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Research paper

The status quo of building codes and construction practices in Somaliland: practitioners' perceptions

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Abstract

For several years, building codes have been perceived as one of the significant ways of establishing building quality, environmental protection, public health and safety, and energy efficiency in the building and construction industry. Conversely, some least developing countries like Somaliland are yet to adopt and enforce the current building codes and as such allowing the construction of buildings that do not meet the minimum international standards on public health and safety. Consequently, this paper seeks to review the overall and genuine picture about Somaliland 's building traditions, history, and advancement alongside the construction practices in Somaliland. In addition, unstructured interviews were held with some top governmental officials from the Ministry of Housing and Public Works, Ministry of Environment & Rural Development, the Somaliland Fire Agency, and Hargeisa Regional Court to carefully explore the status quo of building codes in Somaliland. This was achieved by generating qualitative data via the use of open-ended questions. The findings from the study revealed that there are currently no building codes or regulations in Somaliland. Meaning that the building industry is presently self-governed by the owners and the construction professionals. The study concludes that in spite of the absent of building codes and regulations, there have been a rapid development in the building and construction industry and the increase of mid-rise building of four to six story buildings in Somaliland.

Keywords: *Construction Practices; Building Codes; Public Health and Safety; Somaliland.*

1. Introduction

To a large extent, people spend approximately 90 percent of their lives inside buildings, which makes the quality of buildings in terms of public health, safety and well-being very significant in recent years [1], [2]. This is the reason why agencies like the U.S. Environmental Protection Agency are keen about the effect and impact of indoor air quality on public health [1], [2]. Consequently, building codes and regulations have been helpful in this regard. Building codes are among the essential tools that help improve lives and avert or respond to threats to the health, safety, security and finances in the planet that sustains us [3-9]. However, building codes, and design and construction decisions mostly affect our everyday lives and activities, ranging from requirements like fire safety codes to structural standards that all touch us in noticeable ways [9].

Furthermore, a greater part of building code development and implementation practices are typically traceable to the advancement of construction or building industry in terms of the needs, perceptions, cutting-edge technology and new level of insights [9]. However, untested advanced codes and the violation of the existing codes, mostly lead to a great number of deficiencies in the minimum requirements for public health, safety and general welfare, and building quality. This implies that the features of a building code development and implementation practice could be influenced by deficiencies and violations of building codes/regulations which invariably cause buildings failures.

Generally, the success or failure of a building code development and implementation practice can be directly linked with the associated deficiencies and violations in the administrative, technical, legal or social aspects of building code. So, residential and commercial building codes often provide an all-inclusive set of minimum health, safety and energy standards for the design, construction and maintenance of new houses and buildings, and major renovations in old buildings [4]–[6], [8]–[10]. These codes set a clear and consistent platform for construction practices that minimize our susceptibility to a wide range of hazards [9].

Technically, building codes reinforce the work of architects, engineers, builders and developers [9]. This is the reason why architects and engineers carefully ensure that every building design do meet or surpass the minimum, legally-required code obligation for a specific authority. As such, after the planning and design process, the first step taken by architects, engineers, builders and developers to build a residential or commercial building or doing a vital renovation or extension to an existing building, is getting a permit from the local building department [4]–[6], [11]. This permit often requires the structural design and construction to hold fast to state and local laws. However, the plans submitted by builders and developer are strictly reviewed by the local building department prior to the issuance of permits and commencement of construction works [9], [10], [12]. And in most cases, inspectors from the building department visit the construction site

to verify if the project complies with the code [9]. In addition, manufacturers of building products and materials, building inspectors, facility managers, contractors and subcontractors, insurance firms, building landlords and building occupants are other stakeholders in the building and construction industry that are affected by building codes [3]–[8], [11], [13], [14].

One can thus argue that the frequent occurrences of fire outbreaks, accidents, injuries and fatalities on construction sites and built environments in Somaliland can somehow be traceable to the absence of safety consciousness, measures, regulations and standards in the Somaliland construction industry. In an effort to prevent these incidents in the future and to ensure that the citizens of Somaliland are in good health, socially happy and that their properties are safe, it is vital to review the status of building codes and regulations in the country.

