MANAGING RISKS FOR A SAFER BUILT ENVIRONMENT IN KENYA

Building Regulatory Capacity Assessment

Building Regulation for Resilience Program

WORLD BANK GROUP

GFDRR

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JANUARY 2019

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Acknowledgements

The assessment was funded by the Global Facility for Disaster Risk Reduction (GFDRR), through the Japan-World Bank Program for Mainstreaming Disaster Risk Management in Developing Countries.

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The World Bank would like to thank the Government of Kenya and the many institutions and individuals that participated in the Building Regulatory Capacity Assessment for their contribution and support, especially Mr. Moses Nyakiongora (Secretary, National Building Inspectorate), Professor Robert Rukwaro (Dean, Faculty of Built Environment, University of Nairobi), Mr. Edward Gichina, (Master Builders' Association), Mr. Kariuki Kigo, (Chief Executive Officer, Safety Surveyors Limited), Mr. Patrick Bucha (Secretary, Department of Housing, Ministry of Infrastructure, Transport, Housing & Urban Development), Dr. Nicholas Muraguri, (Principal Secretary, Ministry of Lands and Physical Planning), Mr. Augustine Masinde (Director, Physical Planning, Ministry of Lands and Physical Planning), Ms. Caroline Sikasa (Senior Programs Manager, HF Foundation), Mr. Eric Chesire (Director, Kenya Bureau of Standards), Mr. Peter Kathuo (Assistant Director, Survey Department, Ministry of Lands and Physical Planning), Mr. Stephen Kogi (Chief Engineer, Materials Laboratory, Ministry of Infrastructure, Transport, Housing & Urban Development), Mr. John Ojwang (Urban Planner, Nairobi City County), Mr. Abdallah Kulah (Technical Administrator, Materials Laboratory, Ministry of Infrastructure, Transport, Housing & Urban Development), Mr. Gianni Ndegwa (Architect, Nairobi City County), Ms. Josephine Nater (Urban Planner, Nairobi City County), Mr. Frederick Ondari (Nairobi City County), Mr. Georges Nyoro (Building Inspector, Nairobi City County), Mr. Andrew Muruka (Deputy Director, Ministry of Labour, Occupational Safety & Health Directorate), Mr. Raymond Karani (General Manager, National Construction Authority), Mr. Jacob Mwangi (Architect, Association of Architects), Mr. Joseph Githoro (Senior Officer, Fire Brigade of Nairobi), Mr. Otom Millicent Janet (Chief Enterprise Development, National Industrial Training Authority).

Acronyms

BAK	Building Authority of Kenya
BCEGS	Building Code Effectiveness Grading Schedule
BRCA	Building Regulatory Capacity Assessment
CBTA	Competency Based Training and Assessment
CEN	European Committee for Standardization
CENELEC	European Committee for Electrotechnical Standardization
DRM	Disaster Risk Management
EIA	Environmental Impact Assessment
EU	European Union
GIS	Geographic Information System
GFDRR	Global Facility for Disaster Reduction and Recovery
GoK	Government of Kenya
ICC	International Code Council
ICT	Information Communications Technology
IFC	International Finance Corporation
IGAD	Intergovernmental Authority on Development
KAS	Kenya Accreditations Services
KEBS	Kenya Bureau of Standards
KFSA	Kenya Fire Safety Agency
KICP	Kenya Investment Climate Program
KIRI	Kenya Industrial Research Institute
KISIP	Kenya Informal Settlements Improvement Program
KMD	Kenya Meteorological Department
KNBS	Kenya National Bureau of Statistics
KNCCRS	Kenya National Climate Change Response Strategy
KNSDI	Kenya National Spatial Plan Infrastructure
KS	Kenyan Shilling
MLPP	Ministry of Lands and Physical Planning
MLSP	Ministry of Labour and Social Protection
MoH	Ministry of Health
MTIHUD	Ministry of Transport, Infrastructure, Housing & Urban Development
NBI	National Building Inspectorate
NCA	National Construction Authority
NCC	Nairobi City Council
NDC	Notional Determined Contribution
NDP	Nationally Developed Parameters
NEMA	National Environment Management Authority
NFPA	National Fire Protection Association
NITA	National Industrial Training Authority
NIUPLAN	Nairobi Integrated Development Master Plan
OSHA	Occupational Health and Safety Authority
RMS	Risk Management Solutions

Glossary

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

Building regulations are the norms for construction in any given country or region, which help determine typologies, land use and planning standards for the design and construction of buildings to ensure their structural safety and the health of their occupants.

Building codes create legal requirements in the construction process of any infrastructure or building development and must be enforced. Building codes must refer to appropriate building standards. They are promulgated by local governments or national governments and have an independent legal value.

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

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

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

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

Informal building is a building structure which does not benefit from regulatory attention or professional design or construction. An informal building does not comply with existing planning and building regulations and is often situated in geographically and environmentally hazardous areas, lacking the corresponding local permits for its development. Informal buildings also are constructed in suburbs and rural areas.

Land use regulation are the ordinances of government, including permits and codes, created to ensure that land resources are aligned with national and local policy interests. Regulations are not restricted to controlling existing buildings and uses; in large part, they guide future development. Mapping and master plans are essential to land use regulation, which can be conceived to determine land use at all territorial scales.

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

Regulatory compliance is an adherence to laws, regulations, guidelines and specifications by individuals, associations, businesses or authorities, in this case relevant to building regulations. When properly monitored, violations to regulatory compliance often result in legal punishment, including fines or temporary suspension of the building process.

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

Executive Summary

The Accumulation of Risk in the Built Environment

Kenya is an emerging middle income country with a growing share of its population living in urban areas. The country is at a relatively early stage of urbanisation, with around 27 percent of Kenyans living in urban areas, yet projections suggest that by 2050, about half the population will be living in cities.[1] The Nairobi Metropolitan Region in particular will see rapid growth. Nairobi is expected to become a city of more than 6 million people by 2030, up from its currently estimated 4 million.[2]

This urbanisation has the potential to improve economic opportunities and living conditions for all Kenyans. However, there are also several challenges associated with this shift and concentration of population. With urbanisation comes a substantial amount of new construction, much of which has occurred in cities with limited capacity to ensure the structures in which people live, work and gather are safely sited and built to withstand both chronic stresses (i.e. fire and spontaneous collapse) and disaster shocks (i.e. earthquakes and floods). Informality, low density development and urban sprawl are common characteristics across Kenya's urban areas.[3] Approximately 61 percent of Kenya's urban population are living in informal settlements.[4]

Kenya is exposed to a wide range of hazards, particularly droughts and floods, but also landslides, earthquakes, volcanic eruptions and wildfires.[5] Kenya is also highly vulnerable to recurrent and chronic risks. Its major cities witnessed 26 reported cases of major building collapse since 1996.[6] Furthermore, Kenya is ranked as the 27th most prone country to fire-related deaths in the world.[7] The city of Nairobi recorded 244 fires in 2017 in its informal settlements, claiming the lives of 32 people.

In many ways, Kenya is at a crossroads in its efforts of urbanising and developing towards middle income status. Regulatory decisions made now will have a significant impact on the long-term safety, productivity and resilience of the urban built environment.

Furthermore, in 2010, Kenya initiated a process of devolution - it is among the most rapid and ambitious devolution processes in the world[8]. While devolution holds the prospect of improved urban governance, there are important questions about the administrative capacity of, and funding for, counties and urban areas.

1 World Bank, 2016, Republic of Kenya: Kenya Urbanization Review.
2 Ibid.
3 Ibid.
4 World Bank, 2017, Kenya Economic Update. Following the Millennium Development Goal definition of a slum dwelling.
5 Think Hazard, GFDRR, 2018.
6 Source: National Building Inspectorate (NBI), 2018. These types of incidents may not have been systematically reported and aggregated by national authorities. This number is generally considered as indicative.
7 The current death rate due to fire is 11.2 persons per 100,000 population. By comparison, this rate is 7 in Botswana, 3.9 in Senegal and 1.9 in Mauritius (Source: WHO, 2014).
8 World Bank, 2016, Republic of Kenya: Kenya Urbanization Review.

Why are Effective Building Regulatory Frameworks Important?

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

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

An efficient and transparent building regulation process can also incentivise economic investment in the construction sector by providing the market with a clear set of design and construction requirements, quality standards and competency expectations. Infrastructure development is a central pillar of Kenya's Visions 2030 and the Big Four Agenda. Under the Big Four Agenda, the Government aims to construct at least 500,000 "adequate, decent and affordable houses" by 2022.[9] In 2015, building and infrastructure development was a US$3bn sector in Kenya, contributing to 4.8 percent of the economy.[10]

In addition, a sustained investment in effective building regulatory systems would support Kenya in meeting its commitment to major multilateral framework resolutions, including the Sendai Framework for Disaster Risk Reduction (2015), the Paris Accord, through Kenya's Nationally Determined Contribution (NDCs) submitted in 2015 and the New Urban Agenda (2016).

Report Approach

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

The assessment covers three main components:

1. National legal and institutional framework

This focuses on identifying whether the necessary legal (acts, decrees, laws) and institutional structures are in place to enable the enforcement of land use and building regulations. To be effective, the legal, administrative and institutional structures in place should include provisions for all steps of the life cycle of a building from the project's siting, design, construction, maintenance, retrofits and decommissioning.

2. Building code development and maintenance

This examines the adequacy of the building regulations (building code) and how they are maintained over time. The assessment focuses on the extent to which these regulations reflect an up-to-date scientific understanding of how buildings perform against chronic risks, disaster events and climate change and have been adequately adapted to reflect local conditions and construction practices. Land use regulations are also examined to determine whether they include provisions for the safe and resilient siting of buildings.

9 President, Republic of Kenya (2018), Kenya and the UN Sign Deal to Deliver 100,000 Affordable Housing Units.
10 Cision, 2017, PR Newwire.
11 World Bank, GFDRR, 2017, BRCA Level 2.

3. Local implementation

This examines the implementation and management of building and land use regulations at the county level. In this assessment, Nairobi is used as a case study. The assessment focuses on the capacity of the planning, building and fire departments to administer the building code and land use regulations.

For the local level implementation component, the assessment focused on the Nairobi City County. While it is important to note that many of the 47 counties across Kenya have different levels of capacity, organisational frameworks and building regulatory processes in place, several of the achievements and challenges identified in Nairobi have also been reported in other counties across the country.

Beyond these three components, building regulatory frameworks also rely on an ecosystem of supporting elements such as insurance markets, mortgage finance systems, frameworks for secure land tenure, and property and tax regimes. These elements are beyond the scope of this report.

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

The Government of Kenya has taken several steps to strengthen its building regulatory framework. The Government's initiatives span each of the three core components illustrated above. These initiatives have been primarily driven by the need to address an accelerating trend of fires and spontaneous structural collapse in urban areas.

Highlights include:

- *Initiating a new draft building code.*
  This effort started in 2009 and was the outcome of a broad participatory process led by the Ministry of Transport, Infrastructure, Housing & Urban Development (MTIHUD) and the Ministry of Lands & Physical Planning (MLPP). The draft code, reviewed as part of this assessment, represents a considerable improvement to the previous building code of 1968.

- *Developing a new draft Built Environment Bill and Physical Planning Bill.*
  These were initiated in 2009 and last updated in 2017.[12] Both offer a robust foundation for more effective building code and land use administration. Significantly, the enactment of the Built Environment Bill should give legal effect to the draft building code.

- *Establishing the National Construction Authority (NCA).*
  The NCA, established in 2011, provides the first national registration mechanism for building contractors in Kenya. Its objective is to ensure that only qualified contractors are allowed to carry out construction work. It has registered nearly 34,000 contractors since 2013.[13]

- *Piloting an e-permit system in Nairobi.*
  In 2009, the system was developed for the Nairobi City Council (now the Nairobi City County),[14] with support from the International Finance Corporation (IFC). The system resulted in several efficiency gains and has increased the user-friendliness and transparency of the construction permitting process.[15] The system has since been rolled-out to three[16] additional counties and there are plans to launch the platform in an additional eight counties by 2021.[17]

12 BRCA Interview, NBI, July 2018.
13 BRCA Interview, NCA, February 2018.
14 The Constitution of Kenya, 27th August 2010.
15 World Bank Group, 2018, Kenya Doing Business Report
16 From 2012 until 2017, the Kenya Investment Climate Program (KICP), supported by IFC, successfully piloted key construction permit reforms in Kisumu, Mombasa and Kiambu.
17 BRCA Interview, IFC, KISP team, March 2018.

Key Challenges

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

National building legislation is needed.

Kenya does not currently have overarching national legislation that defines the Government's responsibility to regulate buildings and principles for local enforcement. The Government of Kenya has developed the Built Environment Bill; however, the legislation has yet to be finalised and enacted.

There is currently not a legally enforceable building code.

The Government of Kenya does not currently have a legally enforceable building code. Up until 2012, the Local Government Act (1968) legally mandated the enforcement of the 1968 code. However, in 2012 as part of the devolution process, the Local Government Act was repealed. To date, there has been no replacement; however, the 1968 code remains the informal reference for building regulators and the construction industry.[18]

The draft building code needs to be strengthened and finalised.

Whilst the latest publicly available version of the draft building code, Building Regulations (2009), represents a significant improvement to the 1968 code, there are a number of areas in which it can be strengthened, such as referencing hazard maps, including seismic provisions for retrofitting and non-structural elements, and providing guidance for non-engineered low income housing.

County building departments require additional qualified staff and technical resources to effectively administer building codes and land use regulations.

For example, Nairobi City County Planning Sub-sector requires approximately five times the number of staff in order to conduct plan reviews and inspections.[19]

Recommendations

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

Legislative and Institutional Framework

Legislative Reforms

- Strengthen and pass the Built Environment Bill referencing the new building code.
- Strengthen and pass the Physical Planning Bill.
- Conduct a detailed legal review to streamline national legislation related to building control. The legislative review conducted in this report can be used as a basis.
- Implement measures consistent with the provisions of the Fire Safety Management Policy.

18 BRCA Interview, Housing Department, MTIHUD, Nairobi City County, and the Architectural Association of Kenya, March 2018.

19 BRCA Interview, Director of the Nairobi Planning Sub-Sector, March 2018 – estimate based, in part, on a study the then Nairobi City Council undertook in 2006 (report not available for review).

Institutional Reforms

- Support a national-level training curriculum targeting regulatory personnel in county building departments.
- Scale up the training provided by the National Construction Authority (NCA) and Competency Based Training Assessment (CBTA) for building contractors and construction workers.
- Assign responsibility to Government ministries for the development, collation and application of hazard-maps with a focus on floods, landslides and seismic risks.

Building Code Development and Maintenance

Strengthening the Building Regulations and Standards

- Finalise the 2011 draft building code by organising a new round of technical consultations involving private practitioners and relevant public stakeholders.
- Address current technical gaps in the draft building code, such as:
  - Referencing hazard zones with determination of buildings' structural requirements.
  - Providing guidance for non-engineered, low income housing.
  - Reincorporating provisions on accessibility and usability for persons with disabilities.[20]
- Support the adoption of the Eurocodes by integrating them into the Kenyan building standardisation system and by finalising the Nationally Developed Parameters (NDPs).

Building Code Maintenance

- Establish a systemic and permanent inclusive technical process for the building code's future maintenance, publication and distribution. The process should be outlined in the Building Act and Building Regulations.

Local Level Implementation

County Human and Financial Capacity

- Initiate human resource capacity needs assessments to inform staffing plans in county building authorities.
- Require minimum academic and professional qualifications for local government building code officials and introduce new incentives to retain the services of qualified engineers and architects.
- Consider leveraging resources from private sector to strengthen the capacity for plan reviews and inspections. A legal and regulatory review should be initiated.
- Adjust permitting fees in Kenya to allow cost recovery for the delivery of building regulatory services.

20 Provisions for accessibility and usability for persons with disabilities were included in the 2009 draft of the Building Regulations. However, the 2011 version "Volume 2: Physical Planning & Siting and Site Preparation" removed the provisions while maintaining the rest of the draft almost untouched.

Construction Permitting

- Add additional functions to the Nairobi e-platform to support more efficient building code administration such as digital signatures and mechanisms to coordinate and document inspections.
- Promote the incremental roll-out of the e-permitting system in county governments.

Building Inspections

- Reorganise building inspections to minimise overlaps across national and local level agencies.
- Develop a risk classification system for buildings to enable a more efficient prioritisation and allocation of resources for building site inspections.

County Development Planning

- Integrate hazard maps into county spatial plans, particularly for seismic, flood and landslide risks.
- Make risk-informed land use maps available online to all citizens.

Communications Strategies

- Communicate changes associated with innovations in regulatory activities. Reforms associated with regulatory processes should place strategic communications at the heart of the process.

Next Steps

This report provides an assessment of the building regulatory framework in Kenya. The report was developed by the World Bank with the strategic objective of supporting the Government to improve building safety and resilience across the country. The analysis and recommendations outlined in the report provide inputs with which the Government of Kenya can launch a comprehensive process of building regulatory reform. The recommendations build on the Government's previous achievements and reforms in this area.

1. Introduction

1.1 Why are Effective Building Regulatory Frameworks Important?

Kenya is an emerging middle income country with a growing share of its population living in urban areas. The country is at a relatively early stage of urbanisation. By 2050, however, projections suggest about half the population will live in cities.[1] The Nairobi Metropolitan Region in particular will see rapid growth. Nairobi is expected to become a city of more than 6 million people by 2030, up from its currently estimated 4 million.[2]

This urbanisation has the potential to improve economic opportunities and living conditions for all Kenyans. However, there are also several challenges associated with this shift and concentration of population. Informality, low density development and urban sprawl are common characteristics across Kenya's urban areas.[3] Approximately 61 percent of Kenya's urban population are living in informal settlements.[4] This poses a significant challenge for city managers seeking to ensure both current and future building stocks are safely constructed.

With urbanisation comes a substantial amount of new construction, much of which has occurred in cities with limited capacity to ensure the structures in which people live, work and gather are safely sited and built to withstand both chronic stresses (i.e. fire and spontaneous collapse) and disaster shocks (i.e. earthquakes and floods). This lack of effective building and land use regulation in Kenya has led to an expansion of disaster and chronic risks in the built environment.

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

1 World Bank, 2016, Republic of Kenya: Kenya Urbanization Review.
2 Ibid.
3 Ibid.
4 World Bank, 2017, Kenya Economic Update. Following the Millennium Development Goal definition of a slum dwelling.

and safety. Building regulatory frameworks can be a cost-effective mechanism for optimising risk reduction.

This agenda is aligned with the Government's objective to move from an ex post approach of disaster response to an ex ante approach that proactively manages and reduces disaster and climate risks.[5] In the recent past, risk reduction measures received a limited allocation of national budget whilst resources were channelled to emergency response and reconstruction.[6] The recently approved National Policy for Disaster Risk Management in Kenya (2018) and the Constitution of Kenya (2010), have sought to change this approach. The National Policy for Disaster Risk Management encompasses the full continuum of preparedness, relief and rehabilitation to mitigation and prevention. To complement this, the Constitution of Kenya identifies Disaster Risk Management (DRM) as a function shared by national and county governments.

Investing in regulatory capacity can also support other societal objectives, such as: accessibility for people with disabilities; climate change mitigation, through resource-efficient buildings; and, climate change adaptation. With changing climate patterns, many countries, including Kenya, will face the growing risks linked to more intense and lengthy droughts and extreme rainfall and flooding[7]. Increasing the resilience of cities to climate change requires a dynamic adjustment in building siting, design, construction and maintenance – this is a function that well-designed building regulatory regimes are intended to provide. As the Kenya National Climate Change Response Strategy (2010) recommends, to increase the resilience of urban areas, land use practices should be informed by flood and landslide risk assessments and building structures should be designed to withstand strong winds and high temperatures.[8]

An efficient and transparent building regulation process can also incentivise economic investment in the construction sector by providing the market with a clear set of design and construction requirements, quality standards and competency expectations. The construction sector provides a strategic entry point for promoting building safety and general city resilience in Kenya. Infrastructure development is a central pillar of Kenya's Visions 2030. In 2015, building and infrastructure development was a US$3 billion sector in Kenya contributing to 4.8 percent of the economy.[9] The Kenyan National Bureau of Statistics (KNBS) reported that approximately 148,000 people are formally employed in the construction industry.

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

The Government of Kenya has taken several steps to strengthen its building regulatory and land use systems. Initiatives to strengthen Kenya's building regulatory framework have been primarily driven by the urgent need to address an accelerating trend of fires and spontaneous structural collapses in urban areas. Following the collapse of the Sunbeam Supermarket in 1996,[10] a Commission of Inquiry was established to examine ex-

5 Government of Kenya, 2007, Vision 2030: A Globally Competitive and Prosperous Kenya.
6 Development Initiatives, 2017, Assessment of Kenya's Preparedness to Disasters Caused by Natural Hazards.
7 Overseas Development Institute (ODI), UK Met Office and Risk Management Solutions (RMS), 2013, The Geography of Poverty, Disasters and Climate Extremes in 2030.
8 Government of Kenya, 2010, National Climate Change Response Strategy.
9 Cision, 2017, PR Newwire.
10 The Sunbeam building was a supermarket that collapsed after a heavy downpour in May 1996. The incident claimed 16 lives.

isting building laws and regulations.[11] Its recommendations informed the 2009 follow-up review of the 1968 building code, with support from the Prime Minister and representatives of the Kenya Private Sector Alliance.[12] The Ministry of Infrastructure, Transport, Housing & Urban Development (MTIHUD) was tasked with coordinating the review and developing a new building code consistent with modern practices and prevalent risks in the built environment.

Since 1996, the Government of Kenya has introduced important measures that can serve as a foundation to carry out more in-depth reforms of its building regulatory regime. These include:

- ***Initiating a new draft building code.*** This effort started in 2009 and was the outcome of a broad participatory process led by the Directorate of Housing of MTIHUD and the Ministry of Lands & Physical Planning (MLPP). The first iteration produced the "Planning & Building Regulation, 2009". A second iteration was developed in 2011.[13] This latest draft building code is now referred to as the "National Building Regulations, 2011" and represents a considerable improvement to the previous building code of 1968.

- ***Developing a new draft Built Environment Bill and Physical Planning Bill.*** These were initiated in 2009 and last updated in 2017. The enactment of the Built Environment Bill should give legal effect to the draft building code, the "National Building Regulations, 2011," and address the need to replace the 1968 building code.

- ***Initiating national policies and new national legislation in critical related areas,*** such as the Environmental Management & Coordination Act (2000), the Occupational Safety & Health Act (2007), the Fire Safety Management Policy (2011), the National Slum Upgrading and Prevention Policy (2012), the National Building Maintenance Policy (2015) and the National Land Use Policy (2017). A Construction Industry Policy is also being drafted.

- ***Establishing the National Construction Authority (NCA) in 2011.*** The NCA provides the first national registration mechanism for building contractors in Kenya. Its objective is to ensure that only qualified contractors are allowed to carry out construction work. It has registered just under 34,000 contractors since 2013, incorporating 59 different construction trades in its new electronic database.[14] NCA issued 53,000 certificates in the last four years through 14 regional offices.[15]

- ***Setting up the National Building Inspectorate (NBI) in 2015*** as a new organisation under MTIHUD. The NBI provides a coordination and inspection mechanism to address the growing risk of building collapses in urban areas. As of March 2018, and since its inception, NBI has inspected 5,000 buildings and facilitated the demolition of 34 buildings on the brink of collapse.[16] As of February 2018, roughly 600 building structures have been marked as unsafe for occupancy.[17]

- ***Developing a pilot online construction permit system.*** In 2009, a construction e-permitting system was developed for the Nairobi City Coun-

11 Government of Kenya, 1997, Report of the Commission of Enquiry to Examine the Existing Building Laws, By Laws and Regulations.
12 Government of Kenya, 2009, Building Code of the Republic of Kenya.
13 The latter removed Volume 2 on "Physical Planning & Siting, and Site Preparation" and maintained the rest of the draft almost untouched. BRCA Interview, MTIHUD and Nairobi University, February 2018 & World Bank, 2016, Republic of Kenya: Kenya Urbanization Review.
14 BRCA Interview, NCA, February 2018.
15 Ibid.
16 BRCA Interview, NBI Director, March 2018.
17 Ibid.

cil (now the Nairobi City County)[18] as part of a National Business Licensing Reform, supported by the Kenya ICT Board, the Kenya e-Government Directorate and the Ministry of Finance. The City Council received technical and financial support from the International Finance Corporation (IFC) to design and launch the system. The system, updated in 2011, resulted in efficiency gains.[19] A sustained effort to increase the efficiency of building code administration is critical to reduce red tape, reduce compliance costs, improve the business environment and further incentivise compliance with building code requirements.

From 2012 until 2017, the Kenya Investment Climate Program (KICP) successfully piloted key construction permit reforms in Kisumu, Mombasa and Kiambu. In its subsequent phase (2017-2021), the automated solution will be rolled out in an additional eight additional counties, a process that will first involve permit process reviews, streamlining and re-engineering of administrative procedures and automation.

The Government of Kenya can build on this momentum and turn its focus to implementing comprehensive building regulatory reform. This reform effort should target the limitations of the current building regulatory framework which will be outlined later in this report.

1.3 Why Act Now?

In 2010, a new Constitution[20] was promulgated in Kenya. The Constitution (2010) initiated a process of devolution; the old centralised system was replaced with a new system consisting of a national government and 47 county governments. It is among the most rapid and ambitious devolution processes going on in the world.[21] This process provides an opportune moment for the Government of Kenya to initiate building regulatory reform for two main reasons:

1. Several laws are currently under review as part of the devolution. This process of legal review and revision provides an opportunity for the Government to assess whether there are comprehensive legal frameworks in place to support building and land use regulation.

2. County Governments have set up new institutions to manage devolved functions, including administering building and land use regulation. Assessing the effectiveness of these institutions early on provides an opportunity for capacity building and process re-mapping before systems become too ingrained.

While devolution holds the prospect of improved land and urban governance on development and building control, there are important questions about the availability of appropriate funding for counties and urban areas.

Furthermore, building regulatory reform aligns with several of the Government of Kenya's current development agendas. For example, Kenya's development plan, Kenya Vision 2030, places a significant focus on implementing climate change sensitive land use planning and creating a business enabling environment through the streamlining of regulation. In line with *Kenya Vision 2030*, the *Big Four Agenda*, announced by President Kenyatta in 2017, includes targets for the creation of affordable housing and strengthening the manufacturing industry. The Government has set a target of building at least half a million new homes in the next five years. The Government plans for this to be financed by the private sector with the Government providing land, power and

18 The Constitution of Kenya, 27th August 2010.
19 World Bank Group, 2018, Kenya Doing Business Report.
20 The Constitution of Kenya, 27th August 2010.
21 World Bank, 2016, Republic of Kenya: Kenya Urbanization Review.

water to facilitate the construction of houses.[22] Another complementary target of the Big Four Agenda is to raise the share of the manufacturing sector from 9.5 to 15 percent of the GDP in key industries, including the manufacturing construction materials.[23]

In addition, a sustained investment in effective building regulatory systems would support Kenya in meeting its commitment to major multilateral frameworks, including: the Sendai Framework for Disaster Risk Reduction (2015); the Paris Accord, through Kenya's Nationally Determined Contribution (NDCs) submitted in 2015; and, the New Urban Agenda (2016).

1.4 Report Approach

With a view to strengthen the resilience of the built environment, this report provides an assessment of building regulatory capacity in Kenya, identifying critical gaps and developing a baseline to inform future reform activities. The analysis and recommendations outlined in the report provide inputs with which the Government of Kenya can launch a comprehensive process of building regulatory reform.

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

1. National legal and institutional framework

This focuses on identifying whether the necessary legal (acts, decrees, laws) and institutional structures are in place to enable the enforcement of land use and building regulations. To be effective, the legal, administrative and institutional structures in place should include provisions for all steps of the life cycle of a building from the project's siting, design, construction, maintenance, retrofits and decommissioning (see figure 2).

Figure 1: Components of a Building Regulatory Framework

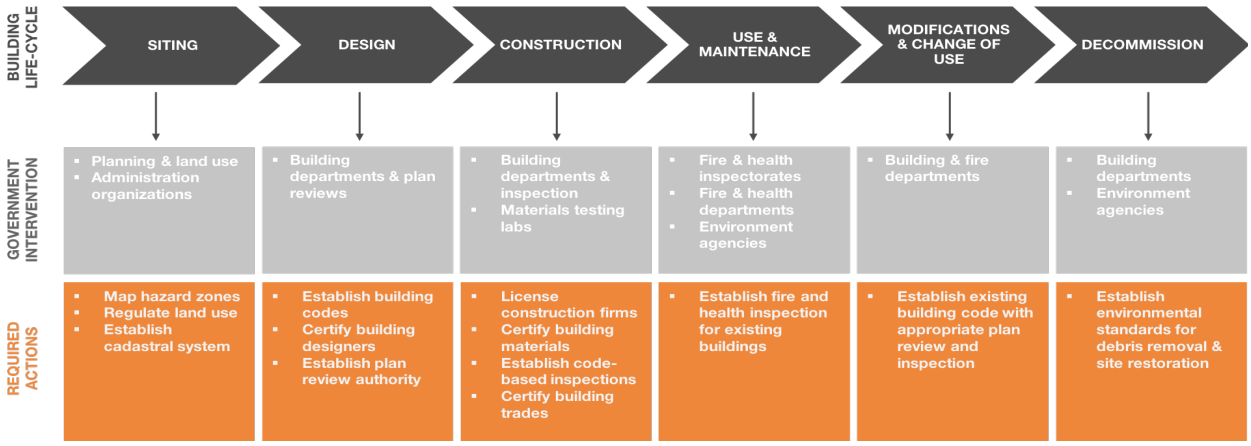
Source: World Bank, Building Regulation for Resilience Program, 2017.

2. Building code development and maintenance

This examines the adequacy of the building regulations (building code) and how they are maintained over time. The assessment focuses on the extent to which these regulations reflect an up-to-date scientific understanding of how buildings perform against chronic risks, disaster events and climate change and have been adequately adapted to reflect local conditions and construction practices. Land use regulations are also examined to determine whether they include provisions for the safe and resilient siting

22 Mr Macharia, 2018, Kenya-China Seminar on the Big 4 Development Agenda.
23 Ibid.

Figure 2: Institutional Mapping of Kenya's Building Development Control



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

of buildings.

3. Local implementation

This examines the implementation and management of building and land use regulations at the county level. In this assessment, Nairobi is used as a case study. The assessment focuses on the capacity of the planning, building and fire departments to administer the building code and land use regulations.

For the local level implementation component, the assessment focused on the Nairobi City County. While many of the 47 counties across Kenya have different levels of capacity, organisational frameworks and building regulatory processes in place, the achievements and challenges identified in Nairobi have also been reported in other counties across the country.

The assessment is consistent with the Building Regulation for Resilience Program's methodology.[24] The report analysis is based on:

1. A desk review of relevant legislation, policies, building regulations and land use regulations.

2. Interviews with key stakeholders and a national workshop facilitated by the World Bank in Nairobi from January 29nd until February 9th, 2018.

It is important to note that a wide range of social, economic and political factors can lead to settlements in unsafe areas and unsafe building practices, including the functioning of land and housing markets, the absence of inclusive construction finance and mortgage finance, and urbanisation policies – these are beyond the scope of this assessment.

24 World Bank, GFDRR, 2017, https://www.gfdrr.org/sites/default/files/publication/building-regulatory-capacity-assessment-level-2-2017.pdf.

2. Drivers of Risk in the Built Environment

2.1 Natural and Chronic Hazards in Kenya

Hydrometeorological Hazards

Kenya is highly exposed to extreme weather events including flooding and drought. Over the last three decades, flooding has represented the most frequent, financially damaging and deadly natural disaster in the country.[25] Kenya is exposed to river flooding, coastal flooding and urban flooding.[26]

The economic impacts of floods are felt across many economic sectors, including agriculture, infrastructure, transport, housing, public health, livestock and tourism.[27] The El Niño-induced floods of 1997–1998 cost nearly US$151.4 million in property damages, not including the number of people who lost family members, savings and economic opportunities.[28]

The damage and losses caused by recurring floods have driven structural, legislative and programmatic efforts to address flood risk, including World Bank financed projects such as the Western Kenya Community Driven Development and Flood Mitigation Project (2007). Despite an increase in the Government's capacity to manage flood risk, the damage and losses remain high: between March and May 2018, flooding and associated landslides displaced more than 300,000 people and accounted for at least 170 deaths.[29] Over 40 of these deaths were caused by the bursting of the Patel Dam in Nakuru County.[30]

Kenya also experiences frequent episodes of drought. A prolonged drought between 2008 and 2011 affected 3.7 million people, caused US$12.1 billion in damage and losses and totalled over US$1.7 billion in recovery and reconstruction needs.[31]

25 Prevention Web, 2014, Kenya Data.
26 Think Hazard, GFDRR, 2018.
27 Otiende, 2009, The Economic Impacts of Climate Change in Kenya: Riparian Flood Impacts and Cost of Adaptation.
28 Opere, 2012, Floods in Kenya.
29 Floodlist, 2018, http://floodlist.com/africa/eu-releases-e1-5-million-to-help-flood-victims-in-kenya-in-the-wake-of-a-deadly-dam-burst.
30 BBC, 2018, Kenya's Patel Dam Bursts, Sweeping Away Homes in Solai.
31 Republic of Kenya, 2011, Kenya Post-Disaster Needs Assessment [PDNA] 2008-2011 Drought.

Over the past two decades, the intensity of weather-related disasters has increased due to the combined effect of climate change and changing vulnerability patterns, for example, increasing urbanization, increasing population size and changes in land use.[32] From the early 1960's, Kenya has experienced a general climatic warming combined with more intense rainfall occurring more frequently over the coastal strip and the northern parts of the country in the September-November and December-February seasons.[33] Climate change in Kenya will largely affect communities residing in poor urban neighbourhoods and those regions most exposed to droughts and floods.

