The status quo of Somaliland construction industry: A development trend [1]

Mustafe Abdillahi Omar[1,2], Adebayo Adeboye Fashina[1,3]*, and Funke Folasade Fakunle[4]

[1]Project Management Program, School of Graduate Studies and Research, Gollis University, Hargeisa, Somaliland.

[2]Management Science and Economics Department, Gollis University, 26 June District, Hargeisa, Somaliland.

[3]Engineering Management Program and Project Management Program, School of Graduate Studies and Research, Gollis University, Hargeisa, Somaliland.

[4]Health, Safety, and Environment Department, AdeFolasade Management Systems Consults, Lagos, Nigeria.

***Corresponding author:** Adebayo Adeboye Fashina. adebayofashina@gmail.com

Abstract

Over the years, the global construction industry has been seen as a vital driving force for the development and sustainability of any country's economy. This is because the need to secure a place for shelter, adequate means to move around and access to modern information technologies are all essential for human and its society's sustenance. However, for the low-income countries with rural populations such as Somaliland, a working financing mechanism for road and building construction is of high significance. It is therefore, important to explore the sustainable and progressive development trend of the construction sectors in these countries. Consequently, this paper examined and briefly discussed the trend of construction practices and progress in Somaliland from the perspective of sustainable development. The status quo of the Somaliland construction industry is also carefully explored and discussed. Recommendations for the future formulation of strategies/measures that could guide the rapid development of the country's construction sector are proposed for future sustainable housing and public safety. It is however clear, that more research studies need to be carried out regarding the Somaliland construction sector.

Keywords: Built Environment, Buildings, Roads, Construction Industry, Development Trend, Low-Income Countries, Somaliland

Introduction

Ever since the conception of the universe, construction have been a vital need for humans, particularly, the need to secure a place for shelter (Costanza et al., 2007; Shackleton & Shackleton,

[1] How to cite this paper: Omar, M.A.; Fashina, A.A.; Fakunle, F.F. (2020). The status quo of Somaliland construction industry: A development trend; *PM World Journal*, Vol. IX, Issue III, May.

2004). The initial construction project ever known to mankind is the building of a house (Hendrickson & Au, 2008; Pérez-Lombard, Ortiz, & Pout, 2008), and in no time, construction projects advanced to a point where it became a pursuit that required professionals and skilled works (Pérez-Lombard et al., 2008). In recent time however, there has been an increasing demand for public and private constructions in the low-income countries which indicates the implications of the construction industry to the development of these countries (Osei-Kyei & Chan, 2017). It thus, systematically contributes to the Gross Domestic Product (GDP) (Chia, Skitmore, Runeson, & Bridge, 2014) and Gross Fixed Capital Formation (GFCF) (Stupnikova & Sukhadolets, 2019) of these countries. As such, construction projects have mostly led to substantial economic and social benefits for the governments of these nations (Widstrand, 1978) as well as local and foreign contractors/developers, and the society at large (Eccles, 1981).

Furthermore, the construction industry also has a noteworthy influence on all facets of the socio-economic actions in many countries of the world (Frimpong, Oluwoye, & Crawford, 2003; Lamine et al., 2018; Shelbourn et al., 2006; Uranga, 1999). Construction kindles growth throughout the entire country and frontlines a country's development (Giang & Sui Pheng, 2011). It contributes extensively to economic expansion by sustaining some of the fundamental objectives including job creation, income generation and redeployment (Watermeyer, 1995). Intriguingly, majority of the activities and operations in the construction industry are labor-intensive (Fakunle & Fashina, 2020), which makes construction globally a vibrant employer of labor (Zhou, Goh, & Li, 2015) and the most injury prone industry (Fakunle, Opiti, Sheikh, & Fashina, 2020). Experience from around the world constantly arrives at the same simple conclusion (Abbas, Mneymneh, & Khoury, 2018).

Like in most low-income countries, the Somaliland construction sector plays a vital role in the development and sustainability of the country's economy (Sheikh, Fakunle, & Fashina, 2020; Uranga, 1999). However, unlike most countries where the government take on a vital role in the construction industry, the private sector has dominated the industry over the years in Somaliland, except for the road construction where budgetary allocation and contributions from donor agencies are the major sources of funding (Sheikh et al., 2020). Furthermore, the Somaliland construction industry now has a good image as an emerging construction market due to its significant performance over the past decade.

