclusive accessibility	Access routes and means ✗	Fixtures and signals ✗
	Accessibility and usability of internal facilities (e.g., toilets, elevators, etc.) ✗	
Services	Plumbing and sanitary systems ✗	Elevators, escalators, and lifts ✗
	Electrical systems ✗	Heating, ventilation and air conditioning (HVAC) ✗
Green buildings	Natural insulation and ventilation ✗	Green building construction materials ✗
	Energy and water efficient design methods ✗	Carbon smart/neutral construction management ✗

✔ Indicates that the country has some regulatory provisions related to the topic. The comprehensiveness and quality of the provisions in each topic area have not been evaluated. ✗ Indicates that no provisions related to this topic were found.

BUILDING CONTROL PROCESSES

Phases	Development Planning	Design	Construction	Pre-Occupancy	Post-Occupancy
	Development permit ✗	Building permit ✔	Site inspection during construction ✔	Occupancy permit ✔	Permit for changes to existing buildings ✔

COMPLIANCE MECHANISMS

Dispute resolution mechanism in place ✔	Penalties ✔

Equatorial Guinea

QUICK FACTS

1.4m
Population

0.3m
Capital city population

73.6
% of total population living in urban areas

5.1%
Average urban growth (2010–2020)

BUILDING REGULATORY FRAMEWORK

Types of Regulations			Key Documents
Planning/ Development Regulations	Building Design Regulations	Building Control Regulations	❑ Law No. 8 "Ley de Ordenacion Urbana de Guinea Ecuatorial" of November 14, 2005
✔	✗	✔	

TYPES OF CONSTRUCTION COVERED

New Buildings		Existing Buildings	
Private buildings	✔	Minor alternations and repairs	✔
Public buildings	✔	Change of occupancy	✔
Vernacular buildings	✗	Addition of floors or extensions	✔
		Retrofit (incl. structural changes)	✔

✔ *The building regulatory framework includes this item*
✗ *The building regulatory framework does not include this item.*

TECHNICAL ASPECTS COVERED BY BUILDING REGULATIONS

Classified uses	Use and occupancy classifications ✗	Special considerations for specific building types ✗
	Height and area limitations based on type of construction ✗	
Structural stability	Structural design and verification requirements for normal and expected loading ✗	
	Geo-technical design requirements ✗	Material requirements (e.g., strength, testing, quality, etc.) ✗
Disaster risk	Hurricane/wind actions ✗	Seismic actions ✗
	Flood mitigation and protection systems ✗	Landslides ✗
Fire safety	Fire resistance performance requirements ✗	Fire prevention ✗
	Means of access and egress ✗	Fire service access ✗
Inclusive accessibility	Access routes and means ✗	Fixtures and signals ✗
	Accessibility and usability of internal facilities (e.g., toilets, elevators, etc.) ✗	
Services	Plumbing and sanitary systems ✗	Elevators, escalators, and lifts ✗
	Electrical systems ✗	Heating, ventilation and air conditioning (HVAC) ✗
Green buildings	Natural insulation and ventilation ✗	Green building construction materials ✗
	Energy and water efficient design methods ✗	Carbon smart/neutral construction management ✗

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BUILDING CONTROL PROCESSES

Phases	Development Planning	Design	Construction	Pre-Occupancy	Post-Occupancy
	Development permit ✗	Building permit ✔	Site inspection during construction ✗	Occupancy permit ✔	Permit for changes to existing buildings ✔

COMPLIANCE MECHANISMS

Dispute resolution mechanism in place ✔	Penalties ✔

Eswatini

QUICK FACTS

1.2m
Population

0.1m
Capital city population

24.4
% of total population living in urban areas

1.6%
Average urban growth (2010–2020)

BUILDING REGULATORY FRAMEWORK

Types of Regulations			Key Documents
Planning/ Development Regulations	Building Design Regulations	Building Control Regulations	❑ Town Planning Act No. 45 of 1961 ❑ Building Act. 34 (1968) and Standard Building Regulation (1969)
✔	✔	✔	

TYPES OF CONSTRUCTION COVERED

New Buildings		Existing Buildings	
Private buildings	✔	Minor alternations and repairs	✔
Public buildings	✔	Change of occupancy	✔
Vernacular buildings	✔	Addition of floors or extensions	✔
		Retrofit (incl. structural changes)	✗

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✗ *The building regulatory framework does not include this item.*

TECHNICAL ASPECTS COVERED BY BUILDING REGULATIONS

Classified uses	Use and occupancy classifications	✔	Special considerations for specific building types	✔
	Height and area limitations based on type of construction	✔		
Structural stability	Structural design and verification requirements for normal and expected loading	✔		
	Geo-technical design requirements	✔	Material requirements (e.g., strength, testing, quality, etc.)	✔
Disaster risk	Hurricane/wind actions	✔	Seismic actions	✗
	Flood mitigation and protection systems	✔	Landslides	✗
Fire safety	Fire resistance performance requirements	✔	Fire prevention	✔
	Means of access and egress	✔	Fire service access	✔
Inclusive accessibility	Access routes and means	✔	Fixtures and signals	✔
	Accessibility and usability of internal facilities (e.g., toilets, elevators, etc.)	✔		
Services	Plumbing and sanitary systems	✔	Elevators, escalators, and lifts	✔
	Electrical systems	✔	Heating, ventilation and air conditioning (HVAC)	✔
Green buildings	Natural insulation and ventilation	✔	Green building construction materials	✗
	Energy and water efficient design methods	✔	Carbon smart/neutral construction management	✗

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BUILDING CONTROL PROCESSES

Phases	Development Planning	Design	Construction	Pre-Occupancy	Post-Occupancy
	Development permit	Building permit	Site inspection during construction	Occupancy permit	Permit for changes to existing buildings
	✗	✔	✔	✔	✔

COMPLIANCE MECHANISMS

Dispute resolution mechanism in place	Penalties
✗	✔

Ethiopia

QUICK FACTS

117.9m
Population

4.4m
Capital city population

22.2
% of total population living in urban areas

5.0%
Average urban growth (2010–2020)

BUILDING REGULATORY FRAMEWORK

Types of Regulations			Key Documents
Planning/ Development Regulations	Building Design Regulations	Building Control Regulations	
✔	✔	✔	❑ Urban Planning Proclamation No. 574/2008 ❑ Compulsory Ethiopian Standard Building Spatial Design (First Edition 2015) ❑ Ethiopia Building Proclamation No. 624/2009; Ethiopian Building Regulation No. 243/2011

TYPES OF CONSTRUCTION COVERED

New Buildings		Existing Buildings	
Private buildings	✔	Minor alternations and repairs	✔
Public buildings	✔	Change of occupancy	✔
Vernacular buildings	✔	Addition of floors or extensions	✗
		Retrofit (incl. structural changes)	✔

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TECHNICAL ASPECTS COVERED BY BUILDING REGULATIONS

Classified uses	Use and occupancy classifications	✗	Special considerations for specific building types	✗
	Height and area limitations based on type of construction	✗		
Structural stability	Structural design and verification requirements for normal and expected loading	✔		
	Geo-technical design requirements	✔	Material requirements (e.g., strength, testing, quality, etc.)	✔
Disaster risk	Hurricane/wind actions	✔	Seismic actions	✔
	Flood mitigation and protection systems	✗	Landslides	✗
Fire safety	Fire resistance performance requirements	✔	Fire prevention	✔
	Means of access and egress	✗	Fire service access	✗
Inclusive accessibility	Access routes and means	✗	Fixtures and signals	✗
	Accessibility and usability of internal facilities (e.g., toilets, elevators, etc.)	✗		
Services	Plumbing and sanitary systems	✔	Elevators, escalators, and lifts	✗
	Electrical systems	✔	Heating, ventilation and air conditioning (HVAC)	✔
Green buildings	Natural insulation and ventilation	✔	Green building construction materials	✗
	Energy and water efficient design methods	✗	Carbon smart/neutral construction management	✗

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BUILDING CONTROL PROCESSES

Phases	Development Planning	Design	Construction	Pre-Occupancy	Post-Occupancy
	Development permit ✔	Building permit ✔	Site inspection during construction ✔	Occupancy permit ✔	Permit for changes to existing buildings ✔

COMPLIANCE MECHANISMS

Dispute resolution mechanism in place ✔	Penalties ✔

Gabon

QUICK FACTS

2.3m
Population

0.8m
Capital city population

90.4
% of total population living in urban areas

3.6%
Average urban growth (2010–2020)

BUILDING REGULATORY FRAMEWORK

Types of Regulations			Key Documents
Planning/ Development Regulations	Building Design Regulations	Building Control Regulations	❑ Law No. 007/2012 "Portant ratification de l'Ordonnance No.006/PR/2012 fixant les règles générales relatives à l'Urbanisme en République Gabonaise" of 2012
✔	✗	✔	

TYPES OF CONSTRUCTION COVERED

New Buildings		Existing Buildings	
Private buildings	✗	Minor alternations and repairs	✗
Public buildings	✗	Change of occupancy	✗
Vernacular buildings	✗	Addition of floors or extensions	✗
		Retrofit (incl. structural changes)	✗

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TECHNICAL ASPECTS COVERED BY BUILDING REGULATIONS

Classified uses	Use and occupancy classifications	✗	Special considerations for specific building types	✗
	Height and area limitations based on type of construction	✗		
Structural stability	Structural design and verification requirements for normal and expected loading	✗		
	Geo-technical design requirements	✗	Material requirements (e.g., strength, testing, quality, etc.)	✗
Disaster risk	Hurricane/wind actions	✗	Seismic actions	✗
	Flood mitigation and protection systems	✗	Landslides	✗
Fire safety	Fire resistance performance requirements	✗	Fire prevention	✗
	Means of access and egress	✗	Fire service access	✗
Inclusive accessibility	Access routes and means	✗	Fixtures and signals	✗
	Accessibility and usability of internal facilities (e.g., toilets, elevators, etc.)	✗		
Services	Plumbing and sanitary systems	✗	Elevators, escalators, and lifts	✗
	Electrical systems	✗	Heating, ventilation and air conditioning (HVAC)	✗
Green buildings	Natural insulation and ventilation	✗	Green building construction materials	✗
	Energy and water efficient design methods	✗	Carbon smart/neutral construction management	✗

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BUILDING CONTROL PROCESSES

Phases	Development Planning	Design	Construction	Pre-Occupancy	Post-Occupancy
	Development permit ✔	Building permit ✔	Site inspection during construction ✔	Occupancy permit ✔	Permit for changes to existing buildings ✔

COMPLIANCE MECHANISMS

Dispute resolution mechanism in place ✔	Penalties ✔

The Gambia

QUICK FACTS

2.5m
Population

0.4m
Capital city population

63.2
% of total population living in urban areas

4.2%
Average urban growth (2010–2020)

BUILDING REGULATORY FRAMEWORK

Types of Regulations		
Planning/ Development Regulations	Building Design Regulations	Building Control Regulations
✔	✔	✔

Key Documents

- Physical Planning and Development Control Act No.1/1991
- Physical Planning and Development Control Act, Subsidiary legislations (Development Control Regulations, Cap 57:08, 1995)

