SUSTAINABILITY OF LOWER-GRADE CONSTRUCTION BASED SMME's IN THE FREE STATE PROVINCE

By

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BLOEMFONTEIN

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DECLARATION

I, Diao Leeu Ramabitsa, declare that “Sustainability of lower-grade construction-based SMMEs in the Free State province” hereby submitted for the Doctor of Philosophy in Business Administration at the UFS Business School, University of the Free State, is exclusively my own work. All sources allude to herein are designated and acknowledged by means of an inclusive list of references.

I hereby declare work contained in this thesis has not previously been submitted, either as a whole or in part, for a qualification at another university or at another faculty at this university.

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ABSTRACT

In the year 2010, the South African government, through its soccer body namely South African Football Association, hosted the first Federation Internationale de Football Association (FIFA) soccer world cup in the African continent and invested heavily in infrastructures such as roads, rail networks, and sports facilities. This was seen as an opportunity to help eradicate poverty, reduce unemployment, and achieve high economic growth.

However, the construction industry, despite its performance in global economic growth and job creation to skilled, semi-skilled, and unskilled workforce, is still faced with the central quandary of a high failure rate in the early stages of operation due to contributing factors such as low barriers to entry, deficiency of skills, formal qualifications, relevant industry experience, and management and leadership skills. Moreover, the government has several initiatives, such as institutions providing financial assistance to Small Micro Medium Enterprises (SMMEs), but these have not resulted in a tangible improvement in upgrading to upper grades that address the congestion in the construction industry. Therefore, these challenges impede the growth, development, and sustainability of construction SMMEs, which mostly remain congested in the lower-grades. Thus, this research aimed to develop recommendations that will assist lower-grade construction-based SMMEs in the Free State province to become sustainable in their business.

Following the literature study, the study adopted the quantitative research approach, and a self-administered questionnaire was designed based on information emanating from an extant literature review. District-based enumerators were appointed and inducted in all Free State province district municipalities to assist with the distribution and collection of questionnaires to construction SMMEs in possession of Construction Industry Development Board (CIDB) grading one to four in both Civil Engineering and General Building classes of works. The probability stratified random sampling method was adopted for the study and the self-administered questionnaires were distributed to a sample of 485 participants, of which 431 were received back, representing an 89% response rate.

Findings from the study indicated that corrupt activities within the construction industry and use of political connections to gain an unfair advantage on government contractor development programmes with few benefiting from the programme were major challenges. Along with these challenges are also the importance of effective and efficient use of cash flow to improve and sustain the business operations; the need for investing in right construction equipment to improve business success; recruiting and retaining qualified, competent and experienced personnel which is key in the improvement and the sustainability of the business. The study further revealed that the critical barriers to the sustainability of construction SMMEs in the Free State are; high competition and limited access to projects/work opportunities; higher entry due to lack of regulations; political influence in awarding contracts and lack of industry experience were the main critical factors hindering the sustainability of lower-grade construction based SMMEs in the Free State province.

To attain this required objective based on these findings, the literature review and a quantitative research method recommends that, although many construction SMMEs are stagnant on lower-grades, the establishment of a panel of experienced, qualified and competent professional registered experts in all engineering fields to monitor progress and quality; national blacklisting of all stakeholders involved in corrupt activities within government and a minimum period of 10 years be imposed as well as instituting criminal charges against all responsible individuals; recruitment process for the interested contractors in Contractor Development Programmes(CDPs) be stringent, yet done in an objective, fair, and transparent manner; compulsory 30% subcontracting to local based SMMEs clause be included in every government tenders; for all work opportunities seeking CIDB grading of 1 or 2 within local government, only local SMMEs are allowed to bid to alleviate the congestion and improve their sustainability.

Keywords: Construction based SMMEs, Sustainability, The Timmons Model of the Entrepreneurial Process, CIDB, CDP, Free State Province, Civil Engineering, General Building.

LIST OF ABREVIATIONS AND ACRONYMS USED

ANOVA	Analysis of Variance
BoQ	Bill of Quantities
B-BBEE	Broad-Based Black Economic Empowerment
BRICS	Brazil, Russia, India, China and South Africa
CCC	Construction Contact Centres
CDP	Contractor Development Programme
CE	Civil Engineering
CESA	Consulting Engineers South Africa
CETA	Construction Education & Training Authority
CIDB	Construction Industry Development Board
CIP	Contractor Incubator Programme
COEGA IDZ	COEGA Industrial Development Zone
COVID-19	Corona Virus Disease
CUT	Central University of Technology
DBSA	Development Banks of South Africa
DESTEA	Department of Small Business Development, Tourism And Environmental Affairs
DM	District Municipality
DPR&T	Department of Police, Roads & Transport
DSBD	Department of Small Business Development
DPW&I	Department of Public Works & Infrastructure
ECDC	Eastern Cape Development Corporation
ECDP	Emerging Contractor Development Programme
ECSA	Engineering Council of South Africa

EPWP	Expanded Public Works Programme
EU	European Union
EMNES	Euro-Mediterranean Network of Economic Studies
FDDM	Fezile Dabi District Municipality
FY	Financial Year
FDC	Free State Development Corporation
FS	Free State
GB	General Building
GGDA	Gauteng Growth and Development Agency
GDP	Gross Domestic Product
GEM	Global Entrepreneurship Monitor
GOI	Government of India
HDI	Historically Disadvantaged Individuals
IDC	Independent Development Corporation
INEP	Integrated National Electrification Programme
JSE	Johannesburg Stock Exchange
JV	Joint Venture
KPI	Key Performance Indicator
LDM	Lejweleputswa District Municipality
LEDA	Limpopo Economic Development Agency
LIC	Labour Intensive Construction
M&E	Machinery and Equipment
MEGA	Mpumalanga Economic Growth Agency
MFMA	Municipal Finance Management Act.
MIS	Mean Item Score
MSME	Micro-, Small-, and Medium-Enterprises

MSE	Micro- and Small-sized Enterprises
N	Number
NCDP	National Construction Development Programme
NCRA	National Credit Regulations Act.
NDP	National Development Plan
NDPW	National Department of Public Works
NEF	National Employment Fund
NHBRC	National Home Builders Regulatory Council
NQF	National Qualifications Framework
NSBA	National Small Business Act
NWDC	North West Development Corporation
NYDA	National Youth Development Agency
OECD	Organisation for Economic Cooperation and Development
PPE	Plant Property and Equipment
PR&T	Police, Roads and Transport
PW&I	Public Works and Infrastructure
RBIG	Regional Bulk Infrastructure Grant
RDP	Reconstruction and Development Programme
REP OF CHINA	Republic of China
RoC	Register of Contractors
RoP	Register of Projects
SACPCMP	South African Council for the Project and Construction Management Profession
SAFCEC	South African Federation of Civil Engineering Contractors
SANRAL	South African National Roads Agency

SCI	SEDA Construction Incubator
SD	Standard Deviation
SEDA	Small Enterprise Development Agency
SEFA	Small Enterprise Finance Agency
SITA	State Information Technology Agency
SIU	Special Investigating Unit
SME	Small and Medium Enterprise
SMME	Small, Medium and Micro Enterprise
SOE	State-Owned Enterprise
SPSS	Statistical Package for Social Science
STATS SA	Statistics South Africa
STD	Standard Deviation
TEA	Total Entrepreneurial Activity
TMDM	Thabo Mofutsanyana District Municipality
TVET	Technical and Vocational Education and Training
TVR	Tender Value Range
UFS	University of Free State
VLP	Vuk’uphile Learnership Programme
WBHO	Wilson Bayly Holmes-Ovcon
WSIG	Water Services Infrastructure Grant
XDM	Xhariep District Municipality

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CHAPTER 1: INTRODUCTION AND BACKGROUND

1.1 INTRODUCTION

The persistence of poverty, inequality and rising unemployment rates has continually been a problem in developing countries such as South Africa (Mutyenyoka & Madzivhandila, 2014). Cant (2013) mentions that Small Micro Medium Enterprises (hereafter referred to as SMMEs) play a fundamental role in almost all economies, mainly in developing countries with considerable employment and earnings distribution challenges, such as South Africa. With challenges such as high levels of unemployment (currently at 35.3% according to Statistics South Africa, 2021b) and skills shortages, SMMEs can ease unemployment and deficiency in the course of wealth and job creation and advance economic growth. According to Nxaba (2014), in these times of soaring joblessness in South Africa, the need for SMMEs to assuage the increasing rate of poverty due to unemployment is evident. The National Development Plan (NDP) underlines that South African government plans to alleviate the unemployment rate to 14% in 2020 and, further, to 6% in 2030.

Nhleko (2017) cites that the economic support and promotion provided by SMMEs play a role in work opportunities to offset the slow escalation of employment and related potentials the country is facing. Moreover, Nxaba (2014) states that the SMMEs are critical in realizing social and fiscal improvement and promoting the living conditions in South Africa. SMMEs can assist by uplifting the living standard of South Africans through creation of work opportunities (Chimucheka, 2013:785). Consequently, the encouragement and support of the SMME economy are considered as an imperative centre for job creation, predominantly in the perspective of the sluggish development of new work opportunities taking place in well-established formal ventures (Masutha& Rogerson, 2014:142).

The South African Government has recognized the SMME sector as one of the prospective facilitators in attaining its objectives of convalescing job creation opportunities, alleviating poverty, and creating a more impartial allocation of wealth (Peters & Naicker, 2013). To date SMMEs employ just in excess of 10 million people in the nationally (SEDA, 2021).However, Aren and Sibindi (2014) mention that, despite the contributions to work opportunities and gross domestic product (GDP),

SMMEs globally still face high failure rates, with South Africa amongst the leading countries experiencing high failure rates. Furthermore, Jili, Masuku, and Selepe (2017:1) “reveal that SMMEs face challenges which sometimes lead to the shutting down of businesses, because these challenges hinder their social and economic growth”.

A study conducted by Cant and Wiid (2013) revealed that most business entities in the early 2010s closed their businesses within two years of existence. Moreover, Moilwa (2013) cites that 70% to 80% of SMME contractors in SA hardly surpass the first five years of operation. With such a soaring failure rate of SMMEs, it is not surprising that the unemployment figures in South Africa remain high. Furthermore, it is a fact that SMMEs are in a very unsteady and unstable environment, where there is insecurity and uncertainty about politics and where technological development is making today’s systems obsolete, and unceasingly shifting laws and policy are all hindrances SMME owners are required to contend with (Abor & Quartey, 2010).

Many people see opportunities in establishing companies to compete in the construction industry which, when registering, are generally considered to be under the small construction categories. High registration of companies in the construction sector is motivated by a lack of regulating new entrants in the industry; consequently, it enables individuals to start companies easily. However, many uncertainties are intrinsic in how the sector is run (Mofokeng, 2012). Presently, as established construction companies continue to reform and scale down due to steady changes in the South African economic demands, this gives an opportunity for construction-based SMMEs to progressively play a more vital role in the economic activity and growth (Tshikhudo, 2016). Because the South African Government aims to introduce support initiatives that seek to promote the growth and sustainability of SMMEs, this is perceived as an opportunity for survival, which creates jobs and alleviates poverty in society.

1.2 BACKGROUND TO THE STUDY

1.2.1 The SMME industry

SMMEs are delineated as a part and diverse business sector that is overseen by one or more owner(s), mainly carried on in any segment or sub-segment of the economy (RSA, 1992). In South Africa, all spheres of government emphasize SMMEs driving wealth creation and economic empowerment of previously disadvantaged individuals. (Aigbavboa, Tshikhudo, &Thwala, 2014). SMMEs are set to achieve significant interest, primarily due to their addition as one of the main critical points in the NDP. This is because of their labour-intensive absorptive capability in a period of a deteriorating public sector and formal classified economy, economic declines, and rising numbers of new work sector participants (Mutyenyoka & Madzivhandila, 2014).

1.2.1.1 The SMME by Industry and Province

South African SMMEs are widespread and partake in diverse industries, including agriculture, transport, trade, mining, manufacturing, and construction. The industry distributions across most provinces are very similar, with many SMMEs in the trade and accommodation sector. The trade and accommodation sector accounts for 39% of SMMEs in the country; in a number of the provinces, this share is even higher (*cf.* Gauteng, Limpopo, and KwaZulu-Natal). The Free State province contributes 4.7% of the general national SMMEs. Table 1.1 below indicates all the figures per industry in each province.

Table1.1: Provincial and Industry quarterly active SMMEs

Industry	Province									Total
	WC	EC	NC	FREE STATE	KZN	NW	GP	MP	LP	
Agriculture	20017	15446	2969	7162	11312	7793	11300	14911	13279	**104189**
Mining	0	0	581	0	0	0	1607	0	0	**2188**
Manufacturing	30153	13856	0	8176	29974	3506	65965	19560	27449	**198740**
Electricity & water	1560	0	0	0	0	0	3641	0	1206	**6406**
Construction	34744	42999	2522	11236	80026	7526	87866	25024	47177	**339120**
Trade & accommodation	73823	90403	11306	55832	179077	42231	277029	88917	103633	**922250**
Transport & communication	17088	12431	633	5624	28480	5531	58426	11955	11646	**151815**
Finance & business services	48624	15365	0	9488	34982	3893	161461	20044	15075	**308932**
Community	41020	36753	509	12665	44945	8723	104461	31336	23822	**304234**
Other	1770	3658	0	0	5274	0	11654	2647	636	**25639**
Total	**268799**	**231011**	**18519**	**110183**	**414071**	**79203**	**783410**	**214393**	**243924**	**2363513**

Source: (SEDA, 2020).

SMMEs are the prospective of vast socio-economic importance in job creation, reducing the income disparity gap and decreasing poverty (Peters & Naicker, 2013). The future of South Africa's economic accomplishment relies primarily on new and growing businesses in both the formal and informal sectors, as SMMEs share to the country's GDP to date is approximately between 52% and 57% of (SEDA, 2016).

Although SMMEs contribute to the South African economy, their sustainability still leaves much to be desired. Tlhomola, Rankhumise and Van Niekerk (2010) cite that the number of jobs created by SMMEs can decrease the soaring unemployment rate in the country. This is cited by the Small Enterprise Development Agency (SEDA, 2020) which points out that there are approximately 2.363 million SMMEs in South Africa, of which 28% are established while the rest are informal. The report further cites that as in quarter three in 2020, these SMMEs were responsible 10.1 million work opportunities which exceeded the set target of 9.9 million work opportunities projected by the National Development Plan by the year 2030 (RSA, 2011).

The construction industry is normally a superior display of economic performance due to its significant contribution to job creation and economic growth, having contributed an average of 3.9% to the country's GDP in 2016 (Lekula, 2018). In the preceding four quarters, the construction sector has contributed an average of 10% towards national employment, with the figures waning from the first quarter of 2017 to 2018 (STATS SA, 2018). However, the construction sector experienced negative growth of -0.3% in 2017, according to GDP data released by STATS SA, with confidence plummeting to a 17-year low (STATS SA, 2018b). The statement is substantiated by a decline of 92 000 employment opportunities within the first quarters of 2018 and 2019, a possible effect of the financial issues experienced by well-established and experienced construction companies such as Basil Read, Murray & Roberts, Liviero, and followed by Group Five. The following section will discuss the construction sector, mainly lower-grade construction SMMEs, operating in the most dominant two classes of works, which are called General Building (GB) and Civil Engineering (CE); as the majority (79%) of the overall active contractors in the Free State operate under these two classes. In reference to the preceding four quarters of 2021, the construction sector has contributed an average of 8% towards

national employment, with the figures varying from the last quarter of 2020 to 2021 (STATS SA, 2021). However, the construction sector experienced negative growth of -19.8% year-in-year in 2020 and further 29.9% decline quarter-to-quarter in 2020 (STATS SA, 2021b).

1.2.2 The Construction Sector

South African government departments are great sponsors of the vigorous construction industry, as they provide the immensity of the infrastructure, which, in turn, necessitates the services of the construction industry for it to be undertaken (Tshikhudo, Aigbavboa, & Thwala, 2015). For this reason, the study will be conducted in the government sector, as the majority of provincial and local government projects fall within these two classes.

The National Credit Regulation Act (RSA, 2005) No. 34 of 2005 defines construction-based SMMEs as vital contributors to the economy and as champions for alleviating the unemployment rate in South Africa. It is significant for SMMEs as the formal sector persists to in retrenching workers when business opportunities become limited (Aigbavboa & Thwala, 2014). Furthermore, due to sub-contracting in the construction sector, one can be certain that SMMEs will continue to be major role players in the South African construction industry (Tshikhudo, 2016). As at third quarter of 2020, there were 2.363 million active SMMEs, of which 14.3% operate in the construction industry. Gauteng leads in the number of active construction SMMEs (36.5%); followed by Kwazulu-Natal at 17.5%; and thirdly, Western Cape at 11.4%; whilst the Free State province contributes only 4.7% of the overall national SMMEs (SEDA, 2020).

1.2.2.1 Tender Value Range

An active registered contractor's operating grading as depicted in the table below means that the contractor can carry out value of work up to the value indicated in the second column but only restricted to the contractor's registered class of work. The Construction Industry Development Board (CIDB, 2017a) confines construction-based SMMEs registered in grade one to only bid for value of work of up to R200 000 whilst contractors in possession of grade nine may bid for an unlimited

value of work. The CIDB register categorises contractors in all grades, from one to nine, based on their competence to carry out projects.