This research work thus seeks to review the construction practices in Somaliland and aims at providing an improved understanding on the status quo of building codes and regulations in Somaliland by generate qualitative data via the use of open-ended questions from top governmental officials within the country.

2. Historic development of building codes

The existence of building regulations can be traced back to about 4,000 years ago [4], [15], [16]. Specifically, communities established building regulations to tackle some precise needs. The custom originated as far back as 1700 B.C. when the Babylonian Code of Hammurabi pronounced death penalty for any builders that is adjudged responsible for structural collapse that led to the loss of lives [4], [17]. The protection of the health, safety, and welfare of the general public is the basis for permits for design professionals and the reason why building regulations are in existence.

Factually, the development of building code emerged in response to disaster rather than prevention. A few of the notable cases include [4], [7], [8], [10], [15]–[19]:

- 5000 B.C.: Development of Egypt began.
- 3373-3700 B.C.: The Sphinx built; Pyramids built at Giza and Cheps.
- Greek & Roman Times 1630: Laws ratified to control construction types, roofing materials, size of buildings and density of land use, and lot coverage. Similar regulations were decreed in the Middle Ages, particularly, in England.
- 450 B.C.: Saw roman code and zoning regulations.
- Modern Era after the Great Fire of London in 1666: The Rebuilding of London Act was passed as the first significant building regulation. Housing were required to have some fire resistance capacity and authorized the City of London Corporation to reopen and widen roads.
- The 1680s: The Laws of the Indies were passed by the Spanish Crown to regulate the urban planning for colonies throughout Spain's worldwide imperial possessions.
- Revolutionary Times: George Washington suggested that height and area limitations be controlled for wood frame buildings when planning the then District of Columbia.
- The London Building Act of 1844: The first systematic national building standard was established.
- 1855: The assets, powers and responsibilities of the Metropolitan Buildings Office was passed to the Metropolitan Board of Works.
- 1859: The City of Baltimore passed its first building code.
- Paris in 1852–70: Under the reconstruction of much of the city under the Second Empire, great blocks, of apartments were erected.
- February 1904: The Great Baltimore Fire occurred.
- A Handbook of the Baltimore City Building Laws was published in 1904: It served as the building code for four years. Very soon, a formal building code was drafted and eventually adopted in 1908.
- Latter Part of 19th Century: The United States enacted the first set of building regulations because of widespread loss of property by fire.
- 1905: The first model code laid the foundation for testing methodology, specifications and the formats of today's codes use. The specific purpose was to reduce fire hazards, but it had a more general and humanitarian purpose: to protect public health, safety and welfare. The National Board of Fire Underwriters (now the American Insurance Association) published the first National Building Code.
- 1915: Building Officials Conference of America (BOCA) was established to provide a forum for the exchange of knowledge and ideas concerning building safety and construction regulations.
- The Great Molasses Flood of 1919: Caused the structural failure of the tank and prompted the Boston Building Department to require engineering and architectural calculations be filed and signed.
- 1927: Adoption of the Uniform Building Code by the Pacific Coast Building Officials Conference, now the International Conference of Building Officials (ICBO).
- 1945: Publication of the Standard Building Code by Southern Building Code Congress International, Inc. (SBCCI).
- 1950: Publication of the Basic Building Code (now called the BOCA National Building Code) by Building Officials Conference of America (BOCA), now Building Officials and Code Administrators International, Inc.
- 1994: The International Code Council (ICC) was formed to develop codes that would have no regional limitations.
- 1997: The first edition of the International Building Code was published by ICC after three years of extensive research and development. The code was patterned on three legacy codes previously developed by the organizations that constitute ICC.
- 2000: ICC had completed the International Codes series that included the International Building Codes (IBC) and ceased development of the legacy codes in favor of their national successor.
- 2003 – Till Present: Updated editions of the International Building Codes are published on a three-year cycle following the first edition in 2000. These editions include the 2003, 2006, 2009, 2012, 2015, 2018. The current edition of IBC is the 2018 edition with the next edition coming out in 2021.

