

Investigating Challenges Facing the Performance of South African Construction Industry: An Exploratory Study

Maphutha Letsau Khutso and Morena William Nkomo

Department of Construction Management and Quantity Surveying
University of Johannesburg
Johannesburg, RSA
letsaukhutso@gmail.com, mnkomo@uj.ac.za

Stephan Molusiwa Ramabodu

Department of Construction Management and Quantity Surveying
University of Johannesburg
Johannesburg, RSA
caigbavboa@uj.ac.za

Abstract

The construction industry plays a pivotal role in the development of the country but does this does not mean the construction industry is immune to challenges. This paper examines the challenges facing the performance of South African construction industry. Furthermore, this paper seeks to disclose the most fundamental challenge that affect the progress, performance and growth of the construction industry. There are a few challenges that influence the performance of the South African construction industry. The study focused on assessing the challenges based available literature and on user perspective in order to improve the performance of the construction industry.

A survey will be undertaken based on previous literature among construction professionals. The research will enhance the body of knowledge about a way forward in producing an effective performance within the construction industry.

Keywords

Construction Industry, Challenges/Issues, Performance, CIDB, SACI.

1. Introduction

The construction industry is vital to the South African economy and an important component to growth in the economy (CIDB, 2012; Stats SA, 2010; Windapo and Cattell, 2013). There is no doubt about this as Dlamini (2012) subscribe by saying this is evident in the production of much necessary infrastructure for economic growth and development, construction productivity, and citizen well-being. Ofori (2007) and the United Nations Industrial Development Organization, according to the United Nations Industrial Development Organization UNIDO (2009), the construction industry is an important field of the economy that produces building and civil engineering structures and establishes the degree to which investment efforts in a resource-rich country translate into investment outcomes.

Construction contributes drastically to the national economy, creates jobs (particularly for the least skilled members of society), aids in the development and transfer of technology, provides numerous business opportunities and directly contributes to the improvement of the quality of life of its customers (Windapo and Cattell, 2013). The relevance of the construction industry in any country's economic growth, its capacity to offer employment and consume materials (both raw and finished), and its relevance as a potential determinant have made it acceptable to study the challenges it faces and propose solutions for its viability (Cattell, 2010).

The South African construction industry, like many other construction industries in other developing countries, is challenged by many systemic problems (Rwelamila, 2020). According to Ofori (2007), the list of challenges confronting the construction industry in developing countries is well known include unstable and insecure employment, as well as financial instability. According to Windapo and Cattell (2013), even though some of the

recognized challenges have appeared for some time, there is insufficient proof to assume that the issues raised in the previous era are no longer appropriate, owing to a scarcity of relevant and reliable information on the subject. Moreover, the South African construction industry is confronted with a number of issues and challenges, such as poor project performance (Sibiya, 2015).

The purpose of this article, however, is to identify the key challenges that are viewed to affect South Africa construction industry more specially on public buildings. As a result, the paper conducts a review of the challenges confronting the South African construction industry, as well as a survey of construction industry participants' perceptions of the key challenges affecting the construction industry.

1.1 Objectives

- To investigating challenges facing the performance of South African construction industry.
- To determine a method of dealing with the challenges facing the performance of South African construction industry.

2. Literature Review

South Africa's construction industry is confronted with numerous challenges that have a direct impact on its performance.

2.1.1 Review of the challenges faced by the South African construction industry.

Construction industries worldwide face numerous difficulties and challenges (Gale and Fellow, 1990; Ofori, 1990; Selleh, 2009). However, the challenges confronting the construction industry in developing countries such as South Africa are far more crucial, genuine, and complicated (Sibiya, 2015). On the other hand, the construction industry master plan (CIMP), the industry's current challenges include improving quality and productivity in addition to high labor and material prices, inefficient and ineffective methods and practices, inability to attract and develop local workforce, inability to provide total integrated solutions, and difficulty in securing timely and adequate funding (CIMP, 2008).

According to the CIDB (2010) report, the major contributors to poor construction quality in South Africa are almost certain to be procurement-related constraints. These procurement-related impediments includes; (a) Fraud and corruption, also known as "political interference" (which includes cronyism and nepotism); (b) the procurement and delivery model (for example, 'design by employer'); (c) the use of procurement systems based solely on price and preference, with no regard for functionality (or quality); and/or (d) Inadequate information to choose professional services and/or contractors based on quality criteria.