Table 1.2: Contractor grading category

Works capability		
CIDB Grade	**The highest value of a contract**	**Past five years main contract completed**
1	R200 000	No requirement
2	R650 000	R130 000
3	R2 000 000	R450 000
4	R4 000 000	R900 000
5	R6 500 000	R1 500 000
6	R13 000 000	R3 000 000
7	R40 000 000	R9 000 000
8	R130 000 000	R30 000 000
9	No limit	R90 000 000

Source: CIDB (2017a).

The table above depicts that a contractor has to complete a specific total value of works before an upgrade can be considered. For example, for a Grade 2 contractor to move up to Grade 3, works up to the value of R450 000 have to be completed within five years (CIDB, 2017a).

South Africa is rated amongst countries experiencing highest failure rates at 75% in all industries. Notably, about 40% of all active construction registered companies filed for insolvency in 2011 (Moloi, 2013). In 2018, about 38 construction companies were liquidated in the first six months of 2018 (STATS SA, 2018a).During the first quarter on 2021, total of 6 liquidations in the construction sector was recorded, five from voluntarily and one compulsory liquidations (STATS SA, 2021d). Furthermore, there has been vast concern pertaining to the sustainability of SMMEs in the

construction sector, as most fail to continue to operate beyond a five-year period. Given such a high SMME failure rate, as well as high industry congestion - between 83% and 95% of total registered companies in both CE and GB class of works are SMMEs - it is significant to investigate ways to improve the sustainability of lower construction based SMMEs operating in the Free State province. The targeted construction SMMEs in terms of the geographical locations were based in all five district municipalities within the Free State province. Leading in terms of district municipalities were Fezile Dabi, followed by Lejweleputswa and Thabo Mofutsanyana. Further down into local municipalities, most respondents were based in Mafube (Frankfort and Villiers), Metsimaholo (Sasolburg), Matjhabeng (Welkom and Odendaalsrus) and Masilonyana (Theunissen). An improved and sustainable construction industry might reduce the current high unemployment rate of 36.7% (STATS SA, 2021b) in the province.

1.3 PROBLEM STATEMENT

This socio-economic plight (the high employment rate) has engendered the promotion of SMMEs as influential drivers for job creation in all industries, regardless of the alarming challenges. However, despite the South African SMMEs' role in the construction sector's contribution to the economy and job creation, the construction industry still experiences low sustainability and high failure rates.

South Africa is battling high unemployment rates, and the situation has deteriorated in recent years – the Free State province where study is conducted, leads with an alarming unemployment rate of 36.7% (STATS SA, 2021b). The province has an excessive number of registered construction SMMEs - 87% are classified in grade one alone, proving this congestion. Excessive registrations further impede substantial growth and the sustainability of construction based SMMEs as most fail at early stages, others a few years later. Such failures are due to numerous internal challenges, such as inadequate financial constraints, resources, shortage of skilled personnel; and external challenges such as insufficient opportunities, government regulations, competition, politics, and corruption inhibiting their sustainability in the industry.

Given that South Africa has one of the worst sustainability figures globally, the failure rate among construction SMMEs is significant. Therefore, one could infer that there is high congestion of CIDB grade one construction SMMEs in the Free State sample and that there is a need to address this problem by developing recommendations that will assist lower-grade construction-based SMMEs in the Free State to become sustainable in their business.

1.4 LITERATURE REVIEW

According to Hair, Wolfinbarger, Ortinau, and Bush (2010), a literature study is defined as a way of conducting research and attaining required information on a particular topic. Having concluded the introduction and study background, the next order of business is to establish the importance of sustainability in business; the SMME sector's contribution to economic growth and employment; the CIDB as a competitive regulatory body; the national and provincial registrations; and the construction industry's contribution to economic growth and job creation.

1.4.1 Sustainability

The term sustainability is regarded as the ability to analyse business as a process to be looked after and allowed to evolve, concurrently showing values right through operations, hence shifting and rising devoid of destructing the current and future state (Buys, 2012). For sustainability to be truly successful, the company employees must embrace it and possess a positive attitude (Glavas & Mish, 2015).

According to Moore and Manring (2009), a sustainable venture is flexible and can prevail over the face of a vibrant and unstable business environment. For SMMEs to be sustainable, they need to adjust to uncertainties at each phase of their existence (Buys, 2012). According to Landrum and Edwards (2009), a sustainable business operates in the significance of stakeholders to enhance the long-term wealth creation and sustainability of a business and its related economic, social, and environmental systems.

Civil engineering contractors face unrelenting challenges to advance and sustain their businesses, in particular during a fragile economic period. In order to overcome

these impediments, a definite level of construction experience, competence, and training is requisite to manage a sustainable construction company (Ntuli & Allopi, 2014). In South Africa, the failure rate of SMMEs is ranked in the midst of the worst globally. It is estimated that 75% fail within 42 months of existence (Masama & Bruwer, 2018). The weak sustainability of South African SMMEs is further contributing to the ever increasing current unemployment rate of 35.3% (STATS SA, 2021b).

1.4.2 The SMME Sector

1.4.2.1 Contribution to Economic Growth and Employment

It is well known that SMMEs, especially in Africa, are accountable for employment opportunities, poverty alleviation, economic growth, and job creation (Cant, 2016). Fatoki and Garwe (2010) posit that SMMEs are vital to economic success and avoiding economic stagnation. These SMMEs provide a platform through which most of the previously disadvantaged, which lack financial resources and skills, can normally access economic advantages (Wentzel, Smallwood, & Emuze, 2016). Coertze and Solms (2013) posit that SMMEs are labour absorptive and hence contribute to income creation and poverty alleviation in developing countries.

SMMEs perpetually accomplish considerable attention leading to their inclusion as one of the main fundamental points in the NDP due to their labour incorporation during the deteriorating public sector and formal private economy, economic recession, and increasing numbers of job opportunities (Mutyenyoka & Madzivhandila, 2014).

The establishment of the Ministry of Small Business Development in early 2014 was seen as the peak of the progression of the SMME economy in South Africa. The Ministry aims to assist economic advancement through accelerated involvement of SMMEs in the mainstream economy (SEDA, 2016). Brand, Du Preez, and Schutte (2007) maintain that the performance of the established economy is directly linked to the number of informal SMMEs and their sustainability.

Lekhanya (2015) posits that SMMEs make up approximately 91% of the formal business entities, contributing between 51% and 57% to the GDP and 60% to job creation in South Africa. Even though, according to SEDA (2020), the SMME sector recorded a significant decline in employment of 58267 job losses were recorded between the second and third quarters of 2020 - it still employs more than 10.058 million people which contribute to approximately 68% of national employment.

Even if the SMME sector leads on the total labour market, its failure to defend against internal and external shocks confines development and graduation into the formal sector (Mutyenyoka & Madzivhandila, 2014). Cant (2017) states that a significant inhibiting factor is that the failure rates of SMMEs are incredibly high. Bowler, Dawood, and Page (2007) divulge that in South Africa, 40% of new businesses fail within their first year of operation, 60% in the consequent year, and nearly 90% within the first decade of operation. With these continued high failure rates of SMMEs emanating from various factors such as management competencies, finances, access to markets, and suitable technology (Kongolo, 2010), it can be strenuous to assist these SMMEs to thrive. Ropega (2011) further notes that, although the failure rate is prevalent among businesses of all sizes, SMMEs are exposed to more significant pressure, as they have fewer financial resources than established companies.

An emphasis has been placed on minimizing failure rates in all South African SMME classes by creating an enabling environment which supports and assists them (Nehen, 2012). In response to these failures, the government has established amongst other interventions the Small Enterprise Development Agency (SEDA) to develop, maintain and promote the development and sustainability of SMMEs (SEDA, 2013).

1.4.3 The Construction Sector

1.4.3.1 The Construction Industry Development Board (CIDB)

The Construction Industry Development Board (CIDB) was established to promote regulatory frameworks and developmental recommendations that build a proudly

South African construction sector that delivers to worldwide competitive standards (CIDB, 2004). The CIDB mandate is to promote:

- Sustainable growth, competence improvement, and empowerment;
- Enhanced business performance and best practices;
- Enhanced value of service to all stakeholders; and
- A changed industry reinforced by consistent and ethical procurement practices.

Ludwig and Root, quoted in Dlamini (2015), citing that, the South African Government is the main investor in the construction industry, and, being a public sector, contracting companies must first be registered with the CIDB to be eligible to bid for advertised works. Registrations with the CIDB enable the transformation of the construction industry in general and promote the empowerment of small businesses.

Ntuli and Allopi (2014) allude that the South African Government put prominence on the promotion of the sector by tolerating participation of emerging and small contractors; however, this is inadequately regulated, as most of these contractors lack experience and skills to administer sustainable construction businesses. The same authors (2014) further assert that the CIDB has recognized that to achieve goals in the vigorous and successful construction industry, participants must be in possession of the requisite skills and competency to meticulously execute their roles.

1.4.3.2 National and Provincial CIDB registered contractors

The Register of Contractors is derived from the CIDB Act (RSA, 2000) which classifies and assigns grades to contractors as per their financial and works capability. Government institutions must consider the Register of Contractors as it is critical when assessing procurement of construction works tenders (CIDB, 2017).

The following multiple classes of work are mandatory for contractors to be registered in:

- Civil Engineering abbreviated as **CE;**
- Electrical Building abbreviated as **EB;**

- Electrical Infrastructure abbreviated as **EP;**
- General Building abbreviated as **GB**;
- Mechanical Engineering abbreviated as **ME**; and
- Specialist class of Works abbreviated as **SW**.

The table below indicates the number of active registered contractors nationally in all classes of works and contractors are entitled to register in multiple classes of work. It further shows that both CE and GB classes have high numbers of congested grade-one contractors at 75%, while the other four shares 25. Both classes share 72% between grades one and four in the entire class. CE and GB classes in most civil engineering work also include electrical and mechanical works such as the construction of buildings, water, and water treatment works.

Table 1.3: Active registered contractors across all grades and classes of works during 2016/2017

Designation	**CE**	**EB**	**EP**	**GB**	**ME**	**SW**	**Total**
1	37 754	1 834	7 240	71 581	7 015	20 717	146 141
2	2 950	248	305	4 160	443	958	9 064
3	1 416	99	158	1 054	145	238	3 110
4	1 614	166	392	1 527	301	265	4 265
5	913	96	239	798	166	168	2 380
6	1 161	91	278	1 018	199	156	2 903
7	679	51	140	544	106	88	1 608
8	247	9	54	215	56	28	609
9	104	4	39	65	45	12	269
Total	**46 838**	**2 598**	**8 845**	**80 962**	**8 476**	**22 630**	**170 349**

Source: (CIDB, 2017a).

Table 1.4 below depicts the total number of active registered contractors in all grades across provinces. It further shows that the high numbers of grade one contractors are congested at 85.8%; grade two contractors occupy only 5.4%, whilst grade one to four takes 95.5% of all registered contractors.

Table 1.4: Provincial number of active registrations per grade

Grade	EC	FS	GP	KZN	LP	MP	NW	NC	WC
1	20 820	7 261	45 985	25 273	14 647	12 719	9 480	3 778	6 177
2	945	438	2 199	2 838	574	621	602	300	578
3	319	134	657	1 198	226	175	138	74	189
4	480	199	1 184	951	457	373	233	85	303
5	237	104	716	533	233	240	133	47	137
6	224	151	970	554	335	274	142	49	204
7	115	53	633	290	163	132	71	21	130
8	45	25	310	77	31	35	29	12	45
9	5	9	190	23	3	6	1	0	30
Total	**23 190**	**8 374**	**52 844**	**31 733**	**16 642**	**14 575**	**10829**	**4 366**	**7 793**

Source: CIDB (2017a).

From the table above, as at 31 March 2018, the total number of registered active contractors was 170 349, with Gauteng leading at 52 844 (31%); the Northern Cape having the lowest number of registered contractors at 4 366 (2.6%) and third last being Free State with 8 374 active contractors (4.9%) (CIDB, 2017a).

1.4.3.3 SMMEs' contribution to economic growth and employment opportunities

Construction-based SMMEs contribute to the countrywide socio-economic development through considerable employment opportunities at both unskilled and skilled levels (Balogun, Ansary, & Agumba, 2016).

The construction sector provides around 1.133 million formal and informal jobs with a loss of 24 000 jobs from last quarter (STATS SA, 2021b), as per the table below.

Table 1.5: Provincial overview of employment in the construction industry

The table below depicts the overall formal and informal employment created by the construction industry, as obtained from the STATS SA Quarterly Labour Force Survey (QLFS).

Provincial contribution to construction employment (*1000)										
Year & Quarter	National	WC	EC	NC	FREE STATE	KZN	NW	GP	MP	LP
2021 Q4	1 133	169	128	12	32	211	56	290	80	154
2021 Q3	1 157	192	122	10	33	227	60	307	69	137
2021 Q2	1 222	198	112	19	34	228	82	339	88	121
2021 Q1	1 079	219	120	11	30	184	64	315	80	96
2020 Q4	1 166	199	115	20	46	199	60	329	75	124

Source: STATS SA (2021b).

STATS SA highlights that, nationally, three provinces lead in terms of their contribution to employment, namely the Gauteng, KwaZulu-Natal and Western Cape which jointly account for approximately 59.1% of total employment creation in last quarter of 2021.

The country's position in the construction sector is linked to the position of the country's economy and has a sizeable outcome on its GDP growth. In 2017, the construction industry's contribution to South Africa's GDP declined to -5.7% year-on-year (STATS SA, 2018b). According to figures released by the South African Reserve Bank (SARB), a total of R297 billion was spent on construction infrastructure in 2017 (Development Bank South Africa, 2018). In 2020, the construction industry's contribution to South Africa's GDP accounted for around 3% while the value contribution was approximately R83 billion (real prices), with a year-on-year decrease of 20% or a decline of R21 billion (CIDB, 2021a). Most recently, in

the last quarter of 2021, the construction industry decreased by 2.2% in the fourth quarter. Decreases were reported for residential buildings, non-residential buildings and construction works (STATS SA, 2021b).

Joubert, Schoeman, and Blignaut (in Tshikudo, Aigbavboa and Thwala (2015)) cite that the promotion of construction-based SMMEs would lead to more significant employment. This increase in the labour force would enhance the country's capacity for the skills and knowledge creation in the economy. However, civil engineering contractors encounter unrelenting barriers to sustain their businesses, particularly in a fragile economic climate. Therefore, a definite level of construction experience, competence, and training is necessary to administer a sustainable construction business (Ntuli & Allopi, 2014:570).

Research by the CIDB has indicated the slow progression of development from emerging contractors to well-established contractors. The research has also indicated that sustainable contractor development depends on venture aspects that often take time to develop, including financial capabilities, management skills, and technical capabilities. Other factors include construction experience and process maturity, which are also vital for development (CIDB, 2017d). The declaration is substantiated by the veracity that, of all grade one contractor, around 2% per annum and 10% over three years upgrade by one or more grades due highly congested active grade one contractors (CIDB, 2018b).

Tshikhudo (2016) declares that the growth of SMMEs in construction improves the economy and advances construction infrastructure quality. Therefore, the following section will discuss the government initiative to develop construction SMMEs

1.4.3.4 The Contractor Development Programmes (CDP)

To tackle the slow progress of SMMEs operating in the construction industry, the government has introduced Contractor Development Programmes (CDPs) to accelerate construction SMMEs. However, the number of appointed contractors is too low to address the congestion in lower construction grades (CIDB, 2017a). Information retrieved from CDPs during the 2016/17 financial year indicates that

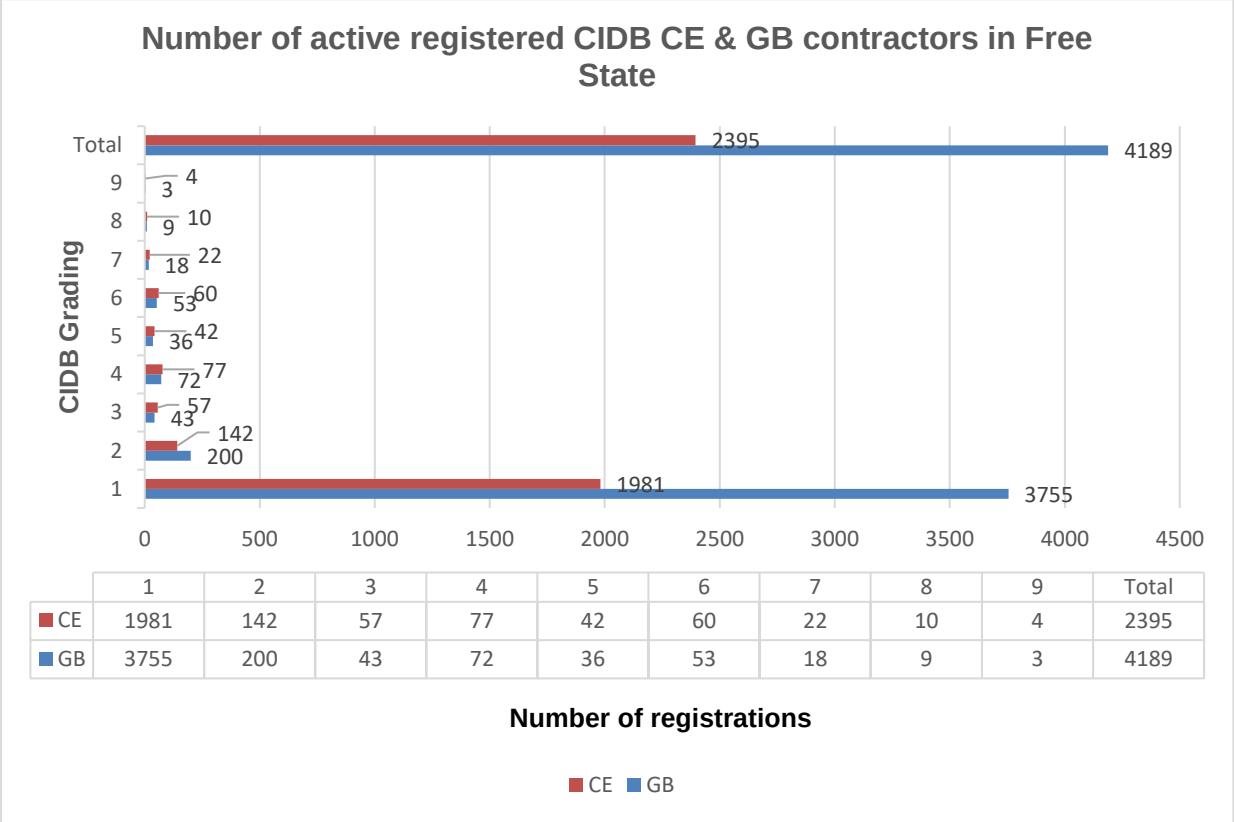
nationally a total of 1 178 construction SMMEs participated, with the Free State recording 81 SMMEs under the Department of Police, Roads, and Transport (DPR&T) (CIDB, 2017a). Approximately a third of all GB contractors that participated in a CDP between 2014 Q3 and 2015 Q2 have upgraded one or more grades since appointed in the programme. This progress is slower compared to that of the CE contractors, which is around 56%. Contractors participating in the CDPs improve much faster than those not in the programme (CIDB, 2017a).