3. The significance and advantages of building codes

There are many advantages associated with the use of building codes [14] and it is one significant instrument that protect the people from the consequences of their own ignorance [18]. Building codes are clearly significant foundation for advancing buildings of high quality and standard that meet society's defined and undefined goals [20]. They are also a response to a prior failure, particularly, the new code.

Other advantages of BC according to different groups are [4], [20]: it ensures the integrity of the structure and adjacent structures; saves lives and property; alleviates natural hazards; ensures installed products are safe; helps verify if qualified installers are on the job; lessening pressure on local fire services; upgrades property values etc.
Evidences from prior work have shown that the newly erected structures with updated building codes perform more effectively than the older structures that are embedded with old building codes [4-10], [13], [16], [20]. In addition, there is consensus among many researchers, government, and private officials and construction experts on the following, as regards building codes [3], [5], [6], [8], [11], [20-24]:

- Building codes offer a description to the concept of suitable minimum requirements.
- Building codes make provision for minimum consistent standard by supporting governments to regulate building and construction activities.
- Building codes proffers valuable assets as regards technology and information for construction professionals.
- Building codes safeguard the interest of construction industry by reducing construction costs, ensuring uniformity and protecting building from costly defects.
- Building codes proffers environmental uniformity and compatibility.
- Building codes protect lives and buildings by reducing potential hazards.
- Building codes protect owners from litigations and differences.

4. Features of building codes

According to the Productivity Commission in 2004, building codes cover four aspects [6]. These include the administrative, legislative social, and technical aspects

4.1. Legislative aspect of BC

The legislative aspect deals with the legal situation of building codes and regulations. Model codes (also known as International Codes or I-Codes) are transformed into local law when they are endorsed by state legislatures or local governments, thus, becoming local building codes [16]. These local building codes afterwards become the manuals for the jurisdiction's construction industry and the main instrument for countries and municipalities to ensure that its new buildings are up to date. However, the lack of state-wide codes can lead to contradictory requirements and different levels of quality in construction in neighboring political jurisdictions. [25].

4.2. Administrative aspect of BC

The administrative aspect of building code is related to the building code organizations in a country and how the organization of building regulations and codes can work to accomplish efficient and effective levels of service efforts [26], [27]. The building codes administrative aspect directly deals with architects, developers, contractors, builders, engineers, and citizens to address building code issues.
Generally, the administrative aspect of building codes involves two parts that include the issues related to the administration and enforcement of building codes and the implementation and enforcing requirements for design and construction. So, on one side, the first part deals with issues like licenses, permits, fees, inspections, certificates of occupancy, safety etc. On the other side, the second part ensures that the appropriate standards are implemented for structural component, lighting, heating, ventilation, and air conditioning (HVAC), plumbing, etc. [24], [26], [27].

4.3. Social aspect of BC

The social aspect links human relationships and the consequences of buildings and built environment [13]. A sustainable residential building can be referred to as a private space that offers the basic needs for the family life without putting more pressure on the environment [28]. Hence, the sustainable housing involves ensuring an improved quality of life for occupants and encouraging a healthier balance between the social, environmental and economic dimensions of the sustainable development [29], [30]. So, it is important to note that other aspects related to the occupant's expectations and the cultural, social and economic values of a society must be included as part of the basic considerations when designing a house [31].
Furthermore, homes are a means of communicating sociocultural values and it reflects strongly the uniqueness of a community [28], [32]. Generally, the sociocultural values of a community can be depicted in community's daily life, beliefs, characteristics of the residential buildings, types of jobs and food [33], [34]. Similarly, Dikmen et al. [35] suggested that the factors that shape the sociocultural features in housing design are family structure and size, safety, privacy, and religion.
Hall [31] categorized the factors that influence the sociocultural features in housing design into nine, from the perspective of most residents' priority. These include the decent quality living environment; accessibility to good schools; safe environment; clean and friendly neighborhoods; pre-school/day childcare; well-integrated social housing; careful interagency planning; community outreach workers; neighborhood amenities and security [31].
One can therefore argue that there are some differences between the building occupants' social expectations and those defined by policymakers, sustainability experts and other stakeholders in the development of the standards.