Geologic Hazards

Earthquake risk in Kenya is comparatively low when compared to other more frequent hazards. However, Kenya is traversed by the East African Rift (EAR) System, a 3,000 kilometers (km) seismically active continental rift zone spanning from Ethiopia to Malawi. Kenya has not experienced a major earthquake since the 6.9 magnitude Subukia Valley Earthquake in 1928. Since this earthquake, the EAR has experienced relatively low intensity tremors.[34] Most notably, in 2007, over 20 tremors (magnitude 3.4-6.1) were recorded around Nairobi and Nakuru prior to Ol Donyo Lengai volcanic eruption in Tanzania.[35] Kenya is also close to the off-shore Davie Fracture extending from the Mid-Mediterranean Oceanic Ridge. This fault line also creates a moderate tsunami risk to the coastal areas, including the city of Mombasa.[36]

In addition, there is a high risk of volcanic eruption in Kenya.[37] The country has over 20 volcanoes and several more in close proximity to the country's border.[38] Only six of these volcanoes have recorded historical eruptions, the most recent being the Barrier eruption of 1921.[39] Many of Kenya's volcanoes are located in the Rift Valley; the large number of volcanoes means that a large portion of the country lies within 100km of a volcano, including five of the largest cities in Kenya.[40]

Chronic Hazard Risks

Kenya's built environment is also exposed to chronic health and safety risks such as fire, building collapse, epidemics and unhealthy living conditions.

Consistent with regional patterns in Africa, a large share of urban diseases, epidemics, shack fires and spontaneous structural collapse of buildings that occur in Kenya's urban centres do not get recorded as a disaster in local or national data tracking systems. Therefore, it is not possible to provide an accurate figure of human, property and economic losses linked to fire hazards and spontaneous collapse. However, in Africa, quantitative evidence suggests that the cumulative impacts of recurrent hazards resulting in isolated losses are greater than those of large disasters resulting from extreme events.[41]

Kenya's major cities witnessed 26 reported cases of major building collapses between 1996 and 2017.[42] Investigations carried out by the authorities led to conclusions on the technical causes of structural collapses but those have not yet extended to in-

32 DFID and Stockholm Environment Institute, 2009, The Economics of Climate Change in Kenya.
33 Government of Kenya, 2010, Kenya National Climate Change Response Strategy.
34 US Geological Survey, 2014, Seismicity of the Earth 1900-2013.
35 IFRC, 2007, Panic as Tremor Jolts Kenya.
36 Think Hazard, GFDRR, 2018.
37 Ibid.
38 Global Volcano Model and the International Association of Volcanology and Chemistry of the Earth's Interior, 2015, Global Distribution of Volcanism; Regional and Country Profiles.
39 Ibid.
40 Ibid.
41 Bull-Kamanga, Diagne, Lavell et al. (UNDP funded study), 2003, From Everyday Hazards to Disasters: The Accumulation of Risk in Urban Areas.
42 National Building Inspectorate (NBI), March 2018.

clude consolidated number of casualties and other social consequences such as resulting disabilities, loss of income and livelihood for those who survived within impacted communities.[43]

Kenya's current death rate due to fire is 11.2 people per 100,000, which ranks it 27th highest in the world. By comparison, this rate is 7 in Botswana and 3.9 in Senegal.[44] As Kenya continues to urbanize, the growth of informal low rise and low density settlements and high-rise construction is expected to pose significant challenges to the limited fire-fighting capacity in a major urban center such as Nairobi.[45]

2.2 Key Drivers of Vulnerability in the Built Environment

Physical, economic, social and political factors determine the extent of people's capacity to resist, cope and recover from hazards. In line with the objective of this report, this section will provide a brief overview of the key factors and drivers of vulnerability linked to the built environment.

Key Vulnerability Factors

Kenya's urban population is growing at a rate of 4.4 percent per year - this urban growth is equivalent to 0.5 million new city dwellers every year. This urbanisation has generally taken place without adequate planning and regulation[46] and has, therefore, significantly increased Kenya's vulnerability to natural and chronic hazards.

Table 1: Planning and Land Use Regulation Compliance in Nairobi

Sampled Areas	Estimated Percentage of Compliance
Huruma	4%
Umoja	28%
Thika Road	15%
Dagoretti	32%
Kisii	14.6%

Source: National Building Inspectorate, March 2018.

Approximately 61 percent of urban households live in informal settlements.[47] These buildings are not controlled through building and land regulation systems. Such conditions considerably reduce the risk-sensitive siting and construction of buildings and make building informality a significant threat to public safety and urban resilience.

Building on Hazardous Sites

Estimates indicate that approximately 30 percent of urban centres are planned; however, these plans are rarely enforced.[48] Data the NBI collected from a sample of neighbourhoods in Nairobi indicates that between 4 and 32 percent of the buildings comply with land use plans and regulations (see Table 1).[49] This has resulted in several buildings being constructed in risk-prone areas, such as land with high exposure to flooding and landslides. For example, a significant proportion of informal housing in Nairobi lies on

43 Ibid.
44 WHO, 2014.
45 Source: Kenya Fire Brigade, March 2017. Research by Menya (2016) also notes that in Nairobi the fire brigade is inadequately staffed with a workforce of 152 staff for a population of 3.2 million people.
46 World Bank, 2016, Republic of Kenya: Kenya Urbanization Review.
47 World Bank, 2017, Kenya Economic Update.
48 The International Society of City and Regional Planners, 2010, Reforming and Restructuring the Planning and Building Laws and Regulation in Kenya for Sustainable Development.
49 Data presented by the NBI in 2018 at a World Bank, Tokyo Hub, Technical Deep Dive.

floodplains. Kiberia, Nairobi's largest informal settlement, is located on the floodplains of the River Ngong.

More than 50 percent of its residents were affected by floods during the 2016 rainy season (March-May).[50] In Nairobi, 59 percent of residents in informal settlements reported that the area around their dwelling floods during heavy rain, compared to 28 percent in formal areas.[51]

Construction Quality

Critical factors in building performance include the quality of design, construction practices and materials. Building codes translate safe practices of design, construction and standards for building materials into a set of rules and laws which govern and specify the minimum agreed levels of safety and resilience for buildings. In Kenya, the rate of building code enforcement is low. The Architectural Society of Kenya estimates that over 70 percent of all buildings constructed in Nairobi are done so without approval from the County Government.[52]

In Nairobi, an estimated 70 percent of the housing stock is small shacks (10 by 10 feet) built with wood, tin, galvanised iron sheets and latticed wooden strips covered with mud.[53] These buildings are usually constructed using an array of locally available materials and typically do not involve a qualified architect or engineer in their design. These buildings are vulnerable to spontaneous collapse, fire and natural hazards.

Without the widespread and consistent regulation of construction, a number of complex, multi-story buildings are also constructed without qualified building professionals, site inspection, plan review and material testing.[54] Load factors and material properties are crucial in designing a structure; the wrong parameters can significantly increase the vulnerability of the building.

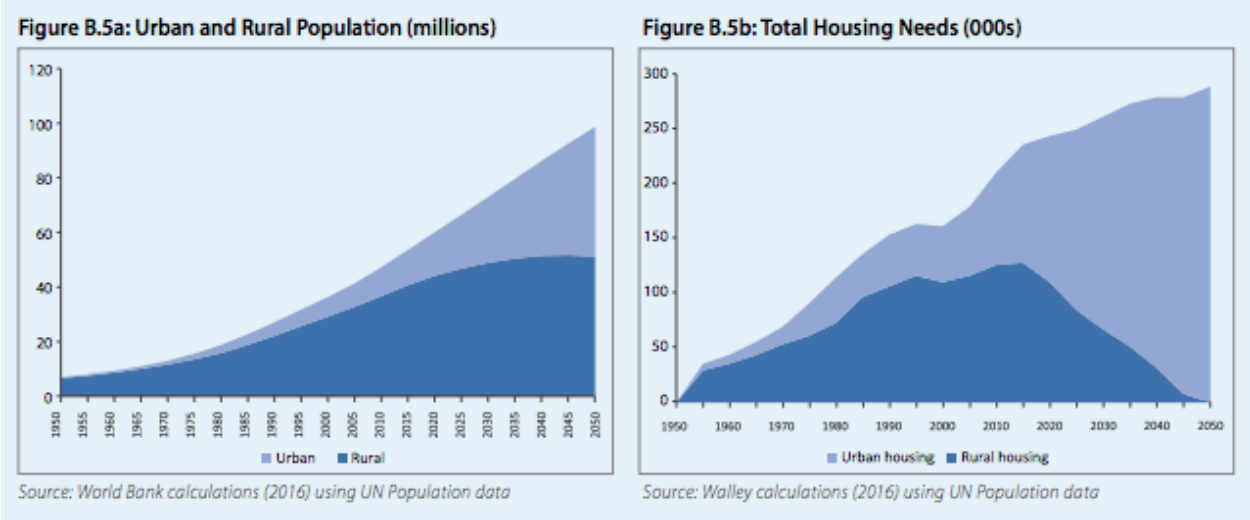
In 2017, NBI audited close to 5,000 buildings in high risk towns across Kenya and found approximately 600 of these buildings to be structurally unsound.[55] Due to low construction quality, several buildings in Nairobi have collapsed spontaneously and during heavy periods of rainfall. In

Figure 3: Collapse of a Six-story Residential Building in Huruma, Nairobi

Source: Reuters/Gregory Olando, Nairobi, 2016.

50 Bernard Juma, 2017, Flood Inundation, Risk and Impact in Kibera Slums of Nairobi-Kenya.
51 World Bank, 2017, Kenya - State of Cities Baselines Survey 2012-2013.
52 The Architectural Association of Kenya, 2018, What is Ailing our Buildings?
53 World Bank, 2016, Republic of Kenya: Kenya Urbanization Review.
54 National Building Inspectorate (NB), March 2018.
55 BRCA Interview, Director, NBI, March 2018.

Figure 4: Kenya's Growing Urban Population and Housing Needs



Source: World Bank, 2016, Republic of Kenya: Kenya Urbanization Review.

2016, 52 people died and over 100 people were displaced after an apartment building in Huruma collapsed in heavy rain (see Figure 3).[56] The Cabinet Secretary stated that the building was built too close to a river and was built illegally, without building permits or permission from the local authorities.[57]

Underlying Drivers

Lack of Affordable Land and Housing

In Kenya, there is an estimated cumulative housing deficit of over 2 million housing units.[58] 244,000 housing units in different market segments are needed annually to keep up with demand, while current production is less than 50,000 units.[59] The demand for housing is set to increase significantly over the next 3 decades (Figure 6). Further, most of these new units serve the needs of high income groups. As the supply of housing increasingly falls behind the demand, house prices have increased and become more unaffordable. The Knight Frank Prime Global Cities Index ranked Nairobi as the highest priced city in Africa, followed by Cape Town.[60] This lack of affordable land and housing, combined with the rate of poverty, has resulted in the proliferation of informal settlements and precarious housing solutions. Thirty-six percent of the population fall under the official national poverty line,[61] making homeownership out of reach for a high proportion of urban dwellers.

56 The Architectural Association of Kenya, 2018, What is Ailing our Buildings?
57 Ibid.
58 World Bank, 2017, Kenya Economic Update.
59 Ibid.
60 Knight Frank prime Global Cities Index.
61 World Bank Group, 2017 Kenya Economic Update: Housing Unavailable and Unaffordable.

In addition, the high cost of land in urban areas also acts as a barrier to safe construction. The cost of land typically accounts for 60 percent of the cost of construction across the country and 80 percent in Nairobi.[62] This high cost premium absorbs the bulk of financial resources available for housing. This factor limits the capacity for land owners to invest in safer building materials and skilled laborers, even where these would be available at a reasonable cost.

Lack of Awareness and Education

In order for buildings to be sited and constructed safely, multiple target groups need to have an awareness of the health and safety benefits of regulatory compliance. This includes building professionals, informal/artisan builders (builders catering for the needs of low income housing), the public sector and the general public. Building professionals and artisan builders need to be educated and certified in safe and resilient construction, tied to knowledge of building and land use regulation and permitting processes. The NCA identifies the construction skills gap in Kenya as one of the main causes of unsafe and low quality construction. They report that only 460,000 registered skilled workers in the construction industry.[63] The African Development Bank (ADB) reported that 75 percent of artisan builders are not formally or adequately trained.[64]

Governance

One underlying driver of unsafe construction is the lack of systematic and transparent mechanisms of building code and land use administration at the central and county level. As noted above, estimates indicate that over 70 percent of all buildings constructed in Nairobi are done so without approval from the County Government.[65] Further, there is significant discretion and opacity in the building code administration system; for example, 34.6 percent of Kenyan firms reported that they expect to have to give gifts to receive a construction permit.[66]

62 World Bank, 2016, Republic of Kenya: Kenya Urbanization Review.
63 Standard Media Kenya, 2016, 'Fundis' shortage spoils party for construction sector.
64 Ibid.
65 The Architectural Association of Kenya, 2018, What is Ailing our Buildings?
66 World Bank Group, 2013, Enterprise Surveys: Kenya.

3. National Level Legislative Framework and Institutions

This chapter examines the national-level legislation and institutions that govern building regulation and land use in Kenya. The chapter provides an overview of the legal and institutional framework currently in place, identifies critical gaps and challenges and provides a series of recommendations.

3.1 Legislative Framework

In Kenya, several laws have been passed to enable the regulation of buildings, from their initial siting through to their decommission. It is important to note that a number of these laws are currently under review as part of the Government's devolution process.

Kenya's first by-laws for building development controls were introduced in 1926. They were applied to the then Nairobi Town Council. These were then replaced by the Nairobi Council Building by-laws in 1948 which included town planning and zoning requirements. The first National Building Code was then adopted in 1968 following the passage of the Local Government Act.[67] This Building code was a replica of the then British Building Regulations. Up until 2012, the Local Government Act (1968) mandated the enforcement of this building code. However, in 2012, as part of the process of devolution, the Act was repealed by the County Government Act.[68] The repeal resulted in ending the legal effect of the 1968 building code creating a legal vacuum. To date, the 1968 building code remains the informal reference in the construction industry.[69]

Kenya's first planning legislation was also introduced in 1968. The Land Planning Act aimed at controlling the development of urban land through the preparation of town plans. The Physical Planning Act was then enacted in 1996 which provides for the formulation of national, regional and local physical planning guidelines, policies and strategies.

67 Consisting of the: (i) Local Government (Adoptive By-Laws) Building Order, 1968, and (ii) The Local Government (Adoptive By-Laws) (Grade II Building) Order 1968.
68 BRCA Interview, Housing Department, MTIHUD and Nairobi City County, March 2018.
69 BRCA Interview, Housing Department, MTIHUD, Nairobi City County and the Architectural Association of Kenya, March 2018.

Over the last two decades, the Government of Kenya has undertaken extensive reviews of these laws to determine their adequacy for regulating the built environment. In 1996, following the collapse of the Sunbeam Commercial Center in Nairobi, a Commission of Enquiry was established to investigate the cause of the incident and review and propose changes to the existing building laws and regulations. The commission received technical and strategic inputs from prominent international experts including individuals from the International Union of Architects and the Commonwealth Association of Architects.

The Commission concluded that the current laws governing the building industry were "inadequate and outdated lacking effective controls and enforcement mechanisms."[70] The recommendations of the Commission are yet to be implemented. A Committee was later established in 2009 to push this agenda forward. The Committee undertook a formal *Review and Harmonization of Planning and Building Laws and Regulations*. The recommendations of this committee provided a foundation for the development of:

- A draft building code, referred to as Planning & Building Regulation (2009).
- A draft Built Environment Bill (2009).
- A draft Physical Planning Bill (2009).

The Physical Planning Bill and Built Environment Bill are both awaiting finalisation and enactment. The draft Built Environment Bill and Physical Planning Bill were both last updated in 2017. At the time of writing this report, the Physical Planning Bill is currently in the Senate and a request for comments from the public was recently issued.[71]

A second draft of the Planning and Building Regulation (2009) was developed in 2011. The draft building code is now referred to as the National Building Regulations (2011). The building code is awaiting finalisation and is not yet enforceable by law. The details of the "National Building Regulations" will be discussed in depth in the following chapter.

There are also laws in place to address fire safety in the built environment. The Fire Risk Reduction Rules (2007) and the Occupational Safety and Health Act (2007) include provisions for fire risk reduction (i.e. sufficient ventilation) and preparedness (i.e. evacuation routes, fire detection appliances and water storage facilities) in the workplace. Up until 2012, the Building Code (1968) mandated under the Local Government Act (1968) provided a number of fire provisions for all public and private buildings. However, as noted above, although the 1968 code remains the informal reference, it no longer has legal effect.

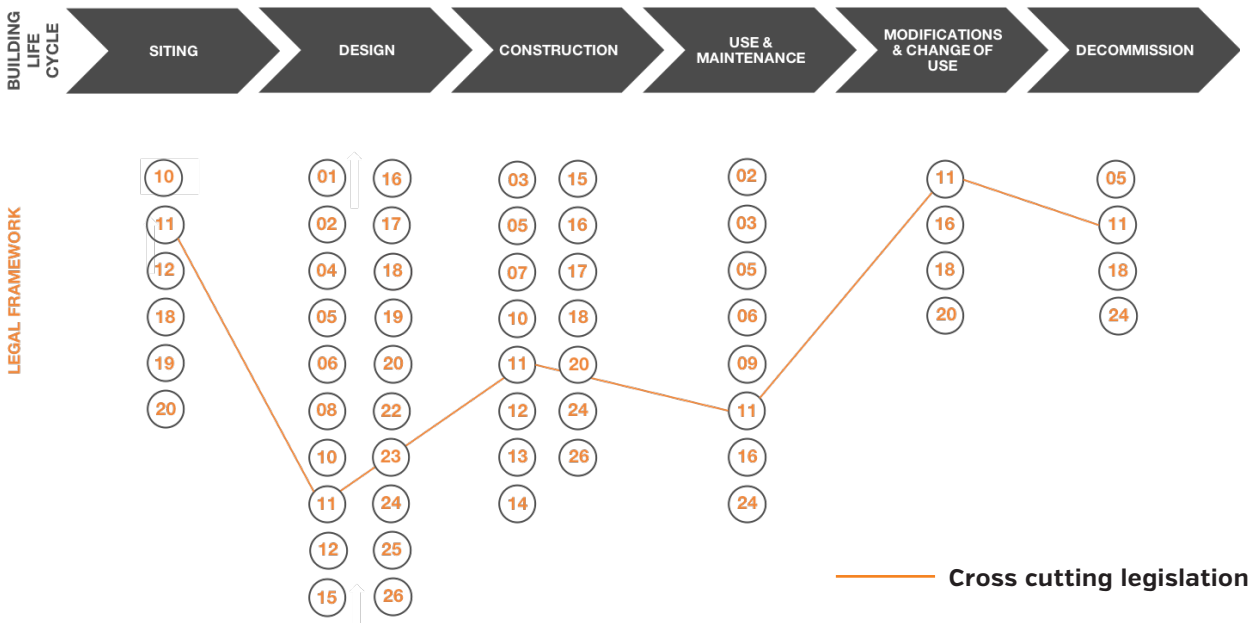
Kenya has also taken steps to govern the practices of engineering, architecture, quantity surveying and construction to promote building safety. In 1978, Kenya started to mandate registration and proof of qualification for Architects and Quantity Surveyors through the Architect and Quantity Surveyor Act. Over the last decade, Kenya also started to regulate the practice of engineers (Engineers Act 2011) and construction workers (National Construction Authority Act 2011). This legislation includes provisions to ensure that these professionals are qualified through education, experience and examination.

There are a number of other statutes that having a bearing on the built environment. These are shown in Figure 5. Annex 1 provides a detailed mapping of how specific components of these legal and regulatory instruments relate to the different steps of the building cycle in Kenya.

70 1996, Commission of Inquiry, Report of the Commission of Inquiry to Examine the Existing Building Laws, By-Laws and Regulations.

71 BRCA Interview, NBI, July 2018.

Figure 5: Legal Mapping of Kenya's Building Development Control



LEGAL FRAMEWORK

Nr.	NAME	Nr.	NAME
01	The Architect and Quantity Surveyor Act, 1978	14	The National Construction Authority Regulations, 2014
02	The Constitution of Kenya, 2010	15	The National Museum and Heritage Act, 2006
03	The Energy Act, 2007	16	The Occupational Safety and Health Act, 2007
04	The Engineers Act, 2011	17	The Persons with Disabilities Act, 2003
05	The Environmental Management and co-ordination Act, 2000	18	The Physical Planning Act,1996
06	The Environmental (Impact assessment and audit) Regulations, 2003	19	The Physical Planning (Application for development permission) Regulations, 1998
07	The Factories (Building operations and works of engineering construction) rules, 1984	20	The Physical Planning (Building and Development Control) Rules, 1998
08	The Factories and Other Places of Works (Fire Risk Reduction) rules, 2007	21	The Physical Planning (Subdivision) Regulations, 1998
09	The Fire Risk Reduction Rules, 2007	22	The Physical Planning (Planning and endorsement fees) Regulations, 1998
10	The Kenya Roads Act, 2015	23	The Physical Planning Order, 1998
11	The Local Government (Adoptive By-Laws) (Building) Order, 1968	24	The Public Health Act, 1921
12	The Local Government (Adoptive By-Laws) (Grade II Building)	25	The Public Health (Drainage and Latrine) Rules

Source: World Bank, 2018, Building Regulatory Framework Legislative Mapping.

* Although the Local Government Act (1968) was repealed, the building code, mandated in the legislation, remains the informal reference in the construction industry, for this reason it has been included in the legislative mapping.
* The 26 laws and regulations listed here and analysed in depth in Annex 1, include the main legislation that has a bearing on building and land use regulation. An extended list of 58 laws and regulations can be found in the draft Construction Industry Policy.

Box 1: Building Practitioners in the Jamaica Building Bill

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

The Building Bill also mandates the creation of a Building Practitioners Board to develop and oversee training and licensing of building practitioners. The Building Practitioner Board will decide upon the necessary qualifications for registration and licensing.

Main Challenges Identified

Overarching National Building Legislation

The foundation of a building regulatory framework is best supported by a national legislation that defines the Government's responsibility to regulate buildings and principles for local enforcement. International best practice dictates that national building legislation should:

- Clearly define the roles and responsibilities of national and local government institutions for building.
- Legally mandate the enforcement of an up-to-date building code and outline a process for future maintenance and update.
- Outline penalties and sanctions for non-compliance with provisions for appeal mechanisms.
- Define the registration, certification and continuing education requirements for building regulators and building professionals.

In countries where there is a high prevalence of informal settlements, it is also advisable for national building legislation to provide guidance or provisions for how the national and county governments should manage informal settlements. For example, the Building Bill of Jamaica,[72] establishes provisions for the regulation of a new category of previously unregistered and unregulated (informal) builders. See Box 1 for more details.

To date, the Government of Kenya has not promulgated national building legislation. The absence of national building legislation weakens the basis for government authorities to undertake formal enforcement and apply sanctions for violations for poor building practices. In recognition of this gap, in 2009, MTIHUD drafted a Built Environment Bill with the objective of creating a "safer, attractive and well-planned built environment."[73] It also provides an opportunity to replace Kenya's outdated 1968 building code.

MTIHUD is currently working to finalise the draft Built Environment Bill.[74] Based on interviews with the Department of Housing, MTIHUD, there is an expectation that the Built Environment Bill will

72 The Jamaica Building Bill 2017 has passed through both Houses of Jamaica's Parliament. The Bill has yet to be gazetted. The supporting regulations are currently being finalized.

73 Hon Soita Shitanda, EGH, MP, Minister for Housing, 2009, Building Code of the Republic of Kenya.

74 BRCA Interview, Secretary, Department of Housing (MTIHUD), February 2018.

include several innovations such as:

- Creating a single centralised building regulatory agency, the Building Authority of Kenya (BAK).
- Enabling the creation of centralized tracking information system on buildings, including a register of buildings.
- Introducing a new centralized mechanism to register and supervise building professionals by establishing "Qualified Persons", "Authorized Persons" and "Accredited Checkers", defining roles and responsibilities for each group with liability provisions.
- Creating the obligation for building developers/owners to hire a supervising engineer with broad responsibilities and, importantly, with liability.
- Creating strong accountability for building professionals with a range of more severe punishments for code violations, and yet with provisions for appeal mechanisms.
- Enabling dedicated appeal mechanisms for owners and building professionals. These appeal boards would be composed of built environment specialists inside and outside the compliance community and can play a crucial role in improving transparency.
- Creating a framework to restrict waivers to building code requirements.

Enacting and implementing a comprehensive Built Environment Bill is of critical importance to strengthen the building regulatory framework.

Overarching National Planning Legislation

The Physical Planning Bill (2017) is a legislation of critical importance. If passed, it would give effect to Article 66 (1) of the Constitution which mandates that the State regulate the use of any land, or any interest or right over any land, in the interest of public safety, public order, public health and land use planning. The Bill would repeal the Physical Planning Act (1996) and would offer a robust legal basis to provide for the planning, use, regulation and development of land in Kenya both at the national and county level. However, the Bill has not yet been promulgated, leaving a gap in the legislative framework. As of June 2018, the Bill was under discussion by the Senate and had received comments and written submissions from the public.[75]

Some of the Bill's key features and innovations include:

- Provisions for the preparation and implementation of physical development plans at all levels of government.
- Introducing new prominent planning institutions, including the National Physical Planning Consultative Forum, the Cabinet Secretary, the National Director of Physical Planning and the County Physical Planning Consultative Forums that create solid foundations for the implementation of a participatory, coordinated and transparent process.
- Describing clear procedures for obtaining planning permission with tangible and updated liability provisions and penalties in case of violations.
- Introducing effective complaint and appeal mechanisms for both national and county level development plans.

However, the Bill does not reference the need to integrate disaster risk mapping into national and

75 BRCA Interview, NBI, July 2018.

local physical development plans.[76] Risk-sensitive land use planning provides an opportunity to avoid settlements being built on land most vulnerable to natural hazards (i.e. flood plains). Building in these areas leaves the residents and assets at risk. As per international best practice, the Bill should include provisions for risk-informed planning.

With this gap addressed, enacting and implementing the Physical Planning Bill is an important step to strengthen the building regulatory framework.

Streamlining Laws and Regulations

There are a number of inconsistencies across the laws that govern the regulation of the built environment. These overlapping regulatory provisions result in a lack of clarity and may undermine the effective enforcement of the legislation. For example, the National Construction Authority Act (2011) and supporting regulations (2014) leave some ambiguity as to the inspection and enforcement mandate of the Authority. The ambiguity creates an overlap with the mandate of county-level building and planning departments to enforce building code in their respective jurisdictions, outlined in the County Government Act (2011).[77] The need to streamline legislation was recognised by the 1996 Commission of Enquiry into the Existing Building Laws and Regulations and the 2009 Review and Harmonization of Planning and Building Laws and Regulations.

Further, the process of devolution marks a period of significant change in Kenya, including the repeal and update of legislation. This process has had implications on the legislative framework for building and land use regulation. For example, as noted above, the passage of the Country Government Act (2012) repealed the Local Government Act (1968), including several legal provisions for building and fire regulation. The Local Government Act included provisions for every step of the building life cycle. This has resulted in a number of gaps in the current legislative framework for building control.

Overarching Legislation for Fire Safety

Currently, fire safety is addressed by "fragmented and dispersed Acts of Parliament with no central point of contact or decision making."[78] To address this issue, the Government of Kenya developed a Fire Safety Management Policy in 2011. The Policy sets an ambitious legal and institutional reform agenda to address current weaknesses. Its strategic priorities include a new national legislative framework through an Act of Parliament and the establishment of a national regulatory body, the Kenya Fire Safety Agency (KFSA).

The passage of a Fire Safety Act would significantly strengthen the building regulatory framework. The Fire Safety Management Policy of Kenya (2011) proposes that an Act of Parliament should mandate:

- Establishment of a national regulatory body, to be known as the Kenya Fire Safety Agency.
- Establishment of Fire Brigades in all the 47 counties and in public and private institutions.
- Preparation and implementation of integrated fire risk management plans at all levels and sectors.
- Establishment of registration requirements, a code of conduct and responsibilities for

76 The Physical Planning Bill outlines that local physical development plans should include spatial analysis of the "terrain, soils and climate," however, this does not explicitly reference the integration of hazard maps for prevalent hazards in Kenya.

77 BRCA, 2018, Kenya Building and Land Use Regulation Baseline Legislative Review (Annex 1).

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

fire engineers, fire officers, firemen and lead agencies.

Implementing the recommendations outlined in the Fire Safety Management Policy (2011) would enable a systematic and comprehensive approach towards mitigating fire risks in the built environment. However, the implementation of the proposed measures has not yet been initiated.

3.2 Institutional Framework

In Kenya, several national institutions play a role in the governance and oversight of the built environment, from the development of building and land use regulations to the registration of construction workers. It is important to note that, as part of the devolution process, under the County Government Act (2011), it is each county's mandate to implement urban development and land use plans and administer the building code within their jurisdictional boundaries.

National Construction Authority

The NCA, established in 2011, is responsible for the registration and training of building contractors and construction workers. The establishment of the NCA provided for the first national surveillance mechanism of building contractors and construction workers in Kenya. The NCA's regulation and training function is particularly significant given that approximately 80 percent of construction workers have not benefited from any recognised public and private training on the market.[79] The NCA currently operates through 14 regional offices. Since 2014, NCA has:

- Registered just under 34,000 contractors, incorporating 59 different construction trades in its new electronic database.[80] However, out of these 34,000, just over 15,000 have valid licenses. In order to maintain a license, contractors must pay an annual fee.
- Issued 53,000 certificates.
- Trained 20,000 contractors and construction workers in management skills (i.e. setting up a construction company) and technical skills (i.e. drawing and specifications for quality assurance).[81]

The NCA also carries out periodic inspections on active construction sites to ascertain if an NCA registered contractor is on site, if construction workers and site supervisors are registered NCA contractors, if on-site safety signage and personal protective equipment are present and if there is proof of project registration. If the site is not compliant, the Authority can issue a suspension notice.

In June 2014, NCA Regulations were finalised and the NCA's mandate was expanded to include registration of all new projects. The NCA has also started to add additional checks to their building site inspections to cover structural flaws.[82]

National Building Inspectorate

The NBI was established under the MTIHUD's Department of Housing and Urban Development in 2015. The NBI was established to provide additional support and technical assistance to county-level building inspectors in response to a growing number of building collapses and fires.

The NBI coordinates inspections of at-risk

79 National Construction Authority, 2014, Construction Industry Survey Report.

80 BRCA Interview, NCA and Builders Association, February 2018.

81 NCA Website, 2018, Training.

82 World Bank, 2018, Kenya Doing Business Report.

buildings such as high-rise and high occupancy buildings. As of February 2018, it had led the inspection of 5,000 buildings, marked approximately 600 buildings as unsafe for occupancy and facilitated the demolition of 34 buildings on the brink of collapse.[83]

Kenya Bureau of Standards

The KEBS was established by an Act of Parliament in 1974.[84] It is responsible for: developing, promoting and enforcing standards related to products, measurements, materials and processes; providing testing services; and, providing training. These responsibilities cover several industries from food and agriculture to construction.

In terms of building regulation, the Bureau is responsible for setting construction standards. The Standards Act (1974) includes a list of relevant standards that the Bureau is responsible for maintaining.[85] In 2012, it chose to adopt European building standards, the 'Eurocodes.' These are a set of internationally recognised structural standards. The Bureau was also one of the main parties involved in the development of the National Building Regulations (2011). Their main role was to ensure the inclusion of appropriate reference standards. These reference standards will not have legal effect until legislation is passed that mandates the enforcement of the National Building Regulations.

KEBS also has its own testing laboratories which provide testing for materials such as cement, concrete and steel. Its responsibility is to test imported material and provide certification. It is not the only institution offering material testing services in Kenya; the Materials laboratory at MTIHUD has the largest testing capacity, the Department of Public Works has some facilities to test materials for public infrastructure and some private laboratories exist.[86] The Bureau does not have a role in accrediting these testing laboratories, this is the responsibility of a separate entity, the Kenya Accreditations Services (KAS).[87] Currently, certain more specialised tests, such as those for particular types of cement and non-destructive testing, cannot be carried out in Kenya due to a lack of equipment.[88]

Testing concrete is of particular significance to building safety and resilience in Kenya. According to the Bureau's analysis, concrete quality is a major factor in building collapses. KEBS is often called upon after a building collapse to participate in the follow-up inquiry and test the concrete. They frequently find that the concrete mix does not include enough cement.[89]

KEBA does not currently have capacity to conduct research on construction materials. There is some capacity for this research at the Public Works, Materials Department and the Kenya Industrial Research Institute (KIRI). The Materials Department, has for example, undertaken research on low cost housing materials, including research block technology and proofing.

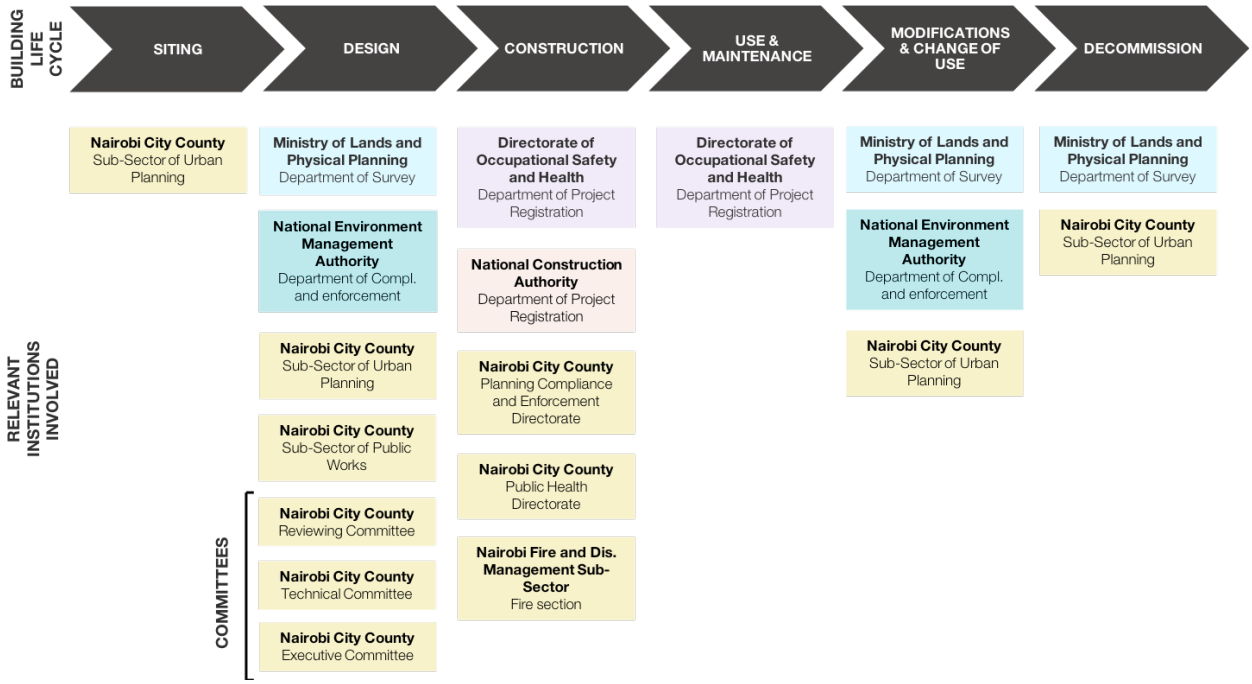
Ministry of Lands and Physical Planning

The MLPP is responsible for several functions relevant to the built environment, including: providing national physical planning services; providing technical assistance and capacity building for counties on physical planning; land registration; and, producing and distributing land surveys and mapping. The Land Survey Department is responsible for the development of national haz-

83 BRCA Interview, NBI Director, March 2018.
84 The Standards Act, Chapter 496.
85 See Chapter 496 of the Standards Act (1974).