1.4.3.5 The Free State Province

Table 1.4 further indicates the number of active CIDB registered contractors in all classes of works in the Free State (FS), totalling 8 374. The table further unpacks the number of registered contractors within the CIDB class of works in CE and GB. Both CE and GB classes of works total 6 584 (79%) of the overall figure in all classes of works, and 96% (6 327) fall within grade one and four in both classes. For this reason, the study under the civil engineering category was considered, as most works are done here; furthermore, it comprises more companies.

Construction SMMEs face difficulties hindering development and growth, therefore, only a few remain in operation and are sustainable (Tshikhudo, 2016). The statement is backed by the study population, where 96% (6 327) possess a grad one to four CIDB grading. In a class of works, these grading levels are congested at an average of 96%; with 87% falling within grade one of the CIDB.

The figure below illustrates the number of active registered companies under each class of works in the Free State province.



	1	2	3	4	5	6	7	8	9	Total
CE	1981	142	57	77	42	60	22	10	4	2395
GB	3755	200	43	72	36	53	18	9	3	4189

Figure 1.1: Number of active registered contractors in CIDB CE & GB Class of Works in the Free State Province

Source: (CIDB, 2017d).

Nationally, as seen in Table 1.3, the FS province shed 2 000 employment opportunities; in comparison to the preceding quarter, this is the second-lowest contributing province, with 56 000 (4.2%) of total construction employment (STATS SA, 2019a).

Dlungwana and Rwelamila (2004) affirm that the majority of contractors in various construction industries operate within the small and medium-size group. The same situation prevails in the Free State, which is of great unease as the numbers of grade one registered contractors in the province are excessively high at between 87% and 96% for grades one to four under both CE and GB class of works, respectively. This high concentration of registered lower-grade construction based SMMEs that fail to

move up the grade is a significant concern that prompted the need to conduct this study and considering by end-March 2021, the CIDB received and processed 49 540 grade one applications alone despite the prevailing COVID-19 pandemic regulations that affected the industry (CIDB, 2021a).

The increasing importance of business sustainability makes it imperative for organizations in the construction industry to employ The Timmons Model of the Entrepreneurial Process, which comprises the opportunity, resources, and team to attain the desired sustainability of the business.

1.4.4 Theoretical Recommendations

1.4.4.1 The Timmons Model of the Entrepreneurial Process

The Timmons Model of Entrepreneurship identifies three fundamental components for a successful new business, which are the opportunity, the entrepreneur team, and the resources necessary to open a business, operate it and ensure it becomes viable and sustainable. First, the entrepreneur explores an opportunity, and once acquired, profiles it into a high prospective business enterprise by devising a team and builds up the fundamental resources to kick start a business that discovers the acknowledged opportunity.

Figure 1.2 below illustrates the Timmons Model of the Entrepreneurial Process.

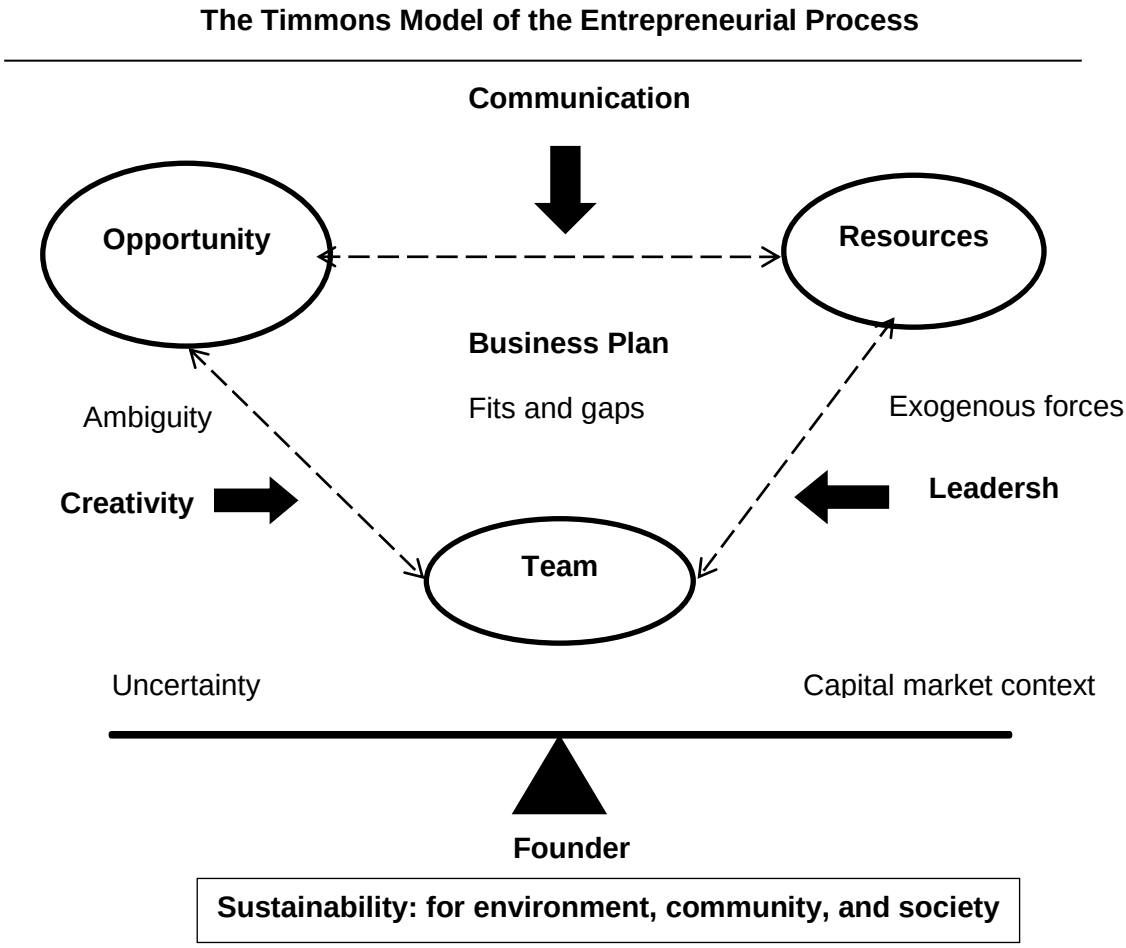


Figure 1.2: The Timmons Model of the Entrepreneurial Process

Source: Spinelli and Adams (2012).

Central to the recommendations is a business plan, which assimilates the three vital components into a comprehensive strategic plan that must link together well for the business venture. A first-rate idea and second-rate management team are interrelated for a new business similar to ideas and management of appropriate resources (Bygrave & Zacharakis, 2010). Equally, the lead entrepreneur and the sponsoring management team are fundamental for the success of a new business.

Moises (2012) postulates that the entrepreneur's legacy is to create a positive influence while taking precautionary measures to ensure the environment, the community, or society at large remain unharmed. Thus, the conception of sustainability seems to become the centre of the entrepreneurial process. As

depicted in the Figure 1.2 above, the shape, size, and depth of the opportunity establish that of both the resources and the team (Spinelli & Adams, 2012). Therefore, the next topic will deal with the opportunity part of the model.

1.4.4.1.1 Opportunity

At the heart of the process is the opportunity and, according to well-established entrepreneurs and shareholders, a good plan is not necessarily a good opportunity (Spinelli & Adams, 2012). Spinelli and Adams (2012) aver that for the entrepreneurs to categories opportunities without any hassle, the following criteria should be applied: The better the growth, size, durability, and healthiness of the gross and net margins and free cash flow, the better the opportunity. It is further argued that the higher the market imperfectness, the greater the rate of change, the discontinuities and the chaos, the more significant inconsistencies in existing service and quality, in guide times and delay times, the superior the vacuums and gaps in information and knowledge, the greater the opportunity. All of the above differentiate the areas where entrepreneurs should focus when probing for high potential opportunities.

Government across all spheres has initiated and implemented a 30% subcontracting opportunity from the main contractor for all local SMMEs to gain valuable experience, grow the business, and upgrade to higher CIDB grading. Opportunities are more significant than the capability or proficiency of the lead entrepreneur and the team because the relevant opportunity exploited has the potential to ensure the business's long-term success (Moises, 2012).

1.4.4.1.2 The resources

Resources play an essential part in any successful business enterprise, as entrepreneurs need resources to develop and create economic opportunities (Timmons & Spinelli, 2009). Thriving entrepreneur's does formulate inventive and brilliant strategies to accumulate and gain control of resources. Bygrave and Zacharakis (2010) mention that successful entrepreneurs are prudent with their limited resources as they strive to maintain overheads at the minimum, yield high

profits, and control of capital assets as low as possible. As a result, they reduce the capital needed to start off their business and make it flourish.

The CIDB has indicated the minimal development from small and medium-size contractors to well-established contractors and as a result of this, resources such as management and entrepreneurial skills, technical capabilities, access to finance or commitment by the government to processing of SMMEs invoices within 30 days of submission, and plant (equipment) to execute works are imperative to SMMEs' sustainability in the construction industry. In order to gain a significant competitive advantage, it is further stated that entrepreneurs should espouse bootstrapping as a way of life (Spinelli & Adams, 2012).

1.4.4.1.3 Entrepreneurial team

Bygrave and Zacharakis (2010) assert that a person has to formulate strong entrepreneurial and management skills to become a successful business. According to Spinelli and Adams (2012), teams are created and led by every competent entrepreneurial leader whose reputation demonstrates both achievements and numerous qualities that the team must possess. For an entrepreneur to build a sustainable enterprise, means accomplishing economic, environmental, and social objectives without compromising the same opportunity for future generations. (Spinelli & Adams, 2012). For an entrepreneurial team to grab prevailing opportunities, a certain level of construction experience, competence, and training is necessary to manage a sustainable construction company (Ntuli & Allopi, 2014). The study's entrepreneurial team under investigation will consist of all lower-grades (grade 1 to 4) construction based SMMEs doing business in the FS government.

The study will apply the Timmons Model of the entrepreneurial processas an instrument to examine, appraise, and evaluate the effects of business sustainability on the opportunity, resources, and team. Based on the findings from the methodologies used to gather the information, the model will then either be incorporated or modified towards the study goal, which is to develop recommendations that will assist the lower-grade construction based SMMEs in the

Free State to become sustainable in their businesses. The subsequent section will discuss the research objectives to be carried out in the research study.

1.5 RESEARCH OBJECTIVES

Quinlan (2011:481) defines research objectives "as the steps taken by the researcher to accomplish the aim of the research". Similarly, Babin and Zikmund (2016:52) accentuate this by referring the "study's research objectives to the specific goals that need to be accomplished to specify and understand the research problem". According to Boshoff (2014:103), the research objectives "formulated for a study must be based on the research problem".

1.5.1 Primary Objectives

The primary objective can be defined "as the main goal that the researcher aims to achieve in conducting the study, whereas the secondary objectives are formulated to attain the primary objective" (Brown, Suter & Churchill, 2018:14).The primary objective of this study is to investigate issues of sustainability of lower-grade construction-based SMMEs in the FS province and develop recommendations to assist their businesses.

1.5.2 Secondary Objectives

According to McDaniel and Gates (2015:67), secondary objectives "guide the sample size and the design of the study". The accomplishment of the primary objective will guide to the attainment of the following secondary objectives:

a) To examine requirements for the sustainable construction industry;
b) To analyze the efficacy of existing contractor development programmes in South Africa;
c) To examine the opportunities that exist for the lower-grade construction industry;
d) To identify the primary resources for the lower-grade construction industry to be sustainable;
e) To analyze the entrepreneurial skills necessary for the lower-grade construction industry to be successful;

f) To identify the barriers to sustainability in lower-grade construction-based SMMEs in the Free State province; and
g) To develop recommendations that will assist lower-grade construction-based SMMEs in the Free State to become sustainable in their business.

1.6 SCOPE OF THE STUDY

The scope of this study is restricted mutually in the field of study and the geographical demarcation.

1.6.1 Field of the Study

The field of this study falls within the subject of sustainability of lower-grade construction-based SMMEs in the Free State province. The study will focus on SMMEs within a grade of one to four in the CE and GB class of works classified by the South African CIDB. The emerging companies within this class of works are only eligible to submit offers and perform construction works between R200 000 and R4 000 000.

1.6.2 Demarcation

The study will be conducted in all government institutions in the Free State province. The Free State is centrally situated in South Africa, surrounded by the Northern Cape, Eastern Cape, North West Province, Mpumalanga, KwaZulu-Natal, Gauteng, and Lesotho. The FS province is geographically ranked third in size in South Africa, however it has the second-smallest population of 2 834 714 which equates to approximately 5.1% of the national average. Its capital city is Bloemfontein, which boasts judicial courts such as High Court and Supreme Court of Appeal.

The economy is dominated by agriculture in towns such as Bethlehem, Kroonstad, and Bothaville, of which about 90% of the province is cultivated for crop producing approximately a third of the total maize yield in South Africa. The mining in the Goldfields areas (Welkom, Theunissen, Odendaalsrus& Virginia) is ranked fifth globally with regard to gold production, making it the leading employer. Manufacturing activities are prevalent in Botshabelo and Witsieshoek. The provincial government has within jurisdiction, made of one metropolitan municipality

(Mangaung Metropolitan Municipality) and four district municipalities further subdivided into 18 local municipalities.

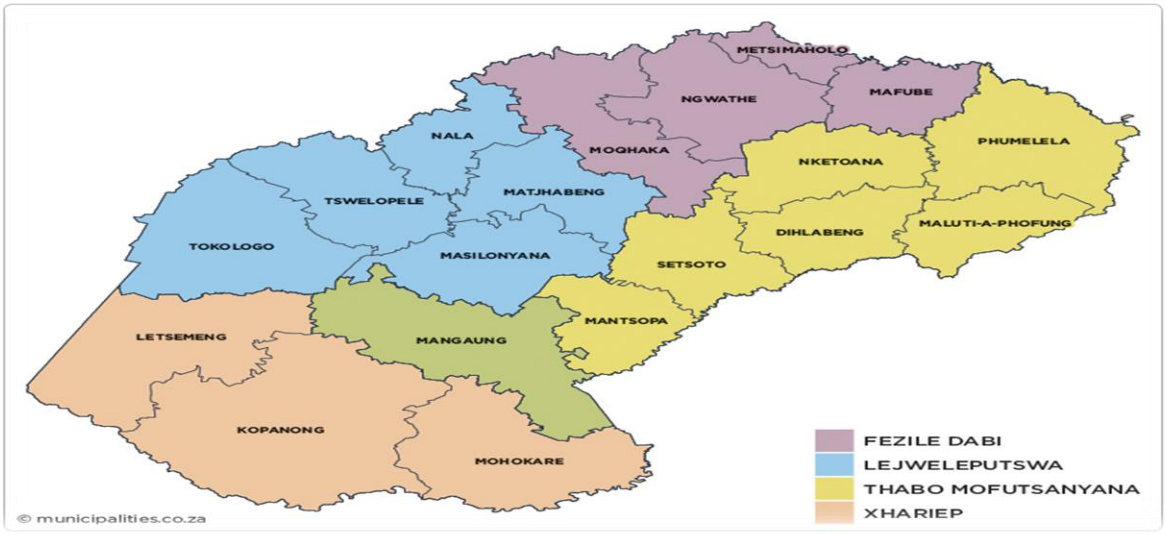


Figure 1.3: Map of Free State Province District Municipalities

Source: www.municipalities.co.za (2018).