TYPES OF CONSTRUCTION COVERED

New Buildings		Existing Buildings	
Private buildings	✔	Minor alternations and repairs	✔
Public buildings	✔	Change of occupancy	✗
Vernacular buildings	✗	Addition of floors or extensions	✗
		Retrofit (incl. structural changes)	✗

✔ *The building regulatory framework includes this item*
✗ *The building regulatory framework does not include this item.*

TECHNICAL ASPECTS COVERED BY BUILDING REGULATIONS

Classified uses	Use and occupancy classifications	✔	Special considerations for specific building types	✔
	Height and area limitations based on type of construction	✗		
Structural stability	Structural design and verification requirements for normal and expected loading	✔		
	Geo-technical design requirements	✗	Material requirements (e.g., strength, testing, quality, etc.)	✗
Disaster risk	Hurricane/wind actions	✗	Seismic actions	✗
	Flood mitigation and protection systems	✗	Landslides	✗
Fire safety	Fire resistance performance requirements	✔	Fire prevention	✔
	Means of access and egress	✗	Fire service access	✗
Inclusive accessibility	Access routes and means	✔	Fixtures and signals	✗
	Accessibility and usability of internal facilities (e.g., toilets, elevators, etc.)	✗		
Services	Plumbing and sanitary systems	✗	Elevators, escalators, and lifts	✔
	Electrical systems	✗	Heating, ventilation and air conditioning (HVAC)	✔
Green buildings	Natural insulation and ventilation	✔	Green building construction materials	✗
	Energy and water efficient design methods	✗	Carbon smart/neutral construction management	✗

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BUILDING CONTROL PROCESSES

Phases	Development Planning	Design	Construction	Pre-Occupancy	Post-Occupancy
	Development permit	Building permit	Site inspection during construction	Occupancy permit	Permit for changes to existing buildings
	✗	✔	✔	✔	✔

COMPLIANCE MECHANISMS

Dispute resolution mechanism in place	Penalties
✔	✔

Ghana

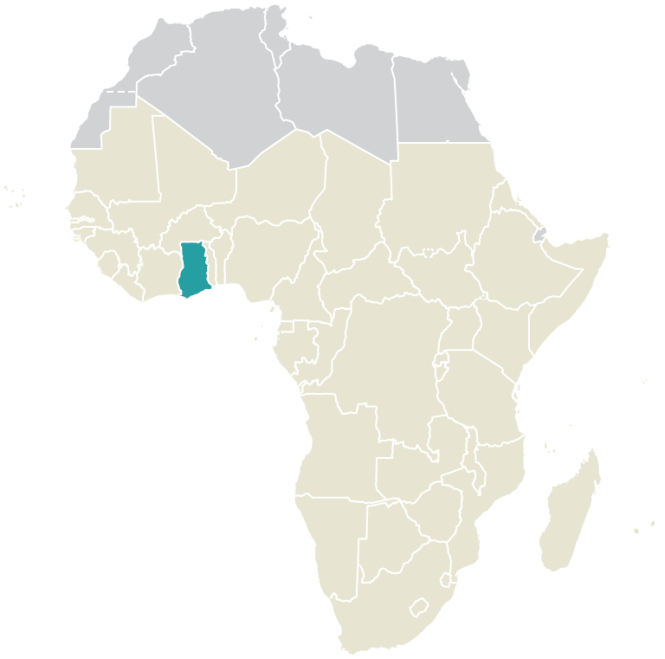
QUICK FACTS

31.7m
Population

2.4m
Capital city population

58.0
% of total population living in urban areas

3.5%
Average urban growth (2010–2020)



BUILDING REGULATORY FRAMEWORK

Types of Regulations			Key Documents
Planning/ Development Regulations	Building Design Regulations	Building Control Regulations	
✔	✔	✔	❑ Land Use and Spatial PLanning Act No. 925/2016; Local Governance Act No. 936/2016 ❑ Ghana Building Code (GS 1207:2018) of 2018 ❑ National Building Regulations, 1996 (L.I. 1630)

TYPES OF CONSTRUCTION COVERED

New Buildings		Existing Buildings	
Private buildings	✔	Minor alternations and repairs	✔
Public buildings	✔	Change of occupancy	✔
Vernacular buildings	✗	Addition of floors or extensions	✔
		Retrofit (incl. structural changes)	✔

✔ *The building regulatory framework includes this item*
✗ *The building regulatory framework does not include this item.*

TECHNICAL ASPECTS COVERED BY BUILDING REGULATIONS

Classified uses	Use and occupancy classifications	✔	Special considerations for specific building types	✔
	Height and area limitations based on type of construction	✔		
Structural stability	Structural design and verification requirements for normal and expected loading	✔		
	Geo-technical design requirements	✔	Material requirements (e.g., strength, testing, quality, etc.)	✔
Disaster risk	Hurricane/wind actions	✔	Seismic actions	✔
	Flood mitigation and protection systems	✔	Landslides	✔
Fire safety	Fire resistance performance requirements	✔	Fire prevention	✔
	Means of access and egress	✔	Fire service access	✔
Inclusive accessibility	Access routes and means	✔	Fixtures and signals	✔
	Accessibility and usability of internal facilities (e.g., toilets, elevators, etc.)	✔		
Services	Plumbing and sanitary systems	✔	Elevators, escalators, and lifts	✔
	Electrical systems	✔	Heating, ventilation and air conditioning (HVAC)	✔
Green buildings	Natural insulation and ventilation	✔	Green building construction materials	✔
	Energy and water efficient design methods	✔	Carbon smart/neutral construction management	✔

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BUILDING CONTROL PROCESSES

Phases	Development Planning	Design	Construction	Pre-Occupancy	Post-Occupancy
	Development permit	Building permit	Site inspection during construction	Occupancy permit	Permit for changes to existing buildings
	✗	✔	✔	✔	✔

COMPLIANCE MECHANISMS

Dispute resolution mechanism in place	Penalties
✔	✔

Guinea

QUICK FACTS

13.5m
Population

1.8m
Capital city population

37.3
% of total population living in urban areas

3.4%
Average urban growth (2010–2020)

BUILDING REGULATORY FRAMEWORK

Types of Regulations			Key Documents
Planning/ Development Regulations	Building Design Regulations	Building Control Regulations	
✔	✗	✔	❑ Law no17/1998 "Portant Code de l'Urbanisme" of 1998 ❑ Law N° L/2015/020/ "Code de la construction et de l'habitation" of 2015

TYPES OF CONSTRUCTION COVERED

New Buildings		Existing Buildings	
Private buildings	✔	Minor alternations and repairs	✔
Public buildings	✔	Change of occupancy	✔
Vernacular buildings	✔	Addition of floors or extensions	✔
		Retrofit (incl. structural changes)	✔

✔ *The building regulatory framework includes this item*
✗ *The building regulatory framework does not include this item.*

TECHNICAL ASPECTS COVERED BY BUILDING REGULATIONS

Classified uses	Use and occupancy classifications ✗	Special considerations for specific building types ✗
	Height and area limitations based on type of construction ✗	
Structural stability	Structural design and verification requirements for normal and expected loading ✗	
	Geo-technical design requirements ✗	Material requirements (e.g., strength, testing, quality, etc.) ✗
Disaster risk	Hurricane/wind actions ✗	Seismic actions ✗
	Flood mitigation and protection systems ✗	Landslides ✗
Fire safety	Fire resistance performance requirements ✗	Fire prevention ✗
	Means of access and egress ✗	Fire service access ✗
Inclusive accessibility	Access routes and means ✗	Fixtures and signals ✗
	Accessibility and usability of internal facilities (e.g., toilets, elevators, etc.) ✗	
Services	Plumbing and sanitary systems ✗	Elevators, escalators, and lifts ✗
	Electrical systems ✗	Heating, ventilation and air conditioning (HVAC) ✗
Green buildings	Natural insulation and ventilation ✗	Green building construction materials ✗
	Energy and water efficient design methods ✗	Carbon smart/neutral construction management ✗

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BUILDING CONTROL PROCESSES

Phases	Development Planning	Design	Construction	Pre-Occupancy	Post-Occupancy
	Development permit	Building permit	Site inspection during construction	Occupancy permit	Permit for changes to existing buildings
	✗	✔	✔	✔	✔

COMPLIANCE MECHANISMS

Dispute resolution mechanism in place	Penalties
✔	✔

Guinea-Bissau

QUICK FACTS

2.0m
Population

0.6m
Capital city population

44.6
% of total population living in urban areas

3.5%
Average urban growth (2010–2020)

BUILDING REGULATORY FRAMEWORK

Types of Regulations			Key Documents
Planning/ Development Regulations	Building Design Regulations	Building Control Regulations	❑ Decree No. 1 "Regulamento Plano Geral Urbanístico de Bissau" of October 30, 1995 ❑ Decree No. 8 "Regulamento Geral de Construçao e Habitaçao Urbana" of July 31, 2006 ❑ Decree No.16 "Regulamento da Inspecção Geral de Obras Públicas, Construções e Urbanismo" of, February 24, 2011
✔	✔	✔	

TYPES OF CONSTRUCTION COVERED

New Buildings		Existing Buildings	
Private buildings	✔	Minor alternations and repairs	✔
Public buildings	✔	Change of occupancy	✔
Vernacular buildings	✔	Addition of floors or extensions	✔
		Retrofit (incl. structural changes)	✔

✔ *The building regulatory framework includes this item*
✗ *The building regulatory framework does not include this item.*

TECHNICAL ASPECTS COVERED BY BUILDING REGULATIONS

Classified uses	Use and occupancy classifications	✔	Special considerations for specific building types	✔
	Height and area limitations based on type of construction	✗		
Structural stability	Structural design and verification requirements for normal and expected loading	✔		
	Geo-technical design requirements	✔	Material requirements (e.g., strength, testing, quality, etc.)	✔
Disaster risk	Hurricane/wind actions	✗	Seismic actions	✗
	Flood mitigation and protection systems	✗	Landslides	✗
Fire safety	Fire resistance performance requirements	✔	Fire prevention	✔
	Means of access and egress	✗	Fire service access	✗
Inclusive accessibility	Access routes and means	✔	Fixtures and signals	✗
	Accessibility and usability of internal facilities (e.g., toilets, elevators, etc.)	✔		
Services	Plumbing and sanitary systems	✔	Elevators, escalators, and lifts	✔
	Electrical systems	✔	Heating, ventilation and air conditioning (HVAC)	✔
Green buildings	Natural insulation and ventilation	✔	Green building construction materials	✗
	Energy and water efficient design methods	✗	Carbon smart/neutral construction management	✗

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BUILDING CONTROL PROCESSES

Phases	Development Planning	Design	Construction	Pre-Occupancy	Post-Occupancy
	Development permit ✔	Building permit ✔	Site inspection during construction ✗	Occupancy permit ✔	Permit for changes to existing buildings ✔