86 BRCA Interview, Director, Bureau of Standards, March 2018.
87 The Kenya Accreditation Services accredits testing labs against the International Standard Organization (ISO) 9025 Standard.
88 BRCA Interview, Director, Bureau of Standards, 2018.
89 Ibid.

Figure 6: Institutional Mapping of Kenya's Building Development Control



Source: World Bank, 2018, Building Regulatory Framework Legislative Mapping.

* Nairobi City County has been included in the legislative mapping to highlight the interaction between national and county departments at different stages.
* KEBS and NBI are not included in this stakeholder mapping as they do not have a systematic and/or operational role in the building development control life cycle. KEBS has a role in setting the standards which other actors then have the responsibility to enforce. NBI is not systematically involved in the process of building development control, rather they are an additional resource of expertise in targeted high-risk audits.

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

Institution	Building Development Control Role
Ministry of Lands and Physical Planning	Plan national level urban and land use planning Register land Produce and distribute land surveys and maps Provide technical assistance and capacity building for counties on physical planning
National Environment Management Authority	Establish and review land use guidelines Approve Environment Impact Assessment (EIA) for new building projects Inspect building sites for EIA project license
Directorate of Occupational Safety and Health	Ensure registration of new workplace building projects Inspect construction sites to ensure workers' safety Approve building plans Ensure safety audits are carried out annually for existing buildings
National Construction Authority	Register and train building contractors Register building projects Certify and accredit skilled workers and construction site supervisors Inspect building sites to ensure the presence of NCA registered contractors and construction workers Select plan review and site inspection
National Building Inspectorate	Provide additional support and technical assistance to county level building inspectors, primarily for existing high-risk buildings Carry out audits on existing at-risk buildings and investigations based on past building failures
Kenya Bureau of Standards	Develop, promote and enforce building standards
County Governments*	Develop and implement local land use and development plans Conduct plan review, site inspection, inspections (during and after construction) and issue construction and occupancy permits Conduct specialised plan review and inspections (i.e. fire safety and health)

* The County Government has been added as a point of comparison.

ard maps, although stakeholders from the department reported that the hazard maps that do exist are outdated.[90]

The Ministry also has the important role of defining the legislative framework for physical planning. MLPP has taken the lead on the development of the Physical Planning Bill. They are currently coordinating a consultation process, including public participation.

Additional National-level Institutions

Several other national institutions also have a role in building and land use regulation. The Ministry of Health (MoH), the National Environment Management Authority (NEMA) and the Ministry of Labour and Social Protection (MLSP) all have a role in the building permitting process. Figure 6 and Table 2 provide an institutional mapping of these institutions and a summary of their roles. Annex 1 provides further details of their responsibilities across the different steps of the building cycle.

Challenges Identified:

Roles and Responsibilities of National Building Regulators

Currently, there is not a clear delineation between the regulatory responsibilities of the NCA, NBI and County Governments, neither in law or in practice.

As per the County Government Act (2012), each county has a legal mandate to administer building and land use regulations.[91] They have primary responsibility for conducting plan reviews, inspections and issuing occupancy permits.

In parallel, there are also several national-level institutions that undertake building inspections in Kenya, including the NCA and the NBI. As noted above, while the NCA's primary responsibility is to oversee the construction industry, the NCA also conducts building site safety inspections, including selected review of structural flaws.[92] The NBI also undertakes building inspections focused on high-risk and high-occupancy buildings.

Given the overlapping responsibilities and practices of these institutions, the NBI, NCA and Nairobi County Council report that they currently pool inspection resources, including undertaking joint inspections.[93] In order to ensure a standardised, efficient and transparent process, international best practice dictates that institutions must have clearly defined and legally prescribed mandates.

The NEMA also conducts periodic site inspections to ensure that construction projects have an Environmental Impact Assessment (EIA). However, there is not currently a clear and detailed system of categorisation to determine which types of projects/ categories of buildings require an EIA.[94] If projects do not have an EIA at the moment of inspection, the NEMA may suspend the project and demand that erected objects are demolished.[95] In recent years, the NEMA started enforcing these rules more vigorously.[96]

Looking forward, based on interviews with stakeholders,[97] there is an expectation that the Built Environment Bill will include provisions for the establishment of a single centralised building regulatory agency, the Building Authority of Kenya

90 Interview, Department of Survey, MLPP, March 2018, World Bank.
91 Development control within a city or municipality should be implemented by local government personnel in accordance with "the national housing and building code framework" [County Governments Act 2012, Section 111 3(c)].
92 World Bank, 2018, Kenya Doing Business Report.
93 BRCA Interview, General Manager, NCA, March 2018.
94 Ibid.
95 World Bank, 2018, Kenya Doing Business Report.
96 Ibid.
97 BRCA Interview, Department of Housing, MTIHUD, March 2016.

(BAK). It is expected that BAK will have a wide mandate, including registration and supervision of all professionals, operational control and inspections, custody of documentation at all steps of the building life cycle and oversight on maintenance and operations of building structures. MTIHUD is advocating for this recentralisation of building regulatory activities[98] as they see the safety and resilience of the built environment as a matter of national interest given the number of fire incidents and spontaneous structural collapses.

If the BAK is established, the institutional arrangements between national institutions and county-level institutions will need to be clarified. This is particularly important in the case of county-level institutions as the approach may raise the risk of political opposition in Parliament if it conflicts with the intent of the devolution process.

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

There are currently limited national-level initiatives and resources to train regulatory personnel, building contractors and construction workers. In order to promote safe construction, there is a strong argument for the Government of Kenya to play a more prominent role in coordinating training and technical assistance to regulatory personnel, building contractors and construction workers on safe construction and building code requirements.

Regulatory Personnel
There is currently no centralised institution with a mandate to provide training to county-level regulatory personnel on building code administration. This is particularly significant given the relatively new building departments established at county-level as part of the devolution process. The same applies for fire inspectors; however, this will be discussed in greater depth later in the chapter.

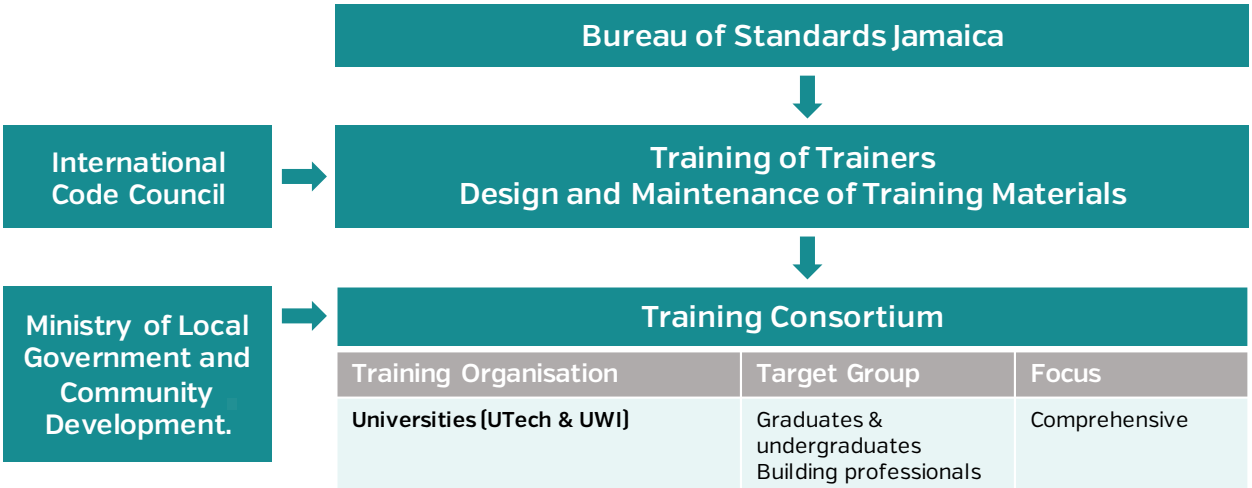
Figure 7: 'Be Sure, Jenga Smart' Training Programme

Source: NCA, 2017, "Be Sure, Jenga Smart" Training Program.

The role of the MTIHUD or the NCA could be expanded to train regulators in county governments in partnership with existing professional schools. The training could focus on developing core skills pertaining to building code administration, design, plan review, inspection and enforcement. A nationally coordinated training mechanism for building code personnel would need to be carefully designed to support its long-term sustainability. The history of national programs or agencies relying only on national budget appropriation have proved vulnerable to variations in political, economic and social priorities. There is strong argument for the fees for construction permits to contribute to a large-scale training solution for building regulators.

98 Ibid.

Figure 8: Jamaica National Building Code Training Consortium



Training Organisation	Target Group	Focus
Universities (UTech & UWI)	Graduates & undergraduates Building professionals Building regulators	Comprehensive
Jamaica Fire Brigade	Fire plan review and inspection personnel	Fire-related code elements
Jamaica Institution of Engineers (JIE)	Engineers	Design
Jamaica Institute of Architects (JIA)	Architects	Design
Institute of Quantity Surveyors	Quantity Surveyors	Third party enforcement
Heart Trust	Construction workforce "Practitioners"	Construction practice
To be confirmed	Material and building product manufacturers	Implication of code for their practices
Management Institute for National Development (MIND)	Local/parish officials	Administrative
Bureau of Standards Jamaica (BSJ) **National Housing Authority (NHA)** **National Housing Trust (NHT)** **Housing Agency of Jamaica (HAJ)** **Social Development Commission (SDC)**	General public and informal sector builders	Health and safety motivation

Contractors and Construction Workers

There are more centralised training resources available for contractors and construction workers. Since 2014, the NCA has provided training to just under 34,000 construction workers and contractors.[99] For example, the NCA is currently rolling out the "Be Sure, Jenga Smart" one-day training for construction workers and site supervisors focusing on the importance of being accredited, always using personal protective equipment and work-place professionalism.[100]

In addition, the Competency Based Training and Assessment (CBTA) is a national public-private partnership with the objective of training and certifying construction workers nationally. Its strategic goal is to develop training curricula for 59 trades identified in Kenya. The partners include the Housing Finance Foundation, large Kenyan cement companies, large paint manufacturers, steel manufacturers and importers, academia and the National Industrial Training Authority (NITA). However, the initiative has not yet scaled significantly.[101]

The NCA and CBTA's training initiatives are an important resource for the construction sector; however, to meet the country's training needs and promote safe construction, these initiatives would need to be:

- Significantly scaled, this could be achieved through partnerships with educational organisations.
- Expanded in scope, i.e. targeted sessions on building code provisions and safe construction.
- Systematised to ensure a comprehensive curriculum.

Further, in order to provide nation-wide training in a standardised and systematic way, there is also the need to ensure that existing professional schools, colleges and universities integrate building codes into their curricula. This challenge is exemplified by the fact that a prominent vocational school on the market uses steel piping in its plumbing training workshops although the Kenyan building industry has already largely embraced PVC piping.

A national agency, such as the NCA, or a public-private partnership, such as the CBTA, could play an important role in coordinating this effort. In Jamaica, for example, the Jamaican Bureau of Standards and the Ministry of Local Government and Community Development have established a Building Code Training Consortium and are working with their members, local training institutions and government agencies to integrate building code into their curriculum.[102] See Figure 8 for a diagram outlining the training consortium's structure.

Central Coordination for Fire Safety Management and Mitigation

There is currently not a central authority to coordinate fire safety management and risk mitigation measures. To address this issue, the Fire Safety Management Policy of Kenya (2011) sets strategic priorities including the establishment of a national regulatory body, the Kenya Fire Safety Agency (KFSA).[103] Among other responsibilities, the KFSA would be expected to:

- Register and license fire inspectors and audit high risk facilities.

99 BRCA Interview, NCA, February 2018.
100 NCA, 2017, NCA Commences Artisan On-Site Training for Financial Year.
101 BRCA Interview, Chief of Enterprise Development, National Industrial Training Authority, March 2018.
102 This initiative has been supported by the World Bank Building Regulation for Resilience Program through the Jamaica Disaster Vulnerability Reduction Project.
103 Government of Kenya, 2011, Fire Safety Management Policy.

Box 2: International References for Fire Competency Frameworks

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

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

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

- Support building plan review activities of local government.
- Sponsor a national training institution in fire safety management.
- Undertake research and development.
- Support the use and adaptation of modern fire standards.
- Provide technical assistance and capacity building for county fire brigades.[104]

The establishment of the KFSA would be a significant step towards managing fire risk in the built environment; however, the measures proposed in the Fire Safety Management Policy have not yet been taken forward by the Government.

In terms of training, there is currently no clear line of responsibility for the training of fire prevention designers, fire engineers and fire inspectors. The result is a shortage of trained fire personnel and a lack of regulatory and control capacity in county fire brigades and building departments of major cities.[105] If established, the KFSA could play an important role in developing a competency framework for fire prevention.

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

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

Role of National Institutions for Developing National Hazard Maps

Clarity is needed on the role and responsibility of national institutions for developing, collating and applying national hazard maps. Hazard maps are a significant input for the development of risk-sensitive building codes and land use regulations. Given the hazard profile in Kenya, seismic maps, peak-ground accelerations, flood plain maps, coastal hazard maps, wind maps and volcanic maps should be integrated into the regulations.

National-level institutions can play an important

104 Government of Kenya, 2011, Fire Safety Management Policy.
105 Source: Nairobi Fire Brigade, March 2018 and Alice A. Menya, O.A. K'Akumu, 2016, Inter-agency collaboration for fire disaster management in Nairobi City, Journal of Urban Management.

role in collecting and disseminating hazard maps, including:

- Developing national-level multi-hazard maps as an input into national building codes and land use regulations.
- Providing physical infrastructure for surveys and mapping, for example, the construction and maintenance of observing reference stations[106] and seismic arrays.[107]
- Developing and promoting a legal framework that supports hazard mapping at the national and county level.
- Providing standards, guidance and technical assistance to county governments in conducting detailed local hazard mapping and integrating this into land use and development plans.

Within the MLPP, the Land Survey Department is responsible for the development of national hazard maps, although stakeholders from the department reported that the hazard maps that do exist are outdated.[108] Some technical capacity is also available at the Ministry of Petroleum, which develops geological maps, and several other Ministries have developed their own hazard maps.[109]

However, the Government currently has limited capacity to undertake extensive hazard mapping and often depends on international organisations and specialised foreign agencies to provide hazard data.[110] More advanced information for hazard mapping is usually fragmented and available through various sources including academia, regional or international organisations with no national centralised repository system.[111]

In terms of providing physical infrastructure for surveys and mapping, the MLPP is in the process of developing the Kenya National Spatial Plan Infrastructure (KNSDI). This will be an important step to develop the required domestic capacity for a geodetic network.[112] This platform will enable the continuous mapping of land use patterns in Kenya, tracking actual developments and informing the zoning of land in currently unmapped areas. The MLPP also plans to include hazard maps in the KNSDI.[113] However, no timeline has been set for the completion of this activity.[114]

3.3 Recommendations

Legislative Reforms

1. Facilitate the passage of the Built Environment Bill referencing the new building code. This process should involve continued consultation and dialogue with the building professional community and other representatives of county governments and be submitted to Parliament as soon as the process allows. The Government of Kenya should explore the option of establishing a working group to push forward this agenda. The working group could also be responsible for co-

106 A network of continuously observing reference stations provides global navigation satellite system data consisting of carrier phase and code range measurements in support of three-dimensional positioning, metrology, space weather and geophysical applications through territory.
107 A seismic array is a system of linked seismometers arranged in a regular geometric pattern to increase sensitivity to earthquake and explosion detection.
108 BRCA Interview, Department of Survey, MLPP, March 2018.
109 Ibid.
110 BRCA Interview, Principal Secretary, MLPP, March 2018.
111 These resources include but are not limited to: Intergovernmental Authority on Development (IGAD), UNISDR database, the Center for Hazards & Risk Research at Columbia University.
112 Geodetic networks provide a common reference system for establishing the coordinate positions of all geographic data. It provides the means for tying all geographic features to common, nationally used horizontal and vertical coordinate systems.
113 See an example of the threat.
114 Government of Kenya, National Land Use Policy, 2017.

ordinating the finalisation of the Building Regulations (2011), this will be discussed further in the following chapter.
The Bill should be benchmarked against international best practice, including the examples of best practice referenced in this report. For example, the Bill should clearly define the roles and responsibilities of national and county institutions through one set of consistent legal provisions.

2. Facilitate the passage of the Physical Planning Bill. This process should also involve continued consultation with the building professional community, other representatives of county governments and the public. To promote safe and resilient settlements, the Bill should also be updated to mandate the inclusion of hazard maps in national and county-level land use and development plans.

3. Conduct a detailed legal review to streamline national legislation related to building control at all steps of the life cycle of a building structure from project's siting, design construction, maintenance, retrofits and decommissioning. It is recommended that this effort builds on the extensive baseline legislative review carried out for this report (available in Annex 1).

4. Implement measures consistent with the provisions of the Fire Safety Management Policy of Kenya (2011). The following measures should be prioritised to enhance fire risk mitigation in the built environment:

- Establish a specialised fire prevention working group across the following national organisations to discuss, endorse, coordinate and implement proposed measures to support fire prevention, including the proposed legislative and institutional reform. All the following organisations were identified as having an important role in fire risk reduction and should be appointed as members of the group. These include:
  - The Department of Public Works of the Ministry of MTIHUD.
  - The Kenya Airport Authority.
  - The National Disaster Management Unit of the Ministry of Interior and Coordination.
  - The Directorate of Occupational Safety and Health Services (DOSHS) of the Department of Labour of the Ministry of East African Community, Labour and Social Protection.
  - County Government level representatives.
- Develop a national-level training curriculum for Fire Brigades and regulatory personnel with support from academia, and with substantial inputs from an internationally recognised fire prevention think tanks. It is recommended that the Government of Kenya establish contacts with the non-for-profit US National Fire Protection Association (NFPA) or with the European non-for-profit Fire Information Exchange Platform (FIEP), or any leading national EU member agency of FIEP to strengthen training materials addressing specific knowledge gaps among regulatory personnel in Kenya. This includes:
  - Train a corps of trainers, with support from academia, to deliver fire prevention risk training to staff of fire brigade and fire sections of building departments with a focus on new regulatory requirement and fire standards, plan checks, building fire inspections and compliance advisory support.
  - Enhance the capabilities of the Fire Service Training School in Nairobi by assigning permanent trainers and by entering into an agreement (MoU) with an internationally-recognised non-for-profit fire engineering and fire prevention knowledge organisation.
  - Initiate a certification process of fire prevention specialists for the built environment in collaboration with the Technical and Vocational Education and Training

Authority (TVETA) and the National Industrial Training Authority (NITA).
- Enhance the testing capacity of KEBS to be able to fulfil its mandate of determining compliance with required fire resistance requirements for building materials, floor components, walls and roofs separating elements and structural building elements.

Institutional Reforms

5. Support national-level training curriculum targeting regulatory personnel in county building departments. The curriculum should focus on core skills pertaining to building code administration, plan review, inspection and enforcement.

The Government should assess the feasibility of MTIHUD or the NCA delivering the training to county regulatory personnel through a sustainable funding mechanism, independent from national budget appropriation. The Government could explore a partnership with a non-for-profit internationally-recognised building regulatory think tank such as the International Code Council (ICC) or the Royal Institute of Chartered Surveyors (RICS) that have prior experience in developing and adapting training curriculum in international jurisdictions.

The designated national institution should initiate and coordinate a certification process of building regulators.

6. Scale up the training provided by the National Construction Authority and Competency Based Training Assessment for building contractors and construction workers. This training should include courses on the new building regulations. The scale of the NCA's and CBTA's current training programs could be expanded to meet demand. This could be achieved through strategic partnerships with academia and NGOS.

7. Assign responsibility to Government ministries for the development, collation and application of hazard-maps with a focus on floods, landslides and seismic risks. Effective strategies to develop hazard maps may include establishing or expanding partnerships with national and international institutions carrying out geological surveys in Kenya, as well as relevant academic and research institutions. As will be discussed in the next chapter, these hazard maps should be referenced in land use and building regulations.

When the platform is completed, these hazard maps should be integrated into the Kenya National Spatial Data Infrastructure (KNDSI). The KNDSI should provide the national foundation for geospatial mapping information on hazard and planning requirements. An interactive and functional website integrating a GIS system (WebGis)[115] should be developed to allow interested parties to review the detailed conditions of development down to specific land use conditions associated with land plots. The MLPP, overseeing the KNDSI, should provide guidelines and standards so that other agencies and counties can integrate their own land use and hazard maps.

115 Web GIS originates from a combination of web technology and the Geographical Information System, which is a recognized technology that is mainly composed of data handling tools for storage, recovery, management and analysis of spatial data Web GIS is a kind of distributed information system.

4. Building Code Development and Maintenance

This chapter examines the adequacy of the building code and processes for maintaining it over time. The assessment focuses on the extent to which the building code reflect an up-to-date scientific understanding of how buildings perform against chronic risks, disaster events and climate change and have been adequately adapted to reflect local conditions and construction practices. The chapter provides an overview of the status of Kenya's draft building code, identifies good practice, critical gaps and challenges and provides a series of recommendations.

4.1 Status of Kenya's Building Code

Kenya's first by-laws for building development controls were introduced in 1926. They were applied to the then Nairobi Town Council. These were then replaced by the Nairobi Council Building by-laws in 1948 which included town planning and zoning requirements. The first National Building Code was later adopted in 1968. It was a word-by-word replica of the then British Building Regulations.

Up until 2012, the Local Government Act (1968) mandated the enforcement of the 1968 building code.[116] However, in 2012, as part of the process of devolution, the Local Government Act was repealed by the County Government Act. As a result, compliance to the 1968 code is not legally mandated.[117] To date, there has been no replacement and the 1968 building code remains the informal reference in the construction industry.[118]

The 1968 building code is now over half a century old and, as such, does not reflect an up-to-date scientific understanding of building technology or evolving societal expectations. For example, the code does not have provisions for people with disabilities, energy efficiency and disaster risk management, such as the inclusion of seismic load standards.

In 2009, in recognition of these limitations, MTI-HUD initiated the development of a new draft building code, referred to as the "Planning and

116 The Local Government Act provided explicit reference to the 1968 building code, thus giving it legal effect.
117 BRCA Interview, March 2018, Housing Department, MTI-HUD and Nairobi City County.
118 Ibid.

Building Regulations, 2009." [119] The draft building code was then updated in 2011 and is referred to as "National Building Regulations, 2011." In this updated draft, the second volume, that focused on spatial planning, was removed[120] but the rest of the draft was left almost untouched.[121]

As part of this BRCA, a review was undertaken of the publicly available Planning and Building Regulations, 2009. The review focused on whether the regulations: (i) reflect an up-to-date scientific understanding of building performance, including performance against chronic and natural disasters and climate change (ii) include provisions for disaster risk management, disabled access and energy efficiency (iii) are adapted for the Kenyan context, integrating safe use of local building materials and construction techniques. The processes for developing and updating the code were also reviewed to determine whether a participatory and structured process is in place.

4.2 Review of Kenya's Draft Building Code

The assessment found that the 2009 draft represents a considerable improvement to the 1968 code. For example, the draft code includes:

- Standards for earthquake and wind loads.[122] The inclusion of seismic load standards is critical for the context of Kenya, where there is relatively high seismic risk.
- Provisions for imposed loads[123] to be calculated according to an occupancy class index (i.e. residential, assembly, business, high-hazard).[124]
- All fundamental aspects of fire protection for buildings. Detailed provisions are included for prevention, detection and warning, containment, barriers, life safety, extinguishment, fire testing, fire mechanical and electrical design. Section "S" on "Fire Safety and Fire Installations" opens with six performance requirements and appropriately defines 29 types of occupancies for fire safety purposes (See Annex 2). The KEBS is also given authority to determine compliance with required fire resistance and non-combustibility of separating elements and structural elements.[125]
- Provisions for the accessibility and usability of buildings for people with disabilities, for example the inclusion of ramps, lifts, handrails and wheel chair spaces.[126]

An extensive list of good practices in the 2009 building code is provided in Annex 3.

Main Challenges Identified

The assessment also identified a number of technical adjustments necessary to ensure that the building code is consistent with international best practice. A selection of current gaps and limitations are highlighted below. A detailed analysis with technical recommendations is included in Annex 4.

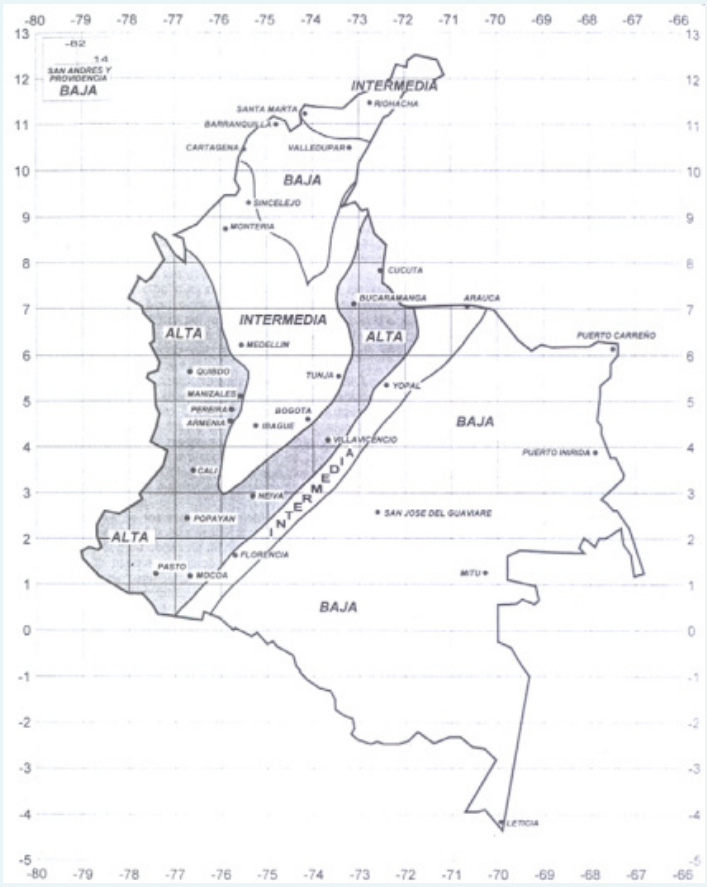
119 KS Code (2009) [English] Building Code of the Republic of Kenya [2009 edition].
120 BRCA Interview, MTIHUD and Nairobi University, February 2018 & World Bank, 2016, Republic of Kenya: Kenya Urbanization Review.
121 Dean of the Faculty of the Built Environment, University of Nairobi, March 2018.
122 Structural loads or actions are forces, deformations, or accelerations applied to a structure or its components (Go Engineer Glossary).
123 Imposed load is defined as the load that is applied to the structure that is not permanent and can be variable (Technical Guidance Note, The Institution of Structural Engineers, 2012).
124 See table F1 of the volume 3 Section F of the BC 2009.
125 A more detailed summary of the Section S (2009 building code) is provided in Annex 3.
126 See B5, Volume 2, Building Regulations 2009.

Box 3: Building Code and Seismic Hazard Maps in Colombia

The Colombian seismic hazard map referred to in the National Building Code (NSR-98), in effect until 2009, was developed in 1996 and updated in 2010. Since then, the National Seismological Network of Colombia has improved in both coverage and technology, providing 15 years of additional seismic records. The seismic hazard maps correspond to those developed by the seismic hazard committee of the Colombian Association for Earthquake Engineering (AIS) and are considered official and for mandatory use in the earthquake resistant codes for buildings and bridges.

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

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



KEY
Baja: Low
Intermedia: Intermediate
Alta: High

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

Referencing Hazard Maps

The draft 2009 building code does not currently reference hazard zones and associated structural requirements.[127] Given the hazard profile of Kenya, seismic maps, peak-ground accelerations, flood plain maps, coastal hazard maps, wind maps and volcanic maps should be referenced in the building code and land use regulations. Based on these maps, geographic zones should be differentiated in terms of expected hazard event frequency and intensity. The differentiation of hazard zones is essential for enabling the safe siting of buildings and balancing design requirements for anticipated loads.

For example, in Colombia, the Colombian seismic hazard map is referenced in the National Building Code (NSR-98). Four levels of seismic intensity have been included. The design requirements included in the building code are prescribed based on the seismic zone and nature of the occupancy. See Box 3 for more details.

There are some existing national and international hazard maps available in Kenya that could be integrated into the building code. For example, under a World Bank funded project, peak ground acceleration maps were developed for a 500-year return period – these were computed considering local soil effects (See Annex 5). However, high-quality hazard maps, of an appropriate resolution, have not yet to be systematically identified for integration into the Building Regulations.

Seismic Provisions

The draft includes some seismic provisions such as seismic loads; however, it does not include seismic provisions for retrofitting buildings or non-structural elements. According to international best practice, seismic retrofit provisions should be included for different types of buildings such as reinforced concrete and light-frame wood buildings. The retrofit guidelines in the ICC 2018 International Existing Building Code provide a comprehensive example.[128]

Accessibility and Usability of Buildings for People with Disabilities

It is estimated that between 10[129] and 15 percent[130] of the Kenyan population are disabled. Out of this group, 26 percent are mobility-impaired, another 19 percent are visually-impaired.[131] See Box 4 for the World Health Organization's definition of persons with disabilities.

Regulations for buildings used by people with disabilities are included within Volume 2 of the 2009 draft code. Building Regulations are included for the following buildings: domestic buildings, schools, entertainment and sports facilities and hotels.[132] While the regulations are generally comprehensive, provisions for initial access, such as ramps, dropped kerbs and parking, are not required for domestic buildings and composite buildings. As per international best practice, accessibility provisions for initial access should also be required for domestic buildings, such as apartment buildings.

Significantly, Volume 2 was removed from the last iteration of the Building Regulations (2011).[133] Without Volume 2, the Building Regulations do not provide a prescriptive mechanism for implementing the Persons with Disabilities Act (2003), which sets the goal of a barrier-free and disability-friendly environment.

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127 In Section B there is a detailed discussion of national, regional and local planning, but there is no specific mention of natural disasters as a factor in planning.

128 ICC, 2018, Existing Building Code.

129 Global Disability Rights Now, 2009, Kenya Demographic & Health Survey.

130 World Health Organisation, 2011, World Report on Disability – data for Kenya from 1989.

131 Global Disability Rights Now, 2009, Kenya Demographic & Health Survey.

132 See Table B5, 2009 Planning and Building Regulations

133 BRCA Interview, MTIHUD and Nairobi University, February 2018 & World Bank, 2016, Republic of Kenya: Kenya Urbanization Review.

Box 4: World Health Organisation Definition of Disability

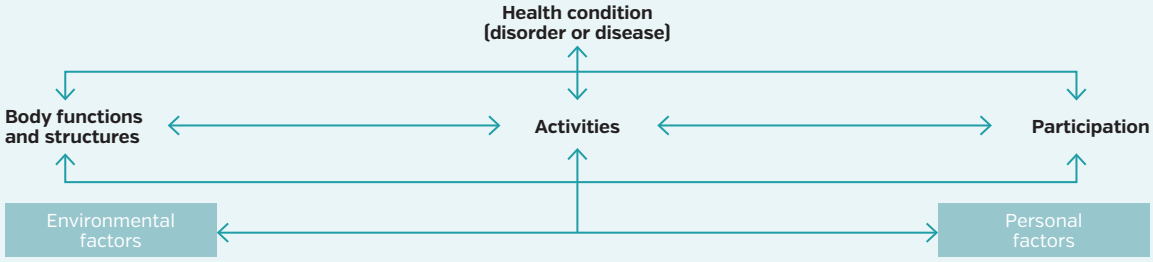
According to the World Health Organisation (WHO), disability is the umbrella term for impairments, activity limitations and participation restrictions, referring to the negative aspects of the interaction between an individual (with a health condition) and that individual's contextual factors (environmental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

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

- impairments are problems in body function or alterations in body structure – for example, paralysis or blindness.
- activity limitations are difficulties in executing activities – for example, walking or eating.
- participation restrictions are problems with involvement in any area of life – for example, facing discrimination in employment or transportation.

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

Representation of the International Classification of Functioning, Disability and Health



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

Furthermore, after the development of the draft Building Regulations (2009), the Kenya Bureau of Standards published 41 standards related to accessibility for persons with disabilities. While it was not possible to include these standards in the 2009 draft, relevant standards could be integrated into the latest version.

Reference to Non-engineered Low Income Housing

The draft building code does not recognise or provide guidance for the types of construction that low income groups can afford. Generally, the design and construction of these buildings does not involve professional architects and engineers, the buildings often make use of local materials and skills and are improved and extended incrementally as funding, time, or materials become available. In Nairobi, for example, an estimated 70 percent of the housing stock are small shacks (10 by 10 feet) built with wood, tin, galvanised iron sheets and latticed wooden strips covered with mud.[134]

Despite the generally poor performance of these buildings in earthquakes and other disaster

134 World Bank, 2016, Republic of Kenya: Kenya Urbanization Review.

events,[135] it is important to provide some guidance for these types of building that make-up a significant proportion of the country's building stock. By not recognising these types of construction, building regulatory regimes can deprive a significant proportion of the population of the benefits of regulated construction. It can limit research and development for improving traditional techniques, materials testing and quality control and make alternative forms of construction even more vulnerable to chronic and disaster risks.

There are several examples of building codes that provide guidance for low income housing. See Box 4 for case studies from Djibouti, Peru, Sri Lanka and Jamaica – each country has taken a different approach.