Although, Somaliland is presently witnessing an increasing growth in the construction industry, construction projects are expected to be on high demand in the coming years. Thus, in an effort to enable the Somaliland construction industry to realize its substantial roles in the economic growth and development processes of the country, it is essential to adequately understand the industry, its related features and processes, and how construction activities are carried out and managed. Within this context, this paper seeks to review the construction practices in Somaliland with the aims of providing an improved understanding on the status quo of Somaliland construction sector. This research work bridges the knowledge gaps between theory and practice regarding the Somaliland construction industry. This will thus assist future researchers that might want to carried out related study in Somaliland or elsewhere.

The first part of this paper presents the background introduction on construction and its significance. The second part reviews the theoretical aspect of construction projects with a focus on the project lifecycle. In addition, the construction practices in Somaliland are also presented in the third part before exploring the status quo of Somaliland construction industry in the fourth part of the paper. The last part of this paper presents the concluding notes and significant recommendations that could guild the rapid development of the country's construction sector in terms of sustainable housing future and public safety.

Theory

Life cycle of construction project

Generally, a project happens over an identified period of time during which a different level of effort is required to facilitate the completion of such project (Fashina, Abdilahi, & Fakunle, 2020). The lifecycle of the project can thus be regarded as that involving the pre- and post-funded approval phases (Guo, Li, & Skitmore, 2010). Final approval of such funding is the segregation event that splits these two phases. Often, the lifecycle of a project can be seen as the series of activities that occur from the start to the end of a project. Projects normally go through various stages during their lifespan, starting from the initial stage to the execution stage (Lester, 2007). However, the life cycle of a project may vary from one project to another depending on the size, nature or location; but always starts and ends with the owner of the project (Guo et al., 2010). Unlike the other types of projects, the lifecycle of construction projects is clear and definite (Abdilahi, Fakunle, & Fashina, 2020; Morris, 2002). Consequently, it may be quite challenging and complicated to correct or upgrade construction projects if any fault should occur in the early stages of the project and thus affecting the later stages (Clark & Watson, 2015). The phases of a project thus include: feasibility study, design, contracting, implementation, and delivery.

Feasibility study phase

This is the first stage of every project. It is often implemented by specialized consultants or construction consulting offices (CCOs) (Alnuaimi, Taha, Al Mohsin, & Al-Harthi, 2010). It is the responsibility of consultant or CCO to describe and present to the owner a vision concerning the feasibility of the project in terms of the cost, the expected time required for implementation, the accessibility of resources for the implementation and operation, and the possible financial flow throughout the implementation alongside the degree of financial return (Alnuaimi et al., 2010). They further provide the owner with recommendations that should be attended to, throughout the first phase of the project. These include identification of targets, putting alternative solutions in place, and assessment of alternatives in general and in detail perspectives. All things being equal, the owner after the evaluation makes a decision to start the procedures and approvals to complete or lay aside the project (Wang, 2012).

Design phase

This is the second stage of a project and it requires the efforts of the consultant or the consulting engineering offices to produce necessary tender documents that include architectural designs, structural designs, detailed and implementation plans, bill of quantities, specifications etc. The development of such document is geared towards inviting contractors to enter into a tender before

selecting the most suitable contractor for the project, according to the standards set by the bidding committees (Wang, 2012). The consultant or consulting office visits the site to under study the project in order to ensure that adjustments and changes that can unfavorably affect the implementation period are avoided (Fondahl, 1991).

Contracting phase

This is the third phase of a project and it includes the preparation and processing of all the tender documents, and inviting contractors to tenders (Lester, 2007). Prior to the signing of the contract, the process of choosing a contractor normally involves both the consultant and owner (Fashina, Fakunle, & Opiti, 2020). Hence, the resulting commitment between these parties may lead to conflict, which requires a return to justice to find out if one of these parties has violated its duties (Gordon, 1994). It is therefore, important to highlight the major information that must be included in a contract document as the names and data of all parties that will be involved in the project, the platform for financial transactions between the owner and the contractor and the contents of the insurance, fines for delay, drawings, conditions, cost, timelines etc. (Lester, 2007).