COMPLIANCE MECHANISMS

Dispute resolution mechanism in place ✔	Penalties ✔

Kenya

QUICK FACTS

55.0m
Population

4.4m
Capital city population

28.5
% of total population living in urban areas

4.2%
Average urban growth (2010–2020)

BUILDING REGULATORY FRAMEWORK

Types of Regulations			Key Documents
Planning/ Development Regulations	Building Design Regulations	Building Control Regulations	❑ Physical and Land Use Planning Act No.13/2019 ❑ Building Code: The Local Government (Adoptive By-Laws) (Building) Order 1968 and The Local Government (Adoptive By-Laws) (Grade II Building) Order 1968 Legal Notice No. 15 of 1968
✔	✔	✔	

TYPES OF CONSTRUCTION COVERED

New Buildings		Existing Buildings	
Private buildings	✔	Minor alternations and repairs	✗
Public buildings	✔	Change of occupancy	✗
Vernacular buildings	✗	Addition of floors or extensions	✗
		Retrofit (incl. structural changes)	✗

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✗ *The building regulatory framework does not include this item.*

TECHNICAL ASPECTS COVERED BY BUILDING REGULATIONS

Classified uses	Use and occupancy classifications ✔		Special considerations for specific building types	✗
	Height and area limitations based on type of construction			✔
Structural stability	Structural design and verification requirements for normal and expected loading			✔
	Geo-technical design requirements	✔	Material requirements (e.g., strength, testing, quality, etc.)	✔
Disaster risk	Hurricane/wind actions	✗	Seismic actions	✗
	Flood mitigation and protection systems	✗	Landslides	✗
Fire safety	Fire resistance performance requirements	✔	Fire prevention	✔
	Means of access and egress	✔	Fire service access	✔
Inclusive accessibility	Access routes and means	✔	Fixtures and signals	✔
	Accessibility and usability of internal facilities (e.g., toilets, elevators, etc.)			✗
Services	Plumbing and sanitary systems	✔	Elevators, escalators, and lifts	✗
	Electrical systems	✗	Heating, ventilation and air conditioning (HVAC)	✔
Green buildings	Natural insulation and ventilation	✔	Green building construction materials	✗
	Energy and water efficient design methods	✗	Carbon smart/neutral construction management	✗

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BUILDING CONTROL PROCESSES

Phases	Development Planning	Design	Construction	Pre-Occupancy	Post-Occupancy
	Development permit ✔	Building permit ✔	Site inspection during construction ✔	Occupancy permit ✔	Permit for changes to existing buildings ✔

COMPLIANCE MECHANISMS

Dispute resolution mechanism in place ✔	Penalties ✔

Lesotho

QUICK FACTS

2.2m
Population

0.2m
Capital city population

29.5
% of total population living in urban areas

2.3%
Average urban growth (2010–2020)

BUILDING REGULATORY FRAMEWORK

Types of Regulations			Key Documents
Planning/ Development Regulations	Building Design Regulations	Building Control Regulations	❑ Town, Country Planning Act No. 233/1991 ❑ Building Control Act No. 8/1995
✔	✗	✔	

TYPES OF CONSTRUCTION COVERED

New Buildings		Existing Buildings	
Private buildings	✔	Minor alternations and repairs	✔
Public buildings	✔	Change of occupancy	✗
Vernacular buildings	✔	Addition of floors or extensions	✔
		Retrofit (incl. structural changes)	✔

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✗ *The building regulatory framework does not include this item.*

TECHNICAL ASPECTS COVERED BY BUILDING REGULATIONS

Classified uses	Use and occupancy classifications	✗	Special considerations for specific building types	✗
	Height and area limitations based on type of construction			✗
Structural stability	Structural design and verification requirements for normal and expected loading			✗
	Geo-technical design requirements	✗	Material requirements (e.g., strength, testing, quality, etc.)	✗
Disaster risk	Hurricane/wind actions	✗	Seismic actions	✗
	Flood mitigation and protection systems	✗	Landslides	✗
Fire safety	Fire resistance performance requirements	✗	Fire prevention	✗
	Means of access and egress	✗	Fire service access	✗
Inclusive accessibility	Access routes and means	✗	Fixtures and signals	✗
	Accessibility and usability of internal facilities (e.g., toilets, elevators, etc.)			✗
Services	Plumbing and sanitary systems	✗	Elevators, escalators, and lifts	✗
	Electrical systems	✗	Heating, ventilation and air conditioning (HVAC)	✗
Green buildings	Natural insulation and ventilation	✗	Green building construction materials	✗
	Energy and water efficient design methods	✗	Carbon smart/neutral construction management	✗

✔ Indicates that the country has some regulatory provisions related to the topic. The comprehensiveness and quality of the provisions in each topic area have not been evaluated. ✗ Indicates that no provisions related to this topic were found.

BUILDING CONTROL PROCESSES

Phases	Development Planning	Design	Construction	Pre-Occupancy	Post-Occupancy
	Development permit	Building permit	Site inspection during construction	Occupancy permit	Permit for changes to existing buildings
	✔	✔	✗	✔	✔

COMPLIANCE MECHANISMS

Dispute resolution mechanism in place	Penalties
✔	✔

Liberia

QUICK FACTS

5.2m
Population

1.4m
Capital city population

52.6
% of total population living in urban areas

3.5%
Average urban growth (2010–2020)

BUILDING REGULATORY FRAMEWORK

Types of Regulations			Key Documents
Planning/ Development Regulations	Building Design Regulations	Building Control Regulations	
✔	✗	✔	❑ Zoning Laws of Monrovia and City Ordinances # 8

TYPES OF CONSTRUCTION COVERED

New Buildings		Existing Buildings	
Private buildings	✔	Minor alternations and repairs	✔
Public buildings	✔	Change of occupancy	✔
Vernacular buildings	✗	Addition of floors or extensions	✔
		Retrofit (incl. structural changes)	✔

✔ *The building regulatory framework includes this item*
✗ *The building regulatory framework does not include this item.*

TECHNICAL ASPECTS COVERED BY BUILDING REGULATIONS

Classified uses	Use and occupancy classifications ✗	Special considerations for specific building types ✗
	Height and area limitations based on type of construction ✗	
Structural stability	Structural design and verification requirements for normal and expected loading ✗	
	Geo-technical design requirements ✗	Material requirements (e.g., strength, testing, quality, etc.) ✗
Disaster risk	Hurricane/wind actions ✗	Seismic actions ✗
	Flood mitigation and protection systems ✗	Landslides ✗
Fire safety	Fire resistance performance requirements ✗	Fire prevention ✗
	Means of access and egress ✗	Fire service access ✗
Inclusive accessibility	Access routes and means ✗	Fixtures and signals ✗
	Accessibility and usability of internal facilities (e.g., toilets, elevators, etc.) ✗	
Services	Plumbing and sanitary systems ✗	Elevators, escalators, and lifts ✗
	Electrical systems ✗	Heating, ventilation and air conditioning (HVAC) ✗
Green buildings	Natural insulation and ventilation ✗	Green building construction materials ✗
	Energy and water efficient design methods ✗	Carbon smart/neutral construction management ✗

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BUILDING CONTROL PROCESSES

Phases	Development Planning	Design	Construction	Pre-Occupancy	Post-Occupancy
	Development permit ✔	Building permit ✔	Site inspection during construction ✔	Occupancy permit ✔	Permit for changes to existing buildings ✔

COMPLIANCE MECHANISMS

Dispute resolution mechanism in place	Penalties
✗	✗

Madagascar

QUICK FACTS

28.4m
Population

3.1m
Capital city population

39.2
% of total population living in urban areas

4.6%
Average urban growth (2010–2020)

BUILDING REGULATORY FRAMEWORK

Types of Regulations			Key Documents
Planning/ Development Regulations	Building Design Regulations	Building Control Regulations	
✔	✗	✔	❑ Law n° 2015-052 "Relative à l'Urbanisme et à l'Habitat" of 2015

TYPES OF CONSTRUCTION COVERED

New Buildings		Existing Buildings	
Private buildings	✔	Minor alternations and repairs	✔
Public buildings	✔	Change of occupancy	✗
Vernacular buildings	✗	Addition of floors or extensions	✔
		Retrofit (incl. structural changes)	✗

✔ *The building regulatory framework includes this item*
✗ *The building regulatory framework does not include this item.*

TECHNICAL ASPECTS COVERED BY BUILDING REGULATIONS

Classified uses	Use and occupancy classifications ✗	Special considerations for specific building types ✗
	Height and area limitations based on type of construction ✗	
Structural stability	Structural design and verification requirements for normal and expected loading ✗	
	Geo-technical design requirements ✗	Material requirements (e.g., strength, testing, quality, etc.) ✗
Disaster risk	Hurricane/wind actions ✗	Seismic actions ✗
	Flood mitigation and protection systems ✗	Landslides ✗
Fire safety	Fire resistance performance requirements ✗	Fire prevention ✗
	Means of access and egress ✗	Fire service access ✗
Inclusive accessibility	Access routes and means ✗	Fixtures and signals ✗
	Accessibility and usability of internal facilities (e.g., toilets, elevators, etc.) ✗	
Services	Plumbing and sanitary systems ✗	Elevators, escalators, and lifts ✗
	Electrical systems ✗	Heating, ventilation and air conditioning (HVAC) ✗
Green buildings	Natural insulation and ventilation ✗	Green building construction materials ✗
	Energy and water efficient design methods ✗	Carbon smart/neutral construction management ✗

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BUILDING CONTROL PROCESSES

Phases	Development Planning	Design	Construction	Pre-Occupancy	Post-Occupancy
	Development permit ✗	Building permit ✔	Site inspection during construction ✔	Occupancy permit ✔	Permit for changes to existing buildings ✔

COMPLIANCE MECHANISMS

Dispute resolution mechanism in place ✔	Penalties ✔

Malawi

QUICK FACTS

19.6m
Population

1.0m
Capital city population

17.7
% of total population living in urban areas

3.9%
Average urban growth (2010–2020)

BUILDING REGULATORY FRAMEWORK

Types of Regulations			Key Documents
Planning/ Development Regulations	Building Design Regulations	Building Control Regulations	❑ Physical Planning Act No. 17/2016
✔	✗	✔	

TYPES OF CONSTRUCTION COVERED

New Buildings		Existing Buildings	
Private buildings	✗	Minor alternations and repairs	✔
Public buildings	✗	Change of occupancy	✗
Vernacular buildings	✗	Addition of floors or extensions	✔
		Retrofit (incl. structural changes)	✔

✔ *The building regulatory framework includes this item*
✗ *The building regulatory framework does not include this item.*

TECHNICAL ASPECTS COVERED BY BUILDING REGULATIONS

Classified uses	Use and occupancy classifications ✗	Special considerations for specific building types ✗
	Height and area limitations based on type of construction ✗	
Structural stability	Structural design and verification requirements for normal and expected loading ✗	
	Geo-technical design requirements ✗	Material requirements (e.g., strength, testing, quality, etc.) ✗
Disaster risk	Hurricane/wind actions ✗	Seismic actions ✗
	Flood mitigation and protection systems ✗	Landslides ✗
Fire safety	Fire resistance performance requirements ✗	Fire prevention ✗
	Means of access and egress ✗	Fire service access ✗
Inclusive accessibility	Access routes and means ✗	Fixtures and signals ✗
	Accessibility and usability of internal facilities (e.g., toilets, elevators, etc.) ✗	
Services	Plumbing and sanitary systems ✗	Elevators, escalators, and lifts ✗
	Electrical systems ✗	Heating, ventilation and air conditioning (HVAC) ✗
Green buildings	Natural insulation and ventilation ✗	Green building construction materials ✗
	Energy and water efficient design methods ✗	Carbon smart/neutral construction management ✗