4.4. Technical aspect of BC

The technical aspect ascertains the deficiencies in the minimum requirements for public health, safety and general welfare needs by investigating 13 different technical categories that include: structural, fire safety, stability, sanitation, adequate light and ventilation, safety to life and properties from other hazards attributed to a built-up environment, energy conservation requirements, accessibility, mechanical requirements, plumbing requirements, property maintenance requirements, zoning and occupancy requirements, and electrical requirements [24], [27].

5. Types of building codes

There are three types of building codes that possesses different individual objectives. They include the prescriptive or descriptive building codes, performance-based building codes, and a combination of first two types i.e. the combination of prescriptive and performance-based building code. However, one could argue that prescriptive and performance-based BC are the major types are building codes. Consequently, only the two are discussed in the section. Prescriptive code on one hand precisely defines the methods and materials to be used alongside other specific details such as size and components. One the other hand, performance-based building code asserts the purpose to be achieved, and this allows design and engineering professionals to select alternative methods and materials, as long as they meet the required code objectives [24].

5.1. Descriptive or prescriptive building codes

The main purpose of descriptive building code is to set up the minimum requirements for protection of public health, safety and general welfare via the means of egress facilities, structural strength, stability, adequate light and ventilation, sanitation, energy conservation, and safety of life and properties from fire and other hazards traceable to the built environment [13]. Although prescriptive codes are perceived to be simpler to execute, easier to verify, and assure the designer and builder, they seem to be inappropriate to properly prescribe vigorous, complicated, and interactive systems. As such, prescriptive codes are healthier for singular and independent procedures or mechanisms.

5.2. Performance-based building codes/regulations

Basically, performance-based regulations are established based on the intended outcome and seek to inspire a variety of solutions needed for compliance. This promotes diversity and innovation in an industry that has conventionally been steady. The application of performance-based regulations for buildings can enhance the use of alternative construction methods and materials [24]. It can ease the use of local materials, traditional construction methods, or new technology result in improved performance, bearing in mind the cost, quality, and time. In addition, the performance-based approach eases international trade as it applies to building products, processes and methodologies in the building design professions. Nevertheless, prescriptive regulations are subordinate to the performance-based building regulations [24].

6. Construction practices in Somaliland

In agreement with the objective of this study, this section seeks to review construction practices in Somaliland. Moreover, it seeks to introduce the overall and genuine picture about Somaliland 's building traditions, history, and advancement.

6.1. Somaliland and the built environment

It is important to study the building and housing environment in Somaliland. This is because the development of building codes in a specific country or city require the consideration of environmental factors such as the climate, topography, natural building material, and soil conditions along with the economic and housing philosophy of the country and its citizens. Consequently, in an effort to gives a clearer picture of the building environment in Somaliland, this subsection covers the site and climate in Somaliland, the nature of surface, ancient housing, and modern buildings in Somaliland.

6.1.1. Location of Somaliland

As a semi-desert territory on the southern coast of the Gulf of Aden, Somaliland is bordered by Ethiopia to the south and west, Djibouti to the northwest, Indian ocean to the north and the remainder of Somalia (per international recognition) to the east (See Figure 1) [36]. Somaliland lies between the 08°00' – 11°30' parallel north of the equator and between 42°30' – 49°00' meridian east of Greenwich. The area of Somaliland is 176,120 km² [36].

Fig. 1: Somaliland Map and Boundaries.