Implementation phase

This is the fourth and the most important phase, particularly for the owner. This is because the implementation phase accounts for more than 80% of the total cost of the project (Baiyi & Austin, 2014; Szymański, 2017). This stage involves, the transformation of contents of documents and drawings into reality, matching with the set plans, specifications, and conditions (Szymański, 2017). Furthermore, at this phase, the owner or his/her representative monitors and supervises the workflow and compare this with the actual implementation of the plan (Scott-Young & Samson, 2008). This allows the owner to determine the extent of deviation from the plan (Rachelle & Morris, 1978). In addition, the contractor is fully responsible for the provision of the necessary resources required for the implementation phase of the project. These resources include workforce, finance, material and equipment etc. However, it is not enough for the contractor to provide the necessary resources but it is more important for him/her to ensure that they are properly managed, accordingly (Rachelle & Morris, 1978).

Delivery phase

This is the last phase of a construction project lifecycle and it is divided into two. They are:

Initial handing over of the project

This part of the delivery phase is often regarded to as the "initial delivery". This involves the handing over of all works that had been assigned to the contractor base on the contractual agreement. At this point in the delivery phase, the project still bears the responsibility of the contractor. However, if some defeats appear or an error during the process of execution is detected, the contractor may be assigned with the task to repair it during the maintenance period (Lester, 2007).

Final handing over of the project

At this stage, the project is received by the owner with all tasks, activities, and other components of the project concluded or when the agreed maintenance period expires and all financial bills and due have been settled by the owner (Lester, 2007).

Construction practices in Somaliland

In an effort to achieve the objective of this study, Somaliland construction practices are reviewed in this section. Moreover, it seeks to introduce the overall and genuine picture about Somaliland's building traditions, history, and advancement.

Somaliland and the built environment

It is significant to examine the Somaliland building and housing environment. So, in an effort to gives a clearer picture of the building environment in Somaliland, it is important to consider the environment 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. As such, this section covers the site and climate in Somaliland, the nature of surface, ancient housing, and modern buildings in Somaliland (Sheikh et al., 2020).

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) (Hunt, 1951; Sheikh et al., 2020). 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 (Hunt, 1951; Sheikh et al., 2020).

Figure 1: Somaliland Map and Boundaries.

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 (Hunt, 1951). The highest long-term mean maximum value that has been recorded is 42°C in June and July at Berbera. The humidity of the country varies from 63% in the dry season to 82% in the wet season (Hunt, 1951; Sheikh et al., 2020). 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 (Hoehne, M. V., & Ibrahim, 2014; Hunt, 1951).

Nature of Somaliland's surface

In the process of choosing a construction site, 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 (Hunt, 1951). 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 and surroundings (Hunt, 1951).

Somaliland's ancient housing

In pre-colonial Somaliland, the vast majority of people whom lived in the rural areas stayed 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 (Hoehne, M. V., & Ibrahim, 2014).

Figure 2: A typical ancient housing (Aqal Somali" or "buul")

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 (Hoehne, M. V., & Ibrahim, 2014). 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 (See Figure 3), roads, schools, health centers, factories and beneficial public buildings (Ahmed, 2000). Nevertheless, at the initial stages, Somaliland depended on the expatriate workforce to achieve various tasks on several construction projects.

Figure 3: Photograph of building construction projects in Hargeisa

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, educational facilities, health care facilities, social facilities, general facilities, recreational facilities, commercial facilities, customs and border control facilities (Sheikh et al., 2020).

The Status Quo of Somaliland Construction Industry

Somaliland construction industry is one of the most significant industries that presently supports the economic development of the country (Sheikh et al., 2020). Building construction projects are the most common projects carried out presently in Somaliland. This is a response to the consequences of the civil war in 1988 that resulted in the destruction and deterioration of the nation's roads and buildings alongside the breakdown of the authorities that are accountable for

the running and maintenance for these infrastructures (Ali, 2012; Sheikh et al., 2020). Most of these new projects have been executed in the last seven year while others are in the implementation phase (Sheikh et al., 2020). The most common building construction projects are the mix-use building projects with varying amounts of office, residential apartment, hotel, educational facility, and commercial space (See Figures 4 – 7).

Figure 4: Photograph of an ongoing building construction project in Hargeisa

Figure 5: Photograph of a completed building construction project (shopping mall) in Hargeisa

Figure 6: Photograph of a completed building construction project (hotel) in Hargeisa

Figure 7: Photographs of some of the completed building construction projects (mix-use buildings) in Hargeisa

Following the Borama peace conference that led to the passage of the Constitution in 1999, the construction sector received a boost for significant expansion of activities in March 2000 when the Road Sector Administration Board (RoSAB), the Somaliland Road Authority (SRA), and the

Road Fund Administration (RFA) were officially established by the Presidential Degree (Ali, 2012). The purpose was to add value to the construction sector and other sub-industries with the SRA representing the operational body responsible for road construction and maintenance in Somaliland (Ali, 2012). RFA coordinates the funding of the road construction and maintenance activities through the Road Fund while the RoBAB representing the Board of Directors is accountable for the happenings within both SRA and RFA. Between 2000 and 2018 over 20 major road construction projects have been completed through these government agencies particularly the SRA (Ali, 2012). Some of these projects can be seen in Table 1.