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BUILDING CONTROL PROCESSES

Phases	Development Planning	Design	Construction	Pre-Occupancy	Post-Occupancy
	Development permit ✔	Building permit ✔	Site inspection during construction ✗	Occupancy permit ✔	Permit for changes to existing buildings ✗

COMPLIANCE MECHANISMS

Dispute resolution mechanism in place ✔	Penalties ✗

Mali

QUICK FACTS

20.9m
Population

2.4m
Capital city population

44.7
% of total population living in urban areas

5.0%
Average urban growth (2010–2020)

BUILDING REGULATORY FRAMEWORK

Types of Regulations			Key Documents
Planning/ Development Regulations	Building Design Regulations	Building Control Regulations	
✔	✗	✔	❑ Law N°01-077 2001 "Fixant les regles generales de la construction"; Law nº 2017-038 updates Law No. 01-077 ❑ Decree N°2020-0031/P-RM "Portant réglementation de la délivrance du permis de construire" of 2020

TYPES OF CONSTRUCTION COVERED

New Buildings		Existing Buildings	
Private buildings	✔	Minor alternations and repairs	✗
Public buildings	✔	Change of occupancy	✗
Vernacular buildings	✗	Addition of floors or extensions	✗
		Retrofit (incl. structural changes)	✗

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TECHNICAL ASPECTS COVERED BY BUILDING REGULATIONS

Classified uses	Use and occupancy classifications	✗	Special considerations for specific building types	✗
	Height and area limitations based on type of construction			✗
Structural stability	Structural design and verification requirements for normal and expected loading			✗
	Geo-technical design requirements	✗	Material requirements (e.g., strength, testing, quality, etc.)	✗
Disaster risk	Hurricane/wind actions	✗	Seismic actions	✗
	Flood mitigation and protection systems	✗	Landslides	✗
Fire safety	Fire resistance performance requirements	✗	Fire prevention	✗
	Means of access and egress	✗	Fire service access	✗
Inclusive accessibility	Access routes and means	✗	Fixtures and signals	✗
	Accessibility and usability of internal facilities (e.g., toilets, elevators, etc.)			✗
Services	Plumbing and sanitary systems	✗	Elevators, escalators, and lifts	✗
	Electrical systems	✗	Heating, ventilation and air conditioning (HVAC)	✗
Green buildings	Natural insulation and ventilation	✗	Green building construction materials	✗
	Energy and water efficient design methods	✗	Carbon smart/neutral construction management	✗

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BUILDING CONTROL PROCESSES

Phases	Development Planning	Design	Construction	Pre-Occupancy	Post-Occupancy
	Development permit	Building permit	Site inspection during construction	Occupancy permit	Permit for changes to existing buildings
	✗	✔	✗	✔	✔

COMPLIANCE MECHANISMS

Dispute resolution mechanism in place	Penalties
✗	✔

Mauritania

QUICK FACTS

4.8m
Population

1.2m
Capital city population

56.1
% of total population living in urban areas

4.6%
Average urban growth (2010–2020)

BUILDING REGULATORY FRAMEWORK

Types of Regulations			Key Documents
Planning/ Development Regulations	Building Design Regulations	Building Control Regulations	❑ Law n°2008-07 "Portant Code de l'Urbanisme" of 2008 ❑ Decree n°2007-205 "Portant approbation du Règlement Général de la Construction" of 2007
✔	✔	✔	

TYPES OF CONSTRUCTION COVERED

New Buildings		Existing Buildings	
Private buildings	✔	Minor alternations and repairs	✔
Public buildings	✔	Change of occupancy	✗
Vernacular buildings	✔	Addition of floors or extensions	✔
		Retrofit (incl. structural changes)	✗

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✗ *The building regulatory framework does not include this item.*

TECHNICAL ASPECTS COVERED BY BUILDING REGULATIONS

Classified uses	Use and occupancy classifications	✔	Special considerations for specific building types	✔
	Height and area limitations based on type of construction	✔		
Structural stability	Structural design and verification requirements for normal and expected loading	✔		
	Geo-technical design requirements	✗	Material requirements (e.g., strength, testing, quality, etc.)	✔
Disaster risk	Hurricane/wind actions	✗	Seismic actions	✗
	Flood mitigation and protection systems	✔	Landslides	✗
Fire safety	Fire resistance performance requirements	✔	Fire prevention	✔
	Means of access and egress	✔	Fire service access	✔
Inclusive accessibility	Access routes and means	✔	Fixtures and signals	✗
	Accessibility and usability of internal facilities (e.g., toilets, elevators, etc.)	✔		
Services	Plumbing and sanitary systems	✔	Elevators, escalators, and lifts	✔
	Electrical systems	✔	Heating, ventilation and air conditioning (HVAC)	✗
Green buildings	Natural insulation and ventilation	✗	Green building construction materials	✗
	Energy and water efficient design methods	✗	Carbon smart/neutral construction management	✗

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BUILDING CONTROL PROCESSES

Phases	Development Planning	Design	Construction	Pre-Occupancy	Post-Occupancy
	Development permit	Building permit	Site inspection during construction	Occupancy permit	Permit for changes to existing buildings
	✗	✔	✔	✔	✔

COMPLIANCE MECHANISMS

Dispute resolution mechanism in place	Penalties
✔	✔

Mauritius

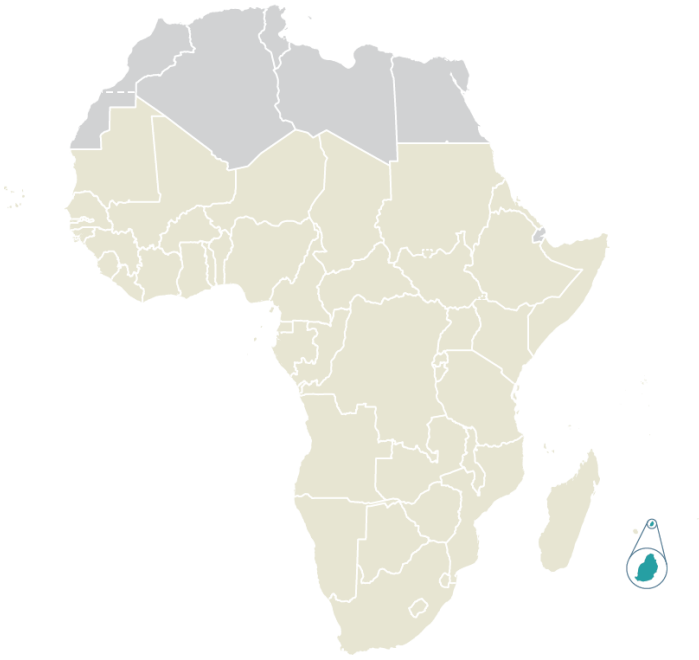
QUICK FACTS

1.3m
Population

0.1m
Capital city population

40.8
% of total population living in urban areas

-0.1%
Average urban growth (2010–2020)



BUILDING REGULATORY FRAMEWORK

Types of Regulations			Key Documents
Planning/ Development Regulations	Building Design Regulations	Building Control Regulations	❑ Planning and Development Act No. 32/2004 ❑ The Building Control Act No. 9/2012
✔	✗	✔	

TYPES OF CONSTRUCTION COVERED

New Buildings		Existing Buildings	
Private buildings	✔	Minor alternations and repairs	✗
Public buildings	✔	Change of occupancy	✗
Vernacular buildings	✔	Addition of floors or extensions	✗
		Retrofit (incl. structural changes)	✗

✔ *The building regulatory framework includes this item*
✗ *The building regulatory framework does not include this item.*

TECHNICAL ASPECTS COVERED BY BUILDING REGULATIONS

Classified uses	Use and occupancy classifications	✗	Special considerations for specific building types	✗
	Height and area limitations based on type of construction			✗
Structural stability	Structural design and verification requirements for normal and expected loading			✗
	Geo-technical design requirements	✗	Material requirements (e.g., strength, testing, quality, etc.)	✗
Disaster risk	Hurricane/wind actions	✗	Seismic actions	✗
	Flood mitigation and protection systems	✗	Landslides	✗
Fire safety	Fire resistance performance requirements	✗	Fire prevention	✗
	Means of access and egress	✗	Fire service access	✗
Inclusive accessibility	Access routes and means	✗	Fixtures and signals	✗
	Accessibility and usability of internal facilities (e.g., toilets, elevators, etc.)			✗
Services	Plumbing and sanitary systems	✗	Elevators, escalators, and lifts	✗
	Electrical systems	✗	Heating, ventilation and air conditioning (HVAC)	✗
Green buildings	Natural insulation and ventilation	✗	Green building construction materials	✗
	Energy and water efficient design methods	✗	Carbon smart/neutral construction management	✗

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BUILDING CONTROL PROCESSES

Phases	Development Planning	Design	Construction	Pre-Occupancy	Post-Occupancy
	Development permit	Building permit	Site inspection during construction	Occupancy permit	Permit for changes to existing buildings
	✗	✔	✔	✔	✔

COMPLIANCE MECHANISMS

Dispute resolution mechanism in place	Penalties
✔	✔

Mozambique

QUICK FACTS

32.2m
Population

1.1m
Capital city population

37.6
% of total population living in urban areas

4.4%
Average urban growth (2010–2020)

BUILDING REGULATORY FRAMEWORK

Types of Regulations			Key Documents
Planning/ Development Regulations	Building Design Regulations	Building Control Regulations	❑ Law No. 19 "Lei de Ordenamento do Território" of July 18, 2007 ❑ Legislative Diploma No. 1976 "Regulamento Geral das Edificações Urbanas" of May 10, 1960
✔	✔	✔	

TYPES OF CONSTRUCTION COVERED

New Buildings		Existing Buildings	
Private buildings	✔	Minor alternations and repairs	✔
Public buildings	✔	Change of occupancy	✔
Vernacular buildings	✔	Addition of floors or extensions	✔
		Retrofit (incl. structural changes)	✔

✔ *The building regulatory framework includes this item*
✗ *The building regulatory framework does not include this item.*

TECHNICAL ASPECTS COVERED BY BUILDING REGULATIONS

Classified uses	Use and occupancy classifications	✗	Special considerations for specific building types	✔
	Height and area limitations based on type of construction	✗		
Structural stability	Structural design and verification requirements for normal and expected loading	✔		
	Geo-technical design requirements	✗	Material requirements (e.g., strength, testing, quality, etc.)	✔
Disaster risk	Hurricane/wind actions	✗	Seismic actions	✔
	Flood mitigation and protection systems	✗	Landslides	✗
Fire safety	Fire resistance performance requirements	✔	Fire prevention	✔
	Means of access and egress	✔	Fire service access	✔
Inclusive accessibility	Access routes and means	✗	Fixtures and signals	✗
	Accessibility and usability of internal facilities (e.g., toilets, elevators, etc.)	✔		
Services	Plumbing and sanitary systems	✔	Elevators, escalators, and lifts	✔
	Electrical systems	✗	Heating, ventilation and air conditioning (HVAC)	✔
Green buildings	Natural insulation and ventilation	✔	Green building construction materials	✗
	Energy and water efficient design methods	✗	Carbon smart/neutral construction management	✗

✔ Indicates that the country has some regulatory provisions related to the topic. The comprehensiveness and quality of the provisions in each topic area have not been evaluated. ✗ Indicates that no provisions related to this topic were found.