According to Windapo and Cattell (2013) a review of the existing literature identified the following thirteen challenges that are said to have an impact on the performance, growth, and development of the South African construction industry: (a) Public-sector capacity Mbande (2010); Milford (2010); (SA Construction Industry Status Report [Stats SA], 2004), (b) Mismatches between available skills and required skills Mbande (2010); CIDB (2004); (Van Wyk, 2003) (c) Globalisation/critical global issues Lewis (2007); (Raftery et al., 1998) (d) Procurement practices and the capacity for sustainable empowerment (Black Economic Empowerment [BEE] News (2009); (CIDB, 2004) (e) Access to affordable mortgage/credit and interest rates Tomlinson (2010); Van Wyk, (2003); (Luus, 2003) (f) Poverty Mbande (2010); (Van Wyk, 2004)

(g) Technology CIDB (2007) (h) Availability of suitable land for construction Boshoff (2010); (Van der Merwe, 1997) (i) Availability of Infrastructure (CIDB, 2007) (j) High rate of failure of enterprises CIDB (2004); (Van Wyk, 2003) (k) Increases in the costs of building materials The Bureau of Economic Research [BER] (2011); Stats SA (2010b); CIDB (2004); (Van Wyk, 2003) and (l) Statutes and regulations (SA Construction Industry Status Report [StatsSA], 2004).

2.1.2 Public-sector capacity

Mbande (2010) and Windapo and Cattell (2013) identify a skills shortage in the South African skills sector and state-owned enterprises. According to South Africa's construction industry development board CIDB (2004), public-sector capacity is a major impediment to infrastructure delivery and long-term growth in the South African construction industry. Milford (2010) asserted that an inadequate public-sector capacity has resulted in an unproductive and time-

consuming process of government funding construction projects, as well as payment backlogs of more than six months in some cases.

Van Wyk (2003) highlights the South African government's failure to spend allocations acquired and to assess public-private partnership schemes submitted to it for much-needed infrastructure. Specific issues of concern, according to CIDB (2011), are the quality of tender documents and specifications, as well as the management of change orders. According to the CIDB report, these factors reflect clients' and their agents' procurement capability.

2.1.3 Mismatches between available skills and required skills

According to the CIDB (2004) report, the skills provided to the market through the Further Education and Training (FET) System were not always suitable for the requirements of the construction industry, culminating in a skills gap and a decrease in the capacity of the construction industry's professional sector. According to Van Wyk (2003), a significant impediment to the development of the construction industry is the large number of industry participants who have no education, let alone a degree. Furthermore, the mismatch between available and required skills continues to have a negative impact on the performance of construction organizations (Dithebe et al., 2018).

2.1.4 Globalisation/critical global issues

Lewis (2007) emphasizes the impact of globalisation on developing countries' construction industries and the areas where global trade propagates economic underdevelopment, presenting a challenge to the development of those countries' construction industries. Many nations' lending power for infrastructure projects is limited, this impacts the construction industry's economic performance Dithebe (2018) but bringing together construction administrations could result in a significant economic influence on developing countries' indigenous development divisions (Ramachandra, Olabode and Rotimi 2009). According to Luus (2003) construction projects are the ones that suffer the most when access to funds is restricted.

As much as globalization has obvious advantages, it also has drawbacks, one of which is the rising cost of building materials (Dithebe, 2018). The rise in global interest rates has an impact on the affordability of building materials. Materials can account for up to 60% of total project costs (South African Construction Industry Status Report, 2004).

2.1.5 Procurement practices and the capacity for sustainable empowerment

According to the CIDB (2004), the current preferential procurement environment is a struggle because it inspires historically marginalized professionals to start their own businesses rather than join established ones. The preferential procurement method used in South Africa CIDB (2012); BEE News (2009); Williams (2007) creates unpleasant levels of rivalry and hinders the development of small enterprise capabilities and sustainability (Bowen et al., 2007).