Table 1: Some of the completed works by the Somaliland Road Authority (SRA) (2000-2018) (Ali, 2012)

S/N	Rehabilitation and Maintenance or Construction of Roads and Bridges	Quantity
1	Construction of culverts (from Borama to Ainabo)	34 in number
2	Construction of new paved roads (Berbera coast way Berbera-Cement factory)	8 Km
3	Resealing of Hargeisa- Berbera paved road	90 Km
4	Construction of new gravel roads (Togwachale, Tabca, Jarato, Amoud, Dila-Borame, Hargeisa-Odweine, Ina Afmadobe - Erigavo)	150 Km
5	Construction of new Irish crossings (Zeila-Toqoshi & Odweine earth roads)	500 m
6	Rehabilitation of existing Bridges (Kalajab, Hargeisa 1st and Burao 1st and 2nd Bridges)	4 in number
7	Making new road alignments (Hargeisa - Odweine)	125 Km
8	Routine and periodic maintenance of existing paved roads and culverts (From Dila -Lasanod)	630 Km
9	Construction of Dila Borama Road	4 Km
10	Construction of Hargeisa 2nd Bridges	1 in number
11	Complete rehabilitation of Berbera Corridor	241 Km
12	Construction of Kalabaidh-Borama Road	40 Km
13	Construction of Ina-Afmadoobe-Erigavo Road	306 Km
14	Construction of Borama-Lowyado Road	280 Km

The major clients of the SRA are local and international private consulting and contracting companies and the main partners are European Union, Ethiopian Road Authority, International Labor Organization (ILO), Inter-Governmental Authority on Development (IGAD) (Ali, 2012). Following the Horn of Africa Conference on Infrastructure and investment in 2012, the

construction sector has attracted more investments and contributed massively to the creation of new jobs for thousands of Somalilanders (Ali, 2012). Construction industries in Somaliland are however, divided into two major sectors: the public and private. They are briefly discussed below.

Public Sector

Most of the public construction projects under the Somaliland Development Fund are infrastructure and road works, which are mostly supported by international donors (Ali, 2012). These donors include UKaid, Ministry of foreign affairs of Denmark and the Kingdom of the Netherlands (Ali, 2012). The Road Fund also raises funds from fuel levy, road tax, and transport fees and so on. Most of these projects pay attention to soil and water conservation, sewage disposal, road construction and rehabilitation, education, health and job creation schemes (Ali, 2012).

Private Sector

Over the last two decades, Somaliland has experienced significant changes in its security condition, political structure, socio-economy, and technological changes, demonstrating the remarkable resilience and adaptableness of the republic of Somaliland (Fashina et al., 2020; Sheikh et al., 2020). Unlike most other economies in the world, the Somaliland economy is controlled by the private sector. Furthermore, in spite of the years of civil conflicts and economic depression Somaliland has been experiencing a notable recovery economically due to a cope of reasons. One of the main reasons for the intriguing economic development is the emergence of strong private sectors in 1991 and the high flows of remittances from the large community of Somalilanders in the Diasporas (Ahmed, 2000). Moreover, the private sector in Somaliland includes a huge number of local and international private companies that have different specialties and classifications ranging constructing to consulting, and have a large employee base (Ali, 2012).

Conclusions

This paper has explored the construction practices and development trend of the Somaliland construction industry from the perspective of sustainability. The paper revealed that the Somaliland construction industry is dominated by the private sector, apart from the road construction where donor agencies such as UKaid, Ministry of foreign affairs of Denmark and the Kingdom of the Netherlands are the major sources of financial contributions for the projects.