1.7 RESEARCH DESIGN AND METHODOLOGY

Plano, Clark and Ivankova (2015:137) state that a "research design is a formal and defined research procedure for collecting, analyzing, and interpreting data to address the research study". Motamedi-Fraser (2017:23) defines "research design as an expressed and supposedly informed method of data production". The research design "is a vital part of an investigation because it involves the research's whole planning, which entails the overall structure being followed by the research, the information the researcher gathers, and how it is analyzed" (Leedy & Ormrod, 2015:92).

Wagner, Kawulich, and Garner (2012:51) delineate research methodology as to how the research phenomenon is studied, while Creswell (2014:37) adds that research methodology is the process that shows how data is obtained and analyzed. Thus, the research methodology includes the research approach, research design, research methods, and data analysis. In addition, the research methodology

“provides insights into the specific techniques used to collect and analyze data in research” (Leedy & Ormrod, 2015:93).

Babbie (2010:92-94) declares that, “depending on the rationale of research, scientific research can be divided into three types, namely exploratory, descriptive, and explanatory”. Exploratory research is “qualitative in nature and should be used to explain a problem that is not clearly defined” (Hair, Hult, Ringle & Sarstedt, 2017:37). Descriptive research is predominantly interested in unfolding scientifically a situation, problem, and phenomenon, service or programme or presents data about living conditions of a community or defines the approach towards a subject (Kumar, 2014).

Explanatory research is undertaken to study a position or a problem to describe the relations between variables (Saunders, Lewis & Thornhill, 2012). Thus, “explanatory studies emphasize studying a situation or a problem to explain the relationships between variables” (Saunders, Lewis & Thornhill, 2012:140). According to Almalki (2016:253), an explanatory design can be described as a two-stage design that sees quantitative data used as the foundation for building and elucidating qualitative data. This study will apply a descriptive research design to take raw information and recapitulate it in a functional and usable form. In the next section, the focus of the discussion is on the research approach which was identified to be suitable for this study.

1.7.1 Research Approach

Creswell (2014) defines research approaches as the strategies and procedures that expand the research steps from general theory to comprehensive data collection, analysis, and interpretation methods. Further, there are three methods of approaches to research, namely qualitative, quantitative, and mixed methods. Unfortunately, the researcher initially planned to use the mixed method approach, but this had to be revised due to the National Lockdown announced by the State President Cyril Ramaphosa from 26 March 2020 to date to contain the spread of the corona virus. Therefore, the conducting of planned focus interviews virtually via Zoom became impossible as planned for month of September 2020. Most participants were not comfortable and willing to engage in virtual interviews for

personal reasons and, as a result of the above, the quantitative approach was ideal in this research.

1.7.1.1 Quantitative Research

McCusker and Gunaydin (2014:2) mention that quantitative research "consists of studies in which the data concerned can be analyzed in terms of numbers that can be quantified or summarized". According to Creswell (2014:4), quantitative research is an approach for testing an objective hypothesis by investigating the relationship among variables that can be measured, typically on instruments, so that statistical procedures can evaluate numerical data. Leedy and Ormrod (2015:95) concur that "quantitative research typically tries to measure variables numerically".

Following the research approach will be the step to establish the research population where the study will be conducted and the sampling methods to be utilised. The subsequent section will address both the research population and sample of the study.

1.7.2 Sampling design

1.7.2.1 Target Population

Brynard, Hanekom, and Brynard (2014:57) refer to the population as "a group in the universe with specific characteristics". Bertram and Christiansen (2014:55) define a study's population as the total number of people included in a study. Other authors such as McMillan and Schumacher (2014) define a population as a group of essentials that tolerate a certain criteria and to which the researcher proposes to generalize the results of the research, while Baloyi (2016:81) avers "a population as the entire group of respondents (people) to whom the research results are applicable". A target population "consists of an entire group of elements (persons or objects) that possess similar characteristics that form part of the sampling criteria determined by the researcher" (Burns, Feeck & Bush, 2017:240).

In this study, the targeted population is active owner-managers of lower-grade construction based SMMEs within a CIDB grading of one to four in GB and CE class of works doing business in all Free State province district municipalities and two

provincial departments, namely Public Works and Infrastructure and Police, Roads, and Transport. Reason for this consideration is that government is the biggest sectors that implement (spend on) infrastructure projects mainly in General Building and Civil Engineering classes of work. Local government within the Free State province has a mandate to provide basic services to the community and be able to sustain that through its operations and maintenance plans to increase the infrastructure lifespan.

Figure 1.4 below depicts the researcher's visual representation of the target population.

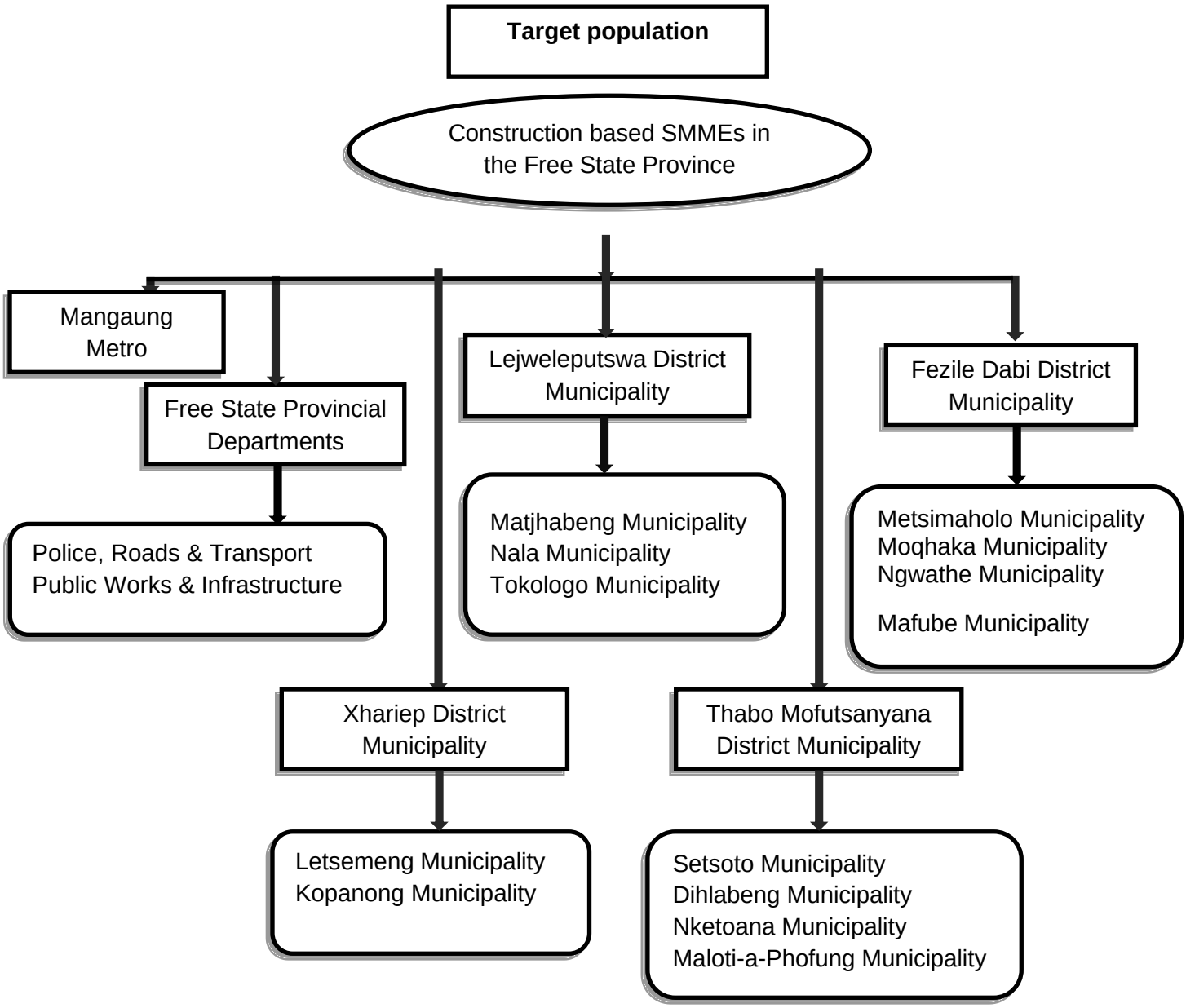


Figure 1.4: Research Population

Source: Own compilation (2018).

Aiming to employ a quantitative research method, the sampling strategy for this study involves selecting SMMEs who would complete the quantitative survey questionnaire. Once the study population has been chosen, it would be impractical for the researcher to contact all the potential participants and the most prudent way

is to use a sampling procedure. The subsequent section clarifies the sampling procedure to be used in the study.

1.7.2.2 The Sample and Sampling Method

According to Babbie and Mouton (2014:164), “sampling is a process of selecting observations”. According to Hair *et al.* (2016:172), “sampling is part of the overall research design and methodology”. Brown *et al.* (2018:206) define “a sampling frame as a list of all the sampling units available for selection for the actual sample”.

According to McDaniel and Gates (2015), choosing a sampling procedure to be used depends on the identified research problem. There are “two key sampling techniques, namely probability sampling and non-probability sampling” (Burns & Bush, 2017:251).

1.7.2.2.1 Probability Sampling

Sekaran and Bougie (2013:245) state that probability “refers to members in the identified population having a known chance, which is also termed a “nonzero” chance, of being chosen in the sample for data collection”. Therefore, “all members have a known chance (probability) of being selected in the sample” (Burns *et al.*, 2017:251).

According to Creswell (2012), probability sampling is divided into the following three methods:

- Simple random sampling refers to participant selection based on all individuals having the same prospect of being chosen from the population. Similar to this accession, authors like Leedy and Ormrod (2015:179) append that each member of the population has the same probability of being chosen in simple random sampling.
- Stratified sampling segregates the population based on a particular attribute and then, using simple random sampling, samples from each subgroup of the population are chosen.

- Multiple-stage sampling is when a researcher selects a sample in two or more stages because the researcher fails to promptly recognize the population or the population is exceptionally large.

1.7.2.2.2 Non-Probability Sampling

In non-probability sampling, the researcher chooses individuals because they are accessible, expedient, and stand for a particular characteristic the investigator aims to study (Creswell, 2012). In non-probability sampling, the researcher cannot envisage or assure that every population aspect will be represented in the sample (Leedey & Ormrod (2015). Non-probability sampling "occurs when a list is not needed or is not obtainable for selecting participants for the study" (Brown *et al.,* (2018:116).

Wagner *et al.* (2012:92) describe the subsequent four types of non-probability sampling:

- Convenience sampling "is a non-probability sampling method where elements of a sample are obtained due to accessibility. The elements in this scenario are accessible and convenient for the researcher".
- Judgemental sampling is a form of convenience sampling in which elements of a sample are acquired as per the researcher's judgement. Sampling elements are selected because the researcher deems they stand for the population. Burns *et al.* (2017:255) postulate that judgment sampling "is based on a person's judgment".
- Quota sampling is a sampling technique that entails two stages. In the first stage, the population is split into groups called "quotas". In the second stage, elements are chosen from the quotas either by means of convenience or judgemental sampling techniques. Leedy and Ormrod (2015:182) mention that "it selects respondents in the same proportions that they are found in the general population, but not in a random fashion".
- Snowball sampling is a sampling technique that entails haphazardly selecting a primary group of respondents. These respondents are then requested to identify others who fit in the category of the targeted population. Snowball sampling is proficient when the researcher desires participants with a

distinctive or exceptional characteristic, making it easier for the researcher to identify the sampling elements with the desired characteristics (Babin& Zikmund, 2016).

According to McNabb (2015), choosing between a probability and non-probability sample is often based on the cost-versus-value principle.

1.7.2.3 The Sample Frame

Zikmund, Carr and Griffin (2013:388) define the sampling frame "as a working population because this unit will ultimately offer units drew in the analysis". Similar to this accession, Rahi (2017) restates that the sampling frame is where a sample of the target population can be selected.

The sample frame for the study will be constructed using a database of active lower-grade construction-based SMMEs from four district municipalities, namely Lejweleputswa District Municipality (LDM), Thabo Mofutsanyana District Municipality (TMDM), Fezile Dabi District Municipality (FDDM) and Xhariep District Municipality (XDM), Mangaung Metropolitan Municipality, and two provincial departments, namely Police Roads and Transport (PR&T) and Public Works and Infrastructure (PW&I) in the FS province.

1.7.2.4 The Sample Size

Saunders *et al.* (2012:292) mention that sample size "is duly affected by the availability of resources, financial support, and time available". Hair, Black, Babin, Anderson, and Tatham (2006) state that researchers should refrain from analyze by factorizing a sample with less than 50 observations; if possible, the sample size should exceed 100.

Gay, Mills, and Airasian, as quoted by Leedy and Ormrod (2015), have offered the following guidelines for selecting a sample size, which will refer to by the symbol N:

- Where the population size, *N*, equals 100 or lesser, it's impractical to sample and surveying the entire population is recommended;

- Where the population size, *N*, is approximately 1 500, half the population should be sampled;
- Where the population size, *N*, is approximately 2 500, a fifth of the sample should be considered for sampling;
- If the population size, *N* equals 5 000, the population size is huge and sample size of minimum 400 can be used.

Laher (2016:320) states that “the assumption that ‘bigger is better’ applies most to the quantitative tradition in that this type of research seeks to generalize and predict, and as such, it can only do this if samples are large enough and from representative groups”. Brink, Van der Walt, and Van Rensberg (2016:143) state that “the absolute size of the sample is more important than the sample size relative to the population size”.

The number of active lower-grade construction-based SMMEs in the Free State province registered in the CIDB category GB and CE is 6 327. Therefore, for the quantitative study, probability stratified sampling has been adopted with the primary sample size of 485 construction SMMEs for the quantitative survey questionnaire, as they are quickly completed and affordable.

Table 1.6: Stratified Sample Size of Respondents

Grade	Number	Percentage	Sample size
1	5 736	89	431
2	342	6	29
3	100	2	10
4	149	3	15
Total	6 327	100	485

Probability stratified sampling will increase the correctness and the accuracy of the sample by ensuring that the SMMEs to be selected are formally registered in CE and GB classes of works, had existed between two and past five years, and that the

owner or manager to form part of the quantitative study, has sufficient expertise and experience in the construction sector. See distribution in the table below.

Table 1.7: Distribution of participants per class of work

Lower-grade construction based SMMEs in FREE STATE province survey targets																	
Municipal targets									**Provincial departments targets**								**Total**
Class	**CE**				**GB**				**CE**				**GB**				
Designation	**Years of operation**								**Years of operation**								
	2	**3**	**4**	**5**	**2**	**3**	**4**	**5**	**2**	**3**	**4**	**5**	**2**	**3**	**4**	**5**	
1	18	25	20	15	45	35	25	20	24	20	18	20	50	40	30	25	**431**
2	2	2	2	1	2	3	2	1	2	2	1	1	3	2	2	1	**29**
3	0	1	1	1	0	1	1	0	1	0	1	0	1	1	1	0	**10**
4	3	0	2	0	1	1	0	1	1	0	2	1	1	1	1	0	**15**
Total																	**485**

After the research methodology, research design, research approach, population, sample method, sample frame and size have been determined, techniques for data collection will then be considered for selection. Data collection methods to be employed must concentrate on both the research question and quantitative data. The subsequent section outlines the data collection process for the current study.

1.7.3 Data collection and research instruments

Data collection is defined as a precise, logical collection of information pertinent to the research intention or the particular objectives, questions, or hypotheses of a study (Grove, Burns & Gray, 2013). Gathering data is a two-stage process. First, the sample elements must be selected, and secondly, information must be sourced from those elements (Schmidt &Hollensen, 2006). Before data can be collected, permission will have to be requested in writing from government institutions where the study is conducted and from interested SMMEs.

Gray (2014:684) defines research instruments "as tools used to gather data as part of a research project, such as questionnaires, surveys, or observation schedules". "Methods of measuring each variable are identified, developed, and standardized, with considerable attention given to the validity and reliability of the measurement instruments" (Leedy & Ormrod, 2015:99). Burns *et al.* (2017:110) delineate that "there are two types of data collection methods that can be used to collect relevant data, namely secondary and primary data collection". The following subsections will discuss the research sources that will be used to gather information in this study.

1.7.3.1 Secondary Sources

Hair *et al.* (2016:116) allude to secondary data as "data used for research that was indirectly sourced and purposefully for the project under consideration" and assist in answering and addressing the research questions. The same authors state that secondary data "assists in answering and addressing the research questions" (Hair *et al.*, 2016:116).

Secondary data will be collected from an extensive existing literature review. Books, journals, dissertations, newspaper articles, academic articles, and annual reports will be reviewed to identify as many ways as possible that could grow and enhance the success of this study.

1.7.3.2 Primary Sources

Clow and James (2014:40) delineate primary data “as information collected for the first time”. Boshoff (2014) complements that primary data can be sourced equally by use of both quantitative and qualitative research methods.

Creswell (2009:12) defines primary data “as original data collected from the source, such as experimental or survey data, which provide a quantitative description of trends, attitudes, or views of a population by studying a sample of that population”. According to Rahi (2017:4), primary data “is the most influential quantitative method”.