2.1.6 Poverty

According to Van Wyk (2004), a component of the Millennium Development Goals (MDG) is poverty relief because poverty has the potential to destabilize the global economy and cause global instability. According to Mbande (2010), given the MDGs' aim to combat poverty, many funding countries are relating infrastructure funding to the achievement of socio - economic objectives.

2.1.7 Technology

South Africa has fair access to cutting-edge technology; however, the present level of technology in the country and abroad appear to restrict the amount of projects that can be conducted at any given time, given the available materials, equipment, and personnel. End-user perceptions of viable alternative building methods and innovative building systems are also problematic, particularly in the low-cost housing market, as is tension between technology and labor.

Government policy urges construction firms to recruit more laborers in order to grow the economy and eliminate poverty (CIDB, 2007).

2.1.8 Availability of suitable land for construction

According to Boshoff (2010), while there is a plentiful supply of public land in South Africa, private land is scarce. Topography and soil conditions further limit the total area of land that can be developed within each cluster (Van der Merwe, 1997). Furthermore, there are numerous land claim issues in the courts, as well as zoning issues and heritage

sites, all of which contribute to making the price of available land prohibitively expensive, thereby delaying development processes (Windapo and Cattell, 2013).

2.1.9 Availability of Infrastructure

According to the CIDB (2007), the South African government spends a significant sum of funds on enhancing its old and depreciated urban and rural infrastructure on the other hand human settlements require infrastructure to sustain them. South Africa experiences a considerable challenge due to electrical capacity constraints (Eberhard, 2008). This is because ESKOM, South Africa's electricity generating company, has a nominal generating capacity of 39,154 megawatts (Mbendi.com, n.d). Infrastructure such as electricity, piped water, roads, streetlights, and sewage disposal systems are required for development (Ofori, 1990).

2.1.10 High rate of failure of enterprises

According to the CIDB (2004) report, the rate of failure of South African construction companies is abnormally high. According to the report, there had been 532 construction company liquidations in 2004, 371 in 2002, 554 in 2001, and 1,400 companies that could not remain viable in the 2002-2004 era. According to this report, the industry's profitability has been declining for a long time, with many companies reporting profit levels as low as 1%.

Windapo and Cattell (2013) discovered a decrease of 801 (or 8%) in the total number of contractors registered in 2010 compared to 2009 in a study of CIDB-registered building and civil engineering contractors. According to Van Wyk, South Africa's productivity remains the lowest when compared to seven other countries that were not identified.

2.1.11 Increases in the costs of building materials

Materials can cost up to 60% of the total project cost (Bourne 1981; Haskell 2004). South Africa manufactures its own strategic materials and imports its equipment. As a result, rising material costs in the industry are cause for concern. According to the CIDB (2007) report on the South African Building and Construction Sector, the prices of volatile building materials such as steel, cement, sand, copper, timber, polyvinyl chloride (PVC) pipes, bitumen, and masonry increased by up to 100% between October 2000 and 2006. Between 2000 and 2010, price increases ranged from 70% to 241%, according to Stats SA (2010) and (BER, 2011).

Furthermore, BER (2011) determined that building material materials cost prices rose incrementally at an average rate of 70% between 2002 and 2010, and that all building material costs increased ultimately up to 2008, when material prices peaked. According to Van Wyk (2003), considerable expansion in the construction industry is reliant on stable prices in cost of materials, which have risen faster than the rate of rising prices. The impacts of rising building material prices on the construction industry, such as developers' inability to deliver affordable housing, high tender valuations, and poor construction industry performance (CIDB, 2007; Cockayne, 2011).

2.1.12 Statutes and regulations

According to the CIDB (2004) report, the South African government has adopted over 1,000 legislative acts since 1994, which has created multiple regulations, handing the appearance of over-regulation. Tendering and procurement processes, employment and labor practices, BEE, planning permissions and controls, skills development and training, and business practices have all been impacted by these laws. As a result, local authorities' development approvals and zoning processes are slow, resulting in unnecessary holding costs for developers (CIDB, 2004).

Finally, Van Huyssteen et al., (2008), and Vertenten, (2008) outline that the industry has a poor and uncertain rate of profitability, margins are characteristically very poor, it invests very little in R&D and capital, there is a training crisis, and too many clients are indifferent and still equate price with cost, selecting designers and contractors almost entirely on the basis of lowest price.