BUILDING CONTROL PROCESSES

Phases	Development Planning	Design	Construction	Pre-Occupancy	Post-Occupancy
	Development permit	Building permit	Site inspection during construction	Occupancy permit	Permit for changes to existing buildings
	✗	✔	✔	✔	✔

COMPLIANCE MECHANISMS

Dispute resolution mechanism in place	Penalties
✔	✔

Namibia

QUICK FACTS

2.6m
Population

0.4m
Capital city population

53.0
% of total population living in urban areas

4.0%
Average urban growth (2010–2020)

BUILDING REGULATORY FRAMEWORK

Types of Regulations			Key Documents
Planning/ Development Regulations	Building Design Regulations	Building Control Regulations	❑ Urban and Regional Planning Act No. 5/2018 ❑ South Africa Standards Code (Legally adopted); Building Regulations of Windhoek G/N 57, 1969
✔	✔	✔	

TYPES OF CONSTRUCTION COVERED

New Buildings		Existing Buildings	
Private buildings	✔	Minor alternations and repairs	✔
Public buildings	✔	Change of occupancy	✔
Vernacular buildings	✔	Addition of floors or extensions	✗
		Retrofit (incl. structural changes)	✔

✔ *The building regulatory framework includes this item*
✗ *The building regulatory framework does not include this item.*

TECHNICAL ASPECTS COVERED BY BUILDING REGULATIONS

Classified uses	Use and occupancy classifications	✔	Special considerations for specific building types	✗
	Height and area limitations based on type of construction	✗		
Structural stability	Structural design and verification requirements for normal and expected loading	✔		
	Geo-technical design requirements	✔	Material requirements (e.g., strength, testing, quality, etc.)	✔
Disaster risk	Hurricane/wind actions	✗	Seismic actions	✔
	Flood mitigation and protection systems	✗	Landslides	✗
Fire safety	Fire resistance performance requirements	✔	Fire prevention	✔
	Means of access and egress	✔	Fire service access	✗
Inclusive accessibility	Access routes and means	✔	Fixtures and signals	✗
	Accessibility and usability of internal facilities (e.g., toilets, elevators, etc.)	✔		
Services	Plumbing and sanitary systems	✔	Elevators, escalators, and lifts	✔
	Electrical systems	✔	Heating, ventilation and air conditioning (HVAC)	✔
Green buildings	Natural insulation and ventilation	✔	Green building construction materials	✗
	Energy and water efficient design methods	✔	Carbon smart/neutral construction management	✗

✔ Indicates that the country has some regulatory provisions related to the topic. The comprehensiveness and quality of the provisions in each topic area have not been evaluated. ✗ Indicates that no provisions related to this topic were found.

BUILDING CONTROL PROCESSES

Phases	Development Planning	Design	Construction	Pre-Occupancy	Post-Occupancy
	Development permit	Building permit	Site inspection during construction	Occupancy permit	Permit for changes to existing buildings
	✗	✔	✔	✔	✔

COMPLIANCE MECHANISMS

Dispute resolution mechanism in place	Penalties
✗	✔

Niger

QUICK FACTS

25.1m
Population

1.2m
Capital city population

16.8
% of total population living in urban areas

4.1%
Average urban growth (2010–2020)

BUILDING REGULATORY FRAMEWORK

Types of Regulations		
Planning/ Development Regulations	Building Design Regulations	Building Control Regulations
✔	✔	✔

Key Documents

- Nigerian Urban and Regional Planning Act No. 88/1992
- Law No. 25 "Fixant les principes fondamentaux de la construction et de l'habitation" of April 25, 2018; Decree No. 303 "Portant modalités d'application de la loi n° 2018-25 du 27 avril 2018, fixant les principes fondamentaux de la Construction et de l'Habitatio" of April 27, 2018

TYPES OF CONSTRUCTION COVERED

New Buildings		Existing Buildings	
Private buildings	✔	Minor alternations and repairs	✔
Public buildings	✔	Change of occupancy	✔
Vernacular buildings	✔	Addition of floors or extensions	✔
		Retrofit (incl. structural changes)	✔

✔ *The building regulatory framework includes this item* ✗ *The building regulatory framework does not include this item.*

TECHNICAL ASPECTS COVERED BY BUILDING REGULATIONS

Classified uses	Use and occupancy classifications ✔		Special considerations for specific building types ✔	
	Height and area limitations based on type of construction ✔			
Structural stability	Structural design and verification requirements for normal and expected loading ✔			
	Geo-technical design requirements ✔		Material requirements (e.g., strength, testing, quality, etc.) ✔	
Disaster risk	Hurricane/wind actions ✗		Seismic actions ✗	
	Flood mitigation and protection systems ✔		Landslides ✔	
Fire safety	Fire resistance performance requirements ✔		Fire prevention ✔	
	Means of access and egress ✔		Fire service access ✔	
Inclusive accessibility	Access routes and means ✔		Fixtures and signals ✔	
	Accessibility and usability of internal facilities (e.g., toilets, elevators, etc.) ✔			
Services	Plumbing and sanitary systems ✗		Elevators, escalators, and lifts ✗	
	Electrical systems ✗		Heating, ventilation and air conditioning (HVAC) ✗	
Green buildings	Natural insulation and ventilation ✗		Green building construction materials ✗	
	Energy and water efficient design methods ✗		Carbon smart/neutral construction management ✗	

✔ Indicates that the country has some regulatory provisions related to the topic. The comprehensiveness and quality of the provisions in each topic area have not been evaluated. ✗ Indicates that no provisions related to this topic were found.

BUILDING CONTROL PROCESSES

Phases	Development Planning	Design	Construction	Pre-Occupancy	Post-Occupancy
	Development permit ✗	Building permit ✔	Site inspection during construction ✔	Occupancy permit ✔	Permit for changes to existing buildings ✗

COMPLIANCE MECHANISMS

Dispute resolution mechanism in place ✔	Penalties ✗

Nigeria

QUICK FACTS

211.4m
Population

2.9m
Capital city population

52.8
% of total population living in urban areas

4.4%
Average urban growth (2010–2020)

BUILDING REGULATORY FRAMEWORK

Types of Regulations		
Planning/ Development Regulations	Building Design Regulations	Building Control Regulations
✔	✔	✔

Key Documents

- Decree No. 88 "Nigerian Urban and Regional Planning Law" of December 15, 1992
- National Building Code, 2006; National Building Energy Efficiency Code edited in 2017; Lagos State Urban and Regional Planning Law of 2019

TYPES OF CONSTRUCTION COVERED

New Buildings		Existing Buildings	
Private buildings	✔	Minor alternations and repairs	✗
Public buildings	✔	Change of occupancy	✗
Vernacular buildings	✔	Addition of floors or extensions	✗
		Retrofit (incl. structural changes)	✗

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TECHNICAL ASPECTS COVERED BY BUILDING REGULATIONS

Classified uses	Use and occupancy classifications	✔	Special considerations for specific building types	✔
	Height and area limitations based on type of construction	✔		
Structural stability	Structural design and verification requirements for normal and expected loading	✔		
	Geo-technical design requirements	✔	Material requirements (e.g., strength, testing, quality, etc.)	✔
Disaster risk	Hurricane/wind actions	✗	Seismic actions	✗
	Flood mitigation and protection systems	✗	Landslides	✗
Fire safety	Fire resistance performance requirements	✔	Fire prevention	✔
	Means of access and egress	✔	Fire service access	✔
Inclusive accessibility	Access routes and means	✔	Fixtures and signals	✗
	Accessibility and usability of internal facilities (e.g., toilets, elevators, etc.)	✔		
Services	Plumbing and sanitary systems	✔	Elevators, escalators, and lifts	✗
	Electrical systems	✔	Heating, ventilation and air conditioning (HVAC)	✔
Green buildings	Natural insulation and ventilation	✔	Green building construction materials	✗
	Energy and water efficient design methods	✔	Carbon smart/neutral construction management	✗

✔ Indicates that the country has some regulatory provisions related to the topic. The comprehensiveness and quality of the provisions in each topic area have not been evaluated. ✗ Indicates that no provisions related to this topic were found.

BUILDING CONTROL PROCESSES

Phases	Development Planning	Design	Construction	Pre-Occupancy	Post-Occupancy
	Development permit	Building permit	Site inspection during construction	Occupancy permit	Permit for changes to existing buildings
	✔	✔	✔	✔	✔

COMPLIANCE MECHANISMS

Dispute resolution mechanism in place	Penalties
✔	✔

The Republic of Congo

QUICK FACTS

5.7m
Population

2.2m
Capital city population

68.3
% of total population living in urban areas

3.3%
Average urban growth (2010–2020)

BUILDING REGULATORY FRAMEWORK

Types of Regulations			Key Documents
Planning/ Development Regulations	Building Design Regulations	Building Control Regulations	❑ Law No. 6-2019 "Portant code de l'urbanisme et de la construction" of 2019
✔	✗	✔	

TYPES OF CONSTRUCTION COVERED

New Buildings		Existing Buildings	
Private buildings	✔	Minor alternations and repairs	✗
Public buildings	✔	Change of occupancy	✔
Vernacular buildings	✗	Addition of floors or extensions	✔
		Retrofit (incl. structural changes)	✔

✔ *The building regulatory framework includes this item*
✗ *The building regulatory framework does not include this item.*

TECHNICAL ASPECTS COVERED BY BUILDING REGULATIONS

Classified uses	Use and occupancy classifications ✗	Special considerations for specific building types ✗
	Height and area limitations based on type of construction ✗	
Structural stability	Structural design and verification requirements for normal and expected loading ✗	
	Geo-technical design requirements ✗	Material requirements (e.g., strength, testing, quality, etc.) ✗
Disaster risk	Hurricane/wind actions ✗	Seismic actions ✗
	Flood mitigation and protection systems ✗	Landslides ✗
Fire safety	Fire resistance performance requirements ✗	Fire prevention ✗
	Means of access and egress ✗	Fire service access ✗
Inclusive accessibility	Access routes and means ✗	Fixtures and signals ✗
	Accessibility and usability of internal facilities (e.g., toilets, elevators, etc.) ✗	
Services	Plumbing and sanitary systems ✗	Elevators, escalators, and lifts ✗
	Electrical systems ✗	Heating, ventilation and air conditioning (HVAC) ✗
Green buildings	Natural insulation and ventilation ✗	Green building construction materials ✗
	Energy and water efficient design methods ✗	Carbon smart/neutral construction management ✗

✔ Indicates that the country has some regulatory provisions related to the topic. The comprehensiveness and quality of the provisions in each topic area have not been evaluated. ✗ Indicates that no provisions related to this topic were found.