As identified by (Sheikh et al., 2020) there are presently no building codes or regulations in Somaliland. This has allowed the Somaliland building and construction industry to be self-governed by the building owners and the construction professionals. Despite the absent of building codes and regulations however, there have been a swift development in the construction industry and the upsurge of mid-rise building of four to five story buildings in Somaliland in recent years. One can thus argue that Somaliland construction industry would need to put into account the long-term impacts or benefits of sustainable buildings for the health, safety and welfare of its citizens. It is however clear that further work needs carried out on the status of the developmental trend of the Somaliland construction industry. This may include but not limited to rigorous data collection

for major risk factors in the industry, an empirical model can be developed to elucidate on the citizen's concerns regarding public welfare, safety, health of the built environment and the impact of project delay and the mitigating measures needed to be put in place by construction companies in order to curb project delays in Somaliland can also be explored.

In our view, we suggest that the government of Somaliland would need to take bold steps regarding the development, implementation and enforcement of building codes and regulations with the aim of increasing the chances of Somaliland construction industry realizing its vital roles in the economic evolution and development processes of the country. The government of Somaliland would further need to collaborate with other stakeholders in the construction industry and higher institutions to profoundly invest in capacity building of construction professionals and workers with the proper and required practical skills in order to become active and well-organized society in the nearest future (Ika & Donnelly, 2017).

Declaration of Conflicting Interest: The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding: The author(s) received no financial support for the research, authorship, and/or publication of this article.

References

Abbas, M., Mneymneh, B. E., & Khoury, H. (2018). Assessing on-site construction personnel hazard perception in a Middle Eastern developing country: An interactive graphical approach. Safety Science. https://doi.org/10.1016/j.ssci.2017.10.026

Abdilahi, S. M., Fakunle, F. F., & Fashina, A. A. (2020). Exploring the extent to which project scope management processes influence the implementation of telecommunication projects. PM World Journal, IX(V), 1–17.

Ahmed, I. I. (2000). Remittances and Their Economic Impact in Post-war Somaliland. Disasters, 24(4), 380–389. https://doi.org/10.1111/1467-7717.00154

Ali, H. A. (2012). Somaliland Road Section Developments. A Presentation at the Horn of Africa Conference on Infrastructure and Infrastructure KICC. Nairobi-Kenya.

Alnuaimi, A. S., Taha, R. A., Al Mohsin, M., & Al-Harthi, A. S. (2010). Causes, effects, benefits, and remedies of change orders on public construction projects in Oman. Journal of Construction Engineering and Management. https://doi.org/10.1061/(ASCE)CO.1943-7862.0000154

Baiyi, L., & Austin, S. (2014). Managing Construction Projects. In Handbook for Construction Planning and Scheduling. https://doi.org/10.1002/9781118838167.ch2

Chia, F. C., Skitmore, M., Runeson, G., & Bridge, A. (2014). Economic development and construction productivity in Malaysia. Construction Management and Economics, 32(9), 874–

887. https://doi.org/10.1080/01446193.2014.938086

Clark, L. A., & Watson, D. (2015). Constructing validity: Basic issues in objective scale development. In Methodological issues and strategies in clinical research (4th ed.). (pp. 187–203). https://doi.org/10.1037/14805-012

Costanza, R., Fisher, B., Ali, S., Beer, C., Bond, L., Boumans, R., … Snapp, R. (2007). Quality of life: An approach integrating opportunities, human needs, and subjective well-being. Ecological Economics. https://doi.org/10.1016/j.ecolecon.2006.02.023

Eccles, R. G. (1981). The quasifirm in the construction industry. Journal of Economic Behavior & Organization, 2(4), 335–357. https://doi.org/10.1016/0167-2681(81)90013-5

Fakunle, F. F., Opiti, C., Sheikh, A. A., & Fashina, A. A. (2020). Major barriers to the enforcement and violation of building codes and regulations: a global perspective. SPC Journal of Environmental Sciences, 2(1), 12–18.

Fakunle, F. F., & Fashina, A. A. (2020). Major delays in construction projects: A global overview. PM World Journal, IX(V), 1–15.

Fashina, A. A., Abdilahi, S. M., & Fakunle, F. F. (2020). Examining the challenges associated with the implementation of project scope management in telecommunication projects in Somaliland. PM World Journal, IX(III), 1–16.

Fashina, A. A., Fakunle, F. F., & Opiti, C. (2020). Exploring the common delay factors related to major parties involved in construction projects: A systematic review. PM World Journal, IX(V), 1–17.