6.1.2. Climate of Somaliland

The average daily temperatures range from 25 to 35 °C (77 to 95 °F). The sun passes vertically overhead twice a year, on 22 March and 23 September. Somaliland consists of three main topographic zones: (1). A Coastal Plain (Guban) (2) The Coastal Range (Oogo) (3) A Plateau (Hawd). The Coastal Plain (Guban) is a zone with high temperatures and low rainfall [36]. The highest long-term mean maximum

value that has been recorded is 42°C in June and July at Berbera city. The humidity of the country varies from 63% in the dry season to 82% in the wet season [36]. The major winds in the study area occur during the dry season, particularly in June to July and December to February every year when the weather is hot. Generally, in the northwest the winds are strongest during the southwest monsoon. Weaker winds generally occur during April-May and October-November. Average wind speeds vary from 8 - 10 m/s, but during a large part of the year, strong winds of up to 17 m/s occur, causing frequent dust-devils all over the coastal plains and plateaus [36], [37].

6.1.3. Nature of Somaliland's surface

In the process of choosing a construction site for different projects such as construction or telecommunication projects [38], it is very important to consider the topography and environmental factors of such construction site. Somaliland's surface is composed of some flat coastal plain up to some of the highest mountain peaks with elevations ranging from 0 -1 854 m. The highest elevation is located in the western part of Somaliland, surrounding the city of Borama city [36]. Semi-arid conditions prevail at higher altitudes of the Gollis mountain range. Mean annual rainfall ranges from below 200 mm in the coastal areas of Lughaya, to 500 – 600 mm in the east of Borama city and surroundings [36].

6.1.4. Somaliland's ancient housing

In the pre-colonial Somaliland, the vast majority of people whom lived in the rural areas lived in huts known as "Aqal Somali" or "buul" (See Figure 2) which was the only form of housing widely available at the time. While in cities like Berbera and Zeila where several civilizations have passed through, the urban dweller used to live in houses made of limestone and wood (See Figure 3). Later on, after the colonization of the British, the colonizers brought their own contractors to construct buildings using brick and mortar by following their own standards [37].

Fig. 2: A Typical Ancient Housing (Aqal Somali" Or "Buul").

Fig. 3: A Dwelling Built in the Ottoman Empire Era in Berbera, Somaliland [36].

6.1.5. Somaliland civil construction after independence

Following the self-acclaimed independence in 1991 by Somaliland, there have been vigorous development in construction/building. In other words, the Somaliland independence was accompanied by change in building styles and types [37]. The old mud, clay and Aqal Somali houses gave way to advanced buildings of all forms. The Somaliland economy and foreign remittances/investments produced more revenue, and this gave a rise to the construction of more buildings, roads, schools, health centers, factories and beneficial public buildings [39]. Nevertheless, at the initial stages, Somaliland depended on the expatriate workforce to achieve various tasks on several construction projects.

6.1.6. Modern civil works and buildings in Somaliland

Although, the Somaliland government have made efforts to continuously apply standard specifications in an effort to reach an efficient level of easiness in terms of movement among its regions, the roads network in Somaliland is still perceived to have an average efficiency, particularly, during the raining season. Only few of the networks comprise of rain water drainage network to control the increasing water when necessary and in turn reduce flood. Moreover, a regular maintenance for smooth operation is often required for these networks.

Furthermore, Somaliland had a huge interest to deliver the essential construction services to all residential units that can cater for the well-being of citizens regardless of the kind of services. However, with the increasing population in recent years, the government needs to increase the efficiency of the modern civil works and building services. These services include:

- Religious Facilities: comprise of mosques, and religious institutes.
- Educational Facilities: schools, institutes, faculties, and universities.
- Health Care Facilities: health centers, hospitals, clinics etc.
- Social Facilities: youth centers, childhood and motherhood care centers.
- General Facilities: police stations, general assemblies, co-operative societies, establishments and government ministries.
- Recreational Facilities: gardens parks, sports' clubs/centers, beaches and coastal regions.
- Commercial Facilities: shopping malls, commercial markets, etc.
- Customs and Border Control Facilities: international airport, seaports etc.