Kenya has its own experience in developing guidance for low income housing. In 1995, Kenya took the innovative step of developing "Code 95", a set of building standards for low income housing. Although the code was a step towards increasing the resilience of low income housing, the code was only adopted by a few local authorities.[136] Despite the low uptake, many lessons can be learned from the experience.

The task team of Code 95 understood that to be effective and widely adopted, the building standards must be related to the performance of the materials used and should not exclude the locally available materials with which most people were building. The code also allowed builders to start with a basic structure and add to it whenever they had the need and resources to do so. This bottom-up approach identified the lowest common denominator for health and safety and set a framework within which improvement could be made over time.[137] A DFID funded pilot project in the city of Nakuru found that housing construction under the new code reduced construction costs by approximately 30 percent.[138]

This past experience provides a useful resource to inform adjustments of the draft Building Regulations.

Adoption of New Building Standards

In 2012, the KEBS decided to shift from British Standards to European building standards. These standards are referred to as "Eurocodes." The move to Eurocodes is an ongoing process and the target date for the transition to be complete is 2021.[139]

Eurocodes are the design standards issued by the European Committee for Standardization (CEN) and the European Committee for Electrotechnical Standardization (CENELEC). Eurocodes are confined to calculation methods and are presented to EU member states as voluntary standards. They form a set of standards for structural design, specifying the calculation methods for all relevant materials, including concrete, steel, composite steel, concrete structures, timber, masonry and aluminium, as well as well as for geotechnical design and earthquake resistance.

The KEBS adopted Part 1 of the Eurocodes which requires the development of the "Nationally Developed Parameters" (NDPs). This process requires entering specific values and risk loads pertaining to Kenya. This task has not yet been initiated and technical assistance is needed for a successful calibration of the Eurocodes to the Kenyan building environment.

Building standards do not have legal effect unless they are referenced by a building code. When completed, the Eurocodes should be integrated into the Building Regulations to ensure consistency.

135 Ibid.
136 KS Code (2009) (English) Building Code of the Republic of Kenya (2009 edition).
137 Saad Yahya et al, Double Standards, Single Purpose, Reforming Housing Regulations to Reduce Poverty, 2001.
138 JHA, A. K. & DUYNE, J. E. 2010. Safer homes, stronger communities: a handbook for reconstructing after natural disasters, World Bank Publications.
139 Construction Kenya, 2016, Builders to go back to class as Kenya adopts Eurocodes.

Box 5: Developing Guidance and Standards for Low Income Housing

Peru

In Peru, earthen buildings are common and every time an earthquake occurs there is widespread damage, economic losses and death caused by building collapse. In recognition of this, the Government developed an adobe code for seismic risks. The adobe seismic design code is an official document that contains technical specifications for the structural design and construction of buildings in seismic areas. The first Peruvian Adobe Code was Approved in 1985 as an integral part of the national Building Code – it has since been updated on multiple occasions. The adobe code divides the country into 3 seismic zones and only allows for the construction of a second floor in zone 1.

Djibouti

Simplified guidelines for the construction of low income housing were developed in 2015. The guidelines include the use of local materials and construction techniques. The guide applies to single-floor structures; the guidelines note that if the owner chooses to add floors, a registered engineer (Bureau d'etude) should be hired/ consulted.

Nepal

The Nepal Building Code (NBC) addresses the full range of locally prevalent construction types, including non-engineered indigenous structures. Most building in Nepal are built by local tradesman or owner-builders. Neither group is trained in seismic construction. The Nepalese code development team created a four-tier building permitting system with different regulations for: (1) international state of the art construction; (2) Professionally engineered structures; (3) Small buildings designed to meet "rule of thumb"; and (4) Non-engineered construction employing traditional materials and skills. The Nepalese code development team chose to set realistic objectives for the design of technical standards and guidance materials. A comprehensive case study can be found in the Building Regulation for Resilience Program's flagship report.

Jamaica

In Jamaica, the draft Small Building and Residential Code, adapted from the International Code Council Residential Code, includes pre-approved designs for non-complex structures. If pre-approved designs are used, site and foundations plans can be submitted to the local authority without the signature of a building professional.

Process for Updating Kenya's Building Code

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

The development of the 2009 building code was the outcome of a broad participatory process led by the Directorate of Housing of MTIHUD and the MLPP. National and local Government authorities were consulted, as well as the private sector, academia and building professionals.[140] Stakeholders interviewed as part of the BRCA reported that there was not an ongoing consultative process to endorse the edits made to the draft 2011 code.[141]

In terms of building code maintenance, effective building codes typically benefit from 3-5 year updating cycles to ensure the content remains up-to-date. Frequently updated codes tend to incorporate newer design and technology options as well as lessons learned from more recent chronic or severe disaster events. This updating process requires a sustainable broad and participatory consultative process. This process should be outlined in legislation.

While the prospect of introducing an updated building code is encouraging, the Government should also establish and maintain a highly participatory process to ensure regular code updates so remains up-to-date and is aligned with evolving risks patterns and technological innovations. The draft building code or Built Environment Bill (2017) does not currently have any provisions institutionalising this process.

140 Ministries of Local Government; Nairobi Metropolitan Development; Lands; State for Special Programmes; Public Health and Sanitation; Public Works; Water and Irrigation; Environment and Mineral Resources; Labour and Roads; State Law Office; Kenya Bureau of Standards; Architectural Association of Kenya; Institute of Engineers; Institute of Surveyors; Institute of Quantity Surveyors of Kenya; Financial Institutions; Universities; Research Triangle Africa; and Kenya Private Sector Alliance (KEPSA).

141 BRCA Interview, February and March 2018, Kenya Bureau of Standards, Architectural Association of Kenya, Faculty of the Built Environment University of Nairobi, MLPP.

4.3 Recommendations

Strengthening the Building Regulations and Standards

1. Finalise the 2011 Building Regulations with a new round of consultations including the public sector, private sector, building professionals, builders, building owners and building occupants, as well as those with expertise on health, safety and disaster risk. The Government of Kenya should explore the option of establishing a working group to push forward the finalization of the building code as well as the finalization and passage of the Built Environment Bill.

2. Address current technical gaps in the Building Regulations (2011) including the detailed recommendations outlined in Annex 4. For example:

- **Reference hazard zones in the draft Building Regulations (2011) with determination of building's structural requirements.** To avoid the economic consequences of overdesign and the safety consequences of under design, hazard maps must be directly referenced in the building code. The MLPP should undertake a stock-taking to identify the highest quality hazard maps available, in collaboration with other Government institutions with hazard-mapping capacity, such as the Ministry of Petroleum. As more comprehensive and detailed maps are developed these should be included in the building code.

- **Recognise prevalent building practices including non-engineered and incremental construction.** Both the draft Built Environment Bill and the draft building code should recognize prevalent forms of non-engineered and incremental construction. This process should build on the valuable experience of "Code 95."

- **Reincorporate provisions on accessibility for persons with disability in the draft Building Regulations (2011) and integrate relevant KEBS accessibility standards.**

3. Support the adoption of the Eurocodes by integrating them into the Kenyan building standardisation system. The use of Eurocodes as building design standards can be enabled only if specific values and risk loads for Kenya are established and integrated into the "Nationally Developed Parameters" (NDP). This process can be supported by the advisory arm of CEN-CENELEC, two related European standardisation organisations that support member and non-EU member countries in adopting these standards. CEN-CENELEC has advisory and technical assistance capacity that could be mobilised for this purpose. Once the shift from British Standards to Eurocodes has been completed, the Eurocodes should be integrated into the Building Regulations.

Building Code Maintenance

4. Establish a permanent and systemic technical and inclusive process for the Building Regulations future maintenance, publication and distribution. As per international best practice, the draft Built Environment Bill and National Building Regulations (2011) should include explicit provisions to organise this process, including defining the membership of this group, setting up a permanent secretariat, defining the frequency at which the code should be revised and coordinating future publication and distribution to regulatory personnel, building professionals and academia.

5. Local Government Capacity and Implementation of Building Regulations

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

- The capacity of county governments.
- Processes for plan reviews, inspections and permitting.
- Funding mechanisms for regulatory services.

This assessment focuses on Nairobi City County. It is important to note that the 47 counties across Kenya may have different levels of capacity, organisational frameworks and building regulatory processes in place. That being said, many of the challenges identified in Nairobi are experienced in other counties across the country.[142]

5.1 Implementation of Building and Land Use Regulations in Nairobi

Nairobi City County covers an area of just under 7,000 square kilometers (km2) with a population of over 3 million people. Nairobi's urban development pattern is generally characterised by low density, non-contiguous residential settlements.[143] Figure 9 illustrates the changes in urbanisation between 2003 and 2014.

As per the County Government Act (2012), each county has a legal mandate to administer building and land use regulations.[144] In terms of building regulations, the 1968 building code is used as an informal reference for building regulators and the construction industry.[145] In terms of land use reg-

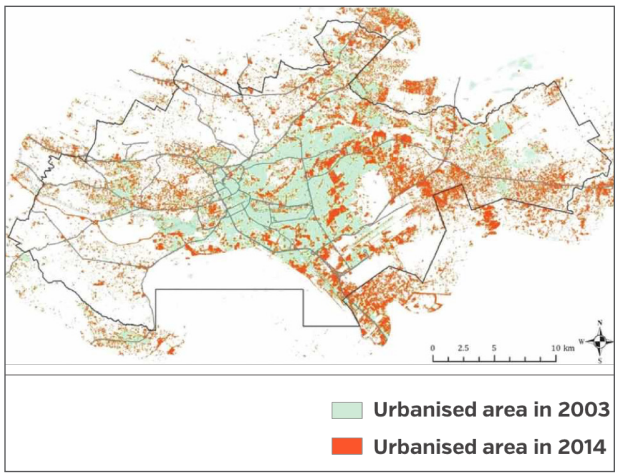
142 BRCA interview, 2018, with NCA, NBI, Association of Architects, IFC Kenya Investment Climate Program (Mombasa, Kisumu, Nairobi and Kiambu).

143 World Bank, 2016, Republic of Kenya: Kenya Urbanization Review.

144 Development control within a city or municipality should be implemented by local government personnel in accordance with "the national housing and building code framework" (County Governments Act 2012, Section 111 3(c)).

145 BRCA Interview, 2018, Nairobi University & Urban Planning Sub Sector Nairobi City County.

Figure 9: Nairobi City County: Changes in Urbanised Areas between 2003 and 2014



Source: US Geological Survey 2014.

ulations, the Guide of Nairobi City Development Ordinances and Zones outlines the land uses permitted for 24 zones.[146]

Construction Permitting Processes

The Urban Planning Sub-sector has a central role in administering land use and building regulations across the county. The Urban Planning Sub-sector receives approximately 400 building applications per month.[147] Figure 10 illustrates the county-level entities involved in these activities.

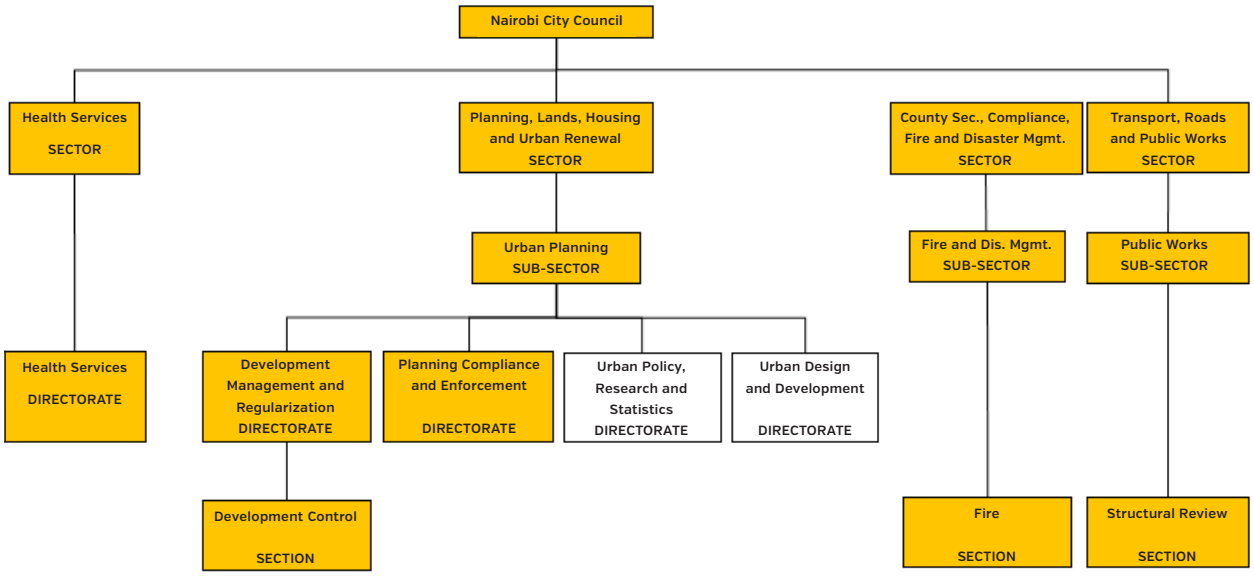
Once a development permit application is submitted through an online platform, the Sub-sector of Urban Planning is responsible for an initial preliminary review (pre-vetting) of the applicant's documentation to determine if the application is acceptable and complete.

The plans are then evaluated by the Reviewing Committee, including the Public Health Section, the City Engineer, the Fire Brigade and the Development Control Section. Other sections may be included depending on the size of the project. At this stage, compliance with building codes and land use regulations, such as change of use, sub-division, minimum-spacing between buildings are evaluated. The Nairobi Fire Brigade, for example, is responsible for reviewing construction and development plans to determine whether they are aligned with the fire provisions under the building code as well as other relevant legislation.[148]

If the Reviewing Committee is satisfied, the file is prepared for review by the Technical Committee, including county-level and national-level institutions,[149] and finally for the Executive Committee.[150] If there are no objections, the Development Control Section issues the building permit along with an approval letter outlining the conditions the applicant must respect before commencement of work, such as submitting the structural plans for approval and NCA approval. Once these steps have been completed, the construction work can commence.

146 This guide is based on the last zoning review carried out in Nairobi in 2004.
147 BRCA Interview, Nairobi University & Urban Planning Sub Sector Nairobi City County, February 2018.
148 Including provisions for places of work under the Fire Risk Reduction Rules (2007), Occupational Safety and Health Act (2007), and the Factories and Other Places of Work Rules (2007).
149 Sections of the City Council (Public Health, Engineer, Fire Brigade, Development Control), The Kenya Institute of Planners, The Architectural Association of Kenya, Board of Engineers, Board of Surveyors, Kenya Power, Nairobi Water, NEMA.
150 The County Executive Committee, appointed by the Governor, comprises ten members and is the highest policy-making organ of the county. Each County Executive Committee Member is responsible for a sector of County operations namely. The executive committee is composed of all NCC sectors (See Annex 7 for a complete county organizational chart) excluding the County Security, Compliance, Fire and Disaster Management sector which are under the office of the Governor.

Figure 10: Mapping of County Departments Involved in Construction Permitting



* Only sectors involved in construction permitting have been included. The Directorates in white boxes are also not included in the construction permitting process.

Source: Sector of Planning, Lands, Housing and Urban Renewal, March 2018, World Bank Building Regulatory Capacity Assessment.

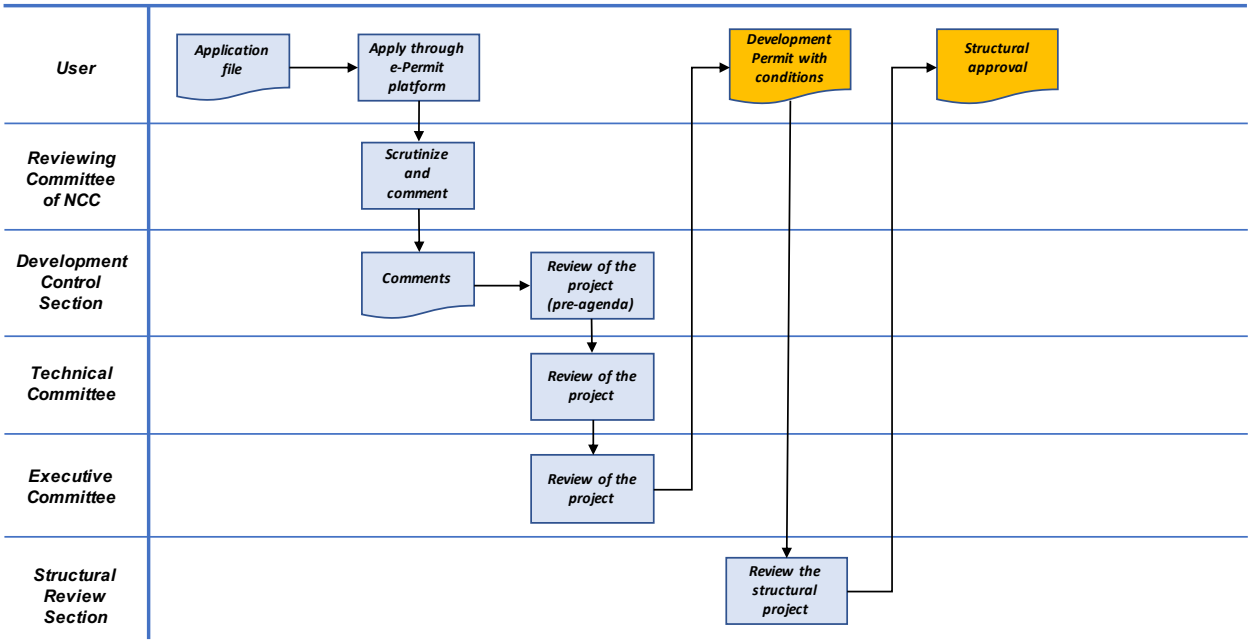
In most cases, a structural approval is also needed.[151] The Structural Review Section undertakes a detailed review of the structural plans and determines whether they are compliant with building codes and relevant regulations. The Development Permit and structural approval process is illustrated in Figure 11 (next page).

During the construction process, the Directorate of Planning Compliance and Enforcement is responsible for conducting on-site inspections to ensure the building reflects the approved plans. The applicant is required to send a notice of commencement of works to the county once the setting out of the construction has been undertaken and a letter to request inspection at certain stages of construction, such as ground floor slabs, columns, roof traces, etc. For buildings that meet a certain set of criteria, national agencies including the NBI, NCA and NEMA also conduct site inspections.

Once the construction work and inspections have been completed, the Department of Planning and Compliance are responsible for issuing a Certificate of Occupation. A detailed process map for plan review, inspection and permitting is included in Annex 6. The Nairobi County is also responsible for overseeing modifications of buildings, change of use and decommission.

151 By-laws 124, 125, 126 and 127 of the Local Government (Adoptive By-Laws) (Building) Order of 1968 specifies which buildings need this type of structural approval.

Figure 11: Overview of Building Permit Approval Process in Nairobi City County



Source: Department of Planning and Urban Renewal, March 2018, World Bank Building Regulatory Capacity Assessment.

Nairobi City County e-Development Permit System

Nairobi City County manages construction permitting through a web-based e-permitting system. Development of the e-permitting system was initiated in 2009 and the platform was launched in 2011. This effort led to the modernisation of the permitting process workflow and a physical reorganisation of the office floor to mirror the steps of the simplified process. Key functionalities of the platform are outlined in Box 5. Innovations include an SMS-based tracking and notification system that keeps applicants informed of the status of their application and any further information required from them.

The e-permit system was developed in parallel to a series of reforms initiated by the then City Council of Nairobi in 2006 to reduce the number of days to process construction permits.[152] In 2008, according to the Doing Business Report, it took 75 days to obtain planning approval and structural approval.[153] As a result of the reform, in 2010, the number of days reduced to 40 days.[154]

Prior to the reform, all construction permit processing was done manually. The applicant had to submit paper documents including maps and plans, these were reviewed by multiple departments and external organisations. The process was

152 World Bank Group, 2010, Doing Business in Kenya 2010.
153 Ibid.
154 Ibid.

Box 6: Key Functionalities of 2011 Nairobi Permitting Platform

- Online registration of building professionals/property developers.
- Online submission of building plans.
- Workflow management – concurrent review/evaluation.
- Online issuance of permit upon approval.
- Document management and archival (no storage constraints).
- Support for field inspections – mobile devices.
- Client interactions - SMS/email notifications & online monitoring.
- Management reporting and oversight.

Source: IFC, KICP Task Team, 2012

complex and not transparent to the applicant.[155] "Private expediters" had also emerged offering services to speed up the permitting process at a cost equivalent to 60 percent of the permit fee.[156]

With support from IFC, the new process was designed to integrate e-payment and incorporate upstream processes such as subdivision, change of use and the extension of leases. There are several additional features that could be added to the platform to further increase the efficiency and effectiveness of construction permitting. These will be discussed in detail in the following section.

Recently, there has been a marginal increase in permit processing time. In 2016 and 2018, the Doing Business Report found that the number of days to obtain planning approval and structural approval had increased to 55.[157] In 2017, the Real Estate Developer Association reported that 41 percent of its projects were approved in less than 30 days, 40 percent took between 30 days and 90 days and 19 percent took over 90 days to be approved.[158] The Real Estate Developer Association noted that this increase in processing time can be partly attributed to the long election period that year.

Between 2012 and 2017, KICP, supported by IFC, also successfully piloted construction permit reforms in Kisumu, Mombasa and Kiambu. In its subsequent phase (2017-2021), KICP plans to roll out the automated solution in 8 additional counties, a process that will first involve permit process reviews, streamlining, re-engineering and digitalisation of administrative procedures. Lessons learned from the first phase will be applied to the second phase – these will be discussed in more detail in the following section.

155 World Bank, Innovative Governance and anticorruption initiatives, a selective survey of world bank activity, p.5, January 2014.
156 Ibid.
157 World Bank, 2018, Kenya Doing Business Report.

158 KPDA, 2017, Permitting Approvals Report: January-December 2017.

Main Challenges Identified

County Development Plans

To enable the safe-siting of buildings, land use and zoning systems need to be up-to-date, informed by hazard mapping and enforced by the responsible institutions. In Kenya, as per the Constitution (2010) and County Government Act (2012), counties are responsible for developing and implementing County Integrated Development Plans (CIDPS), including local spatial plans. These spatial plans should provide a framework for sustainable development, indicate desired patterns of land use and guide the location and nature of development within the county.[159] However, currently, most counties do not have up-to date spatial plans and zoning information in place.[160]

In Nairobi, for example, the last zoning ordinance was carried out in 2004.[161] This zoning review was integrated into the Guide of Nairobi City Development Ordinances and Zones (2006),[162] a document which defines the permitted ground coverage and plot ratios of the city as well as the uses permitted for 24 different zones. Significantly, from a disaster risk reduction perspective, this document does not integrate hazard maps and as such does not guide construction away from high-risk areas such as flood plains. Furthermore, the zoning requirements have not been effectively enforced. Data collected by the NBI, from a sample of neighbourhoods in Nairobi, indicates that approximately 80 percent of buildings are not compliant with land use regulations.[163]

This low level of compliance with land use regulations is compounded by several factors, including:

- **A lack of clarity on zoning requirements.** Stakeholders at the Nairobi City County reported that a zoning ordinance conducted in 1979 is still being used as a basis for planning and land management, rather than the 2004 zoning ordinance. Over time, incremental fixes and updates have been made to these zoning requirements.[164]

- **Public awareness and access to zoning by-laws and maps.** Zoning by-laws and zoning maps are available upon request at the County planning offices and are not available online. Hence the information is not readily available to the public and require owners and developers to make a physical trip to the planning agency.

- **Shortage of publicly-owned land.** The large-scale and controversial transfer of public land to private ownership during decades prior to the devolution process has resulted in a severe shortage of government land in Kenyan cities. In this context, it is a challenge for the Government to lead spatial expansion as they face strong resistance from private owner's interests that may often diverge from public interests in promoting sustainable and safe construction.

The outcome of the devolution process provides the opportunity for county governments to manage development control more coherently since the functions of planning, zoning, permitting and inspection of construction now fall under one single jurisdiction. The development of county-level spatial plans could provide a useful resource to trigger more rigorous and participatory efforts to establish updated land use and zoning requirements. In order to effectively reduce disaster risk,

159 Kenya County Government Act, 2012.
160 BRCA Interview, Principle Secretary, MLPP, March 2018.
161 Integrated Urban Development Master Plan for the City of Nairobi, JICA, May 2014.
162 Nairobi City Council, 2006, A Guide of Nairobi City Development Ordinances and Zones.
163 Data presented by the NBI in 2018 at a World Bank, Tokyo Hub, Technical Deep Dive.
164 Interview, MLPP, March 2018, World Bank.

these spatial plans should integrate local hazard information.

However, in order to take on these new responsibilities, the capacity and resources of county governments need to be strengthened.[165] Whilst, technical capacity for planning has begun to improve at the county level, additional planners and capacity for functions such as hazard mapping are required.[166]

The MLPP has a central role in building the capacity of county-level planning departments. The Ministry is in the process of developing County Planning Guidelines, set to be launched this year. The Ministry plans to scale their support to counties incrementally. In 2018, the Ministry aims to support 8 counties with the development of their spatial plans and a further 15 counties in 2019.[167]

Capacity of Building Departments

Building authorities across Kenya require additional human and technical capacity in order to effectively and efficiently administer building and land use regulations. Resources required include sufficient numbers of qualified staff, IT solutions and equipment.[168]

In Nairobi City County, for example, the Urban Planning Department only has 15 staff to carry out building plan reviews and 34 building inspectors (on average 2 inspectors for each of the 17 sub-counties).[169] As previously noted, the county has on average 400 new building applications to process per month.[170] The Director of the Planning Sub-sector estimated that the county requires five times the number of staff to effectively administer building and land use regulations, including reducing the amount of time it takes to process building applications.[171] The Architectural Society of Kenya estimates that over 70 percent of all buildings constructed in Nairobi are done so without approval from the County Government.[172] If the enforcement of building and land use regulations is to be extended to cover a greater percentage of the built environment, the number of qualified staff will need to increase to enable this.

The qualification of staff is also an operational challenge. Stakeholders from the Nairobi Urban Planning and Public Works Department reported that they require additional qualified construction engineers, architects and planners. The same operational challenges have been reported in other counties, particularly rural counties.[173] Public sector stakeholders noted that qualified engineers and architects were often not incentivised to work for the public sector given the number of higher-paying opportunities in the private sector. As in any construction boom, human resource management is a challenge – particularly in the public sector – with high demand for building professionals resulting in more opportunities and higher pay in the private sector. The wage gap for engineers and architects in the public and private

165 Urban counties are now required to manage devolved functions with fewer resources than before devolution. The four largest urban counties, including Nairobi, now have to manage devolved functions with only some 60 percent of the resources allocated to them in 2012/13 (Source. World Bank, 2016, Republic of Kenya: Kenya Urbanization Review & Interview with MLPP and Nairobi City County).

166 World Bank, 2016, Republic of Kenya: Kenya Urbanization Review & Interview with MLPP and Nairobi City County.

167 BRCA Interview, Director of Physical Planning, MLPP, March 2018.

168 IFC, 2013, Construction Permit Review in Nairobi, Kisumu and Mombasa.

169 Interview, Director and Senior Planners at the Nairobi City County Urban Planning Sub-Sector, March 2018, World Bank.

170 Ibid.

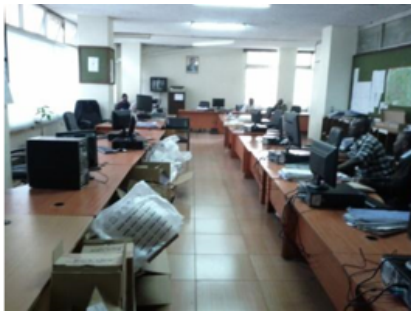
171 BRCA Interview, Director of the Nairobi Planning Sub-Sector, March 2018 – estimate based, in part, on a study the then Nairobi City Council undertook in 2006 (report not available for review).

172 The Architectural Association of Kenya, 2018, What is Ailing our Buildings?

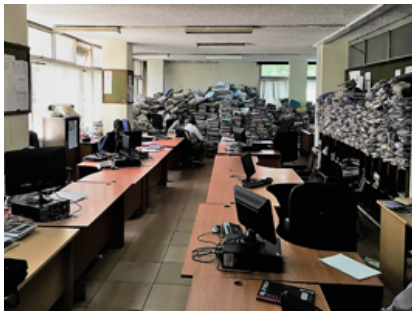
173 IFC, 2013, Construction Permit Review in Nairobi, Kisumu and Mombasa & BRCA Interview, NBI, and Nairobi City County Government, March 2018.

Figure 12: Developing a One Stop-shop and E-permitting System in Nairobi City County, 2009-2018

Before the reform: 2009



After the reform: 2011



Seven years later: 2018

Source: IFC, KICP Task Team, 2009-2018.

sector is in the range of 50-70 percent.[174]

Challenges of staff-qualification were also reported by the Nairobi Fire Brigade. Stakeholders noted that they do not currently have any qualified staff to carry out plan reviews.[175] The Fire Brigade's staff and capacity remain focused toward fire-fighting and emergency response.

Nairobi County also requires additional technical capacity within the planning and building departments. For example, for the building inspectors to increase their geographical reach, effectiveness and efficiency, stakeholders reported that staff require additional resources such as vehicles, GIS-enabled field-entry devices and material-testing equipment (including non-destructive testing equipment).[176] IFC has found similar operational challenges in several other counties across Kenya.[177]

Construction Permitting Reform

As noted earlier in this chapter, in 2011, the Nairobi City Council launched the Nairobi e-permitting platform and implemented a series of parallel process simplifications to increase the efficiency and effectiveness of the construction permitting process. A fast and transparent process can act as a strong incentive for builders and developers to follow regulatory requirements.

Several other functions could be added to the e-permitting platform in Nairobi to increase the efficiency, transparency and user-friendliness of the construction permitting system. The examples listed below are all functionalities supported by the software and a few have been introduced in other counties:

- **Digital signatures.** Currently, after online approval, applicants are required to print out development permit papers and architectural

174 For example, employees with architectural and engineering background who have worked for 5 years and below are paid approximately KES 70,000 (US$ 700) to KES 100,000 (US$ 1,000) per month. In comparison, in private practices, with a similar experience, engineers and architects get paid KES120,000 (US$ 1,200) to KES 170,000 (US$ 1,700) – source: BRCA Interview, Nairobi City County Government, March 2018.

175 BRCA Interview, Nairobi Fire Brigade, March 2018.

176 Ibid.

177 IFC, 2013, Construction Permit Review in Nairobi, Kisumu and Mombasa.

Box 7: IFC Lessons Learned from the Kenya Investment Climate Program Phase I

- It is important to work with the private sector, for example, with the Architectural Association of Kenya. The involvement of the private sector helps to encourage the maintenance of reforms, particularly when changes of leadership occur.
- Deploying an end-to-end system in one go, i.e. from planning permission such as change of use/subdivision/amalgamation/extension of lease to construction permit, building inspections and occupation permit.
- The IFC should not support any operational costs such as hosting, bulk SMS, e-payment platform, internet etc. In Nairobi, the IFC funded these at the onset and it was a challenge transitioning such costs to the building authority.
- A systematic monitoring and evaluation system should be included, which includes mechanisms to measure end-user's satisfaction. Corrective measures and course corrections can be implemented based on the data collected.

Source: BRCA Interview, IFC KICP Task Team, August 2018.

plans and bring them into the County Offices to be stamped and signed. Nairobi City County has not authorised the use of digital signatures. This is despite existing legislation that allows digital signatures for the submission of drawings and for electronic payments.[178]

- **Digital archiving.** If digital signatures are enabled, the need for physical documents will be eliminated. As such, proposals and permits should be archived digitally. Figure 12 demonstrates the challenge with the current paper-based system.
- **Scheduling, coordinating and documenting building inspections through the e-platform.** This added function would create a tangible and powerful resource to curb informal practices and considerably improve transparency. For this function to be implemented, sub-counties would have to be linked to the e-permit system as they are responsible for conducting building inspections. Mombasa, Kisumu and Kiambu have recently started to coordinate building inspections through their e-permitting platforms and have developed applications for performing building inspections.
- **Linking the platform to the cadastral system.** The cadastre system is hosted by the MLPP. The Ministry has nearly completed the cadastral survey for large urban areas, including Nairobi. The Ministry is currently working to digitalise remaining records.

Based on IFC's experience of establishing the e-permitting system in Nairobi, Mombasa and Kisumu and Kiambu, several lessons learned have been documented. These lessons learned (see Box 7) will be integrated into the design of the second phase of the KICP, which will include the roll out of the e-permit system to eight additional counties.[179]

178 Kenya Information & Communications Act, Chapter 411 A (2015). Section 83P outlines legal recognition of electronic signatures and section. 83S outlines the use of electronic records and electronic signatures in Government and its agencies.

179 BRCA Interview, IFC KICP Task Team, August 2018.

Coordinating Building Inspections

Building inspectors rely on builders to notify the County Government when a construction project is initiated. However, stakeholders in Nairobi City County reported that very few builders notify them of the commencement of construction. [180] In the absence of this notification, building authorities rely on fewer means of information and very few inspections are carried out in proportion to the volume of new construction.[181]

In addition to this, over the past few years, construction workers and contractors have reported an increase in uncoordinated inspections carried out by county and central Government authorities.[182]

At the county level, sub-counties oversee some building inspections and issue occupancy permits. Nairobi City County is composed of 17 sub-counties. However, these sub-counties are not electronically linked to the e-permitting system in place at the Nairobi City Council. Therefore, these sub-counties often do not have access to critical information needed to schedule coordinated and timely inspections and issue final occupancy permits.

At the central level, the NCA, NBI and NEMA also conduct intermittent inspections. Details of these inspections and associated coordination challenges are outlined in the first chapter of this report. Most national regulating agencies do not have independent enforcement capacity since the responsibility for enforcement measures remains strictly within the purview of county governments. This creates a stronger argument to delineate clearly the responsibility of the various government agencies, transfer a leading coordination role towards County-government authorities and invest in the inspection capacity of county governments.

Furthermore, stakeholders reported that site inspections conducted by county and national level institutions occur without check-lists of inspection criteria.[183] Inspection check lists have several benefits, including limiting inter-institutional overlap, reducing discretionary decisions and increasing transparency.

Risk-informed Prioritisation of Building Inspections

In Nairobi, there is currently not a comprehensive and up-to-date criteria and methodology to classify buildings based on the risks they pose (i.e. location, ground-related risks, building and use-related risks). Building classification systems can be used to prioritise the allocation of scarce building inspection resources based on level of risks. The only building classification that is currently used informally is based on the number of storeys, the internal height of the roof-span and whether an architect and engineer is required. As per international best practice, building classification matrixes should combine elements of size, use and location in a risk-based approach. See Annex 8 for the building classification matrix used in the municipality of La Paz in Bolivia.