BUILDING CONTROL PROCESSES

Phases	Development Planning	Design	Construction	Pre-Occupancy	Post-Occupancy
	Development permit ✗	Building permit ✔	Site inspection during construction ✔	Occupancy permit ✔	Permit for changes to existing buildings ✔

COMPLIANCE MECHANISMS

Dispute resolution mechanism in place ✔	Penalties ✔

Rwanda

QUICK FACTS

13.3m
Population

1.1m
Capital city population

17.6
% of total population living in urban areas

2.9%
Average urban growth (2010–2020)

BUILDING REGULATORY FRAMEWORK

Types of Regulations			Key Documents
Planning/ Development Regulations	Building Design Regulations	Building Control Regulations	❑ Law No. 10 "Governing Urban Planning and Building in Rwanda" of May 2 ❑ Law No. 16 "Urban Planning and Building Regulations 2019" April 16, 2019, Rwanda Building Code, 2019
✔	✔	✔	

TYPES OF CONSTRUCTION COVERED

New Buildings		Existing Buildings	
Private buildings	✔	Minor alternations and repairs	✔
Public buildings	✔	Change of occupancy	✔
Vernacular buildings	✔	Addition of floors or extensions	✗
		Retrofit (incl. structural changes)	✔

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TECHNICAL ASPECTS COVERED BY BUILDING REGULATIONS

Classified uses	Use and occupancy classifications	✔	Special considerations for specific building types	✗
	Height and area limitations based on type of construction	✔		
Structural stability	Structural design and verification requirements for normal and expected loading	✔		
	Geo-technical design requirements	✔	Material requirements (e.g., strength, testing, quality, etc.)	✔
Disaster risk	Hurricane/wind actions	✔	Seismic actions	✔
	Flood mitigation and protection systems	✔	Landslides	✔
Fire safety	Fire resistance performance requirements	✔	Fire prevention	✔
	Means of access and egress	✔	Fire service access	✔
Inclusive accessibility	Access routes and means	✔	Fixtures and signals	✔
	Accessibility and usability of internal facilities (e.g., toilets, elevators, etc.)	✔		
Services	Plumbing and sanitary systems	✔	Elevators, escalators, and lifts	✔
	Electrical systems	✔	Heating, ventilation and air conditioning (HVAC)	✔
Green buildings	Natural insulation and ventilation	✔	Green building construction materials	✔
	Energy and water efficient design methods	✔	Carbon smart/neutral construction management	✗

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BUILDING CONTROL PROCESSES

Phases	Development Planning	Design	Construction	Pre-Occupancy	Post-Occupancy
	Development permit	Building permit	Site inspection during construction	Occupancy permit	Permit for changes to existing buildings
	✔	✔	✔	✔	✔

COMPLIANCE MECHANISMS

Dispute resolution mechanism in place	Penalties
✗	✔

São Tomé and Príncipe

QUICK FACTS

0.2m
Population

0.1m
Capital city population

75.1
% of total population living in urban areas

3.3%
Average urban growth (2010–2020)

BUILDING REGULATORY FRAMEWORK

Types of Regulations		
Planning/ Development Regulations	Building Design Regulations	Building Control Regulations
✔	✔	✔

Key Documents

- Decree-Law No. 19 "Regulamento Geral de Const e Habitação Urbana" of November 25, 2015

TYPES OF CONSTRUCTION COVERED

New Buildings		Existing Buildings	
Private buildings	✔	Minor alternations and repairs	✔
Public buildings	✔	Change of occupancy	✔
Vernacular buildings	✔	Addition of floors or extensions	✔
		Retrofit (incl. structural changes)	✔

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TECHNICAL ASPECTS COVERED BY BUILDING REGULATIONS

Classified uses	Use and occupancy classifications	✔	Special considerations for specific building types	✔
	Height and area limitations based on type of construction	✔		
Structural stability	Structural design and verification requirements for normal and expected loading	✔		
	Geo-technical design requirements	✔	Material requirements (e.g., strength, testing, quality, etc.)	✔
Disaster risk	Hurricane/wind actions	✗	Seismic actions	✗
	Flood mitigation and protection systems	✗	Landslides	✗
Fire safety	Fire resistance performance requirements	✔	Fire prevention	✔
	Means of access and egress	✗	Fire service access	✗
Inclusive accessibility	Access routes and means	✔	Fixtures and signals	✗
	Accessibility and usability of internal facilities (e.g., toilets, elevators, etc.)	✔		
Services	Plumbing and sanitary systems	✔	Elevators, escalators, and lifts	✔
	Electrical systems	✔	Heating, ventilation and air conditioning (HVAC)	✔
Green buildings	Natural insulation and ventilation	✔	Green building construction materials	✗
	Energy and water efficient design methods	✗	Carbon smart/neutral construction management	✗

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BUILDING CONTROL PROCESSES

Phases	Development Planning	Design	Construction	Pre-Occupancy	Post-Occupancy
	Development permit	Building permit	Site inspection during construction	Occupancy permit	Permit for changes to existing buildings
	✔	✔	✔	✔	✔

COMPLIANCE MECHANISMS

Dispute resolution mechanism in place	Penalties
✗	✗

Senegal

QUICK FACTS

17.2m
Population

3.0m
Capital city population

48.6
% of total population living in urban areas

3.7%
Average urban growth (2010–2020)

BUILDING REGULATORY FRAMEWORK

Types of Regulations			Key Documents
Planning/ Development Regulations	Building Design Regulations	Building Control Regulations	❑ Law 2008-43 "Portant code de l'urbanisme" of 2008 ❑ Law n° 2009-23 "Portant code de la construction (partie législative)" of 2009 | Decree n°2010-99 "Portant code de la construction (partie reglementaire)" of 2009
✔	✔	✔	

TYPES OF CONSTRUCTION COVERED

New Buildings		Existing Buildings	
Private buildings	✔	Minor alternations and repairs	✔
Public buildings	✔	Change of occupancy	✗
Vernacular buildings	✗	Addition of floors or extensions	✔
		Retrofit (incl. structural changes)	✗

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TECHNICAL ASPECTS COVERED BY BUILDING REGULATIONS

Classified uses	Use and occupancy classifications ✔		Special considerations for specific building types ✔	
	Height and area limitations based on type of construction ✔			
Structural stability	Structural design and verification requirements for normal and expected loading ✗			
	Geo-technical design requirements ✗		Material requirements (e.g., strength, testing, quality, etc.) ✔	
Disaster risk	Hurricane/wind actions ✔		Seismic actions ✗	
	Flood mitigation and protection systems ✗		Landslides ✗	
Fire safety	Fire resistance performance requirements ✔		Fire prevention ✔	
	Means of access and egress ✔		Fire service access ✔	
Inclusive accessibility	Access routes and means ✔		Fixtures and signals ✔	
	Accessibility and usability of internal facilities (e.g., toilets, elevators, etc.) ✔			
Services	Plumbing and sanitary systems ✔		Elevators, escalators, and lifts ✔	
	Electrical systems ✔		Heating, ventilation and air conditioning (HVAC) ✔	
Green buildings	Natural insulation and ventilation ✔		Green building construction materials ✗	
	Energy and water efficient design methods ✔		Carbon smart/neutral construction management ✗	

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BUILDING CONTROL PROCESSES

Phases	Development Planning	Design	Construction	Pre-Occupancy	Post-Occupancy
	Development permit ✔	Building permit ✔	Site inspection during construction ✔	Occupancy permit ✔	Permit for changes to existing buildings ✔

COMPLIANCE MECHANISMS

Dispute resolution mechanism in place ✔	Penalties ✔

The Seychelles

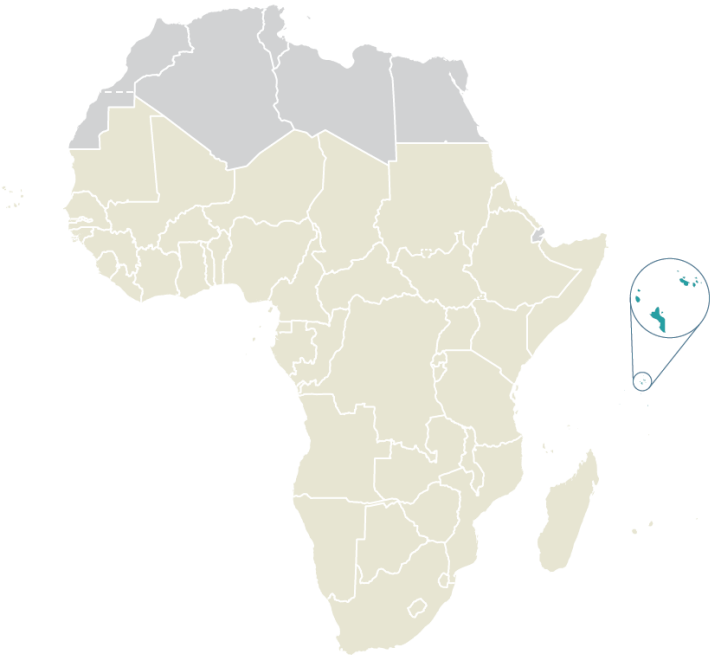
QUICK FACTS

0.1m
Population

0.03m
Capital city population

58.0
% of total population living in urban areas

1.8%
Average urban growth (2010–2020)



BUILDING REGULATORY FRAMEWORK

Types of Regulations			Key Documents
Planning/ Development Regulations	Building Design Regulations	Building Control Regulations	❑ Physical Planning Act No. 55/2021 ❑ Town and Country Planning Act (Building Regulations) Cap. 237, 1972
✔	✔	✔	

TYPES OF CONSTRUCTION COVERED

New Buildings		Existing Buildings	
Private buildings	✔	Minor alternations and repairs	✔
Public buildings	✔	Change of occupancy	✔
Vernacular buildings	✔	Addition of floors or extensions	✗
		Retrofit (incl. structural changes)	✗

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✗ *The building regulatory framework does not include this item.*

TECHNICAL ASPECTS COVERED BY BUILDING REGULATIONS

Classified uses	Use and occupancy classifications	✔	Special considerations for specific building types	✔
	Height and area limitations based on type of construction	✔		
Structural stability	Structural design and verification requirements for normal and expected loading	✔		
	Geo-technical design requirements	✗	Material requirements (e.g., strength, testing, quality, etc.)	✗
Disaster risk	Hurricane/wind actions	✔	Seismic actions	✗
	Flood mitigation and protection systems	✔	Landslides	✗
Fire safety	Fire resistance performance requirements	✔	Fire prevention	✔
	Means of access and egress	✔	Fire service access	✔
Inclusive accessibility	Access routes and means	✗	Fixtures and signals	✗
	Accessibility and usability of internal facilities (e.g., toilets, elevators, etc.)	✗		
Services	Plumbing and sanitary systems	✗	Elevators, escalators, and lifts	✗
	Electrical systems	✗	Heating, ventilation and air conditioning (HVAC)	✔
Green buildings	Natural insulation and ventilation	✔	Green building construction materials	✗
	Energy and water efficient design methods	✗	Carbon smart/neutral construction management	✗