Primary data will be collected using an empirical study of owners or managers of lower-grade construction-based SMMEs working in selected municipalities in all four district municipalities and two provincial departments, namely PR&T and PW&I. These SMMEs will fall within CIDB categories 1 to 4 in GB and CE class of works.

1.7.3.2.1 Questionnaires

Gray (2014) defines a questionnaire as a research data gathering instrument whereby people are requested to reply to the same set of questions in a pre-determined order. In addition, Kumar (2014) accentuates that a questionnaire is a research tool with a written list of questions, with the answers recorded by participants from a population in a particular geographic area.

For quantitative research, a self-administered, structured, close-ended questionnaire will be used as a research instrument to collect the data necessary to provide a descriptive basis for improving the sustainability of lower-grade construction-based SMMEs to gather data. This is because they are less time-consuming and more accessible to code, quick to analyze and record, and more accessible and quicker for respondents to complete.

The questionnaires aim to find out what types of opportunities exist for the lower-grade construction-based SMMEs in the Free State province, and how the government’s 30% subcontracting initiative has benefited the SMMEs in sustaining

and growing their business. In the literature review, very few construction-based SMMEs participate in the CDP, limiting their upgrade to higher grades.

Under resources, the questionnaire aims to determine how people, finances, and equipment are available for SMMEs to create economic opportunities and be sustainable in the construction industry. Under the entrepreneurial team, the questionnaires aim to find out how a certain level of construction experience, expertise, skills (entrepreneurial and management), qualities, and training can improve the sustainability of construction-based SMMEs in the Free State province. Since the literature review found that the failure rate of SMMEs is considered to be among the worst in the world as most fail within 42 months after opening, the questions to be asked had to relate directly with the appropriate ways to improve the sustainability of construction SMMEs.

Questionnaires about identifying barriers to the sustainability of construction SMMEs will aim to find out how government regulations, political environment, competition amongst construction SMMEs and corruption impede their growth and sustainability. Since the theoretical study has found that 70% to 80% of SMME contractors in SA fail within the first five years, the questions to be asked had to relate directly to the relevant barriers that construction SMMEs face.

The Likert scale “is a well-known measure of attitudes where respondents indicate how strongly they agree or disagree with carefully constructed statements” (Gilliland, 2014:103). The respondents will complete the questionnaire using a Likert scale of 1 to 5, with 1 denoting strong disagreement and 5 denoting strong agreement.

1.7.3.3 Data Gathering Procedure

According to Van Zyl (2014), the data collection process comprises four steps: the construction of the collection form used to organize data (questionnaire); the formulation of the coding strategy that was used to represent data; the collection of the data; and the entry of data into the data collection sheet.

1.7.3.3.1 Data Preparation

Data preparation includes editing, coding, and data entry, and it is this activity ensures the accuracy of the data and its conversion from a raw form to a reduced and classified form that is more appropriate for analysis (Cooper & Schindler, 2011).

1.7.3.3.2 Editing and Coding

According to Zikmund *et al.* (2013), editing is the process of checking the completeness, consistency, and legibility of data and making it ready for coding. Cooper and Schindler (2011) define coding as the process of assigning numbers to answers on the questionnaire in order to group responses into a limited number of categories.

1.7.3.3.3 Data Capturing

Cant, Gerber-Nel, Nel, and Kotze (2003) elucidate data entry or capturing as the assignment concerned in the direct input of coded data into a software package that eventually permits the researcher or analyst to control and convert the raw data into valuable information. Data capturing will be done by entering coded data directly into the software package provided by the University of the Free State. Once the data has been prepared, edited, coded, and captured, it will have to be analyzed to find ways of sustaining lower-grade construction-based SMMEs in the FS province. Therefore, the following section explains how data will be analyzed in this study.

1.7.3.4 Data Analysis

According to Babbie and Mouton (2014), analyzing data entails splitting up data into convenient themes, patterns, trends and relationships to recognize the diverse constitutive elements of one's data. Thus, data analysis could be referred to "as the systematic procedure during which participants' views were grouped to establish significant findings within a group of collected data" (Quinlan, Babin, Carr, Griffin & Zikmund, 2015:395).

Quantitative data will be used to gather data in this study, and therefore, data will be analyzed quantitatively. De Vos, Strydom, Fouché, and Delport (2011) refer to quantitative data analysis as the procedure by which researchers can translate data

into a comprehensible and interpretable arithmetic form to be statistically evaluated. Leedy and Ormrod (2015) describe data analysis as the breaking down of data into constituent parts to simply interpret and answer research questions or test hypotheses.

This study's quantitative instrument will be analyzed in different phases. First, data collected by the use of the quantitative survey instrument (the survey questionnaire), which will be statistically analyzed using the Statistical Package for the Social Science (SPSS) software provided by the University of Free State (UFS).

1.7.4 Validity and Reliability

"Both validity and reliability are the main measures for evaluating the study" (Bryman & Bell, 2015:49). In this study, the value of the research findings will be ensured by addressing the issues of both reliability and validity by questions in the questionnaire emanating from the literature study; research instruments will be pilot-tested to increase validity; and questions will be constructed concisely to avoid ambiguity. Both validity and reliability are discussed below.

1.7.4.1 Validity

Leedy and Ormrod (2015) describe validity as the degree to which the measuring instrument measures what it is projected to measure, while Heale and Twycross (2015) reiterate by defining validity in quantitative research as the degree to which the content is precisely measured. Yin (2016) asserts that a valid study had interpreted the data correctly so that the conclusions accurately reflected and represented the real world that was studied.

Brynard, Hanekom and Brynard (2014:50) refer to validity "as the potential of a design or instrument to attain or measure that which it is supposed to achieve or measure". Babbie (2016) affirms that validity refers to the degree to which experiential measures sufficiently replicate the actual meaning of the perception under consideration. Heale and Twycross (2015) differentiate between numerous

types of validity, namely content validity; construct validity and criterion validity as follows:

- Content validity is the degree to which a research instrument precisely measures entire features of a construct. For example, Brynard *et al.* (2014) refer to content validity as the correctness and appropriateness of the questions included in a questionnaire.
- Construct validity refers to whether one can draw assumptions about test scores correlated to the perception being studied. Brynard *et al.* (2014) define construct validity as the extent to which a measurement method discovers the information it was intended to discover.
- Criterion validity is the degree to which a research instrument is correlated with other instruments.

In this study, content validity will be maintained by adopting a process wherein questions will be asked in the same categories required by answers. Each section of the questionnaire will reflect the literature review to ensure the instrument's content validity (Leedy & Ormrod, 2005). Data collection and analysis will be done immediately to ensure that data is not lost or misunderstood to ensure the validity of the results.

The construct validity of the questionnaire will be confirmed by ensuring that all questions to be asked will be clear, risk free and not deceiving. In addition, content and construct validity will, as far as possible, be assured by involving a supervisor or an expert, in this case, a statistician from the UFS, in developing the questionnaire.

1.7.4.2 Reliability

Leedy and Ormrod (2015) describe reliability as the uniformity with which a measuring instrument produces specific, steady results when the entity remains unchanged. Heale and Twycross (2015) elaborate by saying reliability relates to a measure's consistency. Reliability can be attained by ensuring research instruments are clear, concise, unambiguous and straightforward to complete (Gray, 2014).

Reliability could be assessed in three major forms: test-retest reliability, alternate form reliability, and internal consistency reliability. Test-retest reliability emerges when consistent scores are achieved through repetitive testing with similar respondents. Alternate form of reliability refers to the amount of agreement between two or more research instruments, such as two different questionnaires on a research construct, administered at nearly the same point in time (Bolarinwa, 2015). DeVon, Block, Moyle-Wright, Ernst, Hayden, Lazzara, Savoy, and Kostas Polston (2007) state that internal consistency shows whether the questions on a measuring instrument fit together well, theoretically.

Reliability in this study will be enhanced by using fieldworkers and selected businesses from the provincial and municipal database list, since this organisation's register is a trustworthy source of information on the industry. To ensure the reliability of this study, the data collection technique will be the same for all respondents. It is of utmost importance to consider ethical issues seriously in the survey research, as outlined below.

1.8. ETHICAL CONSIDERATIONS

Rodgers (2010) defines "ethical considerations" as a collection of morals and principles that connect a society. Cooper and Schindler (2008:35) stipulate "that the research design must be free of physical harm; discomfort; pain; embarrassments; and the loss of individual privacy". Same authors (2008:35) mention that "there are also specific procedures and behavior patterns to adhere to during the research process". According to Ketefian (2015:165), "guidance is required in research to protect vulnerable groups or individuals who are least able to take steps to protect them". A brief description of the study and its procedures, with the benefits and risks associated with participation in the study, will be discussed with all the participants.

Data will be gathered through a questionnaire with a targeted population for this research study. Therefore, the subsequent ethical considerations have been considered for this research study:

- A letter will be sent to all government institutions, requesting permission to conduct research;

- The participants will be informed of the nature and intention of the research and the procedures to be followed;
- That participation in the study should be voluntary;
- The participants will be requested to sign the consent form to participate in the study. They will also be informed that they have the right to withdraw from the study or refuse to answer any particular questions if they feel uncomfortable;
- Protection of respondents from harm;
- Participant privacy and secrecy of their responses will be highly considered; and
- Ethical clearance from the University of Free State General Human Research Ethics Committee will be applied prior to distribution of questionnaires.

1.9. DERMACATION OF THE STUDY

The demarcation of the research serves to define what will be done, explains the methodology, and ensures that the research project is manageable. The research project's demarcated parameters are:

- Surveys will be conducted amongst lower CIDB grade construction-based SMMEs in the construction industry that operate in the FS province;
- The study will be limited to owners, managers, and, where applicable, site agents of SMMEs contractors; and
- The limited size of the organizations, as the study targets lower-grade construction-based SMMEs within the CIDB grading category of GB and CE.

1.10. CONTRIBUTION TO THE FIELD

SMMEs both in formal and informal sectors, were responsible for 14.8 million jobs (SEDA, 2020) as in third quarter of 2020 and continue to contribute to economic growth and subsequently poverty reduction. The study is useful to the SMME in the construction sector, the policymakers, and all three spheres of government in applying some recommendations in the study to improve and assist lower-grade construction-based SMMEs in the FS province to become sustainable in their business.

Byend-March 2021, the CIDB had reported registering 49 540 new grade 1 applications on the Register of Contractors and cited it was found that many of those applicants lack the required skills or experience (CIDB, 2021a). Irrespective of number of registrations recorded in first quarter of 2021, Most recently, (STATSSA, 2022) the Free State province has recorded a decline in number of active contractors from in 8 374 across all classes in 2017 when the study was conducted to 4 854 in the first quarter of 2022. In comparison to study population, in 2017 the population was 6 347 compared most recently at 3 430 which equates to 46% decline in active construction SMMEs in the province (CIDB, 2022). The high decline in the construction sector in the Free State province could have contributed to national further recorded employment decline between second quarter and fourth quarter in 2021, the sector saw a decline of 85 000 jobs, between last two quarters in the same year 24 000 jobs were lost in the sector. In comparison to year-to-year employment statistics, 33 000 jobs were lost in the sector between last quarters of 2020 and 2021 (STATS SA, 2021b).

The continuous decline in employment due to various economic factors emanating from COVID-19 regulations implications and various government priorities in address the pandemic have contributed to decline in employment in the construction sector. The need for improved SMME performance and sustainability is critical help eradicating poverty, reducing unemployment, and achieve high economic growth within the construction sector.

The findings of this study will identify the views and perceptions of respondents about the requirements for the sustainable construction industry. The study will also explore the types of opportunities available to enhance sustainability of the lower-grade construction industry in the FS province. The findings on the efficacy of Contractor Development Programmes in the province towards improving and sustaining the sector will also be identified whereby issues such as minimum requirements on technical qualifications or competency of the owners or managers and transparency on recruitment processes. The results on the primary resources needed for the sustainability of lower construction based SMMEs and

entrepreneurial team skills necessary to give SMMEs a competitive edge in the construction industry and lastly the barriers SMMEs need to overcome in order to sustain their business in the construction sector.

Studies related to the sustainability (CIDB grades 1 to 4 on CE and GB classes of work) of lower-grade construction-based SMMEs in the Free State province have never been conducted before. As such, the study contributes to the body of knowledge regarding the sustainability of lower-grade construction-based SMMEs in the Free State province and will enable them improve the provincial and national contribute to the Gross Domestic Product.

1.11. SUMMARY OF CHAPTERS

This thesis will be divided into six chapters

CHAPTER 1: INTRODUCTION AND BACKGROUND TO THE STUDY

This chapter puts together the background of the study, a problem statement, the primary and secondary objectives, and the research methodology used in the study.

CHAPTER 2: LITERATURE REVIEW SMALL-, MEDIUM-, AND MICRO-SIZED ENTERPRISES

The literature reviews lower-grade construction industries across the world, including African countries and the FS province, how they operate in the construction industry, their contribution to the country's economy, the industry regulations, growth and sustainability, and the importance of resources and employment contribution.

CHAPTER 3: THE SOUTH AFRICAN CONSTRUCTION INDUSTRY

This chapter discussed the background and a summary of the South African construction sector; outlines the historical overview and establishment of the contractor development programme in South Africa, and the CIDB; the latest revised tender value limits; the National and Provincial Register of Contractors; the construction SMMEs' contribution to the economy and employment discussed; and the shortcomings SMMEs in the construction industry experience.

The National Contractor Development Programme's (NCDP)role, its objectives and benefits of participating in NCDP, the Incubator Programmes, the Free State province as a study area and the importance of sustainability of the business by using the Timmons Model of Entrepreneurship as the conceptual framework of the study.

CHAPTER 4: RESEARCH DESIGN AND METHODOLOGY

This chapter comprises the research design, research approach, sampling design, theoretical recommendations, and measuring instruments that will be used to gather information on the sustainability of lower CIDB grade construction based SMMEs in the FS Province, South Africa.

CHAPTER 5: PRESENTATION, ANALYSIS AND INTERPRETATION OFRESULTS

This chapter outlines the empirical findings from the field study as collected through the research instrument with tables and charts. The detailed data will also be analyzed and interpreted. Recommendations for the sustainability of lower-grade construction-based SMMEs will be formulated based on the results derived from the presentations, analysis and interpretation of results.

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the conclusions attained subsequent to performing the research and then evaluates the research questions to the respondents' feedback. Recommendations will then be made to address each objective, and supporting recommendations will be formulated to assist the lower-grade construction-based SMMEs in the FS to become sustainable in their businesses.

CHAPTER 2: LITERATURE REVIEW ON SMALL-, MEDIUM-, AND MICRO-SIZED ENTERPRISES

2.1 INTRODUCTION

It is well known that small businesses are prevalent in confronting the threats of unemployment, fostering a greater equitable distribution of income, and a catalyst for increased economic activity in growing economies (Laurentiu, 2016). Moreover, according to Bruwer, Coetzee and Meiring (2017), SMMEs are acknowledged worldwide as essential drivers of economic success, and are seen as job creators and sales generators and as a source of tax, lead to fiscal revenue.

Globalization and technological changes enable SMMEs to reach further and create new opportunities. As a result, SMMEs are seen as a critical part of national economies, contributing to job creation and value-added tax. In the European Union (EU),a total of 28 SMMEs account for more than 99% of all enterprises in the non-financial business economy, the majority at 93% being micro-enterprises, small enterprises settling for below 6%, and medium enterprises completing with less than 1%. Micro-enterprises add approximately 30% of total workforce, whereas SMEs contribute approximately 20% and 17% of total employment, respectively. Overall, SMEs are responsible for over 66% of the total employment in the EU. The remaining percentage is contributed by large enterprises (Rotar, Pamic & Bojnec, 2019).

As per the Organisation for Economic Cooperation and Development (OECD) report (OECD, 2019), across the 38 member countries, SMEs account for 99% of all businesses and between 50% and 60% of value-added employment. In terms of employment in the sectors, a third is employed in a micro firm with maximum ten employees, and two-thirds in Small Micro Enterprises (SMEs). As the leading form of business and employment, SMEs are key contributors in advancing a more comprehensive and sustainable growth, growing economic resilience, and improving social cohesion.

The number of business formations in the United Kingdom almost doubled between 2002 and 2017 and more than doubled in France between 2000 and 2017. SMEs

have been driving job creation through firm start-ups since 2010, particularly in market services and in wholesale and retail trade, as well as in accommodation and food services in Greece, Ireland, and the United Kingdom, and in the construction sector in Italy and Norway (OECD, 2019).

Hambayi (2019) avers that in Africa, it is usually accepted that the drivers of economic growth and lasting sustainability of rising markets are positioned in the prospective and efficient development of the SME sector. The African continent has an approximate population of more than 1.3 billion people, increasing at the rate above 2% annually in most countries. In 2019, an article by researchers from the University of Johannesburg (2019) denotes that, considering that nearly 50% of Africans live in cities seeking housing, employment, and services, this is an urban and demographic imploding crisis. Therefore, African countries must post higher economic development rates as compared to their population increase rate to enhance employment opportunities, ease increasing poverty, and eventually prevent a social crisis. In the African context, SMEs are decisive drivers of economic growth and the lasting sustainability of the continent as they employ approximately two-thirds of the Africa's formal employment.