Use of Private Sector Resources for Regulatory Controls

Building control functions in Nairobi are conducted with scarce human resources and specialized personnel, and yet urban expansion creates increased pressure with tangible risks of facing more severe backlogs in planning, construction approval permitting and building inspections. Over the past two decades, several models of private

180 BRCA Interviews, Urban Development Sub Sector, Nairobi City County, March 2018.

181 The Architectural Society of Kenya estimates that over 70 percent of all buildings constructed in Nairobi are done so without approval from the County Government. Source: The Architectural Association of Kenya, 2018, What is Ailing our Buildings?

182 BRCA Interview, 2018, Master Builders Association, Institute of Architects and Safety Surveyors Limited.

183 BRCA Interviews, NCA, NBI, Urban Development. Sub-Sector, Nairobi City County, February and March 2018

sector participation in regulatory activities have emerged in the world, to provide the opportunity of an expansion of regulatory capacity. This trend is based on various forms and degrees of outsourcing. This approach comes with tradeoffs, including higher construction costs and the need to ensure acceptable standards of transparency and accountability.[184] There are currently no enabling and explicit provisions in the existing Kenya regulatory framework allowing building authorities to outsource building controls to private sector and determine guidelines for appropriate pricing and qualifications. Doing Business data show that private third-party involvement in building controls is associated with better building quality in construction as measured by the building quality control index.[185]

Consistency across Counties

Devolution also contributes to the challenge of ensuring a consistent and uniform set of rules for construction permits applications across Kenya's 47 Counties' jurisdictions. A first Sub-National Doing Business Survey (SNDB) carried out in 2016, demonstrated that although applicable laws are often the same, there is wide variation and discretion in their application at County levels. The SNDB further concluded that Kenyan entrepreneurs face different regulatory hurdles depending on where they establish their businesses, and that no single County in Kenya performs equally well on all indicators.[186]

Financial Sustainability of Local Regulatory Control Agencies

The devolution process provides counties with the opportunity to generate adequate revenues, not only through a modernised tax base, but also through the collection of local government fees. When possible, construction permit fees[187] should be set at a level that is consistent with actual overhead costs and recurring investment needs to deliver effective building development and control services.

Fees for construction permits and inspections should also be affordable within the local socio-economic context and generally not exceed 3 percent of construction costs.[188] The average in OECD countries is 1.7 percent. Doing Business 2018 suggests that the current fee level in Nairobi moderately exceeds this threshold, at approximately 5 percent.[189] As a point of comparison, Table 3 below outlines the construction permit fees relative to construction costs in a selection of African countries.

Affordable permit and inspections costs can act as strong incentives for builders and developers to follow regulatory requirements. Table 3 provides a summary good practices for establishing administrative building permitting and inspection fees.

The laws organising devolution prescribed a cost evaluation of county government functions, but this process has not been completed.[190]

Currently, in Nairobi, the construction permitting fees collected by the Urban Planning Sub-sector are re-directed to the Treasury Department. Every year, each sector receives a budget based on their needs. The 2015 draft of the Physical Planning Bill included provisions stating that the fees collected

184 Good Practices for Construction Regulation and Enforcement Reform, World Bank Group, 2013.
185 Doing Business 2018, Reforming to Create Jobs (Page 45-50).
186 World Bank Group, 2016, Doing Business in Kenya.

187 In Kenya, the methodology for calculating building permits is outlined in the County Financial Act 2015. The total plinth area of the building in square meters is multiplied by the Joint Building Council Rate (this rate depends on the type of building and the result is multiplied by 1%). For residential buildings, the Joint Building Council Rates also depend on the location of the plot.
188 Good Practices for Construction Regulation and Enforcement Reform, Guidelines for Reformers, World Bank Group, 2013.
189 World Bank Group, 2018, Kenya Doing Business Report.
190 World Bank, 2016, Republic of Kenya: Kenya Urbanization Review.

Table 3: Comparison of the Cost to Obtain a Building Permit across 13 African Countries

Country	Rank-Dealing with Construction Permits (DB19)	Building Permit Cost for a Warehouse* (Amount in US$)	Dealing with Construction Permits - Cost (% of Warehouse Value)
Botswana	31	1286	0.4
Comoros	85	499	1.2
Sudan	105	548	1.5
South Africa	96	5651	2
Zambia	70	1530	2.6
Kenya	**128**	**3668**	**4.7**
Tanzania	150	2702	6
Uganda	145	2254	8.1
Malawi	136	1657	10
Burundi	162	1672	10.7
Rwanda	106	4139	12
Ethiopia	168	4438	14.4
Congo, Dem. Rep.	165	3554	15.8

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

Source: World Bank Group, Doing Business, 2019.

by a local planning authority should be applied towards the development of County infrastructure and the provision of municipal services in the County. However, these provisions have been removed from the current 2017 draft, leaving uncertainty on whether revenues can be re-invested in the County Planning Departments.

A similar concern is illustrated by the status of the revenues generated by the Fire Brigade of Nairobi. In 2017, the Fire Brigade generated KS 200 million (equivalent to US$ 2 million)[191] in administrative fees for fire services. All revenues had to be repaid to the County Government via the Treasury Department.

However, the Brigade's final budget allocation turned out to be lower than revenues generated in the same year. This led to a lost opportunity for the fire brigade to reinvest in important human resources and training to enhance its capacity for fire prevention services.

191 Source: Nairobi Fire Brigade, Interview, February 2018.

Table 4: Summary of Good Practices for Establishing Administrative Building Permits and Inspections Fees

Practice	Background
Establish fee levels based on cost recovery for building control services	Fees should include the costs associated with the review of plans and any inspections, along with overhead costs. This approach is followed in New Zealand, where building consent agencies charge fees for issuing building code compliance certificates when buildings are completed.
Ensure that building control fees do not fulfil a tax purpose	Low municipal tax resources often create an incentive to turn building permit fees into proxies for tax revenues. If deficiencies in the property tax system require collecting funds at the time of construction, the tax portion of the building permit fee should be clearly delineated in the interest of transparency and accountability.
Charge small, fixed fees for small projects presenting no risk for public health and safety	For small buildings, setting a small, fixed fee is considered good practice. Minimum fees are necessary because the cost of providing services is not directly proportional to the area or cost of the building; a minimum charge is therefore necessary to cover enforcement costs for small projects. Large projects with substantial permit fees will typically cross-subsidise smaller projects.
Allow several options and instruments for fee payment	One-stop-shop services for construction permits allow several payments mechanisms, including online payments. Since Kenya has enacted enabling legislation in 2011 to support electronic and online payments, this function should be introduced in Nairobi and rolled out in local Government building departments.
Publicise fee schedules	To support other relevant efforts in improving transparency and process efficiency, fees schedules for permits and inspections should be publicised and made available on the local authorities' website and other means of communications.

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

5.2 Recommendations

County Human and Financial Capacity

1. Initiate human resource capacity needs assessments to inform staffing plans in county building authorities. A diagnostic and staffing plan should be developed at the local government level, starting in Kenya's largest cities. These plans should be based on capacity gaps for plan reviews, inspections and technical advice. These plans should include a phased approach, allowing a feasible timeframe to identify appropriate funding mechanisms and training of new staff. If the current staffing level of Nairobi is indicative of the shortage of trained regulatory personnel in the rest of the country, strategic staffing plans should present measures and timelines to make up for the shortfall in capacity over a period of three to six years. MTIHUD should provide strategic and methodological support to local governments to design and implement their staffing plans.

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

2. Require minimum academic and professional qualifications for local government building code officials. County Governments should require building authorities to demand minimum qualification requirements for the recruitment of new staff and introduce new incentives to retain the services of qualified engineers and architects. Incentives to consider may include measures such as:

- Additional training upon completion of certain benchmark years.
- Increased mobility across building departments.
- Opportunities for promotion based on individual performance.
- Waiving of professional registration fees.
- Improved access to government services or benefits such as transport or access to housing.

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

4. Adjust permitting fees in Kenya to allow cost recovery for the delivery of building regulatory services. Consistent with the laws organising devolution, a costing of local regulatory controls should be carried out to define appropriate fee levels based on cost recovery to maintain financial sustainability. Local administrative provisions should allow fees collected to be retained by local government agencies rather than repaying them to the local government Treasury Department.[192]

This process should be supported by more stringent accountability requirements to ensure that fees collected are invested into improved service delivery capacity and training.

Construction Permitting

5. Add additional functions to the Nairobi e-platform to support more efficient building code administration. The e-permitting platform

192 In Nairobi, for example, fees paid are deposited in the account of the Central Treasury of the city county and then redistributed to each department taking into account their budget and priority needs.

can support several additional functions that, if implemented, would substantially increase the efficiency of building code administration. The Nairobi e-platform provides a template and best practice solution for a national roll-out to local government building departments. It should, therefore, receive increased attention and showcase a feasible software solution that local governments can adopt. Priority should be given to the following measures:

- Enable digital signatures and remove the requirement for architects to bring a hard copy of their building plans to the Nairobi Development Control Department for signing and stamping.
- Activate the inspection workflow function within the e-platform to allow for documented and coordinated building inspections.
- Accelerate the link with the cadastral system and the Department of Survey.
- Link the e-permitting platform with local zoning requirements.

6. Promote the incremental roll-out of the e-permitting system in county governments. The architecture behind the e-permitting system in Nairobi, Mombasa, Kisumu and Kiambu can be easily re-configured for other counties' building code administration systems. Based on the experience of KICP, it takes roughly five to eight months to roll out the e-platform solution in a new county building department. Future reconfiguration and implementation is expected to be less costly and take less time, since the required seed capital has already been used in developing the application in other counties.

There are already plans under KICP Phase II to roll out the platform in eight additional counties. To exploit economies of scale, counties will receive support in regional economic blocs rather than on a standalone basis. This effort should be widely supported as it can increase building code administration efficiency, reduce compliance costs, increase transparency and contribute to a higher level of code compliance. This effort would also support the harmonisation of administrative procedures across counties.

Building Inspections

7. Reorganise building inspections to minimise overlaps across national and local level agencies. This effort requires a joint national and local government effort to clarify the role of organizations such as the NCA, NEMA, NBI, OSHA and local government building inspectorates. A process mapping of current inspection procedures should be conducted. It should start in large urban centres, describing statutory and actual inspections, and specify relevant laws and regulations mandating all types of inspections and their specific objectives. A comprehensive process mapping would inform a streamlining and re-engineering of building inspections in major urban jurisdictions. It should be consistent with the objectives of the new Built Environment Bill and clearly delineate the responsibilities of each entity.

Building inspection checklists should also be introduced to limit inter-institutional overlap and reduce discretionary decisions. These checklists could be paper-based or integrated into a Mobile Application. In counties with e-permitting systems in place, building inspections should also be scheduled, coordinated and documented through the platform.[193]

8. Develop a risk classification system for buildings to enable a more efficient prioritisation and allocation of resources for building site inspections. With methodological support from the MTIHUD, county governments should take steps to develop a comprehensive and practical classification of buildings. The

193 See ICC's Code Checklist for an example of a highly illustrated inspection checklist.

classification would determine the level of prioritization and allocation of scarce inspection resources based on level of risk. The classification should be unified to create one simplified categorization of buildings and construction works, combining elements of size, use and location in a risk-based approach.

County Development Planning

9. Integrate hazard maps into county spatial plans, particularly for seismic, flood and landslide risks. With the leadership of the county planning units, and with support from national authorities such as the MLPP and Ministry of Environment and Forestry (MoEF), local hazard maps should be identified and/or developed and integrated into county spatial plans. Priority should be given to areas of potential urban extension in order to orient new settlements to safer sites and avoid unregulated development. A short-term priority should be to gather and review existing data and research materials currently in the public domain. A similar effort must be undertaken to execute hazard mapping for existing settlements so that priorities can be established for retrofit and relocation.

The MLPP has a central role in strengthening the capacity of county planning departments. The Ministry is currently developing County Planning Guidelines and will support counties in the development of their spatial plans. This support should include guidance for local hazard-mapping. Urban areas subject to high growth and rapid transformation should be prioritised.

10. Make risk-informed land use maps available online to all citizens. Counties should ensure risk-informed zoning maps are available online. This information should be readily available to the public without having to make a physical trip to the planning agency. These maps should be uploaded to the KNDSI and displayed on a Web-GIS website. The MLPP, overseeing the KNDSI, should provide counties with the necessary guidance and standards to upload their data to the nationally managed platform.

Communication Strategies

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

6. Summary of Recommendations

The following tables provide the report's recommendations as explained in their corresponding chapters. These recommendations are framed as specific activities or tasks, which should be the responsibility of one or several institutions, and categorised as follows:

Short-Term	Activities which must be carried out, starting immediately. Generally, these activities should be completed within a one-year time span.
Medium – Long Term	Activities whose implementation will take a longer time period – even up to three years. However, starting these activities as soon as possible will yield benefits.

NATIONAL LEGISLATIVE AND INSTITUTIONAL FRAMEWORK		
Recommendations	**S**	**M-L**
Strengthen and pass the Built Environment Bill referencing the new Building Regulations.		
Strengthen and pass the Physical Planning Bill.		
Conduct a detailed legal review to streamline national legislation related to building control.		
Implement measures consistent with the provisions of the Fire Safety Management Policy.		
Support a national level training curriculum targeting regulatory personnel in county building departments.		
Scale up the training provided by the National Construction Authority and Competency Based Training Assessment for building contractors and construction workers.		
Assign responsibility to Government ministries for the development, collation and application of hazard-maps with a focus on floods, landslides and seismic risks.		

BUILDING CODE DEVELOPMENT AND MAINTENANCE		
Recommendations	**S**	**M-L**
Finalise the 2011 Building Regulations by organising a new round of technical consultations involving private practitioners and relevant public stakeholders.		
Address current technical gaps in the draft Building Regulations, including those outlined in this report.		
Support the adoption of the Eurocodes by integrating them into the Kenyan building standardisation system and by finalizing the Nationally Developed Parameters (NDPSs).		
Establish a systematic and inclusive technical process for the Building Regulation's future maintenance, publication and distribution.		

LOCAL GOVERNMENT IMPLEMENTATION		
Recommendations	**S**	**M-L**
Initiate human resource capacity needs assessments to inform staffing plans in county building authorities.		
Require minimum academic and professional qualifications for local government building code officials and introduce new incentives to retain the services of qualified engineers and architects.		
Consider leveraging resources from private sector to strengthen the capacity for plan reviews and inspections.		
Adjust permitting fees in Kenya to allow cost recovery for the delivery of building regulatory services.		
Add additional functions to the Nairobi e-platform to support more efficient building code administration such as digital signatures and mechanisms to coordinate and document inspections.		
Promote the incremental roll-out of the e-permitting system in county governments.		
Reorganise building inspections to minimise overlaps across national and local level agencies.		
Develop a risk classification system for buildings to enable a more efficient prioritisation and allocation of resources for building site inspections.		
Integrate hazard maps into county spatial plans, particularly for seismic, flood and landslide risks.		
Make risk-informed land use maps available online to all citizens.		
Communicate changes associated with innovations in regulatory activities, placing strategic dissemination at the heart of the process.		

7. Conclusion and Next Steps

In many ways, Kenya is at a crossroads in its efforts to urbanise and develop towards middle income status. By 2050, projections suggest that about half the population will be living in cities. To date, this urbanisation has been characterised by informality, low density development and urban sprawl. In order to encourage resilient urbanisation, building and land use regulations need to be effectively implemented across the country. The regulatory decisions made now will have a significant impact on the long-term safety, productivity and resilience of the urban built environment.

The Government of Kenya has launched several initiatives to strengthen the building regulatory framework. Many of these initiatives have been started but have yet to be finalised and legislated. The Government of Kenya must maintain the momentum behind this agenda in order to promote safe and resilient urbanisation. This report provides several recommendations as to how the Government of Kenya can strengthen the country's building regulatory framework.

While all the recommendations included in the report promote important components of a comprehensive building regulatory framework, there are four activities that should be prioritised. When implemented, these activities would provide a solid foundation for future regulatory reform.

1. Enact the Built Environment Bill

This process should involve continued consultation and dialogue with the building professional community and other representatives of county governments and be submitted to Parliament as soon as the process allows. The Bill should be benchmarked against international best practice, including the examples of best practice referenced in this report. For example, the Bill should clearly define the roles and responsibilities of national and county institutions through one set of consistent legal provisions.

2. Update, finalise and promulgate the Building Regulations 2011 (building code)

The MTIHUD should initiate a new round of consultations including the public sector, private sector, building professionals, builders, building owners and building occupants, as well as those with expertise on health, safety and disaster risk. The MITHUD should consult with local and international experts to ensure that the draft national build code is aligned with international best practice.

Given the high level of informal construction across Kenya, it should be a priority to reference and provide guidance for prevalent forms of non-engineered and incremental construction. This process must build on the valuable experience of "Code 95."

3. Clarify the roles and responsibilities of the national and county governments for plan review, inspections and permitting

The role and responsibility of national agencies such as the NBI and the NCA needs to be clarified in relation to county Governments. Based

on interviews with stakeholders,[194] there is also an expectation that the Built Environment Bill will include provisions for the establishment of a single centralised building regulatory agency, the Building Authority of Kenya (BAK). If the BAK is established, the institutional arrangements between the BAK and county-level institutions will also need to be clarified.

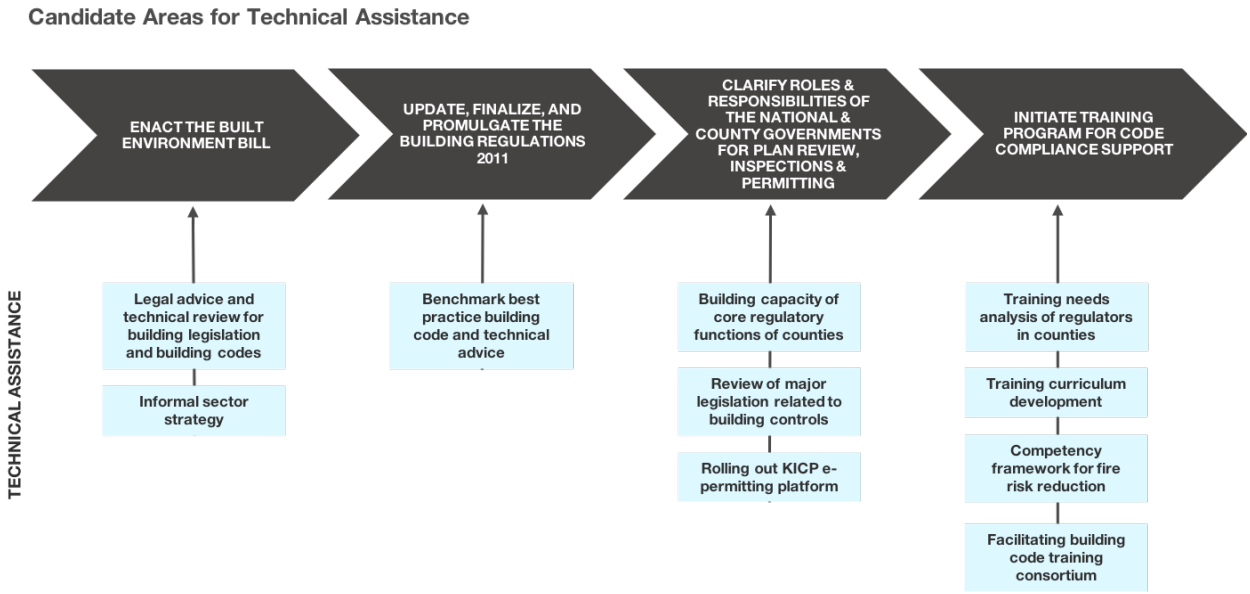
4. Initiate a training program for building regulators

The Government of Kenya should provide professional training for plan review, inspection, permitting and enforcement to ensure the adequacy of local building code implementation. The Government should assess the feasibility of the MTI-HUD or the NCA delivering the training to county regulatory personnel.

Figure 13 outlines these four activities and highlights opportunities for technical assistance. The World Bank will continue working with the Government of Kenya to determine what technical assistance and investment can be dedicated to pushing forward this critical agenda in order to promote safe and resilient construction across the country.

194 BRCA Interview, Department of Housing, MTIHUD, March 2016.

Figure 13: Priority Activities and Opportunities for Technical Assistance



Source: World Bank, BRCA Analysis, 2018

Annexes

Annex 1: Mapping of Kenya's Legislation and Regulation Related to Building Development Control at Each Step of the Building Life Cycle

Sub-Cycle 01: Siting		***Updated on 03/12/2018***
Legal Basis	**Applicable law**	**Detailed sections**
	The Local Government (Adoptive By-Laws) (Building) Order 1968	S.17(1) Space in front of buildings, S.18 Side Spaces.
	The Local Government (Adoptive By-Laws) (Grade II Building) Order 1968	S.4 Approval when the land is not suitable, S.7 Minimum Size of the premise.
	The Physical Planning Act,1996	S.24(2) Preparation of local physical development plan, S. 25 Content of local physical development plan, Second Schedule.
	The Physical Planning (Building and Development) (Control) Rules, 1998	S.3 Vetting of building plans, S.4 Terminal features, S.5(2)(c) Sites of public building / Safety, S.6 Front storage, S.7 Density, S.8 Plot coverage, S.12 Building lines, S.13 Back to back dwelling, S.17 offensive sites, S.18 Space in front of the buildings, S.21 External passage, S.23 Service Area.
	The Physical Planning (Subdivision) Regulations, 1998	S.15 Requirements when subdivision schemes are submitted, S.15 (c) Reserves along river, reserves along ocean.
	The Kenya Roads Act, 2015	S. 49(1)(a) Structures and other works on, over, and below roads or certain other land.
Relevant Institutions	**Institutions Involved**	
	Nairobi City County	
	Sub-Sector of Urban Planning	Inspections on site and zone planning. The Urban Planning Department of the Nairobi City Council is the one in charge to develop the local development plans.

Sub-Cycle 01: Siting (Detailed)

	Applicable Laws	Detailed sections	
		Section Nr.	**Text**
Legal Basis	**The Local Government (Adoptive By-Laws) (Building) Order, 1968**	Section 17	17. (1) A domestic building shall be so sited as to leave an open space immediately in front thereof which extends along the whole width of the front of the building and is not less than 20 ft. wide measured at right angles therefrom: Provided that if the building fronts on a street of a less width than 20 ft. the width of such open space may be not less than the width of the street plus on half of the difference between that width and 20ft. (2) Any part of the open space referred to in paragraph (1) of this by-law, which lies within the plot, shall be free from any building thereon above the level of the ground, except a fence, wall or fate not exceeding 4 ft. or a portico, porch, step or other like projection from the building.
		Section 18	18. (1) A building which is designed either wholly or in part for residential purposes shall be provided on at least one side with an open space 8ft or more in width measured from the boundary of the nearest plot facing that side at right angles to the nearest point of the building thereto. (2) The open space required by paragraph (1) of this by-law, shall extend along the entire length and for the full height of the said building. (3) Notwithstanding the provisions of this by-law, the council may give consent to the erection of such a building so sited as to leave no such open space, if in its opinion it is reasonable and desirable to do, and may, for like reasons, permit the erection of a garage or other out-buildings on the said open space.
	The Local Government (Adoptive By-Laws) (Grade II Building) Order, 1968	Section 4	4. The council shall not approve the erection of any building which is to be erected in contravention of these By-laws or where- (a) the land concerned is unsuitable for any reason for the development purposes; (b) that the plot is located outside the boundaries of an existing or proposed municipality, township, trading center, market or residential area; (c) the proposal conflicts with the proper planning of the area; (d) the site concerned forms part of an area for which an approved comprehensive layout is, in the opinion of council, desirable.
		Section 7	7. (1) Except where otherwise approved by the Commissioner of Lands, no plot shall be less than 2,800 sq. ft. in area and not more than a quarter of one plot shall be built upon. In calculating the area of the plot which is built upon, the verandah or any part of the plot which is not open to the sky shall be included. (2) No building shall be erected within 5 ft. of a boundary of the plot on which it stands unless the council expressly so authorizes in any particular case: Provided that- (i) a latrine may be sited on the line of a back boundary or on a side boundary of a plot if it forms part of a semi-detached building containing any other latrine on an adjoining plot; and (ii) buildings constructed of grass or other inflammable material shall be sited not less than 10 ft. from any side boundary.
	The Physical Planning Act, 1996	Section 24	24.(2) A local physical development plan may be a long-term or short-term physical development or for a renewal or redevelopment and for the purpose set out in the Third Schedule in relation to each type of plan.

Legal Basis	**The Physical Planning Act, 1996**	Section 25	25. A local physical development plan shall consist of— (a) a survey in respect of the area to which the plan relates carried out in such manner as may be prescribed; and (b) such maps and description as may be necessary to indicate the manner in which the land in the area may be used having regard to the requirements set out in the Third Schedule in relation to each type of local physical development plan.
	The Physical Planning (Building and Development) (Control) Rules, 1998	Section 3	3. (1) Any person intending to erect a new building or re-erect an existing building shall comply with the provisions of the existing building code, local authority by-laws and the physical planning requirements and such conditions as may be imposed by the approving authority regarding the siting, size, height, shape and appearance of such building in order to safeguard, maintain or impose the dignity or preserve the amenity and general appearance of street, square, or public place or have effect on the complemented appearance of such street, square or public place.
		Section 4	4. A person owning a plot upon which a building may be so sited as to form a terminal feature to a street or which may otherwise be prominently displayed shall site such building in such position as the local authority in consultation with the Director of Physical Planning may decide and that person shall comply with such stipulations as may be imposed with regard to siting, size, height, shape and appearance of such building.
		Section 5(2)(c)	(2) The Director of Physical Planning may refuse to recommend the site mentioned in subsection (1) on the grounds that— (c) the site does not sufficiently provide for the safety of persons frequenting such public building or the general public.
		Section 6	6. (1) No building shall be erected on any plot or sub-plot which has no proper and sufficient frontage to a street, such street not being a sanitary lane or passage. (2) No building shall, except with the prior written permission of the Director of Physical Planning, be so erected as to have its principal access to or its principal frontage abutting on a service lane, alley or passage. (3) No means of access from a service lane for use by the public shall be permitted in any premises used for retail trade, coverage.
		Section 7	7. (1) The size of plot within the area shown on any structure plan, development plan, advisory plan, zoning plan, subdivision plan approved by the Minister and adopted by the local authority shall not be subdivided into smaller sub-plots than the minimum specified thereon for the area within which the plot is situated without the consent of the Director.
		Section 8	8. Each local authority shall in consultation with the Director determine the plot coverage and plot ratios depending on the zoning of the urban area and the level of urban services available.
	The Physical Planning (Building and Development) (Control) Rules, 1998	Section 12	12. (1) The Director may prescribe a building line on any road to be such distance from the road reserve boundary as the Director may deem expedient for preserving the amenity of the road. (2) No person shall erect any building other than a boundary wall or other fence nearer to the road than such building line may be so prescribed: Provided that at the discretion of the Director of Physical Planning such building line may vary in distance from the road boundary throughout a road or part thereof: Such building line shall generally be in accordance with the specification described below— (a) where roads range between 6 m.—18 m. in

Legal Basis			width the building line shall be 6 m; (b) for any road above 18 m. in width the building line shall be 9 m.
	The Physical Planning (Building and Development) (Control) Rules, 1998	Section 13	13. (1) No person shall erect a building in such manner as to provide any back-to-back dwelling.
		Section 17	17. No building shall be erected on any site which has been made up or filled up by offensive or in sanitary materials on which has been used for the deposit of the refuse, excrementious materials or carcasses of dead animals or other filthy or offensive matter until such site has dealt with to the satisfaction of the Medical Officer of Health, Chief Materials Engineer, Environment Officer and the Director.
	The Physical Planning (Building and Development) (Control) Rules, 1998	Section 18	18. (1) A domestic building shall be so sited as to leave an open space immediately in front thereof, which space shall extend throughout the whole width of the front of the building to a distance of not less than 6 m. (20 ft.) measured at right angles therefrom: Provided that, if the building fronts on a street of lesser width, the width of such open space may be not less the width of the street, together with one half of the difference between that width and 6 m. (20 ft.). (2) Any part of an open space left as aforesaid which lies within the plot shall be free from erection above the level of the ground, except a fence or wall not exceeding 1.4 m. (4.6 ft.) in height or a portico, porch, step or other like projection from the building or a gate.
		Section 21	21. Any passage between buildings erected on the same plot or between a building and the boundaries of the plot on which such building is situated, shall have minimum dimensions of 1.2 m. (4 ft.) in width and 2.1 m. (7 ft.) in height.
		Section 23	23. A person erecting a building shall provide to the satisfaction of the local authority in consultation with the Director, a service area for the security serving that building, loading and unloading of vehicles, dustbins, and such other purposes as the Director of Physical Planning may require, and the means of the access thereto shall be of a width not less than 3 m. (10 ft.).
	The Physical Planning (Subdivision) Regulations, 1998	Section 15	15. In any scheme of subdivision of land within the area of a local authority the following conditions shall be complied with— (a) streets shall be laid out in a manner to facilitate natural storm water flow; (b) adequate drainage facilities by streets, drainage reserves wayleaves or otherwise as may be expedient and suitable shall be provided and such reserves and wayleaves shall not in any case be less than 3 meters in width; (c) wayleaves or reserves along any river, stream or water course shall be provided of not less than 10 meters in width on each bank, except in areas where there is an established flooding; (d) reserves along the ocean and lake beaches shall be provided of not less than 2 km. and 1 km. respectively; (e) where required by the local authority and the Director of Physical Planning, land suitable and adequate shall be reserved at no cost to the local authority for open spaces, amenities, recreational facilities, road reserves, public purpose relative to the area to be subdivided and for road widening.
	The Kenya Roads Act, 2015	Section 49	49. (1) Except as provided in subsection (2), no person or body may do any of the following things without the responsible Authority's written permission or contrary to such permission— (a) erect, construct or lay, or establish any structure or other thing, on or over or below the surface of a road reserve or land in a building restricted area.

Sub-Cycle 02: DESIGN

Updated on 03/12/2018

	Applicable law	Detailed sections
Legal Basis	The Public Health Act, 1921	S.126C Passing or rejection of plans and retention of plans, etc.
	The Public Health (Drainage and Latrine) Rules	(All sections are relevant)
	The Occupational Safety and Health Act, 2007	S.49 Ventilation, S.50 Lighting, S.51 Drainage of floors, S.52 Sanitary Convenience, S.60 Construction and maintenance of fencing, S.61 Construction and disposal of machinery, S.63(2) Hoist and lifts, S.65 Cranes, S.78 Fire Prevention, S.81 Safety provisions in case of fire, S.125 Approval of plans of a workplace premise.
	The Local Government (Adoptive By-Laws) (Building) Order 1968	Part I. Introductory (S.3 DefinitionS.4 Application form, S.5 Submission of plans, S.6 Fees, Part II. Siting and space about building, Part III. Buildings Materials (Building sites, Foundations, General Load-Bearing Requirements, Walls, Walls and Partitions of Blocks and Slabs, Walls – Resistance to Weather and Damp, Fire Resistance – General, Fire Resistance – Small Houses, Fire Resistance – Miscellaneous Provisions Applying to all Buildings, Roofs, Floors, Chimneys, Flues and Hearths, Factory Chimney Shafts, Stairs, Lifts, Refuse Disposal, Water Supply, Ventilation of Buildings, Drainage, Sanitary Conveniences, Sewers, Septic and Conservancy Tanks, Means of escape in case of fire, Scheduled Special Areas and Special Buildings), S.124 Registered architect and structural engineer, S.127 application of by-laws 124, 125, 126.
	The Local Government (Adoptive By-Laws) (Grade II Building) Order 1968	S.8 Latrine, S.9 Dwelling House, S.10 Habitable rooms, S.11 Kitchen, S.12 Bathroom, S. 13 Windows, S. 14 Ventilation, S. 15 Surface Water, S. 16 Fence, S.18 Foundations, S. 19 Walls, S.20 Floors, S. 21 Roof, S. 22 Frames of doors and shutters.
	The Factories and Other Places of Works (Fire Risk Reduction) rules, 2007	S.11 Ventilation, S.17 Fire escape exits, S.28 Fire detection appliance, S.33 water Storage.
	The Environmental Management and co-ordination Act, 2000	Part VI. Environmental Impact Assessment, Schedule II.
	The Environmental (Impact ass. and audit) Regulations, 2003	Part II and III, Fifth Schedule. Fees.
	The Constitution of Kenya, 2010	Fourth Schedule, Part 2, S. 8: County planning and development, (…), S.42 Clean and healthy environment, S.43 accessible and adequate housing. Differences with the Act (only for public buildings), BB87 of the 2009 building is against constitution.
Legal Basis	The Architect and Quantity Surveyor Act, 1978	S.7 Qualification for registration as architect, S.8. Qualifications for registration as quantity surveyor.
	The Engineers Act, 2011	S.24 Accredited checkers.
	The Physical Planning Act,1996	S.29 Powers of local authorities, S.30 Development permission, S.31 Development application, S.32 Development applications to be referred to the Director, S.33 Approval of development application, S.36 Environmental impact assessment, S.47 Preservation of buildings of Special Architectural value or historic interest, Fourth Schedule.
	The Physical Planning (Planning and endorsement fees) Regulations, 1998	S.3 Planning fees.
	The Physical Planning (Application for development permission) Regulations, 1998	S.4 Development Permission, S.5 Consultations.
	The Physical Planning Building and Development (Control) Rules, 1998	S.30 What constitutes erection of buildings, S.33 Planning grounds for refusal of building plans.