7. Methodology

An exploratory research design was adopted in this research work. The primary data was collected through unstructured interviews. This was achieved by generating qualitative data via the use of open-ended questions. The unstructured interviews were geared towards asking specific question related to the problems associated with building codes and regulations in Somaliland and the present efforts made by the Somaliland government as regards BC practices. Participants involved in the interviews were mainly top government officials from Ministry of Energy and Minerals, Somaliland Court of Law, Ministry of Mining and Energy, and Somaliland Fire Agency. A great number of the participants are experts in construction sector. In addition, the secondary data employed in this study was obtained from the related literature. Moreover, the study was conducted according to the standard ethical practices required of any reputable academic research. Respondents were informed both verbally and in writing about the purpose of the research work and their consent was confirmed before the interview. The respondents were also assured of confidentiality.

8. Results and discussion

8.1. Practitioners' perceptions on the Status quo of building codes and regulations

The finding from the unstructured interviews with government officials at the Ministry of Environment & Rural Development, Hargeisa Regional Court, the Somaliland Fire Agency, and the Ministry of Housing and Public Works are presented and discussed here.

8.1.1. Ministry of environment & rural development

The findings from the interviews with the top officials at the Ministry of Environment & Rural Development revealed that in 2018 alone, approximately 150 people and around 500 livestock across Somaliland cities were rescued from floods incidents. The information gathered from the interviews also reviewed that many of the floods that occurred in Somaliland were caused by cyclones and one of the most impactful in the history of Somaliland was the 2018 Cyclonic Storm Sagar that claimed a lot of lives (over 52 people and many livestock) and properties. This unfortune cyclone incident has shown that there is a vital need for building codes across Somaliland and how the lack of BC can affect the safety of Somalilander, in such a force majeure.

8.1.2. Somaliland court of law

As indicated during the interviews with the officials of the Somaliland Court of Law, there are tens of cases that are reported monthly in Hargeisa Court regarding disagreement on building design or material used or quantity. Since most agreements are oral and non-written, such cases have proven to be difficult to avoid. According to the court officials, most Somalilanders prefer oral contracts since they believe it's much quicker and also won't embarrass the contractor. These issues would have been easily resolved if proper written contracts are made between the client and the contractor.

The interviews further revealed that since there are no laws in place for building standards or codes alongside the lack of written contract between the owner and the contractor, there is no legal way for the government to know if the builder is wrong or not. So, it's a limbo for the owner or the client since they can't claim anything, also a problem for the government since they can't prove anything.

8.1.3. Somaliland fire agency

According to the Somaliland Fire Agency, there was 422 reported cases of building related fire in Hargeisa in 2018 alone. Other reported cases include: 63 cases occurred in Burao; 52 cases occurred in Borama; and 73 cases occurred in Wajaale. In addition, it was revealed that 50% of building fires occurred in bungalows built with cement blocks, followed by corrugated iron sheet structures with 30%, huts or "buuls" are on 15%, and other structures 10%. It was also recorded that there was a total of 30 people that was rescued while 20 people got injured during these fire incidents.

The interview with the Somaliland Fire Agency also revealed that the main causes for fire outbreaks in building in Somaliland are often related to kitchen electronic devices such as refrigerators, electronic cookers, microwaves. Other electronic devices responsible for major fire outbreaks include mobile chargers, irons, TV sets. Additionally, there are also reported cases where gas cookers were the causes for these fire outbreaks.

Moreover, there are no laws regarding Emergency Response Plan (ERP) in buildings such as emergence exit and as such most of the buildings have one entry only. So, whenever there is a fire incident around the main entrance of a mid-rise building in Somaliland, people are forced to jump from the second or third floors and sometimes there are cases of stamping. Besides, fire detectors/alarms are mostly not available in houses in Somaliland which could have been a huge advantage for the locals to quickly detect whenever there is a fire outbreak.