According to the Oxford Business Group (2014), many SMEs in sub-Saharan Africa are heavily involved in the services and manufacturing sectors, responsible for an average of two-thirds of the employment workforce. However, they are also active in most industrial development sectors, such as mining, agriculture, manufacturing services, and fishing. For instance, SMEs in Nigeria account for 70% and 95% respectively of the industrial and manufacturing sectors' employment; in Ghana, they account for 85% of the industrial sector's employment; while in Egypt, there are 2.5 million SMEs in the manufacturing sector.

Mbinda (2015:12) cites that "in South Africa, the development of SMMEs has been a challenge that the new government must face after the dissolution of the apartheid laws". SMMEs have been described as the catalyst for economic growth that the South African government should pursue to address the scourge of unemployment and low GDP growth (Zwane & Nyide, 2017). Van Vuuren and Groenewald, as quoted by Ncoliwe (2018), argue that favorable conditions for business, in terms of

social, economic, and personal factors, are necessary for entrepreneurs to succeed. Furthermore, Bruwer and Van den Berg (2017) stress those SMMEs are accountable for accumulating essential socio-economic significance to the country, particularly in exterminating poverty and diminishing unemployment levels.

SMMEs are the hope to revive a diminishing South African economy with minimal growth forecast and a soaring unemployment rate; they are placed to offer job opportunities and contribute considerably to the GDP and are internationally known to be the instrument for formulating new work opportunities in society. In the National Development Plan (2011), the government highlights the importance of these businesses for job creation, innovation, and competitiveness, with the goal that SMMEs will create 90% of new jobs in South Africa by 2030. The latter is deteriorated by the fact that the number of employed persons decreased by 1.534 million in quarter three of 2020 compared to quarter three in the preceding year (STATS SA, 2020). The COVID-19 pandemic and National Lockdown in South Africa exacerbated the situation whereby the country maintained its highest unemployment rates globally, with an unemployment rate of 35.3% in the last quarter of 2021. The expanded unemployment rate is at 46.2% of the country's population in the same period (STATS SA, 2021b).

A study by Bhorat, Asmal, Lilenstein and Van der Zee (2018:2), revealed that" The successful entry and growth of SMMEs may create a sustainable mechanism through which the wages of those at the bottom of the wage distribution chain can be increased and the level of inequality reduced". Thus, the South African government is facing a significant challenge in alleviating poverty and creating more sustainable employment for the population. This is evident when observing the unemployment rate of 35.3% in the fourth quarter of 2021, with as increase of 0.4% from the third quarter (STATS SA, 2021b).

Kruger, Chantal and Saunders (2015) maintain that although SMMEs play a vital role in the economy of both developed and developing countries, it is evident that they still possess a high rate of failure. Bushe (2019) argues that if SMMEs are developed, they would contribute massively to economic growth and development; however, their failure rate cannot be linked to the needed economic growth,

particularly with relative measurement to the challenge of job creation. Kriel (2020) cites that, reports by Global Entrepreneurship Monitor (GEM) indicate that SA is amongst the world's highest business start-up failure rates. According to Rambe and Mosweunyane (2017), occurrences of high SMMEs closing in the country raise critical questions about whether SMMEs are efficient instruments for job creation and poverty reduction.

Chimucheka and Mandipaka (2015) state that researchers in entrepreneurship sector are in agreement that this sector is crucial for economic growth, employment creation, poverty reduction, and reducing levels of inequality. However, effective support can only be rendered to these business owners and managers if the prospective support providers clearly understand the challenges faced by SMMEs. Therefore, there is a need for solutions to alleviate the continuing high failure rate and congestion in the lower CIDB grades. Recommendations to improve the sustainability of lower-grade construction-based SMMEs will therefore be drawn by determining these factors.

In this chapter, a literature review, which covers the overview of SMMEs in South Africa, is provided first. The relevance of SMMEs in South Africa; the provincial growth rates; national and worldwide perspectives of SMMEs' contribution to the economy; constraints impeding SMMEs' success; and government initiatives to support SMMEs are discussed hereafter.

2.2 OVERVIEW OF SMMEs IN SOUTH AFRICA

Bruwer and Van den Berg (2017:3) "assert that in a South African dispensation, although many small businesses were already in operation between the early 1980s and mid-1990s, the national government only formally recognized SMMEs through the passing of the National Small Business Act (Republic of South Africa, 1996) No. 102 during 1996, which affords the regulatory and support structure for SMMEs". In this Act, SMMEs are defined as "small businesses" with a separate and distinct business entity.

The NSBA (RSA, 1996) states that SMMEs are split into one of four categories, namely, micro, very small, small and medium by the categories of their total number of full-time equivalent or paid employees, their total yearly turnover, and the total gross value of their assets with specifics relating to the sector in which the business exists. The term Small and Medium Enterprises (SMEs) is universally used, while in South Africa, according to Mathibe and Van Zyl (2011), the term Small, Micro and Medium Enterprises (SMMEs) is used. Different countries define SMMEs in various ways. In South Africa, the SMME classification uses the number of employees (the most common mode of definition) per enterprise size category, combined with the annual turnover categories and the gross assets, excluding fixed property from the National Small Business Act (No. 102 of 1996). Table 2.1 depicts the general definitions of SMMEs based on the National Small Business Act of South Africa.

Table 2.1: National Small Business Act definition of SMMEs.

Enterprise size	**Number of employees**	**Annual Turnover (S.A Rand)**	**Gross Assets, Excluding Fixed Property**
Micro	Informal- no license, formal business premises, labour legislation. Employs between 1 to 5 employees depending on the industry.	Less than R150 000	Less than R100 000
Very small	Operates in the formal economy and employs fewer than ten or up to 20 employees, depending on the industry.	Between R200 000 and R500 000	Between R150 000 and R500 000
Small	Registered, operates in the formal economy and more established than very small enterprises.	Between R2m and R25m	Between R2m and R4.5m
Medium	A decentralized management	Between R4m and	Between R2m

Enterprise size	Number of employees	Annual Turnover (S.A Rand)	Gross Assets, Excluding Fixed Property
	structure characterizes enterprises. Employs fewer than 100 or up to 200 employees depending on the industry.	R50m.	and R18m

Source: National Small Business Act No. 102 of 1996.

As can be seen from Table 2.1 above, most of the enterprises covered in the study fall into the micro and minimal definition. There are, however, the minority that fall into the small and medium categories.

2.2.1 SMMEs in the South African Context

South Africa has one of the lowest formation rates of new SMMEs in the world, with GEM (Hill, Ionescu-Somers & Coduras, 2022) reporting that South Africa's Total Entrepreneurial Activity (TEA) rate is at 10.8%. Total Entrepreneurial Activity (TEA) is the proportion of the individuals who are either nascent entrepreneurs who have dedicated assets to starting a business but have not yet paid salaries for over three months, or owner-managers who have graduated from the nascent stage and have paid salaries between three to forty-two months (Bowmaker-Falconer & Herrington, 2019).

This rate is significantly lower on average compared to fifty other countries, but higher than Egypt, which has a rate of 9.2%. South Africa's rate of 6.7% is; however, lower than those BRICS counterparts such as Brazil (21%) and India (14.4%). However, there has been some slight improvement in the country's TEA from a low 5.2% in 2005, 10.8% in 2019 and declined further to 6.7% in 2022 as a result of COVID-19 implications. In 2005, the country was ranked 25th out of 34 countries in TEA, eight-position below the average (Herrington and Kew, 2016). The table below represents a comparison of COVID-19 Related Issues, TEA, established business

rate, and fear of failure rates in South Africa, Egypt, and other BRICS countries in 2019 (Hill, Ionescu-Somers & Coduras, 2022).

Table 2.2 COVID-19 Related Issues, TEA, established business rate and discontinuance in South Africa, Egypt, and other BRICS countries in 2022.

Country	COVID-19 Related Issues		TEA (%)	Established business rate (%)	Fear of failure rate (%)
	Starting a business	Pursue more opportunities			
Brazil	60.9	53.6	21	10	45.1
Russia	49.6	21.0	8.3	3.4	48.2
India	83.1	80.0	14.4	8.5	54.1
China	74.9	36.2	8.7	9.3	44.7
South Africa	59.2	48.9	17.5	5.2	53
Egypt	86.8	77.6	9.2	3.6	53

Source: Hill, Ionescu-Somers & Coduras (2022).

As illustrated in the above table, South Africa ranked 11th out of 47 countries in 2022, with a TEA rate of 17.5% (average) of all participating countries, which is lower than that of Brazil (7th) but higher than that of India (18th), Egypt (30th), Russia (34th) and China (35th). In addition, the country has the lowest established business rate at 5.2% compared to its Brazil, India and China, with Brazil leading at 10%, followed by India at 8.5%. India has the highest rate of fear of failure at 54.1%, followed by South Africa at 53%, and the lowest being Brazil at 45.1%.

The above situation is aggravated by South Africa's high failure rate of new SMMEs, with preceding research studies indicating that up to 75% of South African SMMEs fail within first 42 months of operation (Bruwer and Van den Berg, 2017). To add to these figures, Mashimbye (2018) postulates that according to figures cited by Minister Lindiwe Zulu, when the Department of Small Business Development was created in 2014, only 37% of SMMEs survived to their fourth year, with a shocking 70% to 80% of them never making it to celebrate one year in business. This high failure rate is attributed to several challenges SMMEs in the country face, ranging

from lack of skills and training, funding, and regulations being among the key challenges.

2.2.2 The Profile of Small-, Medium-, and Micro-sized Enterprises in South Africa

The profile of SMMEs in South Africa was studied to establish the distribution of the biographic information of the SMMEs in the country. This concerns the total number of SMMEs; the formal and informal sectors of SMMEs; participation of different racial, gender and age groups in small businesses; industries and provinces; the education level of SMME leaders; and the participation of SMMEs in diverse economic sectors.

2.2.2.1 SMMEs by population

The emphasis on SMMEs to help improve the overall socio-economic challenges is two-fold. Firstly, expectation is placed on SMMEs to reduce the unemployment rate by recruiting more people, and secondly, due to insufficient employment opportunities, more unemployed people are encouraged to consider starting new businesses (Molefe, Meyer & De Jongh, 2018). During the third quarter of 2020, the number of newly registered SMMEs declined by 12% (between 2019 Q3 and 2020 Q3). In relation to this, the SMME preference has become the natural choice for people struggling to find a job. Of the total number of employed people, there was a recorded decline of 10.4% of the owners employed offered employment in 2020 Q3, while another decline of 10.3% was recorded on the SMME owners due to COVID-19 regulations. Combined at negative 15.9% (or 2.363 million), this consists of the stand-in measure for the number of SMMEs in South Africa. The following Table 2.3 depicts a summary of the SMME population in South Africa according to (STATS SA, 2020).

Table 2.3: SMME population in South Africa

Indicator	**Quarters**			**2020 Q3 Distribution**
	2019 Q3	**2020 Q2**	**2020 Q3**	
Employer	986 330		867 938	5.8%

Own account owner	1 667 094		1 495 575	10.1%
SMME Owners	**2 653 424**	**2 421 780**	**2 363 513**	**15.9%**
Working for someone	13 853 046	11 803 396	12 407 670	83.4%
Helping in household business	87 347	111 544	109 320	0.7%
Total employed	**16 593 818**	**14 336 719**	**14 880 503**	**100%**

Source: SEDA (2020).

2.2.2.2 SMMEs by formal and informal sectors

In the third quarter of 2020, the informal sector SMMEs led with 67%, whilst the formal sector was at 28%. These ratios have remained stable since 2010. Out of the entire SMME owners' representative, 37% of them employ other people. Table 2.4 below provides a breakdown of the SMMEs in numbers with a further division in formal and informal identification and contribution of each sector.

Table 2.4: SMMEs by formal and informal sectors

Type	Formal sector	Informal sector	Agriculture	Private Households	Total	Distribution
Employer	485 670	305 298	70 432	6 538	867 938	36.7%
Own account owner	167 860	1 274 857	33 757	19 101	1 494 575	63.3%
Total	653 530	1 580 155	104 189	25 639	2 363 513	100%
% per sector	27.7%	66.9%	4.4%	1.1%		100%

Source: SEDA (2020).

Elaborating further from Table 2.4 above, the agriculture and private households SMMEs share a fraction of 1.8% and 0.6% of the entire population. It should be noted that the government has a task to ensure more emphasis is placed on the formalization of the informal sector.

2.2.2.3 SMMEs by industry

Figure 2.1 below graphically illustrates a breakdown of the SMMEs by sector, which compares data from quarter three of 2019 to quarter three of 2020. This data presents the distribution of the number of SMMEs in existence at that point in time for each of the main sectors.

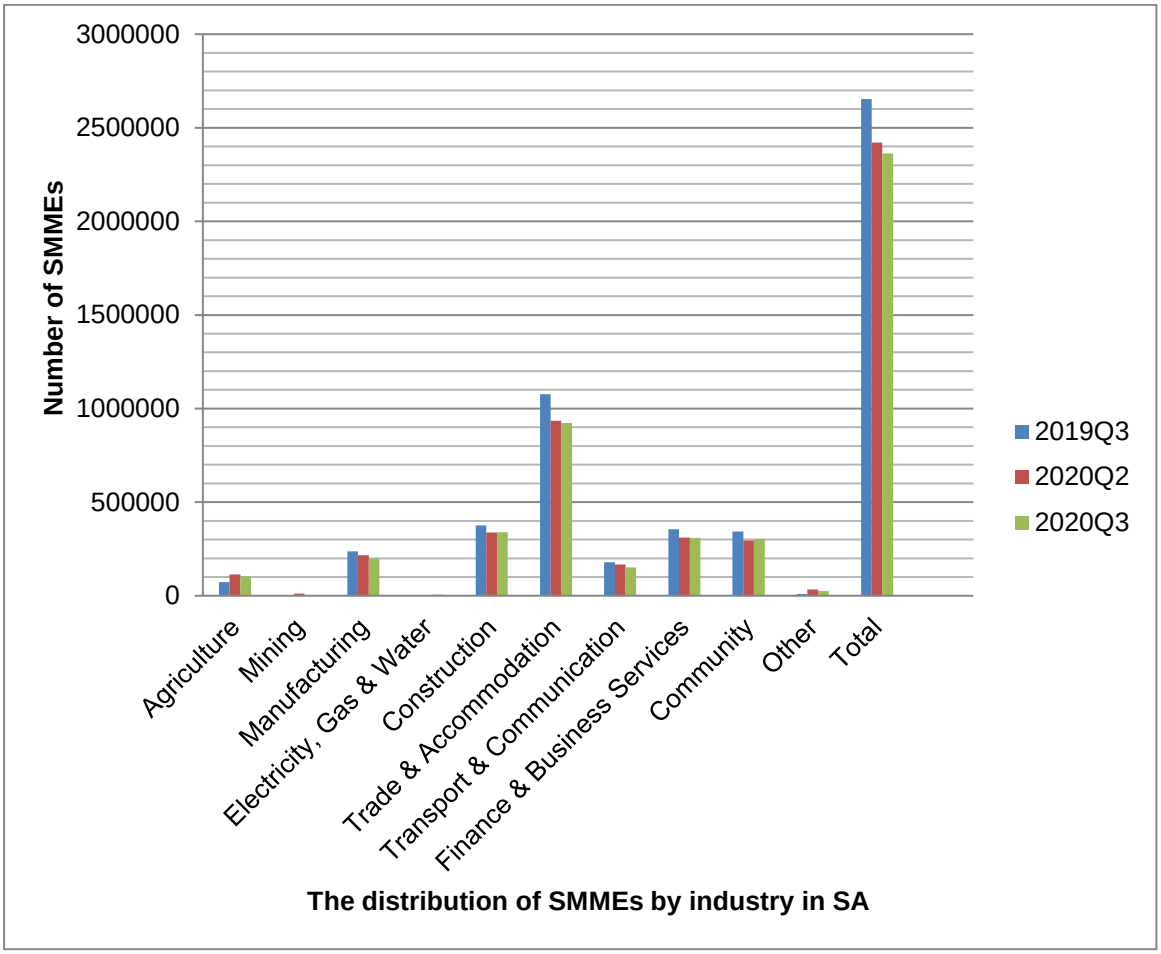


Figure 2.1: The distribution of SMMEs by industry in SA

Source: SEDA (2020).

According to SEDA (2020), the SMME sector is estimated at just above 2.363 million active enterprises operating in South Africa. As shown in the figure above, among the ten industries in all provinces, the only industry that recorded growth rate is the electricity, gas, and water services. In contrast, the number of SMMEs in the in the trade and accommodation, transport and communication and manufacturing declined sharply as a result of COVID-19 national lockdown regulations, while construction and community remained steady despite the lockdown challenges (SEDA, 2020).

Mseleku and Chimucheka, as quoted by Nhleko (2017), supplements that in South Africa, the variety of SMMEs sectors incorporate those in construction, mining, retail, wholesale, farming, and manufacturing. In terms of numbers, the data indicates that, while there are over 2.363 million SMMEs in South Africa, most operate in the economy's domestic trade (wholesale and retail) and accommodation sector with 922 250 (39%) active SMMEs. Construction, which is the second-largest sector, is the focus of the study as it has a total number of 339 120 (14.3%) SMMEs, employing over 8% of the country's labour force, and contribute on average 8% to the GDP.