Legal Basis	The Physical Planning Order, 1998	S.8(2) Application in principle.
	The Kenya Roads Act, 2015	S.49(1)(a) Structures and other works on, over, and below roads or certain other land.
	The Streets adoption Act, 1963	S.5 Conditions may be imposed by local authority
	The Persons with Disabilities Act, 2003	S.21 Accessibility and mobility, S.22(1) Public buildings
	The National Museum and Heritage Act, 2006	S.40 Agreement for protection or preservation of monuments of monuments, S.41 Enforcement of agreement for protection of monuments

Relevant Institutions		
	Institutions Involved	
	(Activity 01) Obtain the Survey Plan	
	Ministry of Land and Physical Planning	
	Department of survey	1. Request for Folio Registry number search, 2. Pay for Folio Registry number search, 3. Submit search payment receipt. 4. Confirm availability of survey plan, 5. Pay for survey plan, 6. Obtain survey plan.
	(Activity 02) Obtain the environmental Impact Assessment	
	National Environment Management Authority	
	Compliance and Enforcement Department	1. Submit Terms of reference, 2. Obtain terms of reference approval, 3. Register with Nema licensing portal Online procedure 4. Submit EIA study report Online procedure 5. Submit hard copies of the study report 6. Obtain notice for gazettement, 7. Submit notice for gazettement, 8. Obtain proforma invoice, 9. Pay for gazettement, 10. Pay for gazette notice, 11. Obtain gazette notice, 12. Submit evidence of advertisement, 13. Obtain EIA license
	(Activity 03) Obtain the Approval for Development	
	Nairobi City County	
	1. Sub-Sector of Urban Planning / Development Management and regularization Directorate / Development Control Section 2. Sub-Sector of Public works / Structural Review Section 3. Reviewing Committee 4. Technical Committee 5. Executive Committee	1. Register with Nairobi City County self-service portal, 2. Submit architectural plans, 3. Pay for permit fees, 4. Obtain architectural plans approval notification through the scrutinization of the technical commission (Sectors of the city council (Health Services - Planning, Lands, Housing and Urban Renewal - County Security, Compliance, Fire and Disaster Management - Transport, Roads and Public Works), The Kenya institute of planners, The architectural association of Kenya, Board of engineers, The board of surveyors, Kenya Power, Nairobi Water, NEMA), 5. Submit architectural plans for signing, 6. Obtain authenticated architectural plans and construction permit, 7. Submit structural plans, 8. Obtain structural plans approval notification, 9. Submit structural plans for signing, 10. Obtain authenticated structural plans

Sub-Cycle 02: DESIGN (Detailed)

	Applicable law	Detailed sections	
		Section Nr.	**Text**
Legal Basis	**The Public Health Act, 1921**	Section 126	126C. Passing or rejection of plans and retention of plans, etc. (1) Where plans of any proposed work are, in accordance with any building by-laws made under section 126A, deposited with a local authority, the local authority shall, subject to any other provisions of this Act, or any rule or By-law made thereunder which expressly requires or authorizes it in certain cases to reject plans, pass the plans unless they either are defective, or show that the proposed work would contravene any of those rules or by-laws, and, if the plans are defective or would contravene any of those rules or by-laws, such local authority shall reject the plans.
	The public health (Drain. and Latrine) Rules		(All sections are relevant)
	The Occupational Safety and Health Act, 2007	Section 49	49.(1) An occupier shall ensure that effective and suitable provision is made for securing and maintaining, by the circulation of fresh air in each workroom, the adequate ventilation of the room.
		Section 50	50.(1) An occupier shall ensure that effective provision is made for securing and maintaining sufficient and suitable lighting, whether natural or artificial, in every part of his workplace in which persons are working or passing.
		Section 51	51. Where any process is carried on which renders the floor liable to be wet to such an extent that the wet is capable of being removed by drainage, effective means shall be provided and maintained for draining off the wet.
		Section 52	52. (1) Sufficient and suitable sanitary conveniences for the persons employed in the workplace shall be provided, maintained and kept clean, and effective provision shall be made for lighting the conveniences; and, where persons of both sexes are or are intended to be employed (except in the case of workplaces where the only persons employed are members of the same family dwelling there), such conveniences shall afford proper separate accommodation for persons of each sex.
		Section 60	60. All fencing or other safeguards provided in pursuance of the provisions of this Part shall be of substantial construction, constantly maintained and kept in position while the parts required to be fenced or safeguarded are in motion or in use.
		Section 61	61. (2) An importer, manufacturer, designer or supplier of machinery, plant, and equipment shall avail information concerning the correct installation, use, maintenance and disposal of the machinery, plant and equipment and provide information on any likely hazards and means to prevent or control them.
		Section 63	63. (2) Every hoist or lift shall be thoroughly examined at least once in every period of six months or after any modifications or extensive repairs or within a shorter period, by a person approved for the purposes of this section by the Director by certificate in writing, and a report of the result of every such examination, in the prescribed form and containing the prescribed particulars, shall be signed by the person carrying out the examination and shall be entered in or attached to the general register within fourteen days of the examination.
	The Occupational Safety and Health Act, 2007	Section 65	65. (1) All parts and working gear whether fixed or movable, including the anchoring and fixing appliances, of every lifting machine shall be of good construction, sound material, adequate strength and free from patent defect, and shall be properly maintained.

Legal Basis		Section 78	78. (1) All stocks of highly inflammable substances shall be kept either in a fire-resisting store or in a safe place outside any occupied building: Provided that no such store shall be so situated as to endanger the means of escape from the workplace or from any part thereof in the event of a fire occurring in the store.
		Section 81	81. (1) In every workplace or workroom there shall be: (a) provided and maintained, and conspicuously displayed and free from any obstruction so as to be readily accessible, means for extinguishing fire, which shall be adequate and suitable having regard to the circumstances of each case; and (b) present, persons trained in the correct use of such means of extinguishing fire during all working hours. (2) Every workplace shall be provided with adequate means of escape, in case of fire, for the persons employed therein, having regard to the circumstances of each case. (3) All the means of escape referred to in subsection (2) shall be properly maintained and kept free from obstruction.
		Section 125	125. (1) No building shall be erected or converted for use as a workplace and no structural alteration and no extension shall be made to any existing workplace except in accordance with plans showing details of the proposed construction, conversion, alteration or extension, approved by the Director.
	The Local Government (Adoptive By-Laws) (Building) Order 1968	Section 3	3. (2) For the purpose of these By-laws any of the following operations shall be deemed to be the erection of a building: (a) the re-erection of any building or part of a building when an outer wall of that building or, as the case may be, that part of such building has been pulled down, burnt or damaged; (b) the roofing over of any open space; (c) the alteration or extension of a building; (d) the erection, alteration or extension of a chimney shaft (e) changing of the use or uses to which land or a building is put; (f) increasing of the use or uses to which land or a building is put; (g) the carrying out of any drainage work; (h) the installation of any fittings to which by-laws 143 to 149 or by-laws 167 to 179 of these By-laws refer; (i) the formation or laying out of an access to a plot;
		Section 4	4. A person who intends to erect a building shall submit a written application to do so in such form as the council may require, completing all details required therein in so far as they apply to the proposals. The application form shall be completed in ink, signed by the developer or by a person representing himself to be his duly authorized agent in which event it shall state the name of the person on whose behalf it has been submitted. The form shall be attached to any plans or documents submitted in accordance with by-law 5 of these By-laws.

Legal Basis	**The Local Government (Adoptive By-Laws) (Building) Order 1968**	Section 5	5. A person who intends to erect a building or materially change the use of a building or part of a building shall furnish the council in the manner provided in Part A of the First Schedule to these By-laws with such of the following particulars as are applicable: (a) if the building is one for which the council may relax in whole or in part, the provisions of these By-laws as provided for in by-laws 11 to 14 of these By-laws, the particulars specified in Part B of the First Schedule to these By-laws; (b) if the building is a chimney shaft to which by-laws 120 to 123 of these By-laws apply, the particulars specified in Part C of the First Schedule to these By-laws; (c) if the building is an alteration or extension to an existing building, the particulars specified in Part D of the First Schedule to these By-laws, and if so required by the council, the particulars specified in Part E of the First Schedule to these By-laws or in the case of a chimney shaft, the particulars specified in part C of the First Schedule to these By-laws.(d) if the building constitutes a change of use or uses, the particulars specified in Part F of the First Schedule to these By-laws and any particulars which may be required under paragraph (c) of this by-law; (e) if the building constitutes drainage work or the installation of any fittings referred to in by-law 3 (2) (h) of these By-laws, the particulars specified in Part G of the First Schedule to these By-laws; (f) in the case of any other building, the particulars specified in Part H of the First Schedule to these By-laws and if the council so requires the particulars specified in part E of the First Schedule to these By-laws: Provided that the particulars specified in Part E of the said Schedule shall not be so required in respect of any work to which by-law 44, by-law 49 (b) or by-law 51 (2) of these By-laws apply.
	The Local Government (Adoptive By-Laws) (Building) Order 1968	Section 6	6. (1) When a person submits an application pursuant to these By-laws a fee shall be paid to the council in accordance with the charges and conditions prescribed in the Tenth Schedule to these By-laws. (2) Where structural drawings are required as referred to in Par E of the First Schedule to these By-laws at the time of submission, a fee shall be paid to the Council as prescribed in the Tenth Schedule to these By-laws.
		PART II	(All sections are relevant)
		PART III	(All sections are relevant)
		Section 124	124. Unless the council otherwise agrees, a person proposing to erect a building of a type described in by-law 127 of these By-laws shall employ for the purpose of the architectural design thereof, a registered architect, and for the purpose of the structural design thereof, a structural designer and shall retain the services of such architect or structural designer for the purpose of supervising the erection of such building.
		Section 127	127. The buildings to which by-laws 124, 125 and 126 of these By-laws apply are- (a) any domestic, warehouse class or public buildings of four or more storeys or in which provision is made for future development of such number of storeys; (b) any warehouse class or public building having no floor other than the ground floor and in which the height from the ground to the eaves or to the underside of the roof slabs exceeds 20 ft. and the roof span exceeds 30 ft.; (c) any warehouse class or public building in which any suspended structural floor panel exceeds 20 ft. in span; and (d) any public building in which a balcony is provided for the purposes of public assembly.

Legal Basis	**The Local Government (Adoptive By-Laws) (Grade II Building) Order 1968**	Section 8	8. (1) Every dwelling house must be provided with a latrine of a type approved by the council. (2) A pit latrine shall be at least 20 ft. in depth from ground level to the bottom of the pit, and shall be provided with a roof the height of which shall be at least 6 ft. in. from the floor to the underside of the roof or ceiling. A pit latrine shall also be provided with a concrete stance and with a fly-proof cover. (3) A latrine shall be sited in a position approved by the council and shall not be nearer than 30 ft. from any habitable room, or room used for the preparation, cooking or storage of food.
		Section 9	9. Every dwelling house shall consist of at least one habitable room in addition to a kitchen, ablution and privy accommodation for the exclusive use of the occupants of the house.
		Section 10	10.(1) Where a ceiling is provided, the average height of a habitable room shall be not less than 7 ft. 9 in. with a minimum height of 7 ft. Where a ceiling is not provided the average height measured to the underside of the roof covering shall be not less than 8 ft. 3 in. with a minimum height of 7 ft. (2) Every habitable room shall have a superficial area of not less than 75 sq. ft., with a minimum width of 6 ft. 6 in. and shall contain a minimum area of 40 sq. ft., for each person accommodated therein.
		Section 11	11. The area of the kitchen shall not be less than 25 sq. ft. and not less than 7 ft. in height at any point from the floor to the underside of the roof or ceiling and shall have a satisfactory outlet for smoke and fumes and be lighted and ventilated in accordance with by-laws 13 and 14 of these By-laws.
		Section 12	12. The bathroom shall be at least 2 ft. 6 in. by 4ft. 6 in. and if roofed, shall be provided with lighting and ventilation in accordance with by-laws 13 and 14 of these By-laws. The minimum height of any such bathroom, from the floor to the underside of the roof or ceiling shall not be less than 6 ft. 6 in. and adequate provision shall be made for the disposal of all waste water by means of a trapped and properly covered soak pit or other method approved by the council.
		Section 13	13. Every habitable room, kitchen, roofed bathroom and latrine shall be provided with sufficient number of windows opening to the external air so as to provide a clear lighting area equal to at least one-tenth of the floor area of such room, and of which at least one-twentieth of the floor area shall be capable of being opened.
		Section 14	14. Every habitable room, kitchen, roofed bathroom and latrine shall be provided with permanent through or cross ventilation by means of openings which shall give direct access to the external air and the aggregate area of any such openings shall be equal to at least one-hundredth of the floor area of any such room.
		Section 15	15. Surface water drainage shall be provided to the satisfaction of the council.
		Section 16	16. If so required, by the council, the owner of the plot shall cause the plot to be fenced in such manner and by the use of such material as may be required by the council.
		Section 18	18. Foundations shall be adequate to support the load transmitted to them and be generally to the satisfaction of the council.

Legal Basis	**The Local Government (Adoptive By-Laws)(Grade II Building) Order 1968**	Section 19	19. No walls shall be constructed to a lower specification than wattle or similar timber adequately framed together and filled and covered with mud. Such walls shall be capable of supporting the roof. The covering shall be of adequate thickness and the surface internally and externally shall be sealed and brought to a smooth finish in materials approved by the council and decorated and maintained in a sound and good condition and be redecorated from time to time as required by the council: Provided that the council may specify the materials to be used in constructing and finishing the walls.
		Section 20	20. Every floor shall have a smooth finish and shall be at least 6 in. above the surrounding ground level. A floor shall be constructed of concrete, compacted earth or such other materials as approved by the council.
		Section 21	21. Every roof shall be of corrugated iron, aluminum, asbestos or other permanent materials or shingles as may be required by council and shall be supported on an adequate frame of poles, timber or similar material. Any material used shall be in good condition and the roof shall be so constructed as to be weatherproof and regular in shape and the pitch of the roof shall conform with the council's requirements.
		Section 22	22. Frames of doors and shutters shall be constructed in such a way as to be rigid and shall be firmly fixed in the walls.
		Section 23	23. Bathrooms and latrines and each habitable room shall be provided with doors or shall be screened in a manner approved by the council. Such doors shall be at least 2 ft. 3 in. wide and 6 ft. 6 in. high.
	Fire Risk Reduction Rules, 2007	Section 11	11.(1) Every occupier shall provide in every workroom, facilities for free flow of fresh air, including windows, doors, vents, louvers or any other suitable ventilation facility to ensure that flammable fumes, vapor, gases or dust do not accumulate in the workroom. (2) In the case of an enclosed room, every occupier shall ensure that exhaust ventilation systems or mechanical ventilation facilities are provided.
		Section 17	17.(1) Every occupier shall ensure that every work room is fitted with an emergency exit of at least 90 cm wide, situated as far away as possible from the ordinary exit, and located in a manner that the exit will not lead any person to a trap in the work place in the event of a fire breaking out. (2) Every occupier shall ensure that an external staircase or ramp affording a means of escape in case of a fire is adequately aerated, well-lit and of at least one-meter width, provided that a spiral staircase shall not be considered as a suitable emergency exit. (5) Every occupier shall ensure that every emergency exit route is clearly marked in writing or by signs indicating the direction of exit and that a drawing or map showing evacuation routes shall be posted in prominent positions in the work place.
		Section 28	28.(1) Every occupier shall provide and maintain fire detection appliances. (2) Every occupier shall ensure that fire detection appliances are located in the appropriate places for immediate activation of an alarm or automatic fire extinguishing systems. (3) Every occupier shall ensure that– (a) fire detection appliances are connected to audible and visual flashing devices to provide a warning to the workers for emergency response; and (b) fire detection appliances are regularly maintained and that they are inspected at least once every twelve months by a competent person.

Legal Basis	**Fire Risk Reduction Rules, 2007**	Section 33	33. (1) Every occupier shall ensure that: (a) the work place has access to water and water storage facility capable of storing at least 10,000 liters of water; (b) the water storage facility is kept full at all times, for use in event of fire; (c) the water pressure in the firefighting system is capable of raising water to the highest point of the workplace in the event of a fire; (d) where hose reels are used, and the storage water reservoir is at ground level or underground, an isolated water pump shall be provided.
	Environmental Management and Coordination Act, 2000	Section 58	58. (2) The proponent of a project shall undertake or cause to be undertaken at his own expense and environmental impact assessment study and prepare a report thereof where the Authority, being satisfied, after studying the project report submitted under subsection (1), that the intended project may or is likely to have or will have a significant impact on the environment, so directs.
	The environmental (impact assessment and audit) Regulations, 2003	Part II	THE PROJECT REPORT (all sections are relevant)
		Part III	THE ENVIRONMENTAL IMPACT ASSESSMENT STUDY (all sections are relevant)
		Fifth Schedule	FEES. See table on document.
	The Constitution of Kenya	Fourth Schedule. Part II. Section 8	8. County planning and development, including— (a) statistics; (b) land survey and mapping; (c) boundaries and fencing; (d) housing; and (e) electricity and gas reticulation and energy regulation.
		Section 42	Every person has the right to a clean and healthy environment, which includes the right— (a) to have the environment protected for the benefit of present and future generations through legislative and other measures, particularly those contemplated in Article 69; and (b) to have obligations relating to the environment fulfilled under Article 70.
		Section 43	(1) Every person has the right— (a) to the highest attainable standard of health, which includes the right to health care services, including reproductive health care; (b) to accessible and adequate housing, and to reasonable standards of sanitation; (c) to be free from hunger, and to have adequate food of acceptable quality; (d) to clean and safe water in adequate quantities; (e) to social security; and (f) to education.
	Architect and quantity surveyor Act, 1978	Section 7	7. No person shall be registered as an architect unless he— (a) has attained the age of twenty-one years; and (b) either—(i) has had a minimum of five years of approved training followed by at least one year of practical experience in the work of an architect to the satisfaction of the Board, and has passed a prescribed examination; or (ii) has been admitted as a corporate member of an approved professional institution whose qualifications for such admission are not less than those set out in subparagraph (i) of this paragraph; and (c) has had a minimum of one year of professional experience in Kenya to the satisfaction of the Board or has satisfied the Board that he has otherwise acquired an adequate knowledge of Kenya building contract procedures; and (d) has paid the prescribed registration fee.
	Architect and quantity surveyor Act, 1978	Section 8	8. No person shall be registered as a quantity surveyor unless he— (a) has attained the age of twenty-one years; and (b) either—(i) has passed a prescribed examination; or (ii) has been admitted as a corporate member of an approved professional institution whose qualifications for such admission include the equivalent of such prescribed examination; and (c) has had a minimum of one year of professional experience in Kenya to the satisfaction of the Board or has satisfied the Board that he has otherwise acquired an adequate knowledge of Kenya building contract procedures; and (d) has paid the prescribed registration fee.
	Engineers Act, 2011	Section 24	24. (1) Subject to subsection (2), the Board may, upon application, register a person as an accredited checker with

Legal Basis			powers to review and verify the work of a professional engineer in ensuring that the work is adequate and complies with safety requirements.
	The Physical Planning Act, 1996	Section 29	29.Subject to the provisions of this Act, each local authority shall have the power— (a) to prohibit or control the use and development of land and buildings in the interests of proper and orderly development of its area; (b) to control or prohibit the subdivision of land or existing plots into smaller areas; (c) to consider and approve all development applications and grant all development permissions; (d) to ensure the proper execution and implementation of approved physical development plans; (e) to formulate by-laws to regulate zoning in respect of use and density of development; and (f) to reserve and maintain all the land planned for open spaces, parks, urban forests and green belts in accordance with the approved physical development plan.
		Section 30	30. (1) No person shall carry out development within the area of a local authority without a development permission granted by the local authority under section 33.
		Section 31	31. Any person requiring a development permission shall make an application in the form prescribed in the Fourth Schedule, to the clerk of the local authority responsible for the area in which the land concerned is situated.
		Section 32	32. (1) A local authority to which a development application has been made under section 31 shall, not later than thirty days after the receipt of the application, refer it to the Director for his comments.
		Section 33	33. (1) Subject to such comments as the Director may make on a development application referred to him under section 32, a local authority may in respect of such development application— (a) grant the applicant a development permission in the form prescribed in the Fifth Schedule, with or without conditions; or (b) refuse to grant the applicant such development permission stating the grounds of refusal. (2) The local authority shall notify the applicant in writing of its decision within thirty days of the decision being made by it and shall specify the conditions, if any, attached to the development permission granted, or in the case of refusal to grant the permission, the grounds for refusal.
		Section 36	36. If in connection with a development application a local authority is of the opinion that proposals for industrial location, dumping sites, sewerage treatment, quarries or any other development activity will have injurious impact on the environment, the applicant shall be required to submit together with the application an environmental impact assessment report.
	The Physical Planning Act, 1996	Section 47	(1) Subject to the provisions of National Museums and Heritage Act, the Director may, after consultation with the Board of National Museums serve on the owner or occupier of a building which in the opinion of the Director is of special architectural value or historic interest, an order prohibiting the demolition, alteration or extension of such building.
		Fourth Schedule	See full application form on corresponding document
	The Physical Planning (Planning and endorsement fees) Regulations, 1998	Section 3	3. The following fees shall be payable in respect of advisory plans or part development plans or subdivision plans prepared by the Director: (1) For preparation of a part development plan designating land for private alienation where stand premium is payable, 3 per cent of stand premium. (2) For preparation of subdivision/advisory plans for agriculture/public purpose/recreational use, fifty shillings for each portion subdivided. (3) For preparation of subdivision/advisory plans for residential use.

Legal Basis	**The Physical Planning (Application for development permission) Regulations, 1998**	Section 4	4. (1) All applications for development permission shall be made on forms issued by the local authority or liaison committee and shall include such particulars and shall be accompanied by such plans and drawings as may be required by directions indicated thereon.
		Section 5	5. (1) Before granting permission for development in either of the following cases whether unconditionally or subject to conditions, the local authority or liaison committee, shall consult with the following authorities.
	The Physical Planning Building and Development (Control) Rules, 1998	Section 30	30. For the purposes of these Rules any of the following operations shall be deemed to be the erection of a building or the carrying out of development— (a) the erection of any new building; (b) the erection of any addition to an existing building;
		Section 33	33. The Director of Physical Planning shall refuse to recommend any new building or proposed development, or alteration or addition to any existing building if— (f) the proposed building or land use is unsuitable, injurious to amenities or detrimental in respect of appearance or dignity or fails to comply with physical planning requirements in regard to siting, design, height, elevation, size shape, structure or appearance;
	The Physical Planning Order, 1998	Section 8	8. (2) Where an applicant so desires, an application (hereinafter called "an application in principle"), may be made under subparagraph (1) of this paragraph for permission for the use of any building or land or for erection of any building, and any approval thereof shall be subject to the subsequent approval of the local authority or liaison committee with respect to any matter relating to the siting, design or external appearance of the building, or the means of access thereto, in which case particulars and plans in regard to these matters shall not be required and permission may be granted subject as aforesaid (with or without other conditions) or refused.
	Kenya Roads Act, 2015	Section 49	49. (1) Except as provided in subsection (2), no person or body may do any of the following things without the responsible Authority's written permission or contrary to such permission— (a) erect, construct or lay, or establish any structure or other thing, on or over or below the surface of a road reserve or land in a building restricted area.
	Streets Adoption Act, 1963	Section 5	(1) A person presenting an application to the local authority to sanction the laying out, forming or construction of an unadopted street shall comply with such conditions as the local authority may, at the time of sanctioning the application, impose with regard to the following matters—(a) the avoidance of a cul-de-sac; (b) the provision of suitable and convenient means of access to plots fronting on the street, and of access to the street by cross streets, continuation of streets or otherwise; (c) the formation of lanes (parallel to the street or otherwise) or other secondary means of access to buildings for the purpose of removing refuse; (d) the fixing of the line, levels, width, position and direction of the street, carriageways and footways so as to make provision for the amenity of the locality, for convenient communication with other streets or proposed streets or with adjacent land, for gradients suitable for traffic, for the convenient drainage of the streets and footways and of buildings fronting or abutting thereon and for areas for light and ventilation; (e) provision for carrying off surface water; and (f) the rounding off or truncating of street corners.
	The persons with disabilities Act, 2003	Section 21	21. Persons with disabilities are entitled to a barrier free and disability-friendly environment to enable them to have access to buildings, roads and other social amenities, and assistive devices and other equipment to promote their ability.
		Section 22	22. (1) A proprietor of a public building shall adapt it to suit persons with disabilities in such manner as may be specified by the Council.

Legal Basis	**The National Museum and Heritage Act, 2006**	Section 40	40. (1) The National Museums may enter into a written agreement with the owner of a monument and any other person or persons for the protection or preservation of the monument. (2) An agreement under this section may provide for all or any of the following matters - (a) the maintenance of the monument; (b) the custody of the monument and the duties of any person who may be employed in connection therewith; (c) the occupation or use of the monument by the owner or otherwise; (d) the restriction of the right of the owner or occupier to build or to do other acts or things on or near the site of the monument; (e) the facilities of access to be permitted to the public or to any portion of the public and to persons deputed by the owner or the National Museum to inspect or maintain the monument;
		Section 41	41. (1) If the owner or any other person who is bound by the terms of an instrument which constitutes the National Museums guardian of a monument under section 39(3) or of an agreement for the protection and preservation of a monument under section 40 refuses to do an act which is in the opinion of the National Museums is both necessary for the protection, preservation or maintenance of the .monument and the responsibility of the owner or other person in accordance with the terms of the instrument or agreement, or neglects to do the act within such reasonable time as may be fixed by the National Museums, the National Museums may authorize any person to do that act and the expense thereof, if and so far as it is established to have been the responsibility of the owner or other personal shall be recoverable from him.

Sub-Cycle 03: CONSTRUCTION

Updated on 03/12/2018

	Applicable law	Detailed sections
Legal Basis	The National Construction Authority Act, 2011	S.5(2)(j) Functions of the authority, S.6 Power of the Authority, S15. Requirements for registration, S.16. Meaning of "Contractor", S23. Appointment of investigating officers (inspection).
	The National Construction Authority Regulations, 2014	S.17(1) Registration of the construction works, S.17(3) Payment of the fee, S.17(6) Issuance of the compliance certificates, S.25 Payment of the levy.
	The Factories (Building operations and works of engineering construction) rules, 1984	S.6. Notice of commencement, S. 7 Appointment of safety supervisor
	The Public Health Act, 1921	S.115 Nuisance prohibited, S.118 What constitutes nuisance, 61. Conditions for construction of water-closets, S.59 Window and ventilation for soil-water fitting.
	The Occupational Safety and Health Act, 2007	S.6 Duties of occupiers, S.9 Safety and health committee, S.9 Safety and health audit, S.13 Duties of employees, S.39(1)(4) Provisions on prohibition notices and improvement notices, S.41 Indemnity of occupational safety and health officer, S.44 Registration of workplaces, S.60 Construction and maintenance of fencing, S.101 Protective clothing and appliance and safety consultants, S.125 Approval of plans of workplace premises.
	The Local Government (Adoptive By-Laws) (Building) Order 1968	S.16 Notices and inspections (Inspection Card), S.16(4) certificate of completion, S.37 Protection of persons and property, S.42 Identification of plot boundaries, S. 126 Inspector.
	The Local Government (Adoptive By-Laws) (Grade II Building) Order 1968	S.29 Commencement of building, S.30 Notice to commence the erection of the building, S.31 Permit of occupation.
	The Physical Planning Act,1996	S.38 Enforcement Notice, S.39 Supplementary provisions as to enforcement.
	The Physical Planning Building and Development (Control) Rules, 1998	Part I and Part II S.1 to S.33 (Technical regulations).
	Kenya Roads Act, 2015	S. 49(1)(a) Structures and other works on, over, and below roads or certain other land.
	The Streets adoption Act, 1963	S.5 Conditions may be imposed by local authority.
	The persons with disabilities Act, 2003	S.21 Accessibility and mobility, S.22(1) Public buildings.
	The Environmental Management and co-ordination Act, 2000	Part VII. Environmental audit and monitoring, S.117 Appointment of qualified persons.
	The Energy Act, 2007	S. 38 Electrical Installation work.
	The National Museum and Heritage Act, 2006	S.45 Offences.

Relevant institutions	**Institutions Involved**	
	(Activity 01) OBTAIN THE PLAN APPROVAL FOR WORKPLACE	
	Directorate of Occupational Safety and Health (Ministry of Labour and Social Protection)	
	OSH Project Registration Department	Procedure to obtain the approval for workplace.
	(Activity 02) REGISTER THE PROJECT WITH NCA	
	National Construction Authority	
	NCA Project Registration Department (Only for project of more than 5.000.000 Sh.)	1. Submit application for project registration, 2. Obtain notification of approval, 3. Payment of construction levy fees, 4. Submit payment receipt, 5. Obtain preliminary compliance certificate, 6. Obtain compliance certificate
	(Activity 03) ON-SITE INSPECTIONS	
	Nairobi City County	
	Planning Compliance and Enforcement Directorate	Inspections on site in order to verify the compliance to the laws and regulations.
	(Activity 04) ISSUANCE OF THE OCCUPANCY CERTIFICATE	
	Nairobi City County	
	Planning Compliance and Enforcement Directorate	Inspections on site.
	Public Health Directorate	Inspections on site.
	Nairobi Fire Brigade	
	Fire Section	Inspections on site.

Sub-Cycle 03: CONSTRUCTION (Detailed)

	Applicable law	Detailed sections	
		Section Nr.	**Text**
Legal Basis	**The National Construction Authority Act, 2011**	Section 5	5.(2) (j) provide, promote, review and co-ordinate training programs organized by public and private accredited training centers for skilled construction workers and construction site supervisors.
		Section 6	6. (1) The Authority shall have all the powers necessary for the proper performance of its functions under this Act, and, in particular, but without prejudice to the generality of the foregoing, the Authority shall have power— (a) to award certificates of proficiency to contractors, skilled construction workers and construction site supervisors; (b) with the approval of the Minister, to impose fees or any other charges as it deems fit in respect of any of its functions or powers; (c) with the approval of the Minister, to facilitate, or promote the establishment or expansion of, companies, corporations or other bodies to carry on any activities related to construction either under the control or partial control of the Authority or independently; and (d) to receive, in consideration of any services that may be rendered by it, such commission or payments as may be agreed upon with any person.
		Section 15	15. (1) A person shall not carry on the business of a contractor unless the person is registered by the Board under this Act. (2) A person seeking registration under subsection (1) shall, in the case of firm, be eligible for registration if at least one of the partners or directors of the firm possesses such technical qualifications, skills or experience as the Board may from time to time prescribe.
		Section 16	16. (1) For the purposes of this Act, a person carries on business as a contractor where such person, for reward or other valuable consideration, undertakes the construction, installation or erection, for any other person, of any structure situated below, on or above the ground, or other work connected therewith, or the execution, for any other person, of any alteration or otherwise to any structure or other work connected therewith, and undertakes to supply.
		Section 23	23. (1) The Board may, for the purpose the performance of its functions under section 21, appoint such number of investigating officers, to be known as investigating officers of the Board, as it considers necessary for the purposes of carrying out the investigation of any offence or inspection under this Act.
	The National Construction Authority Regulations, 2014	Section 17	17. (1) All construction works, contracts or projects either in the public or private sector shall be registered with the Authority in accordance with the Act. (3) The application under this regulation shall be in the prescribed form and shall be made before the commencement of the construction works contract or project together with such fee as the Board may prescribe. (6) The Authority shall, within thirty days from receipt of the duly completed application form in terms of paragraphs (2) and (3) register the construction works contract or project and issue a compliance certificate.
		Section 25	25. There shall be payable to the Authority by the owner of any works a construction levy of 0.5 per cent of the value of the contract sum in respect of any construction works whose value exceeds five million shillings.

Legal Basis	**The factories (Building operations and works of engineering construction) rules, 1984**	Section 6	6. (1) A main contractor shall, within seven days of commencing or undertaking building operations or works of engineering construction, notify the Chief inspector in writing of- (a) the contractor's name and postal address; (b) the address or location of the site of the operation or works; (c) the date of commencement; (d) the expected date of completion; (e) whether mechanical power is used or not; (f) the number of persons expected to be employed.
		Section 7	7. (1) Every contractor who employs more than twenty persons shall, for every site on which he is the contractor, appoint one or more persons experienced in the operations or works carried on at the site and suitably qualified for the purpose of - (a) advise the contractor as to the observance of the safety, health and welfare requirement under the Act and under these rules; and (b) supervise and ensure the observance of those requirements and promote the safe conduct of work generally at the sites.
	The Local Government (Adoptive By-Laws) (Building) Order, 1968	Section 16	16. (1) Any person who erects a building, to which these By-laws, apply shall give to the council in writing on a "Notice of inspection" card, obtainable from the council, not less than thirty hours' notice. (4) No person shall occupy, use or permit the occupation or use of any building before a certificate of completion has been issued by the council in respect thereof.
		Section 42	42. (1) A person erecting a building shall before the erection thereof or at the time of the first inspection prove the boundaries of the plot. (2) The requirements of this by-law will be satisfied by the identification of survey beacons defining the limits of the plot.
		Section 126	126. Every person who erects or causes the erection of a building of a type described in by-law 127 of these By-laws, shall employ on the site throughout the period of the construction, a resident engineer or clerk of works or general foreman, who is capable of reading the particulars of working drawings showing the details of structural design, and of ensuring that the work is carried out in accordance therewith, and also with the requirements of by-law 32 of these By-laws and the Seventh Schedule of these By-laws.
	The Local Government (Adoptive By-Laws)(Grade II Building) Order, 1968	Section 29	(1) No person shall- (a) commence to erect a building without plans thereof having been approved by the council, or in respect of which the approval of plans has become null and void; or (b) having obtained the council's approval to the plans for the erection of a building, erect such building otherwise than in accordance with the approved application and plans thereof.
		Section 30	30. After plans have been approved by the council the applicant shall give notice to the council in writing of his intention to commence building and shall not commence building until the site of the building has been marked out by the owner and approved by the council.
	The Local Government (Adoptive By-Laws)(Grade II Building) Order, 1968	Section 31	31. No person shall occupy or permit the occupation of any building to which these By-laws apply until he has obtained from the council a permit in writing authorizing occupation of such premises. Such permit shall not be issued unless the council is satisfied that the building has been erected in accordance with the application and approved plans thereof and that the construction is to s standard not lower than is required by these By-laws.
	The Physical Planning Act	Section 38	38. (1) When it comes to the notice of a local authority that the development of land has been or is being carried out after the commencement of this Act without the required development permission having been obtained, or that any of the conditions of a development permission granted under this Act has not been complied with, the local authority may serve an enforcement notice on the owner, occupier or developer of the land.