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BUILDING CONTROL PROCESSES

Phases	Development Planning	Design	Construction	Pre-Occupancy	Post-Occupancy
	Development permit	Building permit	Site inspection during construction	Occupancy permit	Permit for changes to existing buildings
	✔	✔	✔	✔	✔

COMPLIANCE MECHANISMS

Dispute resolution mechanism in place	Penalties
✔	✔

Sierra Leone

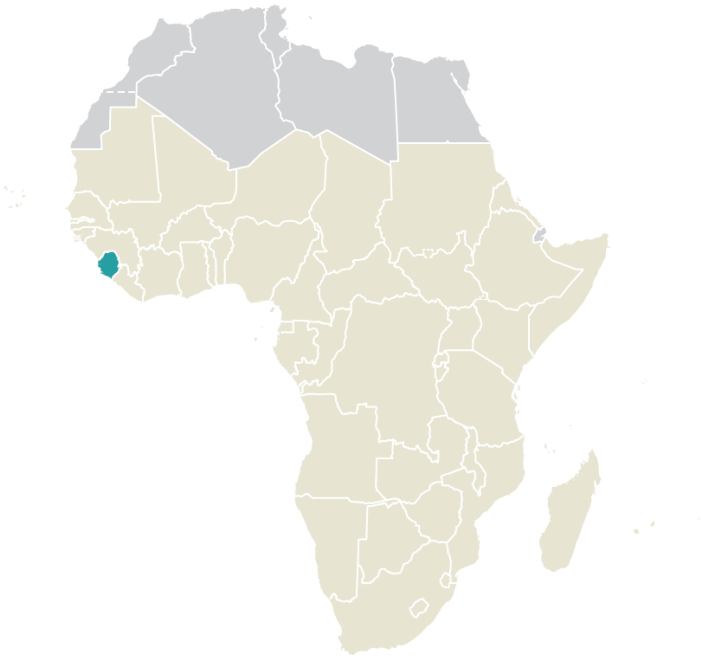
QUICK FACTS

8.1m
Population

1.14m
Capital city population

43.4
% of total population living in urban areas

3.2%
Average urban growth (2010–2020)



BUILDING REGULATORY FRAMEWORK

Types of Regulations			Key Documents
Planning/ Development Regulations	Building Design Regulations	Building Control Regulations	❑ Freetown Improvement Act Cap.66 1960
✔	✗	✔	

TYPES OF CONSTRUCTION COVERED

New Buildings		Existing Buildings	
Private buildings	✔	Minor alternations and repairs	✔
Public buildings	✔	Change of occupancy	✔
Vernacular buildings	✔	Addition of floors or extensions	✗
		Retrofit (incl. structural changes)	✔

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✗ *The building regulatory framework does not include this item.*

TECHNICAL ASPECTS COVERED BY BUILDING REGULATIONS

Classified uses	Use and occupancy classifications	✗	Special considerations for specific building types	✗
	Height and area limitations based on type of construction			✗
Structural stability	Structural design and verification requirements for normal and expected loading			✗
	Geo-technical design requirements	✗	Material requirements (e.g., strength, testing, quality, etc.)	✗
Disaster risk	Hurricane/wind actions	✗	Seismic actions	✗
	Flood mitigation and protection systems	✗	Landslides	✗
Fire safety	Fire resistance performance requirements	✗	Fire prevention	✗
	Means of access and egress	✗	Fire service access	✗
Inclusive accessibility	Access routes and means	✗	Fixtures and signals	✗
	Accessibility and usability of internal facilities (e.g., toilets, elevators, etc.)			✗
Services	Plumbing and sanitary systems	✗	Elevators, escalators, and lifts	✗
	Electrical systems	✗	Heating, ventilation and air conditioning (HVAC)	✗
Green buildings	Natural insulation and ventilation	✗	Green building construction materials	✗
	Energy and water efficient design methods	✗	Carbon smart/neutral construction management	✗

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BUILDING CONTROL PROCESSES

Phases	Development Planning	Design	Construction	Pre-Occupancy	Post-Occupancy
	Development permit	Building permit	Site inspection during construction	Occupancy permit	Permit for changes to existing buildings
	✗	✔	✔	✗	✔

COMPLIANCE MECHANISMS

Dispute resolution mechanism in place	Penalties
✔	✔

South Africa

QUICK FACTS

60m
Population

2.4m
Capital city population

67.9
% of total population living in urban areas

2.2%
Average urban growth (2010–2020)

BUILDING REGULATORY FRAMEWORK

Types of Regulations			Key Documents
Planning/ Development Regulations	Building Design Regulations	Building Control Regulations	❑ Physical Planning Act No. 125/1991 ❑ National Building Regulations and Building Standards Act No. 103/1977; South Africa Standards Code
✔	✔	✔	

TYPES OF CONSTRUCTION COVERED

New Buildings		Existing Buildings	
Private buildings	✔	Minor alternations and repairs	✔
Public buildings	✔	Change of occupancy	✔
Vernacular buildings	✔	Addition of floors or extensions	✔
		Retrofit (incl. structural changes)	✔

✔ *The building regulatory framework includes this item*
✗ *The building regulatory framework does not include this item.*

TECHNICAL ASPECTS COVERED BY BUILDING REGULATIONS

Classified uses	Use and occupancy classifications	✔	Special considerations for specific building types	✗
	Height and area limitations based on type of construction	✗		
Structural stability	Structural design and verification requirements for normal and expected loading	✔		
	Geo-technical design requirements	✔	Material requirements (e.g., strength, testing, quality, etc.)	✔
Disaster risk	Hurricane/wind actions	✔	Seismic actions	✔
	Flood mitigation and protection systems	✗	Landslides	✗
Fire safety	Fire resistance performance requirements	✔	Fire prevention	✔
	Means of access and egress	✔	Fire service access	✗
Inclusive accessibility	Access routes and means	✔	Fixtures and signals	✗
	Accessibility and usability of internal facilities (e.g., toilets, elevators, etc.)	✔		
Services	Plumbing and sanitary systems	✔	Elevators, escalators, and lifts	✔
	Electrical systems	✔	Heating, ventilation and air conditioning (HVAC)	✔
Green buildings	Natural insulation and ventilation	✔	Green building construction materials	✗
	Energy and water efficient design methods	✔	Carbon smart/neutral construction management	✗

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BUILDING CONTROL PROCESSES

Phases	Development Planning	Design	Construction	Pre-Occupancy	Post-Occupancy
	Development permit	Building permit	Site inspection during construction	Occupancy permit	Permit for changes to existing buildings
	✔	✔	✔	✔	✔

COMPLIANCE MECHANISMS

Dispute resolution mechanism in place	Penalties
✔	✔

Sudan

QUICK FACTS

44.9m
Population

5.53m
Capital city population

35.6
% of total population living in urban areas

3.0%
Average urban growth (2010–2020)

BUILDING REGULATORY FRAMEWORK

Types of Regulations			Key Documents
Planning/ Development Regulations	Building Design Regulations	Building Control Regulations	❑ Urban Planning and Land Disposal Act 1994 ❑ Sudan Building Code 2008
✔	✔	✔	

TYPES OF CONSTRUCTION COVERED

New Buildings		Existing Buildings	
Private buildings	✔	Minor alternations and repairs	✗
Public buildings	✔	Change of occupancy	✔
Vernacular buildings	✗	Addition of floors or extensions	✗
		Retrofit (incl. structural changes)	✗

✔ *The building regulatory framework includes this item*
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TECHNICAL ASPECTS COVERED BY BUILDING REGULATIONS

Classified uses	Use and occupancy classifications	✔	Special considerations for specific building types	✔
	Height and area limitations based on type of construction	✗		
Structural stability	Structural design and verification requirements for normal and expected loading	✔		
	Geo-technical design requirements	✔	Material requirements (e.g., strength, testing, quality, etc.)	✗
Disaster risk	Hurricane/wind actions	✗	Seismic actions	✗
	Flood mitigation and protection systems	✗	Landslides	✗
Fire safety	Fire resistance performance requirements	✗	Fire prevention	✔
	Means of access and egress	✔	Fire service access	✔
Inclusive accessibility	Access routes and means	✔	Fixtures and signals	✗
	Accessibility and usability of internal facilities (e.g., toilets, elevators, etc.)	✗		
Services	Plumbing and sanitary systems	✗	Elevators, escalators, and lifts	✗
	Electrical systems	✔	Heating, ventilation and air conditioning (HVAC)	✗
Green buildings	Natural insulation and ventilation	✗	Green building construction materials	✗
	Energy and water efficient design methods	✗	Carbon smart/neutral construction management	✗

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BUILDING CONTROL PROCESSES

Phases	Development Planning	Design	Construction	Pre-Occupancy	Post-Occupancy
	Development permit	Building permit	Site inspection during construction	Occupancy permit	Permit for changes to existing buildings
	✔	✔	✔	✔	✗

COMPLIANCE MECHANISMS

Dispute resolution mechanism in place	Penalties
✔	✔

Tanzania

QUICK FACTS

61.5m
Population

0.3m
Capital city population

36.0
% of total population living in urban areas

5.2%
Average urban growth (2010–2020)

BUILDING REGULATORY FRAMEWORK

Types of Regulations			Key Documents
Planning/ Development Regulations	Building Design Regulations	Building Control Regulations	❑ The Urban Planning Act No. 8/2007 ❑ Urban Planning Building Regulations of March 9, 2018
✔	✔	✔	

TYPES OF CONSTRUCTION COVERED

New Buildings		Existing Buildings	
Private buildings	✔	Minor alternations and repairs	✔
Public buildings	✔	Change of occupancy	✔
Vernacular buildings	✔	Addition of floors or extensions	✔
		Retrofit (incl. structural changes)	✔

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TECHNICAL ASPECTS COVERED BY BUILDING REGULATIONS

Classified uses	Use and occupancy classifications ✔		Special considerations for specific building types	✔
	Height and area limitations based on type of construction	✗		
Structural stability	Structural design and verification requirements for normal and expected loading	✔		
	Geo-technical design requirements	✗	Material requirements (e.g., strength, testing, quality, etc.)	✔
Disaster risk	Hurricane/wind actions	✗	Seismic actions	✗
	Flood mitigation and protection systems	✗	Landslides	✗
Fire safety	Fire resistance performance requirements	✔	Fire prevention	✔
	Means of access and egress	✗	Fire service access	✗
Inclusive accessibility	Access routes and means	✔	Fixtures and signals	✗
	Accessibility and usability of internal facilities (e.g., toilets, elevators, etc.)	✔		
Services	Plumbing and sanitary systems	✗	Elevators, escalators, and lifts	✗
	Electrical systems	✗	Heating, ventilation and air conditioning (HVAC)	✗
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BUILDING CONTROL PROCESSES