Active registered contractors in grade one possess the majority market share of 86% across all work classes, with GB being the highest at 49% of the market share, followed by CE at 26% market share. On the other hand, those in grade nine hold the least market share across all classes of work, as they all hold less than 1% of the market share, depicting that the higher the grade, the smaller the number of contractors registered due to higher barriers to entry. Most contractors are registered as grade one contractors at 87% showing high congestion (CIDB, 2017c). This is backed by the study population, where 96% (6 327) possess a grade one to four in both CE and GB categories, showing high congestion levels, with 87% falling within grade one of both CIDB classes of work. This high concentration of registered lower-grade construction based SMMEs that fail to move up the grade is a significant concern that prompted the need to conduct this study.

2.2.2.4 SMMEs by race

The distribution of SMMEs based on racial groups is discussed in this section. The population profiling identifies the significant groups like blacks, whites, Indian/Asian and Coloureds as determined by SEDA (2020). The data denotes the number of SMMEs within the main groups, displaying data from quarter three of 2019 to quarter three of 2020. During quarter three of 2019, black SMMEs' owners were the majority with over 75% regardless the complete decline (8.4% year-to-year change), biggest decline as a result of COVID-19 regulations suffered by Coloureds and Indians at 37% and 32%, respectively. There was only recorded significant increase in the

number of white-owned SMMEs between the quarter two and three of 2020. Still, in 2020, black SMME owners 'share was remained steady at around 75%.

Table 2.5 displays data from quarter one of 2019 to quarter three of 2020.

Table 2.5: SMME owners by race

Indicator	**Quarters**			**2020 Q3 Distribution**
	2019 Q1	**2020 Q2**	**2020 Q3**	
Asian/Indian	128 310	98 189	87 598	3.7%
Coloured	144 496	102 838	91 643	3.9%
White	440 357	395 568	407 730	17.3%
Black	1 940 262	1 825 185	1 776 542	75.2%
Total	**2 653 424**	**2 421 780**	**2 363 513**	**100%**

Source: SEDA (2020).

2.2.2.5 SMMEs by province

This section will ascertain the major provinces where most SMMEs operate, as determined by SEDA (2020). Accordingly, the table depicts the number of SMMEs in nine provinces as in quarter three of 2020.

Table 2.6: SMMEs by the province in 2020 Q3

Province	**Number of SMMEs**
Western Cape	268 799
Eastern Cape	231 011
Northern Cape	18 519
Free State	110 183
KwaZulu-Natal	414 071
North West	79 203
Gauteng	783 410
Mpumalanga	214 393
Limpopo	243 924
Total	**2 363 513**

Source: SEDA (2020).

The provincial breakdown exhibits that in the third quarter of 2020, 33% of SMMEs operated in Gauteng, which holds two of the country's largest cities, Johannesburg and Pretoria. Second placed was KwaZulu-Natal at 18%, Western Cape at 11% and closely followed by the Limpopo at 10%. Finally, the Northern Cape (slightly below 1%), both North West and the Free State at 3% and 4% respectively, all have a small number of business activities in terms of SMMEs and large businesses, as these areas generally have low levels of economic activity and are concentrated around agriculture and mining. In terms of construction sector, the biggest decline of SMMEs was recorded in Gauteng at 78% margin.

In addition, in respect of the age of SMMEs, during the third quarter of 2020, SMME owners aged 45 to 49 years recorded a significant increase of 27%, therefore becoming the leading group. The significant increase of 12.5% was recorded between the age group of 60 to 64 which is considered to be representing more experienced individuals and veterans managed to overcome the COVID-19 impact and 5.8% between the age group of 25 to 29 which may be due to diminishing jobs for younger people. However, the fraction of SMME owners between 20 and 24 years recorded a huge decline (27%) which might be as a result of lack of experience to operate the business (SEDA, 2020).

According to SMME owners' educational levels, the quarter-to-quarter change educational achievement of SMME owners showed an increased in those with no schooling (7.7%) and those who did not complete secondary schooling (4.2%) only. SMME owners' total share in possession of grade twelve certificates declined by a mere 0.1% remaining steady at 28.9% while a significant decline was experienced by those who only completed primary school at 24% (SEDA, 2020).It could also denote that people are inclined to remain longer in the SMME sector as employment opportunities at established businesses happen to be scarcer (SEDA, 2019c).

2.2.2.5.1 Provincial growth rates (GDP) in numbers

Business Insider South Africa compared the economic growth rates of the country's nine provinces over the past ten years, using data shared by Statistics South Africa as illustrated in the table below.

Table 2.7: The provincial growth rates by the end of 2017

Provinces	2009	2010	2011	2012	2013	2014	2015	2016	2017	Average
WC	-1.5	3.1	3.6	3.2	2.3	1.9	1.5	1.1	1.2	1.82
EC	-1.3	2.2	3.4	2.6	1.1	0.9	0.7	0.8	0.6	1.22
NC	-1.5	1.9	2.2	1.0	2.1	2.8	0.9	0.3	2.8	1.39
FS	**-1.8**	**2.3**	**2.5**	**2.2**	**1.7**	**1.7**	**-0.2**	**-0.1**	**1.4**	**1.08**
KZN	-1.8	3.0	3.6	2.8	2.1	2.1	0.8	0.7	1.8	1.68
NW	2.0	2.7	2.7	-0.6	2.5	-3.8	4.9	-3.6	2.0	0.53
GP	-1.7	3.2	4.0	2.9	2.6	2.1	1.4	1.4	1.1	1.89
MP	-1.7	2.5	2.5	2.2	1.7	2.7	-0.2	0.2	1.9	1.31
LP	-1.8	2.6	2.2	1.2	2.4	0.8	1.9	-0.6	2.1	1.20
Total	-1.7	3.0	3.5	2.2	2.2	1.5	1.3	0.4	1.4	1.53

Source: De Villiers (2019).

Gauteng represents 33.8% of South Africa's GDP, having the country's highest economic growth rate of 1.89% over the past ten years. Second is the Western Cape Province, which had an average economic growth rate of 1.82% over the past ten years. The North-West was the worst-performing, with a growth rate of only 0.53% and had four years of economic decline, followed by the Free State, which saw a growth rate of 1.08% with three years of economic decline. Overall, South Africa saw an economic growth of 1.53% over the past ten years (De Villiers, 2019). Figure 2.2 below shows various provinces' contributions to South Africa's total GDP as at the end of 2017.

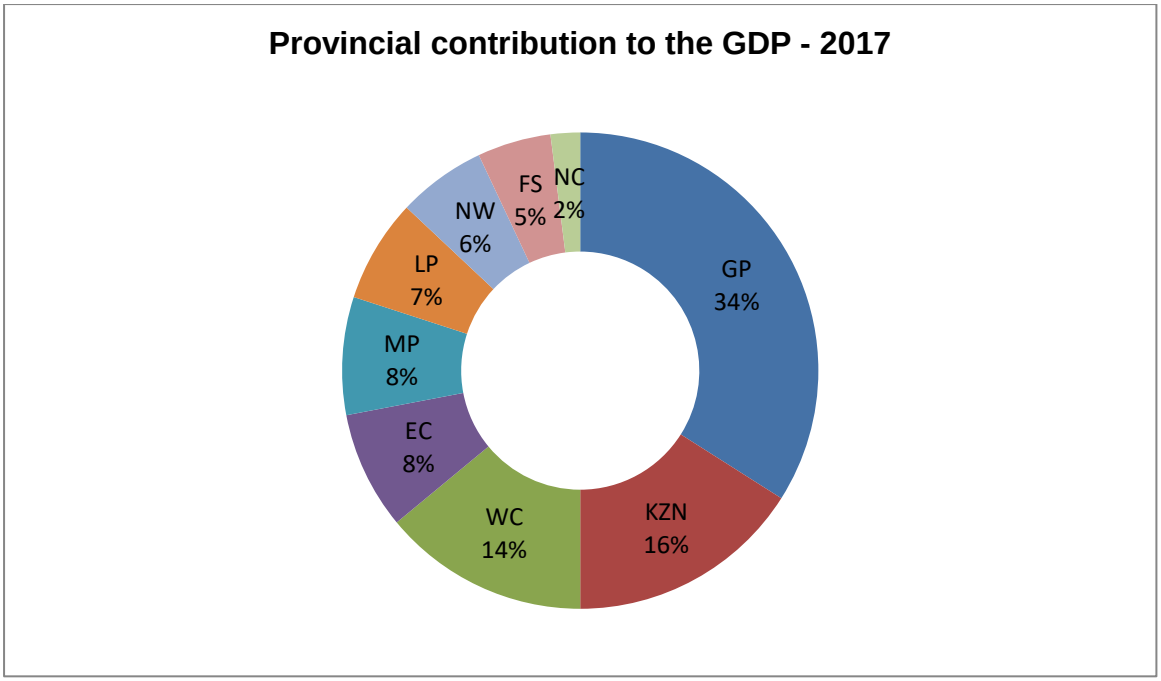


Figure 2.2: The provincial contribution to the GDP by the end of 2017

Source: STATS SA, (2019).

Once again, Gauteng has the biggest economy in South Africa, making up over a third of South Africa's economy and double the size of KwaZulu-Natal province in terms of economic output. KwaZulu-Natal has a bigger economy than the Western Cape due to its massive oil refining capacity and Durban port, the busiest port in South Africa. Even though the Free State province is rich in mineral resources and the farming sector, it is placed second last with a contribution to GDP at 5%, and last being the Northern Cape at 2%.

2.2.2.6 SMMEs in the Free State province

The Free State province has a total number of 110 183 active SMMEs. The table below demonstrates the breakdown of data for each industry.

Table 2.8: Number of SMMEs per industry in the Free State province

Industry	Number of SMMEs
Agriculture	7 162
Mining	0
Manufacturing	8 176
Electricity, Gas, and Water	0
Construction	11 236
Trade & Accommodation	55 832
Transport & Communication	5 624
Finance & Business Services	9 488
Community	12 665
Other	0
Total	**110 183**

Source: SEDA (2020).

It is estimated that the Free State province had a total GDP of R242 billion in 2018. In terms of total contribution towards South Africa, the province is ranked eighth, relative to other provincial economies, a position maintained since 2008. Over ten years, the province's average annual growth rate has stood at 1.0% per annum. In her speech as Member of the Executive Council for Finance in the Free State, indicated that in 2019, the Free State economy was projected to recover marginally and grow by 0.9%. This growth was expected to be supported mainly by the transport (3.2%), agriculture (2.9%) and finance (2.8%) sectors. However, she further alluded that the Free State's contribution to the national GDP has remained stagnant at 5% between 2014 and 2017.

The Free State Development Corporation (FDC) emphasised building partnerships with other SMME support institutions, the government, and the private sector, such as the National Empowerment Fund (NEF), the Small Enterprise Development Agency (SEDA), the National Youth Development Agency (NYDA), the State Information Technology Agency (SITA), and National and Regional Chambers of Commerce and Industries. These partnerships contributed to greater awareness of FDC products and services, innovation, outreach to SMMEs, increased the loan

book and effective post-investment support to funded enterprises. As a result, 1 580 jobs were created, of which SMME development and support contributed 610 and property portfolio contributed 970 jobs. The job creation contribution is significant to the provincial economy of the Free State (FDC, 2018).

During the 2017/18 financial year, 12 132 Free State ventures obtained substantial financial assistance from SEDA, surpassing its set annual target of 10 830. Moreover, a total of 872 SMME enterprises benefitted from SEDA, surpassing its set annual target of 540. In the province of study, the Free State alone, a total of 1 579 SMMEs benefitted from five branches of SEDA, namely Bloemfontein, Sasolburg, Bethlehem, Trompsburg, and Kroonstad. Of these benefitted SMMEs, black-owned are majority at 97%, followed by women-owned at 45%, and lastly youth-owned represents 51%. During the same period of the 2017/18 financial year, total of 78 SMMEs benefitted from different programmes both financially and non-financially from the Free State Department of Economic Development, Tourism, Environmental Affairs and Small Business (DESTEA) (SEDA, 2019a).

In support of SMMEs, DESTEA provides a grant of between 10% to 40% for SMMEs with approved loans from DFIs and any other funding institution. As of the 2018/19 financial year, seven applications worth R3.95 million have been approved for funding by DESTEA through this programme, and it has attracted R17.9 million worth of funding from the Development Finance Institutions (DESTEA, 2019). During 2018/19, the FDC made great strides through the Radical Economic Transformation Programme, which provided financial support to 96 SMMEs with the total disbursement amounting to R16.2 million. The loan funding was able to create 214 job opportunities in the FS province during the year. A further total of 198 jobs were created in other SMME support initiatives offered by the FDC (DESTEA, 2019).

2.3 THE CONTRIBUTION OF SMMEs TO ECONOMIC DEVELOPMENT

Vuba (2019) declared that SMMEs are the hope for the struggling South African economy with unsatisfactory growth forecast and soaring unemployment rate, as they are positioned to offer employment opportunities and contribute extensively to the GDP. Rankhumise (2019) accentuates that SMMEs are recognized worldwide for

their contribution towards economic growth, job creation, and social development of society and, if successful, they result in the growth of the economy, which in turn contributes to the employment of the members of society. Rungani and Potgieter (2018:1) state that “it is necessary to accelerate the success of SMMEs to achieve sustainability in this sector of the economy”.

The position of SMMEs is gradually more acknowledged globally due to their capability for employment creation, social development, and economic growth. The following section discusses the global and South African SMME contribution to the economy. It expresses SMME classification, its contribution to GDP, and employment creation.

2.3.1 The Global Perspective of SMME Contribution to the Economy, Employment and GDP

As stated earlier, SMMEs are fundamental to job creation and globally known to be the instrument for generating new jobs in society. To complement this statement, (Vuba, 2019) adds that the majority (over 95%) of enterprises are SMMEs, which employ approximately 60% to 70% of the population workforce.

The SMMEs in Africa account for about 90% of all enterprises and can be found in most rural and urban areas in the sub-region. For example, in Kenya, “the sector contributes immensely to the macroeconomic development of the economy by providing employment, training entrepreneurs, generating income, and improving the living standard of most of the low-income households in the country” (Amoah & Amoah, 2018:151-2). The next section will discuss the BRICS SMMEs’ contributions to the economy, employment and GDP.

2.3.1.1 BRICS countries

Brazil is part of the BRICS nations with more than 11.5 million legally constituted companies employing 56 million individuals and accounting for 27% of Brazil’s GDP. The SMMEs sector represents98.5% of all enterprises, financially contributes 41% to employment, and contributes a further 20% to GDP and only 1% to exports. SMMEs’ important role in the economy has been long recognized, as their contributions

include job creation, poverty reduction, and the accomplishment of higher levels of economic development (Veiga & McCahery, 2019).

According to the Organisation for Economic Cooperation and Development (OECD), the micro- and small-sized enterprises (MSEs) play an essential role in creating new registered jobs in the economy in Brazil. For example, in the first semester of 2018, micro- and small-enterprises hired 351 629 employees, while larger firms hired only 27 254 new workers (OECD, 2019).

As per the size classification recognized by the Brazilian Institute of Geography and Statistics, the element of micro-, small-, and medium-enterprises (MSMEs) comprises companies that have up to 249 employees. Micro enterprises employ up to nine employees, while small enterprises employ between 10 to 49 employees, and lastly medium-sized enterprises employ between 50 to 249 employees. Therefore, all companies having more than 249 workers are classified as large enterprises (OECD, 2019).

With a comparatively high self-employment rate (32.9% in 2017), Brazilian policymakers have gradually focused more on improving the business climate for SMMEs and entrepreneurs (OECD, 2017). Brazil's economy is highly dependent on its service sector, which accounts for 73.2% of GDP, followed by the industrial sector (21.5%), and agriculture (5.3%).

In Russia, as of October 2018, 5.95 million SMMEs employed 15.98 million people, of whom 95% of the SMMEs were micro-enterprises, accounting for 47 % of SMME employment. SMMEs account for 22% of Russia's GDP and 25% of total employment. Although their numbers were increasing, they are still considerably lower than in both developed and developing countries. SMEs represent 60% of total employment in the OECD group and 50% to 60% of the GDP. The government of Russia has adopted several strategic documents aimed at SMME development and growth. For example, the long-term SMME Development Strategy sets an ambitious target for nearly doubling the share of SMMEs in Russia's GDP by 2030 to 40%. "The mid-term National Project on SMME and Individual Entrepreneurship Support (also known as the National SMME Project) calls for increasing employment in

SMMEs by 1.5 times to 25 million people and raising their contribution to the GDP to 30% by 2024" (Sanghi, 2018:19).

In Russia, the criteria that characterize SMMEs are specified in the Federal Law, dated July 24, 2007 in which the main criterion is the number of employees. This means that small businesses shall not exceed 100 people, and medium enterprises range from 101 to 250 people. SMMEs also include individual entrepreneurs (Pinkovetskaia, 2017). Against this backdrop, the BRICS countries have become significant players in the world market. In the Indian economy, MSMEs badly want to participate in the global market and launch a key position for their products.

In the Micro, Small and Medium Enterprises Development (MSME) Act (GOI, 2006) of India, "MSMEs are classified into two main categories, namely manufacturing enterprises and services enterprises" (Sodem, Boateng &Nagaraju, 2019:255). The micro-, small- and medium-enterprises (MSMEs) are contributing significantly to the expansion of entrepreneurial endeavours through business innovations. They are also widening their domain across sectors of the economy, producing a diverse range of products and services to meet the demands of domestic and global consumers.