Legal Basis	**The Physical Planning Act**	Section 39	39 (1) If, within the period specified in the enforcement notice or within such further period as the local authority may determine any measures required to be taken (other than discontinuance of any use of land) have not been taken, the local authority may enter on the land and take those measures and may, without prejudice to any penalties that may be imposed or any other action that may be taken under this Act, recover from the person on whom the enforcement notice is served, any expenses reasonably incurred by it in connection with the taking of those measures.
	The Physical Planning Building and Development (Control) Rules, 1998	Part I & Part II	(All sections are relevant)
	The Kenya Roads Act, 2015	Section 49	49. (1) Except as provided in subsection (2), no person or body may do any of the following things without the responsible Authority's written permission or contrary to such permission— (a) erect, construct or lay, or establish any structure or other thing, on or over or below the surface of a road reserve or land in a building restricted area.
	The Streets Adoption Act, 1963	Section 5	(1) A person presenting an application to the local authority to sanction the laying out, forming or construction of an unadopted street shall comply with such conditions as the local authority may, at the time of sanctioning the application, impose with regard to the following matters— (a) the avoidance of a cul-de-sac; (b) the provision of suitable and convenient means of access to plots fronting on the street, and of access to the street by cross streets, continuation of streets or otherwise; (c) the formation of lanes (parallel to the street or otherwise) or other secondary means of access to buildings for the purpose of removing refuse; (d) the fixing of the line, levels, width, position and direction of the street, carriageways and footways so as to make provision for the amenity of the locality, for convenient communication with other streets or proposed streets or with adjacent land, for gradients suitable for traffic, for the convenient drainage of the streets and footways and of buildings fronting or abutting thereon and for areas for light and ventilation; (e) provision for carrying off surface water; and (f) the rounding off or truncating of street corners.
	The persons with disabilities Act, 2003	Section 21	21. Persons with disabilities are entitled to a barrier free and disability-friendly environment to enable them to have access to buildings, roads and other social amenities, and assistive devices and other equipment to promote their ability.

Legal Basis	**The persons with disabilities Act, 2003**	Section 22	22. (1) A proprietor of a public building shall adapt it to suit persons with disabilities in such manner as may be specified by the Council.
	Environmental Management and co-ordination Act, 2000	Part VII	(All sections are relevant)
		Section 117	117. (1) The Director-General shall, by Gazette Notice, appoint duly qualified persons whether public officers or otherwise whether by name or by title of office, to be environmental inspectors of the Authority for such jurisdiction units as shall be specified in the Gazette Notice appointing them.
	The National Museum and Heritage Act, 2006	Section 45	45.(1) A person who (a) destroys, removes, injures, alters or defaces or does any act that imperils the preservation of a monument; (b) obstructs the exercise by a heritage warden or other duly authorized person of any of the powers conferred by section 37; or (c) commits a breach of any by-laws regulating the entry of persons into a monument which is used for religious observances, or of any other condition of access to a monument, commits an offence and shall on conviction be liable to a fine not exceeding one million shillings or to imprisonment for a term not exceeding twelve months or to both such fine and imprisonment, and on conviction of an offence against paragraph (a) may be ordered by the convicting court to pay to the National Museums for the purpose of making good any damage caused by that offence such sum of money as may be found by that court to be necessary to defray the cost thereof.

Sub-Cycle 04: USE AND MAINTENANCE *Updated on 03/12/2018*

	Applicable law	Detailed sections
Legal Basis	The Occupational Safety and Health Act, 2007	S.11 Safety and health audit, S.13 Duties of employees, S.32 Powers of an occupational safety and health officer, S.44 Registration of workplaces, S.48(1) Overcrowding, S.63(2) Hoists and Lifts, S.45 Registration of workplace
	The Public Health Act, 1921	S.115 Nuisance prohibited, S.118 What constitutes nuisance
	The Constitution of Kenya, 2010	Fourth Schedule, Part 2, S. 8: County planning and development, (…), S.42 Clean and healthy environment, S.43 accessible and adequate housing
	The Local Government (Adoptive By-Laws) (Building) Order 1968	S.8(1) Approval of Minor alterations and additions, S. 138 Certificate of efficiency, S.138(2) Certificate of efficiency, Sixth Schedule (by-law (27)) S.45 Batteries, S.47 Fuses, switches and earths, S.56 Inspection of electrical installations, S.57 Inspection of ceilings,
	Environmental Management and co-ordination Act, 2000	Part VII, S.68 Environmental audit and monitoring, S. 78(1)(h) Enforcement review committee
	The Environmental (Impact assessment and audit) Regulations, 2003	S.28 Suspension or canceling of a license, S.31(4)(b) Environmental Audit, S.32 International Standards, S.33 Control carried out by authority, S.34 Self Audit
	The Fire Risk Reduction Rules, 2007	S.4 Location of large Installations for highly flammable substances, S.5 Construction material, 6. Storage of highly flammable substances, S.7 Marking and labeling, S.17 Fire escape exits, S.18 Control of spread of smoke, S.19 Means of evacuation, S.20 Formation of fighting teams, S.23 Fire drills, S.29 Firefighting appliances, S.31 Selection and distribution of fire extinguishers.
	The Energy Act, 2007	S.30 Factors to be considered in an application, S.31 Form and conditions of a license or permit, S.61 When supply of electrical energy may be refused or discontinued.
Institutions	**Institutions Involved**	
	(Activity 01) REGISTER THE WORKPLACE WITH THE MINISTRY OF LABOUR AND SOCIAL PROTECTION	
	Directorate of Occupational Safety and Health (Ministry of Labour and Social Protection)	
	OSH Project Registration Department	Register the workplace

Sub-Cycle 04: USE AND MAINTENANCE (Detailed)

	Applicable law	Detailed sections	
		Section Nr.	**Text**
Legal Basis	**The Occupational Safety and Health Act, 2007**	Section 11	11. (1) The occupier of a workplace shall cause a thorough safety and health audit of his workplace to be carried out at least once in every period of twelve months by a safety and health advisor, who shall issue a report of such an audit containing the prescribed particulars to the occupier on payment of a prescribed fee and shall send a copy of the report to the Director. (2) The audit report referred to in subsection (1) shall be preserved and be kept available for inspection by the occupational safety and health officer. (3) An occupier who fails to comply with a duty imposed on him under this section commits an offence and shall on conviction be liable to a fine not exceeding five hundred thousand shillings or to imprisonment for a term not exceeding six months or to both.
		Section 13	13. (1) Every employee shall, while at the workplace— (a) ensure his own safety and health and that of other persons who may be affected by his acts or omissions at the workplace; (b) co-operate with his employer or any other person in the discharge of any duty or requirement imposed on the employer or that other person by this Act or any regulation made hereunder; (c) at all times wear or use any protective equipment or clothing provided by the employer for the purpose of preventing risks to his safety and health; (d) comply with the safety and health procedures, requirements and instructions given by a person having authority over him for his own or any other person's safety; (e) report to the supervisor, any situation which he has reason to believe would present a hazard and which he cannot correct; (f) report to his supervisor any accident or injury that arises in the course of or in connection.
		Section 32	32. (1) An occupational safety and health officer shall, for the purpose of the execution of this Act, have power to do all or any of the following things— (a) to enter, inspect and examine, by day or by night, a workplace, and every part thereof, when he has reasonable cause to believe that any person is employed therein, and to enter, inspect and examine, by day, any place which he has reasonable cause to believe to be a workplace and any part of any building of which a workplace forms part and in which he has reasonable cause to believe that explosive, highly inflammable or any other hazardous materials are stored or used.
		Section 44	44. (1) Before any person occupies or uses any premises as a workplace, he shall apply for the registration of the premises by sending to the Director a written notice containing the particulars set out in the Fourth Schedule. (2) Upon receipt of the notice referred to in subsection (1), the Director shall take such steps as may be necessary to satisfy himself that the premises are suitable for use as a workplace of the nature stated in the notice, and upon being so satisfied, shall cause the premises to be registered and shall issue to the applicant, upon payment of a prescribed fee, a certificate of registration in the form set out in the Fifth Schedule.
	The Occupational Safety and Health Act, 2007	Section 45	45. (1) The Minister may, after consultation with the Council, by notice in the Gazette, except some classes of workplaces from the requirements of section 44. (2) The Minister may only except a class of workplaces under this section if he is satisfied that there are adequate arrangements in place for the protection of the safety and health of the affected employees.

Legal Basis		Section 48	48. (1) An occupier shall ensure that his workplace shall not, while work is carried on, be so overcrowded as to cause risk of injury to the health of the persons employed therein. (2) Without prejudice to the generality of subsection (1) a workplace shall be of sufficient size for work to be carried out with ease and shall further have the necessary free space and, having regard to the nature of the work, an adequate amount of air for each employee, the minimum permissible being ten cubic meters per person.
		Section 63	63. (2) Every hoist or lift shall be thoroughly examined at least once in every period of six months or after any modifications or extensive repairs or within a shorter period, by a person approved for the purposes of this section by the Director by certificate in writing, and a report of the result of every such examination, in the prescribed form and containing the prescribed particulars, shall be signed by the person carrying out the examination and shall be entered in or attached to the general register within fourteen days of the examination.
	The Local Government (Adoptive By-Laws) (Building) Order 1968	Section 8	8. (1) Notwithstanding anything contained in these By-laws, the council may grant permission in writing to any person to proceed with any minor alteration or addition to a building or the erection of any boundary wall, screen wall, fence or of a hoarding, or the formation of any access, which complies generally with the intent and purpose of these By-laws, but which is regarded by the council as of minor importance: Provided that such permission shall automatically lapse in the event of not being acted upon within six months of the date of its grant.
		Section 138	138. (1) Lifts and hoists shall comply with the following requirements of this by-law- (2) An electric passenger lift shall be maintained and inspected at least once every six months by a competent lift engineer, and a certificate by such engineer to the effect that the whole installation is in safe working order, shall be submitted to the council by the owner of the premises at least once in every twelve months.
		Sixth Schedule. Section 47	47. (1) Every electrical main circuit and sub circuit in the premises shall be protected against excess current by fuses, circuit-breakers or other similar devices which will operate automatically at current values which are suitably related to the safe current ratings of the circuit and of the equipment connected to the circuit. (2) (a) Every circuit supplying electricity for the control equipment of electric discharge-lamps having a rated electrical input exceeding 500 watts, or for electronic equipment shall, where the fuses, circuit- breakers or other similar devices aforesaid do not afford adequate protection, be provided also with electrical or thermo-electrical devices to break the circuit automatically on any dangerous rise in the temperature of the said equipment or of the transformers, chokes or smoothing devices used in connection therewith.
		Sixth Schedule. Section 56	56. (1) All electrical installations shall be inspected once a year by a competent electrical engineer appointed by the occupier of the premises, and a certificate stating the condition of the installation shall, after each inspection, be forwarded to the council.
	The Local Government (Adoptive By-Laws) (Building) Order 1968	Sixth Schedule. Section 57	57. All ceilings in those parts of the premises to which the public are admitted shall be inspected at least once in every five years by a competent person and a certificate concerning the condition of the ceilings after each inspection shall be forwarded to the council by, or on behalf of, the occupier.
	Fire Risk Reduction Rules, 2007	Section 4	4. A person wishing to set up or operate a facility for the use on or storage of highly flammable substance shall ensure that such facility is located in the designated area.

Legal Basis		Section 5	5. (1) Every owner and occupier of a workplace shall ensure that every workroom where flammable substances are used, manufactured or manipulated, is constructed with fire resistant material.
		Section 6	6.(1) Every occupier shall ensure that highly flammable substances are stored– (a) in suitable fixed storage tanks in safe positions, or (b) in suitable closed vessels kept in a safe positions in the open air, and where necessary, protected against direct sunlight; or (c) in a suitable closed vessel kept in a storeroom which is either in a safe position or in a fire resisting structure; or (d) in the case of a workroom where the aggregate quantity of highly flammable substances does not exceed 50 liters, in suitable closed vessels kept in a suitably placed cupboard or bin which is a fire resisting structure.
		Section 7	7.(1) Every occupier shall ensure that every store room, cupboard, bin, tank or container used for storing highly flammable substances is clearly and boldly marked “Highly Flammable” in English or Kiswahili or otherwise with an appropriate indication of flammability.
		Section 11	11.(1) Every occupier shall provide in every workroom, facilities for free flow of fresh air, including windows, doors, vents, louvers or any other suitable ventilation facility to ensure that flammable fumes, vapor, gases or dust do not accumulate in the workroom. (2) In the case of an enclosed room, every occupier shall ensure that exhaust ventilation systems or mechanical ventilation facilities are provided. (3) A person who contravenes the provisions of this Rule commits an offence.
		Section 18	18. (1) Every occupier shall ensure that any door of any store where flammable substances are stored are constructed in a manner that the door shall be self-closing, opening outwards or sliding and capable of containing smoke from within the work room, in event of a fire. (2) A person who contravenes the provisions of this Rule commits an offence.
		Section 19	19. (1) Where a work place is a storied building, every occupier shall ensure that a work place is constructed in such a manner as to enable workers have access to other suitable outlet or exit for evacuation other than the emergency exits.
		Section 20	20. (1) Every occupier shall establish a fire fighting team that shall consist of– (a) at least two persons, where the number of workers is not more than ten; (b) at least three persons, where the number of workers is between eleven and twenty-five; (c) at least five persons, where the number of workers is more than twenty-five.
	Fire Risk Reduction Rules, 2007	Section 23	23. (1) Every occupier shall ensure that fire-drills are conducted at least once in every period of twelve months and a record of such drills kept available for inspection.
		Section 28	28.(1) Every occupier shall provide and maintain fire detection appliances. (2) Every occupier shall ensure that fire detection appliances are located in the appropriate places for immediate activation of an alarm or automatic fire extinguishing systems.
	Fire Risk Reduction Rules, 2007	Section 29	29. (1) Every occupier shall provide means of extinguishing fire at the work place. (2) Every occupier shall ensure that the position of the means in subsection (1) shall be distinctively and conspicuously marked. (3) Every occupier shall ensure that any portable fire extinguisher is mounted at an easily accessible height of not less than 60 cm from the floor.
		Section 31	31. (1) Every occupier shall ensure that, in selecting and distributing fire extinguishers in the workplace, the distribution and selection is based on the classes of fires anticipated and based on the size and degree of hazard caused by a fire. (2) Where a fire extinguisher is for the use of extinguishing class A fires, every

Legal Basis			occupier shall ensure that the fire extinguisher is located as near as possible and not more than 10 meters from the hazard area.
	Environmental Management and Coordination Act, 2000	Part VII. Section 68	68. (1) The Authority shall be responsible for carrying out environmental audit of all activities that are likely to have significant effect on the environment. An environmental inspector appointed under this Act may enter any land or premises for the purposes of determining how far the activities carried out on that land or premises conform with the statements made in the environmental impact assessment study report issued in respect of that land or those premises under section 58(2).
		Part VII. Section 78	78. (1) (h) request the Authority to carry out investigations of actual or suspected air pollution including pollution produced by aircrafts and other self-propelled vehicles and by factories and power generating stations.
	The environmental (impact assessment and audit) Regulations, 2003	Section 28	(1) The Authority may, at any time after it issues a license under these Regulations, on the advice of the Standards Enforcement and Review Committee— (a) suspend the license on such terms and conditions as the Authority may deem fit for a period not exceeding twenty-four months; or (b) revoke or cancel the license.
		Section 31	3. (b) A proponent of a project that has undergone an environmental impact assessment study shall within a period of twelve months of the commencement of the operations, and not more than twenty-four months after the completion of a project which-ever is earlier, undertake an environmental audit of the project: Provided that an audit may be required sooner if the life of the project is shorter than the period prescribed under this Regulation.
		Section 32	In carrying out an environmental audit study, the environmental auditor shall comply with any existing national environmental regulations and standards prescribed by the Authority, and in the absence of such national environmental regulations and standards shall use such other international standards as shall be prescribed by the Authority.
		Section 33	(1) A control audit shall be carried out by the Authority, whenever the Authority deems it necessary to check compliance with the environmental parameters set for the project or to verify self-auditing reports. (2) A control audit shall— (a) confirm that the environmental management plan of the project is being adhered to; and (b) verify the adequacy of the environmental management plan in mitigating the negative impacts of a project.
	The environmental (impact assessment and audit) Regulations, 2003	Section 34	(1) In executing a project, after the environmental impact assessment study report has been approved by the Authority, or after the initial audit of an ongoing project, the proponent shall take all practical measures to ensure the implementation of the environmental management plan by— (a) carrying out a self-auditing study on a regular basis; (b) preparing an environmental audit report after each audit and submitting the report to the Authority annually or as may be prescribed by the Authority; and (c) ensuring that the criteria used for the audit is based on the environmental management plan developed during the environmental impact assessment process or after the initial audit.
	The Constitution of Kenya	Fourth Schedule. Part II. Section 8	8. County planning and development, including— (a) statistics; (b) land survey and mapping; (c) boundaries and fencing; (d) housing; and (e) electricity and gas reticulation and energy regulation.
		Section 42	Every person has the right to a clean and healthy environment, which includes the right— (a) to have the environment protected for the benefit of present and future generations through legislative and other measures, particularly those contemplated in Article 69; and (b) to have obligations relating to the environment fulfilled under Article 70.

Legal Basis		Section 43	(1) Every person has the right— (a) to the highest attainable standard of health, which includes the right to health care services, including reproductive health care; (b) to accessible and adequate housing, and to reasonable standards of sanitation; (c) to be free from hunger, and to have adequate food of acceptable quality; (d) to clean and safe water in adequate quantities; (e) to social security; and (f) to education.
	The Engineers Act, 2011	Section 30	30. (1) The Commission shall, in granting or rejecting an application for a license or permit, take into consideration— (a) the impact of the undertaking on the social, cultural or recreational life of the community; (b) the need to protect the environment and to conserve the natural resources in accordance with the Environmental Management and Co-ordination Act of 1999 (No. 8 of 1999); (c) land use or the location of the undertaking; (d) economic and financial benefits to the country or area of supply of the undertaking.
		Section 31	(1) Every license or permit shall be in such form as the Commission may determine and shall, subject to subsection (2), contain such particulars or conditions where applicable— (a) the provisions for tariffs or charges for the importation, exportation, generation, transmission, distribution and supply of electrical energy to different classes of consumers; (b) the duration of the license or permit; (c) the maximum capacity of supply of the undertaking; (d) the area of supply of the undertaking; and (e) any other matter connected with the carrying on of the undertaking.

Sub-Cycle 05: MODIFICATIONS

Updated on 03/12/2018

Legal Basis	**Applicable law**	**Detailed sections**
	The Occupational Safety and Health Act, 2007	S.44(7) Change of use, S.45(3) Exception to registration
	The Local Government (Adoptive By-Laws) (Building) Order 1968	S.3 Erection of buildings, S.5 Submission of plans, S.8. Approval of minor alterations and additions, S. 252 Unauthorized building and change of use, Part D and F of the first schedule
	The Physical Planning Act,1996	S.3 Interpretation, S.47 Preservation of buildings of Special Architectural value or historic interest
	The Physical Planning Building and Development (Control) Rules, 1998	S.11 Alteration of building (change of class), S.30 What constitutes erection of buildings,
Relevant Institutions	**Institutions Involved**	
	(Activity 01) Obtain the Survey Plan	
	Ministry of Land and Physical Planning	
	Department of survey	1. Request for Folio Registry number search, 2. Pay for Folio Registry number search, 3. Submit search payment receipt. 4. Confirm availability of survey plan, 5. Pay for survey plan, 6. Obtain survey plan
	(Activity 02) Obtain the environmental Impact Assessment	
	National Environment Management Authority	
	Compliance and Enforcement Department	1. Submit Terms of reference, 2. Obtain terms of reference approval, 3. Register with NEMA licensing portal Online procedure 4. Submit EIA study report Online procedure 5. Submit hard copies of the study report 6. Obtain notice for gazettement, 7. Submit notice for gazettement, 8. Obtain proforma invoice, 9. Pay for gazettement, 10. Pay for gazette notice, 11. Obtain gazette notice, 12. Submit evidence of advertisement, 13. Obtain EIA license
	(Activity 03) Obtain the Approval for Development	
	Nairobi City County	
	Sub-Sector of Urban Planning	See activity nr. 03 DESIGN

Sub-Cycle 05: MODIFICATIONS (detailed)

	Applicable law	Detailed sections	
		Section Nr.	**Text**
Legal Basis	**The Occupational Safety and Health Act, 2007**	Section 44	44. (7) The occupier of a workplace registered under this Act shall notify the Director in writing of any proposed change in the registered particulars of that workplace prior to effecting.
		Section 45	45. (3) An exception granted under subsection (1) shall be subject to review by the Director every five years or such shorter period as he may deem necessary in order to assess the general status of the safety and health in the classes of workplaces thereby excepted, with a view to upholding the exception or withdrawing it.
	The Local Government (Adoptive By-Laws) (Building) Order 1968	Section 3	3. (1) A person who erects a building or develops land or changes the use of a building or land, or who owns or occupies a building or land shall comply with the requirements of these By-laws. (2) For the purpose of these By-laws any of the following operations shall be deemed to be the erection of a building- (a) the re-erection of any building or part of a building when an outer wall of that building or, as the case may be, that part of such building has been pulled down, burnt or damaged; (b) the roofing over of any open space; (c) the alteration or extension of a building; (d) the erection, alteration or extension of a chimney shaft (e) changing of the use or uses to which land or a building is put; (f) increasing of the use or uses to which land or a building is put; (g) the carrying out of any drainage work; (h) the installation of any fittings to which by-laws 143 to 149 or by-laws 167 to 179 of these By-laws refer; (i) the formation or laying out of an access to a plot.
		Section 5	5. A person who intends to erect a building or materially change the use of a building or part of a building shall furnish the council in the manner provided in Part A of the First Schedule to these By-laws with such of the following particulars as are applicable – (a) if the building is one for which the council may relax in whole or in part, the provisions of these By-laws as provided for in by-laws 11 to 14 of these By-laws, the particulars specified in Part B of the First Schedule to these By-laws; (b) if the building is a chimney shaft to which by-laws 120 to 123 of these By-laws apply, the particulars specified in Part C of the First Schedule to these By-laws; (c) if the building is an alteration or extension to an existing building, the particulars specified in Part D of the First Schedule to these By-laws, and if so required by the council, the particulars specified in Part E of the First Schedule to these By-laws or in the case of a chimney shaft, the particulars specified in part C of the First Schedule to these By-laws. (d) if the building constitutes a change of use or uses, the particulars specified in Part F of the First Schedule to these By-laws and any particulars which may be required under paragraph (c) of this by-law.
		Section 8	8. (1) Notwithstanding anything contained in these By-laws, the council may grant permission in writing to any person to proceed with any minor alteration or addition to a building or the erection of any boundary wall, screen wall, fence or of a hoarding, or the formation of any access, which complies generally with the intent and purpose of these By-laws, but which is regarded by the council as of minor importance: Provided that such permission shall automatically lapse in the event of not being acted upon within six months of the date of its grant. (2) The council may delegate its powers under this by-law to an officer of the council or such other person as the council may appoint.

Legal Basis	**The Local Government (Adoptive By-Laws)(Building) Order 1968**	Section 252	252. (1) Any person, who shall erect or permit the erection of a building, without first obtaining the approval of the council to plans submitted in accordance with these bylaws, shall be guilty of an offence. (2) Any person who shall, except with the permission of the council, use any building or part of a building otherwise than for the purpose specified in the approved plan thereof, shall be guilty of an offence. (3) Any owner of a building who shall, except with the permission of the council, permit such building or any part thereof to be used otherwise than for the purpose specified in the approved plan, shall be guilty of an offence. (4) In any proceeding under this bylaw it shall be deemed until the contrary is proved, that where a building or any part thereof, is used otherwise than in accordance with the approved plan thereof, such use is with the permission of the owner of the building. (5) In this bylaw „"purpose"" means the particular purpose for which each part of a building was erected, and the approved plan shall be prima facie evidence of such purpose.
		First Schedule section 11	11. In the case of alterations not involving any extension of a building, plans and sections as required by paragraph 21 of this schedule of the alternations and the building, so far as such plans and sections are necessary to show whether the proposals will comply with these Bylaws.
		First Schedule section 12	12. In the case of an extension of a building – (a) the particulars referred to in Part H of this schedule in relation to the extension as if the extension were the building therein referred to; and (b) the specific use of each and every part of the building; and (c) plans and sections are required by paragraph 21 of this schedule of the building so far as affected by the extension, so far as such particulars, plans and sections are necessary to show whether the proposal will comply with these Bylaws.
	Physical Planning Act, 1996	Section 3	"development" means— (a) the making of any material change in the use or density of any buildings or land or the subdivision of any land which for the purpose of this Act is classified as Class "A" development; and (b) the erection of such buildings or works and the carrying out of such building operations, as the Minister may from time to time determine, which for the purposes of this Act is classified as Class "B" development: Provided that— (i) the carrying out of works for the maintenance of improvement or other alteration, of or addition to, any building where such alteration or addition does not exceed 10 per cent of the floor area of the building measured on the date this Act becomes applicable to the area in which that building or land is situated; (ii) the carrying out by a competent authority of any works required for the construction, maintenance or improvement of a road, if the works are carried out on land within the road reserves; (iii) the carrying out by any loca1 authority or statutory body of any works for the purpose of inspecting, repairing or renewing any sewers, mains, pipes, cables or other apparatus, including breaking open of any street for that purpose and the installation of services by such local authority or statutory body; shall not constitute development for the purposes of this Act.
		Section 47	47. (1) Subject to the provisions of National Museums and Heritage Act, the Director may, after consultation with the Board of National Museums serve on the owner or occupier of a building which in the opinion of the Director is of special architectural value or historic interest, an order prohibiting the demolition, alteration or extension of such building.

Legal Basis	**The Physical Planning Building and Development (Control) Rules, 1998**	Section 11	11. Where the use of any building or part thereof of any one class or combination of classes be altered to that of another class or combination of classes for which a less amount of coverage is required under these rules not less than the minimum open space required under these Rules shall be provided for the class or combination of classes to which the building has been altered.
		Section 30	30. For the purposes of these Rules any of the following operations shall be deemed to be the erection of a building or the carrying out of development— (a) the erection of any new building; (b) the erection of any addition to an existing building;(c) the re-erection or alteration of any part of an existing building; (d) the re-erection of any building or part of a building where an outer wall of that building or that part of a building has been destroyed, pulled down, burned down or damaged either wholly or partially; (e) the roofing-over of any space between walls or buildings; (f) the changing of the use, or purpose for which a building, part of a building or appurtenances thereto are used, or increasing or reducing the number of dwellings or separate tenancies to execute any alterations or works in connection with the purposed change; (g) the carrying out of any drainage works and water service works; (h) the changing of use of the land including quarrying, dumping and drying operations.
		Section 36	36. (1) Where a person commences work upon any alterations or additions to any existing building or carries out developments before receiving the approval of the local authority in consultation with the Director of Physical Planning, the local authority shall serve that the person with a notice requiring him to cease such work or development.
	The Physical Planning Order, 1998	Schedule Part I Class I, II, III	(All sections are relevant)

Sub-Cycle 06: DEMOLITIONS		Updated on 03/12/018
Legal Basis	**Applicable law**	**Detailed sections**
	The Local Government (Adoptive By-Laws) (Building) Order 1968	S.240 Demolition, S.241 Damage to the streets
	The Public Health Act, 1921	S.124 Demolition of unfit dwelling
	Physical planning Act, 1996	S.47 Prohibition to demolish
	The Environmental Management and Co-Ordination Act, 2000	S. 103(1) Demolitions and emissions of noises
Relevant Institutions	**Institutions Involved**	
	(Activity 01) Obtain the Survey Plan	
	Ministry of Land and Physical Planning	
	Department of survey	1. Request for Folio Registry number search, 2. Pay for Folio Registry number search, 3. Submit search payment receipt. 4. Confirm availability of survey plan, 5. Pay for survey plan, 6. Obtain survey plan
	(Activity 02) Obtain the Approval for Demolition	
	Nairobi City County	
	Sub-Sector of Urban Planning	1. Register with Nairobi City County self-service portal, 2. Submit architectural plans, 3. Pay for permit fees, 4. Obtain architectural plans approval notification through the scrutinization of the technical commission (Sections of the city council (public health, engineer, fire brigade, development control), The Kenya institute of planners, The architectural association of Kenya, Board of engineers, The board of surveyors, Kenya Power, Nairobi Water, NEMA), 5. Submit architectural plans for signing, 6. Obtain authenticated architectural plans and construction permit, 7. Submit structural plans, 8. Obtain structural plans approval notification, 9. Submit structural plans for signing, 10. Obtain authenticated structural plans

Sub-Cycle 06: DEMOLITIONS (Detailed)

	Applicable law	Detailed sections	
		Section Nr.	**Text**
Legal Basis	**The Local Government (Adoptive By-Laws) (Building) Order 1968**	Section 240	240. (1) A person intending to demolish a building or part of a building, shall notify the council in writing of such intention at least three days before the work is commenced. (2) A building or part of a building shall be demolished in a manner satisfactory to the council, and the council may if it deems fit require screening or watering to avoid dust nuisance. (3) throughout the demolition or partial demolition, all parts of the remaining structure shall be left in a safe condition. (4) The owner or contractor shall, on the completion of the demolition, ensure that all materials and debris not forming part of any remaining structure or in any way supporting any other structure, are removed from the site and that the site is left in a clean and tidy condition.
		Section 241	241. If because of the erection, alteration or demolition of a building or of a hoarding or scaffolding in connection with such work, a street is damaged, the council may either- (a) make good the damage to such street and recover from the owner or developer of the plot concerned any expenses reasonably incurred in so doing, or (b) serve a notice in writing upon the owner or developer of the plot concerned, requiring him to make good to the satisfaction of the council, the damage to such street within such period as many be specified in the notice.
	Physical Planning Act, 1996	Section 3	"development" means— (a) the making of any material change in the use or density of any buildings or land or the subdivision of any land which for the purpose of this Act is classified as Class "A" development; and (b) the erection of such buildings or works and the carrying out of such building operations, as the Minister may from time to time determine, which for the purposes of this Act is classified as Class "B" development: Provided that— (i) the carrying out of works for the maintenance of improvement or other alteration, of or addition to, any building where such alteration or addition does not exceed 10 per cent of the floor area of the building measured on the date this Act becomes applicable to the area in which that building or land is situated; (ii) the carrying out by a competent authority of any works required for the construction, maintenance or improvement of a road, if the works are carried out on land within the road reserves; (iii) the carrying out by any loca1 authority or statutory body of any works for the purpose of inspecting, repairing or renewing any sewers, mains, pipes, cables or other apparatus, including breaking open of any street for that purpose and the installation of services by such local authority or statutory body; shall not constitute development for the purposes of this Act.
		Section 47	47. (1) Subject to the provisions of National Museums and Heritage Act, the Director may, after consultation with the Board of National Museums serve on the owner or occupier of a building which in the opinion of the Director is of special architectural value or historic interest, an order prohibiting the demolition, alteration or extension of such building.
	The Environmental Management and Co-Ordination Act, 2000	Section 103	103.(1) Notwithstanding the provisions of section 102, the Authority may on request grant a temporary permit not exceeding three months, allowing emission of noise in excess of established standards for such activities as fireworks, demolitions, firing ranges, and specific heavy industry on such terms and conditions as the Authority may determine.

Annex 2: Summary of Section S of the National Building Regulation, 2011 (Draft Building Code, 2011)

- Section S references BS 9999:20018, which "gives recommendations and guidance on the design, management and use of buildings to achieve reasonable standards of fire safety for all people in and around them. It also provides guidance on the on-going management of fire safety within a building throughout its entire life cycle, including guidance for designers to ensure that the overall design of a building assists and enhances the management of fire safety." Section S has six requirements and stipulates an accredited designer for compliance.
- Section S specifies fire control between buildings through fire-resistant exterior walls, windows and distance based on the type of building.
- Section S subdivides building floors into divisions depending on the presence of automatic sprinklers and number of floors as a function of occupancy. These divisions are modified by presence of combustible floor or ceiling materials.
- The Kenya Bureau of Standards (KBS) are referenced for fire resistance and non-combustibility of separating and structural elements. Kenya Bureau of Standards also are referenced for fire doors and opening protection.
- Section S specifies escape routes in terms of all their components and dimensions.
- Fire detection and manually activated alarms are required based on the building's area and height. Sprinklers also are required based on the building's area and height. Portable fire extinguishers follow KBS standards.
- Section S specifies fire prevention in concealed spaces and service shafts, and smoke control by mechanical ventilation, a roof ventilator, or windows that open.
- KBS standards apply to fire dampers in air-conditioning systems.
- Section S specifies fire safety for stage, backstage, and auditoria seating.
- Section S requires evacuation procedures to be posted and evacuation plans to be developed, with forms included in this section.

Annex 3: Details of Good Practices Included in the National Building Regulation (Draft Building Code, 2009)

KENYA 2009 DRAFT BUILDING CODE	
CHAPTER	**BUILDING CODE ELEMENTS APPROPRIATELY INCLUDED IN THE DRAFT**
Volume 1: INTERPRETATION AND ADMINISTRATION AA3.1, AA3.2	Sections AA3.1 and AA3.2 define legal and technical elements and contain standard for the Kenya Bureau of Standards (KBS), the British Standard (BS), and the South African Bureau of Standards.
Volume 3: STRUCTURES AND MATERIALS FF12, 13, 15, 21, and 22	Sections FF12, 13, 15, 21, and 22 reference British Standards (BS) for loads and structural materials, including dead, live, wind, earthquake, and lateral loads.
Volume 3: STRUCTURE AND MATERIALS F25	In the 2009 draft building code, Section XX provides tables for the bearing capacity of soils and detailed foundation and excavation specifications to define the limit states for the design and the depth of the foundations system.
Volume 4: BUILDING SERVICES MM5	In the 2009 draft building code, MM5 provides regulations regarding the access for firemen in case of fire.
Volume 4: BUILDING SERVICES MM1	In the 2009 draft building code, MM1 provides regulations regarding the design of stairways, handrails and guardrails as well as detailed design requirements for ramps and parking spaces.
Volume 4: BUILDING SERVICES MM20.1	Section MM20.1 references BS Nr. 5655 Part 1-14 of 1979 for elevators and provides specifications for their design, ventilation, and access to lift wells and mechanical room.
Volume 4: BUILDING SERVICES NN1-NN24	Sections NN1 to NN24 provide detailed specifications for natural lighting, natural ventilation and artificial ventilation of buildings.
Volume 4: BUILDING SERVICES NN30	Section NN30 provides the limit levels of noise emission for new housing and refurbishments. It mostly specifies noise levels for housing, but also includes specifications for other occupancies including public spaces.
Volume 4: BUILDING SERVICES SS3	SS3 defines 29 types of occupancies in relation to fire safety purposes. This categorization represents the base for all subsequent provisions related to the type of occupancy.