3. Research methodology

This article is based on a literature reviews whose goal was to firstly to identify the challenges facing the performance of south African construction industry in South Africa by analysing reports on different literature relating to performance of construction industry under the vanguard of construction. Lastly to determine a method of dealing with the challenges facing the performance of South African construction industry. Previous reports' information was reviewed, and key ongoing findings were adapted. The data was gathered from previous literatures and then analysed.

4. Data Collection

4.1 Perception of Impact of Key Challenges on the Performance of the construction industry

(Windapo and Cattell, 2010).

In an article by Windapo and Cattell (2010) titled the perceptions of key construction and development challenges facing the construction industry in South Africa. The following results were recorded.

Table 1. The cost of building materials

Description of Challenge	Impact of Challenge					Total Respsns	Total Score	MIS Score	Rank
	Very High	High	Average	Low	Very Low				
Increase in the cost of building materials	32	29	10	3	0	74	312	0.843	1
Insufficient Mortgage Markets	26	27	11	7	2	73	287	0.786	2
High interest rates	21	38	12	6	1	78	306	0.785	3
High rate of enterprise failure/delivery capacity and performance	19	36	21	1	1	78	305	0.782	4
Mismatch between available skills and required skills	24	30	16	6	2	78	302	0.774	5
Availability of Infrastructure	25	23	18	8	2	76	289	0.760	6
Statute and regulations	20	28	19	7	3	77	286	0.743	7
Availability of suitable land	22	24	15	11	5	77	278	0.722	8
Public sector capacity in terms of financial and human capital	18	22	25	5	4	74	267	0.722	8
Poverty	12	25	20	14	6	77	254	0.660	10
Critical Global issues/Globalization	11	27	18	13	7	76	250	0.658	11
Procurement practices/capacity for sustainable empowerment	9	15	28	16	6	72	225	0.625	12
Technology	6	20	28	18	5	77	235	0.610	13

Table 1, In this table it is revealed that the respondents' perceived increase in the cost of building materials as the key construction and development challenge affecting construction industry performance in South Africa followed by insufficient mortgage markets and high interest rates. Technology, government procurement practices and critical global issues/globalization were perceived by the respondents' to be of least importance.

4.2 Differences in Key Challenges Perceived to Face the Construction Industry by Three Groups of Participants (Windapo and Cattell, 2013)

(Windapo and Cattell, 2013) recorded the following response in an article titled differences in key challenges perceived to face the construction industry by three groups of participants.

Table 2. Key Challenges Perceived to Face the Construction Industry

Construction Professionals/Consultants	Contractors	Property Developers/Investors	Rate
Increases in the costs of building materials	Mismatches between available skill and required skills	Increases in the costs of building materials	1
High interest rates	Increases in the costs of building materials	High rate of enterprise failure/delivery capacity and performance	2
Public-sector capacity	High rate of enterprise failure/delivery capacity and performance	Availability of Infrastructure	3

Table 2 In this table increases in the costs of building materials was rated main challenge by both construction professionals/consultants and property developers/investors while contractors rated mismatches between available skills and required skills as the key challenge. Increases in the costs of building materials, high interest rates, and public-sector capacity are perceived the main challenges for construction professionals/consultants. The contractor has perceived mismatches between available skill and required skills, increases in the costs of building materials and high rate of enterprise failure/delivery capacity and performance as the main challenges while property developers/investors rated increases in the costs of building materials high rate of enterprise failure/delivery capacity and performance, and availability of Infrastructure as the main challenges.

5. Results and Discussions

5.1 Numerical Results

An Increase in the cost of building materials was ranked first in a study by (Windapo and Cattell, 2010). In a study conducted by Ditebe et al., (2018), he subscribed to the findings of Mbande (2010) that the construction industry in South Africa suffers from a mismatch between available skills and required skills. According to Van Wyk (2003), skills and training are critical to the victory of any company or organization, particularly construction entities, because without skilled labor, performance of employees suffers, which has a direct impact on organizational performance. The main industry challenges, according to the contractors in a study conducted by Windapo and Cattell (2013) were discovered to be mismatch between available and required skills. In a study conducted by Windapo and Cattell (2013) respondents ranked technology, government procurement practices, and critical global issues/globalisation as the least important this was also asserted by the same author in 2010 in research called Perceptions of Key Construction and development challenges facing the construction industry in South Africa.