Fondahl, J. W. (1991). The Development of the Construction Engineer: Past Progress and Future Problems. Journal of Construction Engineering and Management, 117(3), 380–392. https://doi.org/10.1061/(ASCE)0733-9364(1991)117:3(380)

Frimpong, Y., Oluwoye, J., & Crawford, L. (2003). Causes of delay and cost overruns in construction of groundwater projects in a developing countries; Ghana as a case study. International Journal of Project Management. https://doi.org/10.1016/S0263-7863(02)00055-8

Giang, D. T. H., & Sui Pheng, L. (2011). Role of construction in economic development: Review of key concepts in the past 40 years. Habitat International. https://doi.org/10.1016/j.habitatint.2010.06.003

Gordon, C. M. (1994). Choosing Appropriate Construction Contracting Method. Journal of Construction Engineering and Management, 120(1), 196–210. https://doi.org/10.1061/(ASCE)0733-9364(1994)120:1(196)

Guo, H. L., Li, H., & Skitmore, M. (2010). Life-Cycle Management of Construction Projects Based on Virtual Prototyping Technology. Journal of Management in Engineering, 26(1), 41–47. https://doi.org/10.1061/(ASCE)0742-597X(2010)26:1(41)

Hendrickson, C., & Au, T. (2008). Project Management for Construction, Fundamental Concepts

for Owners, Engineers, Architects and Builders, Version 2.2. In Perspective.

Hoehne, M. V., & Ibrahim, M. H. (2014). Rebuilding Somaliland through economic and educational engagement. Diasporas, Development and Peacemaking in the Horn of Africa. London: Zed Books Ltd.

Hunt, M. (1951). General Survey of the Somaliland Protectorate, 1944-1950.

Ika, L. A., & Donnelly, J. (2017). Success conditions for international development capacity building projects. International Journal of Project Management. https://doi.org/10.1016/j.ijproman.2016.10.005

Lamine, W., Mian, S., Fayolle, A., Wright, M., Klofsten, M., & Etzkowitz, H. (2018). Technology business incubation mechanisms and sustainable regional development. Journal of Technology Transfer. https://doi.org/10.1007/s10961-016-9537-9

Lester, A. (2007). Project Management, Planning and Control. In Project Management, Planning and Control. https://doi.org/10.1016/B978-0-7506-6956-6.X5000-X

Morris, P. W. G. (2002). Science, objective knowledge and the theory of project management. Proceedings of the Institution of Civil Engineers - Civil Engineering, 150(2), 82–90. https://doi.org/10.1680/cien.2002.150.2.82

Osei-Kyei, R., & Chan, A. P. C. (2017). Factors attracting private sector investments in public–private partnerships in developing countries. Journal of Financial Management of Property and Construction, 22(1), 92–111. https://doi.org/10.1108/JFMPC-06-2016-0026

Pérez-Lombard, L., Ortiz, J., & Pout, C. (2008). A review on buildings energy consumption information. Energy and Buildings. https://doi.org/10.1016/j.enbuild.2007.03.007

Rachelle, A., & Morris, H. (1978). Implementation of Urban Land Use Plans. Journal of the American Planning Association. https://doi.org/10.1080/01944367808976905

Scott-Young, C., & Samson, D. (2008). Project success and project team management: Evidence from capital projects in the process industries. Journal of Operations Management, 26(6), 749–766. https://doi.org/10.1016/j.jom.2007.10.006

Shackleton, C., & Shackleton, S. (2004). The importance of non-timber forest products in rural livelihood security and as safety nets: A review of evidence from South Africa. South African Journal of Science.

Sheikh, A. A., Fakunle, F. F., & Fashina, A. A. (2020). The status quo of building codes and construction practices in Somaliland: practitioners' perceptions. SPC Journal of Environmental Sciences, 2(1), 4–11.

Shelbourn, M. A., Bouchlaghem, D. M., Anumba, C. J., Carillo, P. M., Khalfan, M. M. K., & Glass, J. (2006). Managing knowledge in the context of sustainable construction. Electronic Journal of Information Technology in Construction.

Stupnikova, E., & Sukhadolets, T. (2019). Construction Sector Role in Gross Fixed Capital Formation: Empirical Data from Russia. Economies, 7(2), 42.

https://doi.org/10.3390/economies7020042

Szymański, P. (2017). Risk management in construction projects. Procedia Engineering. https://doi.org/10.1016/j.proeng.2017.11.036

Uranga, M. G. (1999). Knowledge Societies: Information Technology for Sustainable Development. Journal of Economic Issues. https://doi.org/10.1080/00213624.1999.11506206

Wang, X. (2012). BIM Handbook: A guide to Building Information Modeling for owners, managers, designers, engineers and contractors. Construction Economics and Building. https://doi.org/10.5130/ajceb.v12i3.2749

Watermeyer, R. B. (1995). Community-based construction: A route to sustainable development and job creation. Journal of the South African Institution of Civil Engineers.