Volume 4: BUILDING SERVICES SS6-SS13	Sections SS6 to SS13 provide the fire-related requirements to consider when designing a building. These requirements are related to the spread of fire between two or more buildings and deal with the fire resistance of exterior walls, the presence of windows and distance between buildings based on the occupancy types.
Volume 4: BUILDING SERVICES SS7-SS12	Sections SS7 to SS12 provide specifications for fire compartmentation of building floors considering the number of floors based on their occupancy and the presence of automatic sprinklers. The compartmentation requirements are also a function of the presence of combustible floor and ceiling materials.
Volume 4: BUILDING SERVICES SS7	Section SS7 specifies that the Kenyan Bureau of Standards represents the authority to determine the compliance of certain materials with the required fire resistance and non-combustibility of separating elements and structural elements. Technical specifications for fire doors and opening protection specified with reference to KS.
Volume 4: BUILDING SERVICES SS19-SS24	Sections SS19 and SS24 provide technical guidance for escape routes and their dimensions.
Volume 4: BUILDING SERVICES SS32 - SS38	Sections SS32 and SS38 provide guidance and requirements for fire detection, alarm systems, fire extinction, etc. in relation to the type of occupancy and the building area and height.
Volume 4: BUILDING SERVICES SS40-SS41	Sections SS40 and SS41 specify the technical provisions for stopping the spread of a fire in confined spaces. It also provides specifications for the protection of service shafts as well as some technical means for smoke evacuation.
Volume 4: BUILDING SERVICES SS67	Section SS67 specifies evacuation procedures and provides information for the conception of an evacuation plan.
Volume 4: BUILDING SERVICES UU4-UU24	Sections UU4 to UU24 define the general rights and obligations of parties related to the construction process including the duties of the client, of the designer, and of the contractor.
Volume 4: BUILDING SERVICES UU25-UU44	Sections UU25 to UU44 define the duties relating to health and safety on construction sites.

Volume 2: **PHYSICAL PLANNING, SITING AND SITE PREPARATIONS** **BB4 to BB6** **BB17 to BB37**	The 2009 draft building code provides a complete set of provisions to consider the influence of zoning on building design as well as provisions for height and covered area limitation. The code has regulations interacting with development plans of the different zones considering geometric constraints in harmony with the existing urban infrastructure.
Volume 3: **STRUCTURES AND MATERIALS** **FF2 and FF3**	Sections FF2 and FF3 provide technical information regarding the materials that can be used for the structure, but also complementary provisions for each structural element (foundations, floors, walls, roofs, etc.) providing graphics and explanations related to adequate construction practices.
Volume 5: **SAFETY, DISASTER RISK MANAGEMENT AND MAINTENANCE** **SS3 to SS17**	Types of occupancies are clearly defined as well fire resistance duration required for different elements such as floors, walls, doors, etc.
Volume 3: **STRUCTURES AND MATERIALS** **FF3**	Section FF3 provides detailed provisions for testing materials. The 2009 draft building code has a complete list of the standards that should be used for testing materials. The list includes Kenyan Standards as well as British Standards for different materials and elements.
Volume 5: **SAFETY, DISASTER RISK MANAGEMENT AND MAINTENANCE** **SS3 to SS18**	Sections SS3 to SS18 consider all fundamental aspects of fire protection for buildings. Detailed provisions are presented for the following matters: prevention, detection, and warning, containment, barriers, life safety, extinguishment, fire testing, fire mechanical, electrical design and regulations for the fire-sprinkler systems.
Volume 3: **STRUCTURES AND MATERIALS** **FF22**	Section FF22 of the 2009 draft building code refers to a document developed by the National Research Center. This document must consider at least: seismic hazard maps, active seismic sources, soil characteristics, occupancy (for the effects of seismic hazard), structure configuration, and structural systems.
Volume 3: **STRUCTURES AND MATERIALS** **FF3**	Section FF3 stipulates that material design methodology used in the design of any structural element or component shall thereof be the one specified or contemplated in the relevant British Standard Code of Practice.
Volume 1: **INTERPRETATION AND ADMINISTRATION** **AA3.2 AA28.9** **TT Section**	The draft presents a complete set of provisions for geotechnical and structural inspection.

Volume 2: **PHYSICAL PLANNING, SITING AND SITE PREPARATIONS** **BB117** **Volume 4:** **ENCLOSURE AND POSITION OF LIFTS AND MOTOR ROOMS** **MM17, 19 -42.2** **Volume 5:** **SAFETY, DISASTER RISK MANAGEMENT AND MAINTENANCE** **SS47** **INSPECTION** **TT8.1**	The draft presents a set of complete requirements regarding elevators including complete fire requirements.
Volume 2: **PHYSICAL PLANNING, SITING AND SITE PREPARATIONS** **BB87 to BB98**	The draft presents a set of basic regulations regarding the accessibility for persons with disabilities.

Annex 4: Analysis of the National Building Regulation (Draft Building Code, 2009) and Recommendations

KENYA 2009 DRAFT CODE		
CHAPTER	**PROBLEM**	**RECOMMENDATION**
Volume 3: STRUCTURES AND MATERIALS FF2	The code has no provisions to establish the structural systems of buildings[195]. Thus, it is possible that the designer selects a structural system without the adequate performance for certain seismic hazard. This situation increases the vulnerability of new buildings.	Establish the requirements in the code for structural systems categories. These categories must be selected from structural systems that performed properly after real earthquakes and that had been tested under lateral loads to understand their behaviour. This measure will increase the safety and reduce the vulnerability of new buildings.
Volume 3: STRUCTURES AND MATERIALS FF21.2, FF22, and FF24 Section U	There are no wind, earthquake or flood maps in the code; furthermore, there are no provisions to evaluate lateral loads for buildings, and disaster risk management is not handled as a factor of planning. The lack of hazard mapping information directly increases the vulnerability of new buildings.	Include wind, earthquake and flooding maps (for example, a flood map that provides information of local [county] or national flooding risk areas) to understand this type of hazards and develop urban development policies. Include the building code design methodologies to evaluate building lateral loads (wind and seismic). Furthermore, develop disaster risk management guidelines along the code as a factor of planning to diminish vulnerability, mitigate the risk of lateral loads. Finally, it must include design alternatives for new and existing structures. It increases the safety and reduces the vulnerability of new, and existing buildings.
Volume 3: STRUCTURES AND MATERIALS FF24	The code has no design requirements to provide ductility[196] to the structural elements of the Lateral Force Resisting System (LFRS). These requirements aim to guarantee the performance of the building under large deformations caused by lateral loads, but without the rupture or collapse of the building. For concrete structures, it is provided by requiring seismic detailing provisions for reinforcement and redundancy requirements. Buildings designed without these considerations present risks of sudden and brittle failures under lateral (seismic) loads.	Include design requirements to provide a ductile behaviour on the elements of the LFRS. This is important because the ordinary seismic design is based on considering large damage and lateral displacement of the structure under lateral loads. Considering these regulations increases the safety and reduces the vulnerability of new buildings.

195 Structural System: The system of constructional elements and components of any building which is provided to resist the loads acting upon it and to transfer such loads to the ground upon which the foundation of the building rests.
196 Ibid.

KENYA 2009 DRAFT CODE		
CHAPTER	**PROBLEM**	**RECOMMENDATION**
Volume 3: STRUCTURES AND MATERIALS F25	The code does not include procedures for the design of the foundation and there are no specific requirements for the minimum geotechnical subsoil exploration. This is an issue because under current provisions, foundation design is developed without appropriate knowledge of the soil properties and there are no standard methodologies for the foundation design. This increases the risks on the foundation of the building to settle, rotate or even liquify.	Include requirements for the minimum geotechnical subsoil exploration, such as the number of perforations and their depths, and procedures for the design of the foundation to define the limit states for the design, the depth of the foundations and establish a framework to determine the parameters of the soil for the foundation. These requirements reduce the risk of problems on the foundation during the lifespan of the structure.
Volume 4: BUILDING SERVICES / N, O, P, Q	The code has only some provisions for mechanical, energy conservation, electrical, fire, and plumbing. These provisions are based on interdisciplinary codes and the coordination among them as well as the accessibility to the information is not guaranteed. This lack of important information results in undefined design conditions that could generate inconsistent or flawed interdisciplinary designs e.g. sprinklers without water tank with an appropriate volume of water supply.	Cross-check missing information and evaluate the coordination between general building regulations and specific codes. Complement the building code with mechanical, energy conservation, electrical, fire, and plumbing with specific code provisions. This is important to generate appropriate interdisciplinary designs.
Volume 3: STRUCTURES AND MATERIALS FF12	The code does not provide the weight of most common structural and non-structural components or the density of the materials commonly used in the local buildings. This is crucial for the adequate evaluation of the dead loads[218]. This lack of information can cause uncertainty on the estimation of the dead loads of the building which comprises gravitational and lateral load design.	Include information about the density of structural and non-structural components for the most common elements, and materials used in the local construction. Establish the real values for the weight of structural and non-structural elements of a building. Provide minimum loads for the structural design for gravitational loads. This is important to limit uncertainty on the calculation of the loads.

197 Dead Load: A non-varying load which is permanently applied to a structure and acting always as opposed to imposed load.

KENYA 2009 DRAFT CODE		
CHAPTER	**PROBLEM**	**RECOMMENDATION**
Volume 3: STRUCTURES AND MATERIALS FF3	The code has no requirements for local materials and does not include a procedure for the validation of alternative: materials, structural systems, design methods, analysis methodologies or construction methods. This is an obstacle to the introduction of new building materials, new design and construction methods outside the provisions and limits the local industry by restricting innovate solutions under this rule.	Include local material requirements and a clear procedure for the validation of alternatives for materials for buildings, design and construction methods. These requirements should include regulations for the introduction of new materials, structural systems, analysis methodologies, and construction methods in specific cases. Furthermore, these regulations protect the community from the proliferation of building materials and procedures outside the building code and bring the opportunity for the local industry to innovate under this rule.
Volume 5 : Section U : SAF., DIS. RISK MANG. CONST. SITES BUILT ENV.	The code does not include technical-guidelines or support documents for non-engineered construction. The absence of non-engineered construction regulations for an alternative: materials, construction, and analysis methods, does not facilitate the formalization of local materials and practices. This exacerbates the problem of informal construction, reduces safety and increases the vulnerability.	Include technical-guidelines and support documents for non-engineered construction. Furthermore, for alternative: materials, construction, and analysis methods, it is important to develop guidelines and technical documents, especially for non-engineered construction. For example, AIS [2001][219] successfully developed this kind of documents in Colombia and as result, the safety increased, and the vulnerability decreased for new non-engineering buildings.
Volume 1: SCOPE, APPROVALS, CLASS, PERMITS AA22	The code fails to mention fire protection engineering and geotechnical designer engineering among the required disciplines in the inspection in the "Certificate of Identity of Building Control Officer". This could lead to violations of the building code requirements for fire or inadequate foundation level during the construction process of private and public buildings.	Include in the "Certificate of Identity of Building Control Officer", the fire protection qualified engineering and the geotechnical designer engineering inspection for private and public buildings. This can increase the fire safety and limit possible omissions during the construction of the foundation.
Volume 3: STRUCTURE AND MATERIALS / Section J	The code has no specific provisions for structural stability under fire for claddings and partition walls such as glass brick walls and thermal insulations. This increases the risks of fire damages and non-structural lateral failure damages on their surroundings.	Include provisions for structural stability under fire and fire resistance of non-structural components. This is important to guarantee the lateral and fire behaviour of non-structural elements and reduce the direct and indirect damages from the fire on the building and its surrounding area.

198 AIS. (2001). "Manual de Construcción, Evaluación y Rehabilitación Sismo Resistente de viviendas de Mampostería". Bogotá. https://www.asosismica.org.co/producto/manual-de-construccionevaluacion-y-rehabilitacion-sismo-resistente-de-viviendas-de-mamposteria.

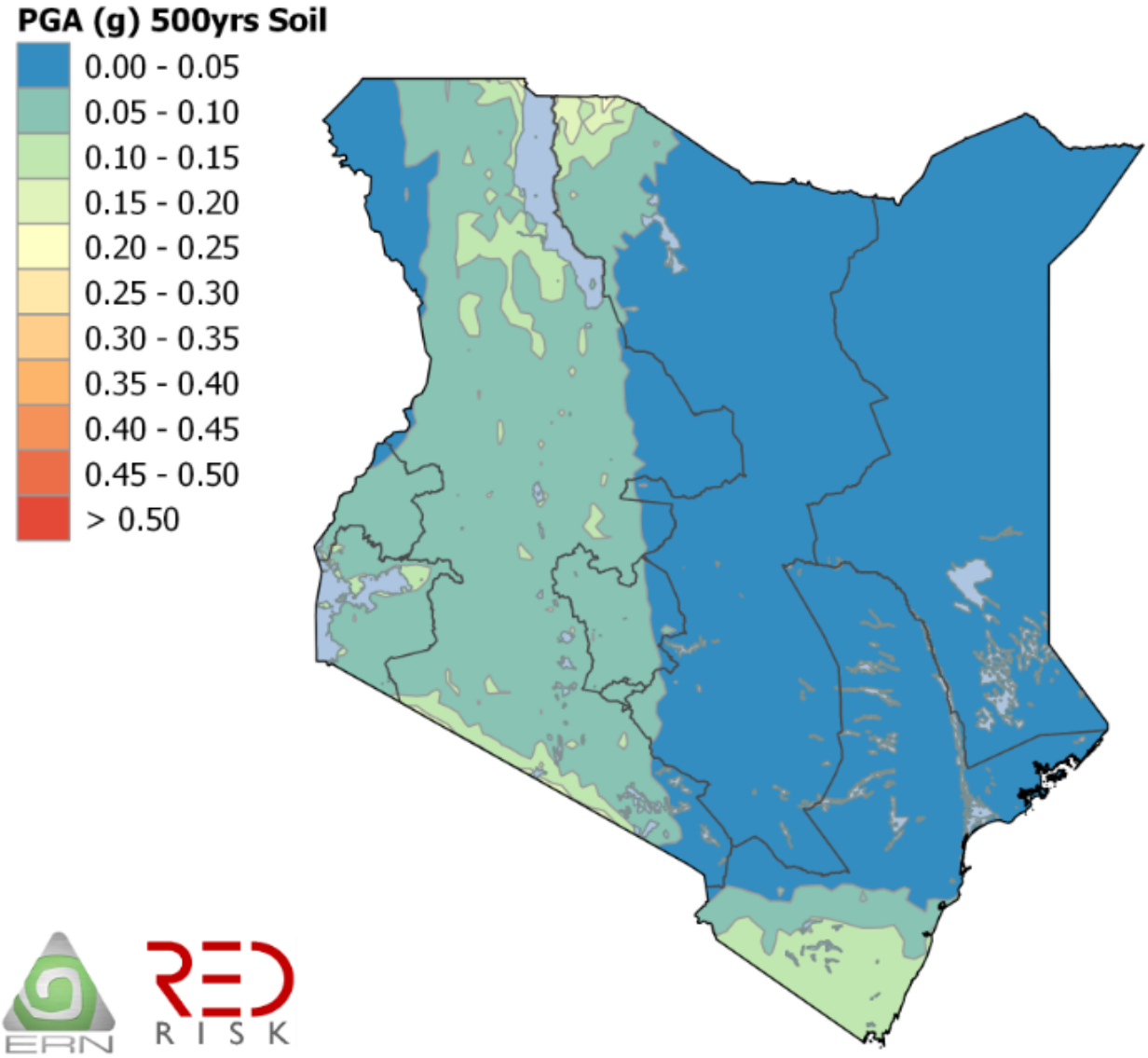
KENYA 2009 DRAFT CODE		
CHAPTER	**PROBLEM**	**RECOMMENDATION**
Volume 3: STRUCTURES AND MATERIALS SECTION J	There are no provisions for the stability of non-structural elements and non-structural walls such as partition and facade walls, lateral design, for loads such as wind and earthquake. In the frame buildings systems with masonry infills, masonry infills present functionality issues because of in-plane and out-of-plane accelerations during earthquakes. Inadequate design of cladding and partition walls generates damages and victims after an earthquake due to the combination of in-plane and out-of-plane effects.	Include provisions for the design of partitions and facade walls under lateral loads such as wind and earthquake. This reduces the vulnerability of the community.
Volume 5: SAFETY, DISASTER RISK MANAGEMENT AND MAINTENANCE T	There are no provisions in the 2009 draft building code regarding structural retrofit and/or maintenance process of historical buildings. The lack of specific provisions increases the vulnerability of these buildings in case of earthquake, fire or any other disaster event. This could lead to serious damages and / or total loss of the historic heritage of Kenya.	Provide specific provisions in the 2009 draft building code for the maintenance and/ or retrofit process of historical buildings (including retrofit analysis, seismic design considerations, etc.) considering some potential hazards such as fire and earthquake to preserve the historic heritage of Kenya.
Volume 4: BUILDING SERVICES / O	The code does not consider regulations for integrated water-cycle management for potable water, stormwater or wastewater for buildings[199]. The implementation of integrated water-cycle management reduces carbon footprint This regulation aims to achieve an energy and water conservation code.	Include integrated water-cycle management in the code for potable water, stormwater, and wastewater for buildings. This considers water supply, distribution, collection, treatment, reuse, and adequate disposal after a new treatment. This is important to achieve sustainable buildings and reduce water consumption.
Volume 4: BUILDING SERVICES / NN31.5	There are no requirements for the thermal insulation of the cladding, partitions, ceilings, or mechanical efficiency of building equipment. The lack of regulations on thermal insulations and mechanical efficiency has a big impact on the energy consumption of buildings especially with the hot climate of Kenya.	Incorporate sustainable construction regulations and benefits for lower carbon footprint materials. Include sustainable energy consumption in the building code. This guarantees the comfort and safety of the users and reduces energy consumption as well as the carbon footprint of the building.

199 See annex 1 – Integrated water-cycle management.

KENYA 2009 DRAFT CODE		
CHAPTER	**PROBLEM**	**RECOMMENDATION**
Volume 3: STRUCTURES AND MATERIALS FF13	The code has no provision to evaluate lateral soil pressure, hail or ponding. An inadequate evaluation of the lateral soil pressure of a retaining wall[200] or the omission in the design of the effects of the accumulation of frozen hail on roofs can cause total or partial collapse of a structure.	Include a provision to evaluate lateral soil pressure and hail loads. Considering these loads in design reduces the risk of collapse of retaining walls and roofs.
Volume 2: PHYSICAL PLANNING, SITING AND SITE PREPARATIONS BB13.3	The building code does not indicate the consequences of the gravitational and lateral loads due to change of use[201] of a structure, for example, when a domestic or housing building changes partially or totally to a commercial use, design requirements for lateral and gravitational loads for commercial use are higher. The lack of provisions for change of use increases the vulnerability of the community due to the risk of overloading.	Include a validation procedure for the change of use. The procedure encompasses a verification for the original and the proposed use of the building under lateral and gravitational loads. This is important to verify the adequacy of the structure for the new use and to assess the current condition. This will guarantee the safety of the community in case of change of use of a building.
Volume 3: STRUCTURES AND MATERIALS FF24	The conditions to evaluate overturning[202] are not clearly established. This must be considered for seismic and wind loads with adequate safety factors and load combinations. Adequate evaluation of overturning aims to guarantee the stability[203] of the building.	Define conditions to evaluate overturning including load combinations, safety factors according to the load combinations, seismic, and wind loads. Overturning verification is important to prevent instability.
Volume 4: BUILDING SERVICES / O004[8]	The code allows the use of pipes made of materials with asbestos for subsoil drainage. Exposure to asbestos causes serious respiratory diseases.	Exclude products made of asbestos in the code. This is important to reduce risks during handling, installation, maintenance, and disposal after the demolition of the building process.

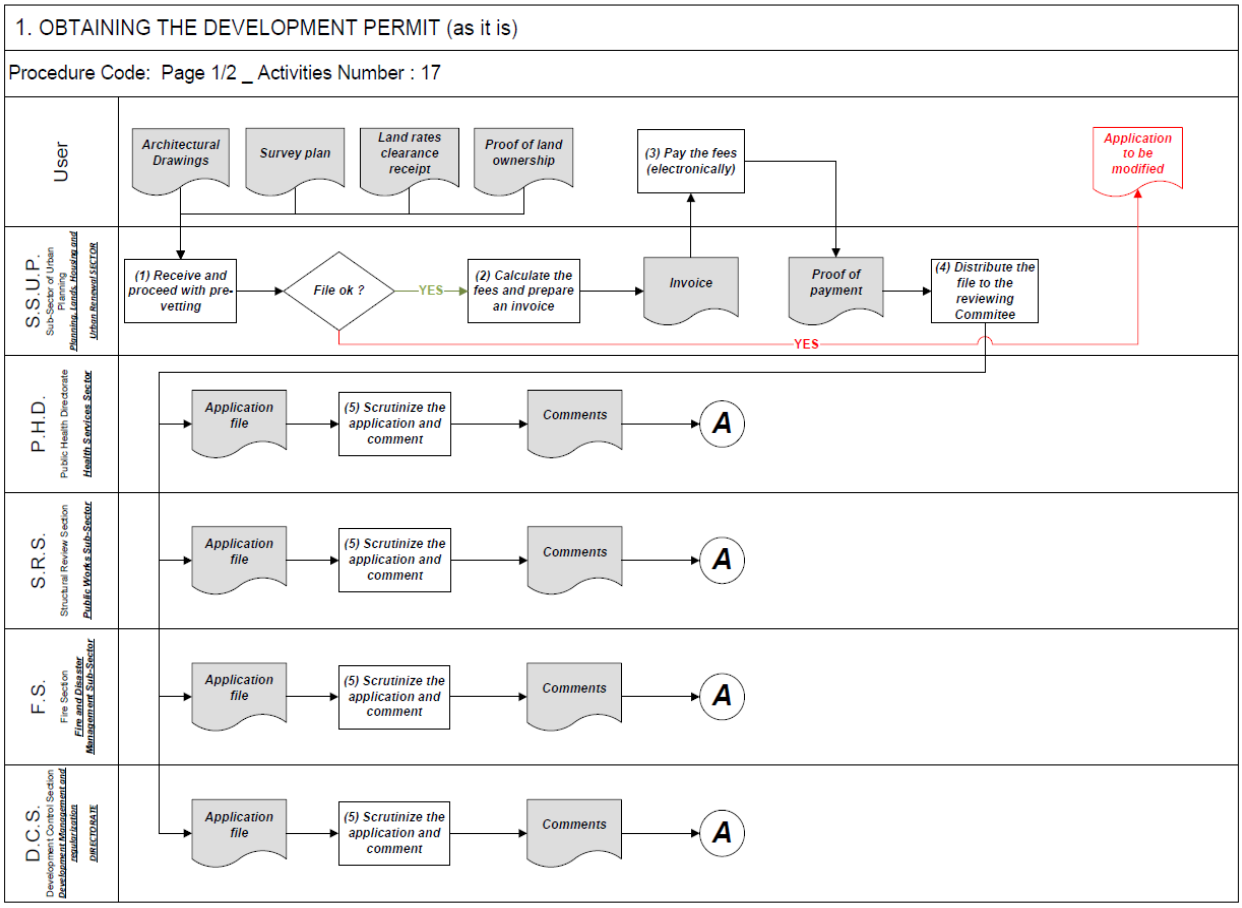
200 Retaining Wall: Wall providing lateral support to the ground or to resist pressure from a mass of other material, such as earth or water.
201 A change of use is required when the original use or occupancy of the building or a land changes, such as when a domestic or housing building changes partially or totally to a commercial use.
202 Overturning: Failure of a building caused by the soil pressure, which overcomes the general stability of the building.
203 Stability: The property of a body to maintain its attitude or to resist displacement, and, if displaced, to develop forces moments tending to restore the original condition.

Annex 5: Peak-Ground Acceleration Map



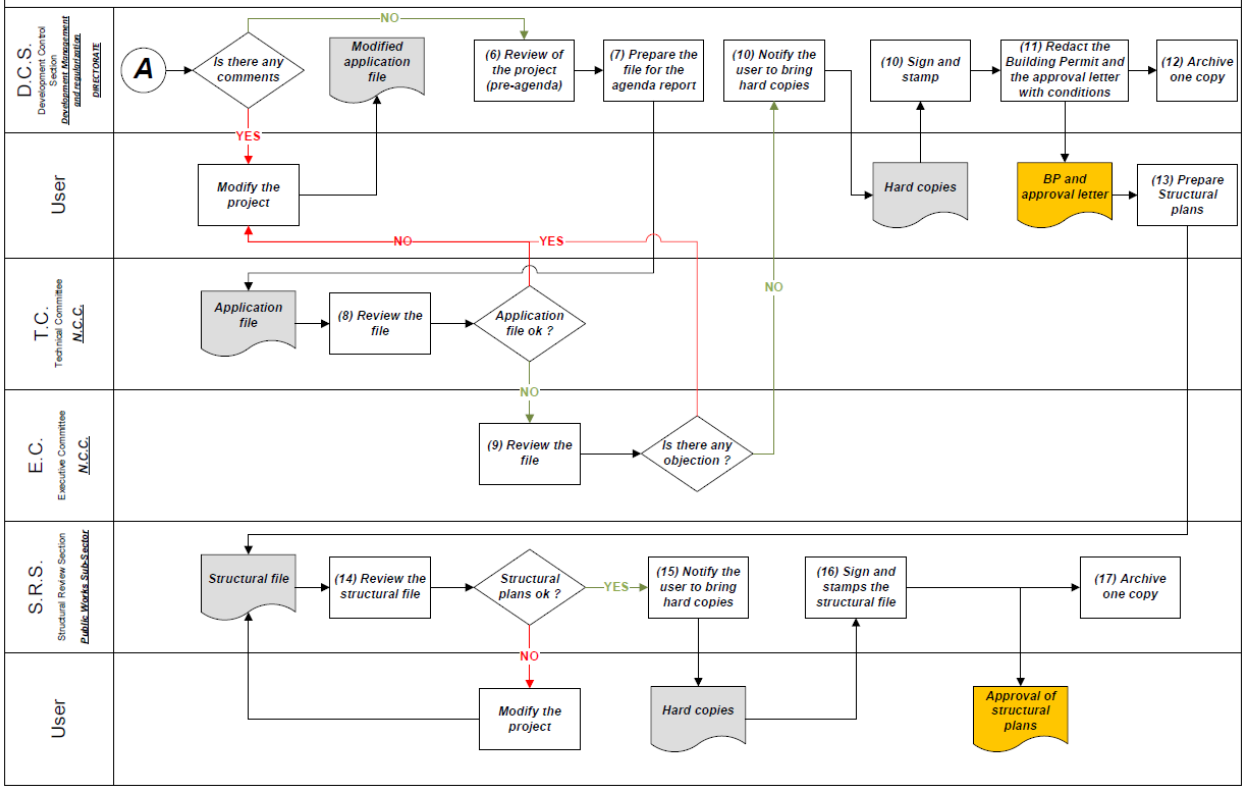
Source: Developed by RED (Risk Engineering and Development), 2018.

Annex 6: Process Mapping for Plan Review, Permitting and Inspection in Nairobi City County



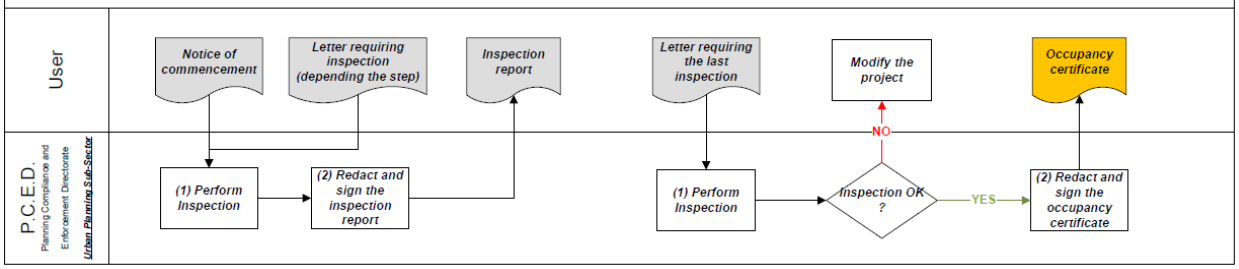
1. OBTAINING THE DEVELOPMENT PERMIT (as it is)

Procedure Code: Page 2/2 _ Activities Number : 17

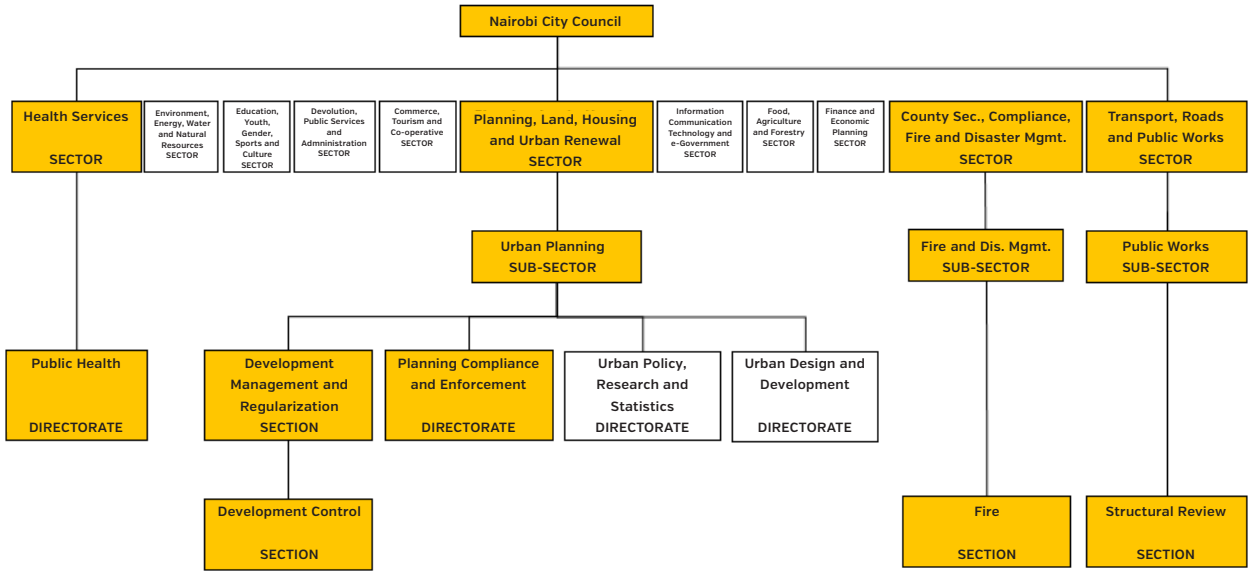


2. OBTAINING THE OCCUPANCY CERTIFICATE (as it is)

Procedure Code: Page 1/1 _ Activities Number : 2



Annex 7: Organisational Chart of Nairobi City County



Annex 8: Example of Construction Risk Matrices used in the Municipality of La Paz in Bolivia

MAPAS

NORMATIVA

PASO 1. MÓDULO PARAMÉTRICO LUSU

PASO 2. MATRIZ DE RIESGO A LA CONSTRUCCIÓN

PASO 3. MATRIZ DE RIESGO AL USO

MATRIZ DE RIESGO A LA CONSTRUCCIÓN

La matriz de Riesgos a la Construcción será utilizada en la primera fase del proceso de otorgación del Permiso de Construcción. Su función es distinguir y definir el tipo de construcción que se está proyectando categorizándola bajo un Grado de Riesgo, para así definir los proyectos y estudios complementarios, dando como resultado el listado de los requisitos mínimos a ser presentados para la obtención del Permiso de Construcción.

Instructivo: Matriz de riesgo a la construcción.pdf Ir a Sistema de Información Territorial

Tipo de Riesgo	*Factor de Riesgo*
Riesgo de Localización (RL) (Ver Mapa de Riesgos)	
Categoria	Muy Bajo
Riesgo del Terreno (RT)	
Pendiente	Baja - De 0 a 9 grados
Riesgo Estructural (RE)	
Número de Plantas	De 1 a 2 plantas
Número de Sótanos	Hasta 1 semisotano
Carga de Servicio (kN/m²) (Ver Cartilla)	Normal - De 0,25 < 2
	Categoria 1

Ver Reporte Guardar

MAPAS

NORMATIVA

PASO 1. MÓDULO PARAMÉTRICO LUSU

PASO 2. MATRIZ DE RIESGO A LA CONSTRUCCIÓN

PASO 3. MATRIZ DE RIESGO AL USO

MATRIZ DE RIESGO DE USO

La matriz de categorización de construcciones según el Riesgo de Uso, muestra cual es el grado de riesgo de una construcción cuando es utilizada. Esta Matriz se utiliza para recomendar las mediades la seguridad de la construcción a lo largo de su vida y para quienes la habiten.

Instructivo: Matriz de riesgo al uso.pdf

		Superficie
CAPACIDAD OCUPACIONAL		
Superficie Total Construida (AME + Áreas complementarias)	**Rango Según Construcción**	
Ocupación Máxima de Personas	**Rango Según Personas**	

Habitacional 1	Seleccione una Categoria		M²
Habitacional 2	Seleccione una Categoria		M²
Otros Usos 1	Seleccione una Categoria		M²
Otros Usos 2	Seleccione una Categoria		M²
Áreas complementarias	Seleccione una Categoria		M²

Ver Reporte Calcular Llenar Ficha Tecnica Guardar

This report provides an assessment of the building regulatory framework in Kenya. Research and recommendations were developed by the World Bank with the strategic objective of improving building safety and resilience across the country.

The analysis and recommendations outlined in the report provide inputs with which the Government of Kenya can launch a comprehensive process of building regulatory reform. The recommendations proposed build on the existing efforts the Government has made to promote this agenda.

As part of the Global Facility for Disaster Risk Reduction (GFDRR), the Building Regulation for Resilience Program develops and promotes activities to increase regulatory capacity to promote a healthier, safer and more sustainable built environment. By leveraging good practice in building regulation as part of a strategy to reduce both chronic risk and disaster risk, it sets low and middle income countries on the path to effective reform and long-term resilience.

The GFDRR is a global partnership that helps developing countries better understand and reduce their vulnerabilities to natural hazards and adapt to climate change. Working with over 400 local, national, regional, and international partners, GFDRR provides grant financing, technical assistance, training and knowledge sharing activities to mainstream disaster and climate risk management in policies and strategies. Managed by the World Bank, GFDRR is supported by 34 countries and 9 international organizations.

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