8.1.4. Ministry of housing and public works

The findings from the interviews with top officials of the Ministry of Housing and Public Works indicates that some efforts have been made towards the introduction of Building Codes in Somaliland. One of the notable efforts by the Ministry in 2018 was the establishment of a Building Code & Quality Control Department with six Senior Somaliland personnel from different fields such as Civil Engineering, Electrical Engineering, Mechanical Engineering to make a draft for building regulations in Somaliland. However, till date the initiative has not yielded any outcome as work is yet to kick off in this direction.
According to the Ministry, some efforts were also made by Somalilanders in the diaspora to establish a preliminary draft for Building Codes, however most of their efforts was derived from European and western standards such as Eurocodes which is very different from the Somaliland context and does not incorporate the unique risk patterns, history, building traditions, and economic and social constraints of the country. For example, many sections of the draft contained ample information about timber structure, snow load etc. Nevertheless, there are no timber structures in Somaliland neither do the country experience snow which make most part of the draft invalid.

9. Conclusion

In an effort to better understand the status quo of building codes in Somaliland, unstructured interviews have been successfully carried out and discussed in this study from the perspective of sustainability. This was achieved with different stakeholders in the construction industry that include the Ministry of Housing and Public Works, Ministry of Environment & Rural Development, the Somaliland Fire Agency, and Hargeisa Regional Court.
The findings from the unstructured interviews are quite significant. First, they revealed that currently in Somaliland there are no building codes or regulations. Consequently, safety standards and good workmanship are often sustained by the building owners and contractors. Surprisingly, there have been a rapid development in the construction industry and the increase of mid-rise building of 4 to 6 story buildings in Somaliland, in spite of the absent of building codes and regulations.
The visit to interview the top officials at Ministry of Housing and Public Works also reveals that there is the absent of government site inspection which has led to structural failure and building collapsing in Somaliland. The officials linked the reason for this to the fact that most of the government responsibilities are shared among the contractors and the building owners, who are most likely to use a consultant to regularly check on the work of the contractors to ensure that the work activities are executed correctly according to the consultant's best judgment. In addition, the contractors often ensure that they render the best workmanship to keep their reputation in construction market in order to secure more contracts. As such, they carry out the building works from their own experience and with good intentions to construct in a manner that won't affect the welfare, safety or health of the general public since there are no available codes. This implies that in Somaliland presently, the building industry is self-governed by the owners and the construction professionals.

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References

[1] United States Environmental Protection Agency, "Global Greenhouse Gas Emissions Data | Greenhouse Gas (GHG) Emissions | US EPA," *United States Environmental Protection Agency*. 2019.
[2] Snyder, "Environmental protection agency," in *Cases on Electronic Records and Resource Management Implementation in Diverse Environments*, 2013.
[3] Building Authority Hong Kong, "Code of Practice for Fire Safety in Buildings," *Build. Dep.*, 2011.
[4] G. J. McFann, "History of Building Codes.," *Texas Professional Real Estate Inspectors Association*, 2012. .
[5] The Building Departement (BD), *Code of practice for structural use of concrete (TC)*. 2013.
[6] P. Commission, "Reform of Building Regulation," *SSRN Electron. J.*, 2011.
[7] T. Harley-Haddow, "Building structures.," *Struct. Eng. Scotland. A Rev. Dev. 1931-1981*, 1981.
[8] R. B. Bizal, "1994 uniform building code," *Build. Stand.*, 1994.
[9] E. Vaughan and J. Turner, "The Value and Impact of Building Codes," *Environ. Energy Study Inst.*, 2013.
[10] R. Jigyasu, "Building code," in *Encyclopedia of Earth Sciences Series*, 2013. https://doi.org/10.1007/978-1-4020-4399-4_20.
[11] F. D. Ching and M. Mulville, *European Building Construction Illustrated*. 2014. https://doi.org/10.1002/9781118786178.
[12] J. Galbreath, "Building corporate social responsibility into strategy," *Eur. Bus. Rev.*, 2009. https://doi.org/10.1108/09555340910940123.
[13] F. Francis D.K Ching, Steven R. Winkel, *Building Codes Illustrated*. 2016.
[14] B. Clemmensen, "No Building Codes – A Good Tool in The Right Context," in *Global Summit on Performance-Based Building Codes*, 2003.
[15] F. Pacheco-Torgal and S. Jalali, "Earth construction: Lessons from the past for future eco-efficient construction," *Construction and Building Materials*. 2012. https://doi.org/10.1007/978-0-85729-892-8.
[16] D. Listokin and D. B. Hattis, "Building Codes and Housing," *Cityscape A J. Policy Dev. Res.*, 2005.
[17] C. F. Horne, C. Hermmann Walter Johns, and L. W. King, "The Code of Hammurabi: Introduction," *Ancient History Sourcebook- Fordham University*, 1915. .