Phases	Development Planning	Design	Construction	Pre-Occupancy	Post-Occupancy
	Development permit ✔	Building permit ✔	Site inspection during construction ✔	Occupancy permit ✔	Permit for changes to existing buildings ✔

COMPLIANCE MECHANISMS

Dispute resolution mechanism in place ✔	Penalties ✔

Togo

QUICK FACTS

8.5m
Population

1.75m
Capital city population

43.4
% of total population living in urban areas

3.9%
Average urban growth (2010–2020)

BUILDING REGULATORY FRAMEWORK

Types of Regulations			Key Documents
Planning/ Development Regulations	Building Design Regulations	Building Control Regulations	
✔	✗	✔	❑ Decree n° 2016-043/PR "Portant réglementation de la délivrance des actes d'urbanisme" of 2016

TYPES OF CONSTRUCTION COVERED

New Buildings		Existing Buildings	
Private buildings	✔	Minor alternations and repairs	✗
Public buildings	✔	Change of occupancy	✗
Vernacular buildings	✔	Addition of floors or extensions	✔
		Retrofit (incl. structural changes)	✗

✔ *The building regulatory framework includes this item*
✗ *The building regulatory framework does not include this item.*

TECHNICAL ASPECTS COVERED BY BUILDING REGULATIONS

Classified uses	Use and occupancy classifications ✗	Special considerations for specific building types ✗
	Height and area limitations based on type of construction ✗	
Structural stability	Structural design and verification requirements for normal and expected loading ✗	
	Geo-technical design requirements ✗	Material requirements (e.g., strength, testing, quality, etc.) ✗
Disaster risk	Hurricane/wind actions ✗	Seismic actions ✗
	Flood mitigation and protection systems ✗	Landslides ✗
Fire safety	Fire resistance performance requirements ✗	Fire prevention ✗
	Means of access and egress ✗	Fire service access ✗
Inclusive accessibility	Access routes and means ✗	Fixtures and signals ✗
	Accessibility and usability of internal facilities (e.g., toilets, elevators, etc.) ✗	
Services	Plumbing and sanitary systems ✗	Elevators, escalators, and lifts ✗
	Electrical systems ✗	Heating, ventilation and air conditioning (HVAC) ✗
Green buildings	Natural insulation and ventilation ✗	Green building construction materials ✗
	Energy and water efficient design methods ✗	Carbon smart/neutral construction management ✗

✔ Indicates that the country has some regulatory provisions related to the topic. The comprehensiveness and quality of the provisions in each topic area have not been evaluated. ✗ Indicates that no provisions related to this topic were found.

BUILDING CONTROL PROCESSES

Phases	Development Planning	Design	Construction	Pre-Occupancy	Post-Occupancy
	Development permit ✔	Building permit ✔	Site inspection during construction ✔	Occupancy permit ✔	Permit for changes to existing buildings ✔

COMPLIANCE MECHANISMS

Dispute resolution mechanism in place ✔	Penalties ✔

Uganda

QUICK FACTS

47.1m
Population

2.99m
Capital city population

25.6
% of total population living in urban areas

5.9%
Average urban growth (2010–2020)

BUILDING REGULATORY FRAMEWORK

Types of Regulations			Key Documents
Planning/ Development Regulations	Building Design Regulations	Building Control Regulations	
✔	✔	✔	❑ Physical and Planning Act No. 8/2010 ❑ National Building Code No. 60/2019 ❑ Building Control Act No.10/2013; Building Control Regulations No. 3/2020

TYPES OF CONSTRUCTION COVERED

New Buildings		Existing Buildings	
Private buildings	✔	Minor alternations and repairs	✔
Public buildings	✔	Change of occupancy	✔
Vernacular buildings	✔	Addition of floors or extensions	✔
		Retrofit (incl. structural changes)	✔

✔ *The building regulatory framework includes this item*
✗ *The building regulatory framework does not include this item.*

TECHNICAL ASPECTS COVERED BY BUILDING REGULATIONS

Classified uses	Use and occupancy classifications	✔	Special considerations for specific building types	✔
	Height and area limitations based on type of construction	✔		
Structural stability	Structural design and verification requirements for normal and expected loading	✔		
	Geo-technical design requirements	✔	Material requirements (e.g., strength, testing, quality, etc.)	✔
Disaster risk	Hurricane/wind actions	✔	Seismic actions	✔
	Flood mitigation and protection systems	✗	Landslides	✗
Fire safety	Fire resistance performance requirements	✔	Fire prevention	✔
	Means of access and egress	✔	Fire service access	✔
Inclusive accessibility	Access routes and means	✔	Fixtures and signals	✔
	Accessibility and usability of internal facilities (e.g., toilets, elevators, etc.)	✔		
Services	Plumbing and sanitary systems	✔	Elevators, escalators, and lifts	✔
	Electrical systems	✔	Heating, ventilation and air conditioning (HVAC)	✔
Green buildings	Natural insulation and ventilation	✔	Green building construction materials	✔
	Energy and water efficient design methods	✔	Carbon smart/neutral construction management	✗

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BUILDING CONTROL PROCESSES

Phases	Development Planning	Design	Construction	Pre-Occupancy	Post-Occupancy
	Development permit	Building permit	Site inspection during construction	Occupancy permit	Permit for changes to existing buildings
	✔	✔	✔	✔	✔

COMPLIANCE MECHANISMS

Dispute resolution mechanism in place	Penalties
✔	✔

Zambia

QUICK FACTS

18.9m
Population

2.52m
Capital city population

45.2
% of total population living in urban areas

4.3%
Average urban growth (2010–2020)

BUILDING REGULATORY FRAMEWORK

Types of Regulations			Key Documents
Planning/ Development Regulations	Building Design Regulations	Building Control Regulations	❑ The Urban and Regional Planing Act No. 3/2015
✔	✗	✔	

TYPES OF CONSTRUCTION COVERED

New Buildings		Existing Buildings	
Private buildings	✔	Minor alternations and repairs	✔
Public buildings	✔	Change of occupancy	✔
Vernacular buildings	✗	Addition of floors or extensions	✔
		Retrofit (incl. structural changes)	✔

✔ *The building regulatory framework includes this item*
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TECHNICAL ASPECTS COVERED BY BUILDING REGULATIONS

Classified uses	Use and occupancy classifications ✗	Special considerations for specific building types ✗
	Height and area limitations based on type of construction ✗	
Structural stability	Structural design and verification requirements for normal and expected loading ✗	
	Geo-technical design requirements ✗	Material requirements (e.g., strength, testing, quality, etc.) ✗
Disaster risk	Hurricane/wind actions ✗	Seismic actions ✗
	Flood mitigation and protection systems ✗	Landslides ✗
Fire safety	Fire resistance performance requirements ✗	Fire prevention ✗
	Means of access and egress ✗	Fire service access ✗
Inclusive accessibility	Access routes and means ✗	Fixtures and signals ✗
	Accessibility and usability of internal facilities (e.g., toilets, elevators, etc.) ✗	
Services	Plumbing and sanitary systems ✗	Elevators, escalators, and lifts ✗
	Electrical systems ✗	Heating, ventilation and air conditioning (HVAC) ✗
Green buildings	Natural insulation and ventilation ✗	Green building construction materials ✗
	Energy and water efficient design methods ✗	Carbon smart/neutral construction management ✗

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BUILDING CONTROL PROCESSES

Phases	Development Planning	Design	Construction	Pre-Occupancy	Post-Occupancy
	Development permit ✔	Building permit ✔	Site inspection during construction ✔	Occupancy permit ✔	Permit for changes to existing buildings ✔

COMPLIANCE MECHANISMS

Dispute resolution mechanism in place ✔	Penalties ✔

Zimbabwe

QUICK FACTS

15.1m
Population

1.52m
Capital city population

32.3
% of total population living in urban areas

1.3%
Average urban growth (2010–2020)

BUILDING REGULATORY FRAMEWORK

Types of Regulations			Key Documents
Planning/ Development Regulations	Building Design Regulations	Building Control Regulations	❑ Regional Town and Country Act Chapter 29:12 ❑ Model Building Bye-Laws 1977
✔	✔	✔	

TYPES OF CONSTRUCTION COVERED

New Buildings		Existing Buildings	
Private buildings	✔	Minor alternations and repairs	✔
Public buildings	✔	Change of occupancy	✔
Vernacular buildings	✔	Addition of floors or extensions	✔
		Retrofit (incl. structural changes)	✔

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TECHNICAL ASPECTS COVERED BY BUILDING REGULATIONS

Classified uses	Use and occupancy classifications	✔	Special considerations for specific building types	✔
	Height and area limitations based on type of construction	✗		
Structural stability	Structural design and verification requirements for normal and expected loading	✔		
	Geo-technical design requirements	✔	Material requirements (e.g., strength, testing, quality, etc.)	✔
Disaster risk	Hurricane/wind actions	✗	Seismic actions	✗
	Flood mitigation and protection systems	✗	Landslides	✗
Fire safety	Fire resistance performance requirements	✔	Fire prevention	✔
	Means of access and egress	✔	Fire service access	✔
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	Accessibility and usability of internal facilities (e.g., toilets, elevators, etc.)	✗		
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	Energy and water efficient design methods	✗	Carbon smart/neutral construction management	✗

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BUILDING CONTROL PROCESSES

Phases	Development Planning	Design	Construction	Pre-Occupancy	Post-Occupancy
	Development permit	Building permit	Site inspection during construction	Occupancy permit	Permit for changes to existing buildings
	✔	✔	✔	✔	✔

COMPLIANCE MECHANISMS

Dispute resolution mechanism in place	Penalties
✔	✔

Sub-Saharan Africa is at a crossroads: the combination of population growth and rapid urbanization in the region is predicted to lead to a demand for hundreds of millions of new buildings in the coming decades. The region is also considered to be highly vulnerable to the negative impacts of climate change and natural hazards. In the face of these trends, there is a pressing need to ensure that buildings constructed provide safe, comfortable and healthy environments for people to live and work. To achieve this, building regulatory frameworks have an important role to play. Effective building regulations can reduce in losses from disasters, promote green and sustainable construction practices, provide universal access conditions, and improve the safety and affordability of the built environment. To better understand advances, gaps and opportunities, this publication provides a snapshot of the building regulatory frameworks in the Sub-Saharan Africa region. It concludes that there is a need for the region to develop more comprehensive and up-to-date building codes; that building regulatory frameworks must be better tailored for each country's specific context including the prevalence of non-engineered construction; and that additional investments are required for capacity enhancement for building regulation implementation.

The Global Facility for Disaster Reduction and Recovery (GFDRR) is a global partnership that helps low- and lower-middle-income countries better understand and reduce their vulnerabilities to natural hazards and adapt to climate change. GFDRR provides grant financing, technical assistance, training and knowledge sharing activities to mainstream disaster and climate risk management in national and regional policies, strategies, and investment plans. The Program Management Unit, located within the World Bank, manages grant resources to carry out GFDRR's mission.

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