Widstrand, C. (1978). Social and economic aspects of water exploitation. In Water development, supply and management, Vol.7.

Zhou, Z., Goh, Y. M., & Li, Q. (2015). Overview and analysis of safety management studies in the construction industry. Safety Science. https://doi.org/10.1016/j.ssci.2014.10.006

About the Authors

Mustafe Abdillahi Omar

Hargeisa, Somaliland

Mustafe Abdillahi Omar is a member of Dr. Adebayo's research group at Gollis University and an Assistant Lecturer in the department of management science and economics at same University. Mustafe hold a B.Sc. degree in Accounting & Finance and Master of Arts in Project Management from Gollis University, Hargeisa, Somaliland. His research interests evolve around the project and engineering management, engineering economics, construction management etc.

Mustafe can be contacted on asowe.160@gmail.com

Dr. Adebayo Adeboye Fashina

Hargeisa, Somaliland

Dr. Adebayo Adeboye Fashina is a young certified management consultant (CMC), professional researcher, educator and education management consultant with over eight years of significant international experience working on STEM education, EOMS/Project management research and teaching, science research and teaching, and capacity building at various levels of education across Africa.

Dr. Adebayo hold a Bachelor's degree in Physics/Electronics, MSc. in Theoretical Physics and Ph.D. in Theoretical and Applied Physics. He currently works with Gollis University, Hargeisa as an Associate Professor of Physics and Engineering Management. Prior to his present job, he worked as a Researcher/GTA/Lecturer-B at AUST before joining Kampala International

University, Uganda as a Senior Lecturer and later worked as an Associate Professor at William V. S. Tubman University, Liberia. He was nominated for the 2016 Sustainable Energy Africa Awards and shortlisted as one of the three finalists in the "Emerging Leaders" award category at the 2016 Nigeria Energy Forum.

Dr. Adebayo has conducted training workshops, seminars and given speeches/talks/presentations at local and international conferences. He has published more than 20 articles in reputed journals and is an active reviewer of many international journals. He is a motivated, energetic and focused individual with strengths in innovative teaching approaches, interdisciplinary research, data analysis, teacher training and team management. His research interest includes sustainable living, project management, RE policy and management, education organization management system (EOMS), educational planning, photonic nanostructures of materials etc. He is a fellow of African Scientific Institute, USA and the Institute of Management Consultants, Nigeria.

Dr. Adebayo can be contacted on adebayofashina@gmail.com or afashina@gollisuniversity.org

Funke Folasade Fakunle

Lagos Nigeria

Funke Folasade Fakunle is a young female NEBOSH international diploma qualified professional with 10 years of significant QHSE experience in QHSE management, training and consultancy. Being passionate about Health, Safety and Environment (HSE) and management system in the workplace, she has acquired certifications in Process Safety: Hazard Operability study (HAZOP), Lean six sigma (Green Belt Holder), ISO 9001 Lead Auditor, OHSAS 18001 Lead Auditor, AOFAQ Level 3 Award in Education & Training, NEBOSH International Diploma in Occupational Safety and Health, NEBOSH International General Certificate in Occupational Safety and Health, Project Management, Rigging Safety and Inspection etc.

Funke received a B.Sc. degree in Mathematics from the University of Uyo, Akwa-Ibom, Nigeria in 2008. Over the past 10 years, she has gained significant QHSE experience in various industries. These include construction, oil & gas, logistics and transportation, telecommunication, manufacturing, banking and security sectors. She is a register Professional/Associated Member of the International Register of Certificated Auditors (IRCA), International Institute of Risk and Safety Management (IIRSM), and Society of Petroleum Engineers (SPE).

As an QHSE Consultant/Trainer at present, she conducts QHSE training, consulting and auditing/evaluation exercises that help improve the QHSE Management Systems of various organizations. This allows her to adequately provide her clients with the necessary advisory services that include but not limited to HSE employee orientation training, development, planning and implementation of QHSE Management Systems, QHSE auditing, Environmental Management System, process improvement and so on.

Funke can be contacted on funkefolasade7@gmail.com