Furthermore Windapo and Cattell (2013) identified rising building material costs as the most significant construction and development challenge affecting South Africa's construction industry performance moreover respondents in a study by Windapo and Cattell (2010) identified rising building material costs, insufficient mortgage markets, and high interest rates as the top three construction and development challenges affecting South Africa's construction industry performance while 'Cohorts' uncovers that every segment of the construction industry has distinct outlooks on the key challenge affecting the industry's performance as seen in Table 2

The key construction and development challenge affecting construction industry performance in South Africa, according to respondents in a study by Windapo and Cattell (2010) in the professional services segment, is an increase in the cost of building materials, high interest rates, and the availability of infrastructure. The important construction and development challenges pinpointed by respondents in the property development and investor segments in a study by Windapo and Cattell (2010) were a rise in the expense of building materials, a high rate of enterprise breakdown's ability, and effectiveness and availability of infrastructure.

Since construction materials are a prime component in the construction process, import pricing usually has an influence on the initial project estimation. The CIDB (2007) is tasked with legislating the prices of uncertainties in

building materials. In a study by Dithebe et al., (2018) the outcomes, together with the literature reviewed, place a strong focus on the significance and influence of building material costs on the performance of the construction industry. According to Raftery et al., (1998), global participation and engagements with international corporations could significantly improve the performance of the South African construction industry; the findings are directly in consensus that global integration is vital in the construction industry.

In study by Dithebe et al., (2018) the finding were in accord with findings of Van wyk (2004) that the South African government's failure to properly finance construction projects has an impact on the construction industry's performance. This includes the government (client) failure to compensate contractors for work done, which has an influence on the development of small and arising construction companies.

On public sector the survey by Windapo and Cattell (2013) were not found to be coherent with Milford's (2010) observations, which posit that contractors should have viewed public-sector capacity, in terms of financial capital, as a significant challenge to contractor performance in the construction industry. According to Milford, this challenge may be to blame for the malfunction of many construction companies. As Robertson (2010) have said contractors may not see this lack of public-sector capacity as a challenge since most companies have never obtained contracts from the state.

6. Conclusion

The purpose of this study was to investigating challenges facing the performance of South African construction industry. The reviewed literature revealed that increase in the cost of building materials, mismatch between available skills and required skills, high interest rates and availability of infrastructure. Based on the research findings, in order to determine a method of dealing with the challenges facing the performance of South African construction industry, the CIDB should support the construction industry by making sure that every imported material can also be produced locally to eliminate importing cost and other factors that influence the prices.

One of the problems that the construction has is the preference of experienced skilled labors over the employment of skilled labor. In improving the situation of shortage of skilled labors, it is important that the construction industry should consider employing unexperienced skilled labors under the supervision of experienced skilled labor in order to train the unexperienced skilled laborers. Lastly more research is required on the mitigation of interest rate so that most people can afford.

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Biographies

Maphutha Letsau Khutso is a scholar at the University of Johannesburg, currently registered for Master's in Construction Management. He bagged his BSc Honours degree in Quantity Survey, Certificate in Construction Management, and National Diploma in Building from the Department of Construction Management and Quantity Surveying at the University of Johannesburg. He is currently employed as a Tutor in his department, where he assisted in teaching. This employment gave the platform for an increased interest in research.

Morena William Nkomo is a lecturer in the Department of Construction Management and Quantity Surveying in the University of Johannesburg South Africa. He earned N.Dip Building, B. Tech Construction Management and M. Tech in Construction Management. He has published conference papers and book chapter's. Morena has completed research projects with South African construction industry in Human Resource Management and Retention of employees, human capital and Mentoring of employees in the construction industry.

Stephan Molusiwa Ramabodu is a Professional Quantity Surveyor and a Head of Department, Senior Lecturer in the Department of Construction Management and Quantity Surveying in the University of Johannesburg South Africa. Qualification(s) PhD, MLPM, BSc(QS) Research Interests Procurement, estimates, low cost housing and contract law