[18] F. Meijer and H. Visscher, "Building regulations from an European perspective," in *COBRA 2008 - Construction and Building Research Conference of the Royal Institution of Chartered Surveyors*, 2008.
[19] F. D. Fugar and A. B. Agyakwah-Baah, "Delays in Building Construction Projects in Ghana," *Constr. Econ. Build.*, 1970. https://doi.org/10.5130/AJCEB.v10i1-2.1592.
[20] ICC, "IECC - International Energy Conservation Code," *Int. Code Counc.*, 2012.
[21] International Plumbing Code Council, *International plumbing code*. 1995.
[22] International Code Council, *International Fire Code*. 2015.
[23] Financial Reporting Council, "The UK corporate governance code," *Financ. Report. Counc.*, 2014.
[24] G. C. Foliente, "Developments in performance-based building codes and standards," *Forest Products Journal*. 2000.
[25] R. W. Turner and J. Sweet, "Legal Aspects of Architecture Engineering and the Construction Process," *Calif. Law Rev.*, 1971. https://doi.org/10.2307/1371776.
[26] J. F. Wong, "Factors affecting open building implementation in high density mass housing design in Hong Kong," *Habitat Int.*, 2010. https://doi.org/10.1016/j.habitatint.2009.09.001.
[27] R. McMullan, *Environmental Science in Building*. 2018. https://doi.org/10.1057/978-1-137-60545-0.
[28] T. Ahmad and M. J. Thaheem, "Developing a residential building-related social sustainability assessment framework and its implications for BIM," *Sustain. Cities Soc.*, 2017. https://doi.org/10.1016/j.scs.2016.08.002.
[29] L. V. (CSIR) Wyk and K. Kistan, "Science for Development : A Housing Case Study," in *The Southern African Houisng Foundation International Conference and Exhibition, 7-10 October2007, Cape Town, South Africa*, 2007.
[30] C. Du Plessis, "Agenda 21 for sustainable construction in developing countries," *CSIR Rep. BOU E*, 2002.
[31] P. G. Hall, *Cities of Tomorrow: An Intellectual History of Urban Planning and Design in the Twentieth Century*. 2002.
[32] R. Y. M. Li, "A study on the impact of culture, economic, history and legal systems which affect the provisions of fittings by residential developers in Boston, Hong Kong and Nanjing.," *Glob. Bus. Manag. Res.*, 2009.
[33] L. Bragança, R. Mateus, and H. Koukkari, "Building sustainability assessment," *Sustainability*, 2010. https://doi.org/10.3390/su2072010.
[34] C. Weingaertner and Å. Moberg, "Exploring social sustainability: Learning from perspectives on urban development and companies and products," *Sustain. Dev.*, 2014.
[35] Dikmen, M. Talat Birgonul, and S. Kiziltas, "Strategic use of quality function deployment (QFD) in the construction industry," *Build. Environ.*, 2005. https://doi.org/10.1016/j.buildenv.2004.07.001.
[36] M. Hunt, "General Survey of the Somaliland Protectorate, 1944-1950.," 1951.
[37] M. H. Hoehne, & M. V. Ibrahim, *Rebuilding Somaliland through economic and educational engagement. Diasporas, Development and Peacemaking in the Horn of Africa*. London: Zed Books Ltd, 2014.
[38] Fashina, A. A., Abdilahi, S. M. and Fakunle, F. F. "Examining the challenges associated with the implementation of project scope management in telecommunication projects in Somaliland," *PM World Journal*, 2020.
[39] I. Ahmed, "Remittances and their economic impact in post-war Somaliland," *Disasters*, 2000. https://doi.org/10.1111/1467-7717.00154.