From the 2011-2012 to 2015-2016 financial years, "MSMEs contributed averagely 32% to the Gross Domestic Product (GDP) of India, and an average of 32% to the Gross Value Added of the country within the same financial years" (Sodem *et al.,* 2019:259). The MSME sector is the most exciting and energetic sector, capable of soaring growth prospective for the Indian economy. The Government of India (2016) states that in the 2015/16 financial year, approximately 51 million MSME units employ about 117 million people across various sectors, constituting 40% of the workforce and ranked as the second-largest employer apart from agricultural. According to Sodem *et al.* (2019), out of these created employments, 55% are found in the urban cities, whereas 45% emanates from the rural areas, with 76% of them being males, while 24% are females.

In China, small- and medium-sized enterprises (SMEs) are defined, "according to the Law of the People's Republic of China, on the Promotion of Small and Medium-sized

Enterprises (Republic of China, 2019:3), as companies that have a quite small size in personnel and scope of business". The principles for classifying small- and medium-sized enterprises are created by the relevant departments of the State Council, and the identification of a company as a micro-, small- or medium-sized enterprise is dependent on a series of variables such as the industry it belongs to, its operating income, its total assets, and its number of workforce (REP OF CHINA, 2019).

As at the end of 2017, figures indicated that there were about 28 million small- and micro-enterprise legal persons in China, and around 62 million individual industrial and commercial entities. SMMEs in China represent over 90% of all markets, contributing over 80% to national employment with more than 70% of patents. In addition, they contribute over 60% of the GDP and more than 50% of tax revenues (REP OF CHINA, 2019).

2.3.1.2 African countries

According to the Central Bank of Egypt, firms in the country are considered micro when they employ less than ten employees, small and medium when they employ between ten and two hundred employees, and large above that. Despite the predominance of micro-enterprises, MSMEs contribute substantially to employment and value creation in the four countries under study, although the numbers differ from one country to another. In 2017, micro-enterprises constituted approximately 91% of all firms, small- and medium-enterprises around 8% of the total, and large firms below 1% (Euro-Mediterranean Network of Economic Studies, 2017). According to the data compiled in the country reports, MSMEs contribute to nearly 80% of GDP and 75% of total employment in Egypt (Euro-Mediterranean Network of Economic Studies, 2017).

2.3.2 SMMEs' Contribution to the South African Economy

From an economic perspective, as stated by Rabie and Cant (2018:231), SMMEs "are seen as the vehicles that can achieve the growth objectives of countries, including the generation of employment and the alleviation of poverty". It is persistently reiterated that SMMEs' performance are interconnected with the

economic performance (Tshikhudo, 2016).The pie chart below illustrates the SMMEs' contributions to the various industries of SA's economy. The chart is based on 2019 GDP data, as published by Stats SA.

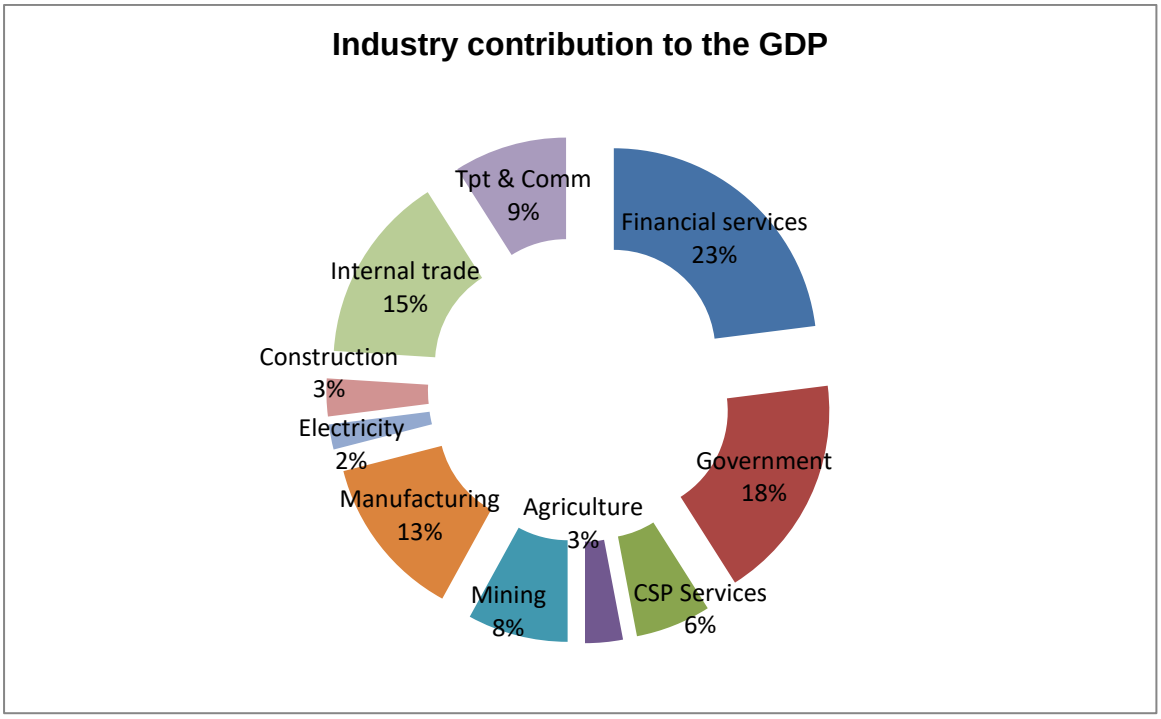


Figure 2.3: Industry contribution to GDP

Source: SEDA (2020).

The above figure illustrates the biggest industry in South Africa in 2020 as the financial, real estate, and business services industry, with it making up approximately 23% of South Africa's economy. The government sector makes up around 18% of SA's economy, followed by the trade (wholesale, retail, and motor trade), and accommodation industry in third place, with 15% of SA's economy. While mining might be a great source of employment in South Africa, its overall importance in SA's economy sits at 8%. The joint least contributing sectors to SA's economy are agriculture and construction sectors at 3% each and the electricity, gas and water at 2%.

Global experience shows that the SMME sector plays a dominant role in economies and is a sizable contributor to GDP, an area in which South Africa falls short. While constituting a small sector by global standards, it makes up a sizable fraction of all the

businesses and business activity in the economy (Odendaal, 2019). The future of South Africa's economic success relies mainly on new and growing businesses in both the formal and informal sectors, as in 2019, SMMEs contributed 38.2% to the country's GDP (SEDA, 2019).

The capability of SMMEs to generate work opportunities in the country is a main appeal for both public and private sector investors. Booyens, as cited by Rungani and Potgieter (2018), asserts that there is a dire need for supporting SMMEs to grow and thrive. Business Unity South Africa (BUSA, 2019) also states that SMMEs create 65% of employment opportunities, making them the most significant contributor to private employers in South Africa. In the third quarter of 2020, the SMME sector was responsible for 10.058 million people in South Africa, accounting for 68% of all jobs (14.9 million). Of these 10.058 million jobs, only 2.363 million jobs comprised of the SMME owners themselves, while the remaining 7.7 million jobs (77%) constitute their employees. The formal sector is mainly responsible for the majority of employment at 53%, while the minority of employment estimated at 38% is filled by female workers (SEDA, 2020).

The bar chart below illustrates SMMEs' employment contribution per sector.

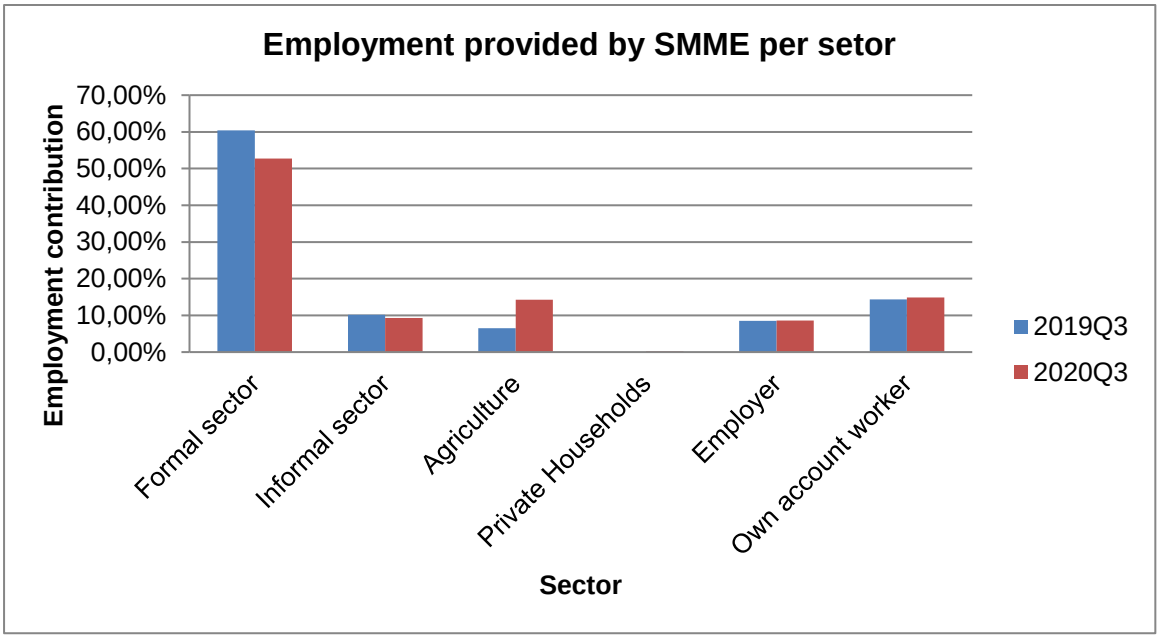


Figure 2.4: Employment provided by SMME per sector

Source: SEDA (2020).

In the third quarter of 2020, employment increased in only two sectors, with the private households recording the most significant employment gain of 21 777 (35.46%) and followed by the agriculture sector at 681 823 (90%) while both formal and informal sectors suffered a combined decrease of approximately 1 750 000 jobs. The statistics may partially reveal pressures in the established enterprise sector suffering from job losses (STATS SA, 2019a).

The bar chart below illustrates employment per industry.

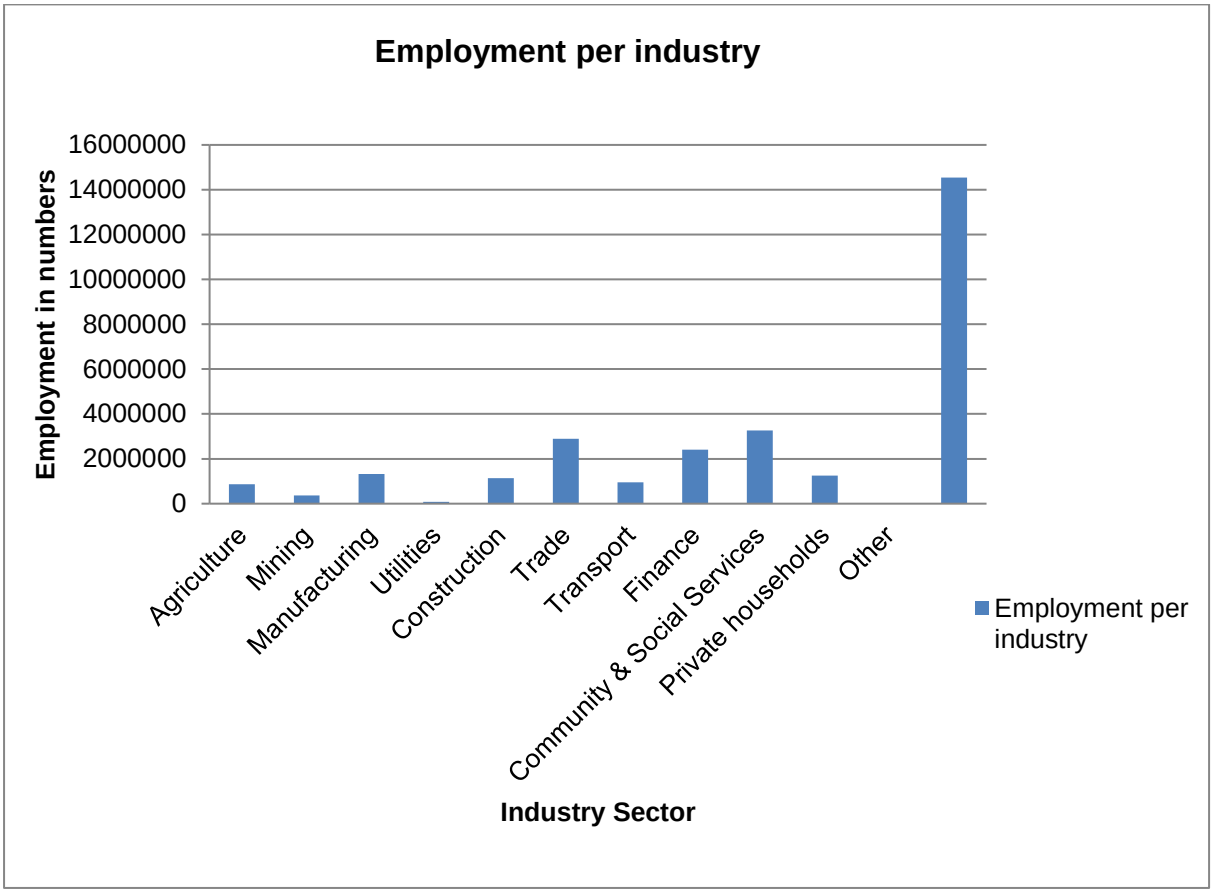


Figure 2.5: Employment per industry

Source: STATS SA (2021).

In terms of the average employment level per trade industry, the wholesale, retail, and motor trade employs well over 3.9 million people, while community and social services employ over 3.2 million people, and manufacturing around 1.3 million people. While a relatively small industry in terms of economic size, construction

employs almost 1.1 million people, and mining employs just above third of a million people (STATS SA, 2021).

The construction industry is an important player in job creation, having higher employment shares relative to their GDP contribution. In addition, the industry uses a wide range of inputs (such as construction materials) from many other industries to produce its goods and services, contributing indirectly to the jobs that are produced across several sectors such as manufacturing, mining, transportation, real estate and business services (CIDB, 2019c). According to Stats SA, total employment in South Africa across all sectors plummeted from 15.024 million to 14.544 million between quarters four of 2020 to quarter four of 2021.

According to CIDB (2019c), besides the sector having spent around R430.2 billion in 2018, the earnings plummeted by 8.6% year-on-year in the last quarter of 2018; while positive growth in construction activity fell to 1.1% year-on-year, down from 2.3% in the previous quarter. This figure is further emphasised by the CIDB (2019a) report for the third quarter of 2019, whereby even though 62 000 jobs were added quarter-on-quarter, the construction sector experienced 24 000 job losses. Most recently, between quarters four of 2020 to quarter four of 2021, the number of employed individuals decreased by 480 000, and the construction industry is one of the industries that has contributed to this decrease by shedding 33 000 jobs over this period (STATS SA, 2021).

This underperformance results from a stagnant economy, declining investment in infrastructure by both the private and public sectors, and deterioration in contracts awarded. The long-term deficiency in economic activity has resulted in a decline in construction employment, resulting in significant job losses. The negative or minimal growth in the industry further puts more strain on the sustainability of lower-grade construction-based SMMEs, as the study reveals that around 88% are stagnant on CIDB grade one alone. Therefore, the government should also offer unlimited support to financial components, not only in the form of loans, but should incorporate training and networking prospects (Rungani & Potgieter, 2018). This scenario can be ascribed to several constraints facing the SMME sector, such as access to training, basic management skills, funding opportunities, crime and corruption, and

government regulations, to mention but a few. The next sections discuss some of these constraints faced by SMMEs in South Africa.

2.4 FACTORS CONSTRAINING SMMEs IN SOUTH AFRICA

Despite the worldwide view that SMMEs are a much-needed solution to advance economic development, research into the sources and impacts of SMME failure is still limited in developing and underdeveloped countries, and South Africa is not excluded from the challenge (Bushe, 2019). For instance, Cant and Wiid as quoted by Zwane & Nyide, (2017) stated that many SMMEs fail despite government and private initiatives supporting and developing small enterprises.

Numerous factors such as lack of finance, managerial skills, training, and regulatory issues (Debeila, 2018; Rankhumise, 2019; and Kalane, 2015) hinder the sustainability of SMMEs. A study conducted by Rankhumise (2019) amongst business owners in South Africa and China aimed at exploring the factors that are associated with the performance of SMMEs revealed that access to finance (also in Molefe *et al.,* 2018), was seen as critical for the business to succeed. Access to finance is followed by lack of financial management training, managerial skills, access to the market, access to technology, hard work, start-up capital, and lastly, government support and planning are some of the most notable challenges for SMMEs to succeed. Below is a list of some of the many challenges facing SMMEs that hinder their success.

- **Funding:** According to studies by Rankhumise (2019) and Vuba (2019), the issue of access to funding is seen as the most significant and most critical component of SMME growth. Access to finance is considered as one of the primary constraints for SMMEs nationally, requiring critical attention (Mail & Guardian, 2019). Sarakunze (2015) indicates that there is the probability of sufficient credit being available, but the circumstances under which it can be acquired are unfavourable for the SMME sector that it is supposed to serve.

  It is well-known in South Africa that there are many government initiatives to facilitate the financing of small businesses, especially those that are black-, female-, and youth-owned. For instance, the Small Enterprise Financial

Agency (SEFA) was recognized to offer financial assistance for SMMEs, up to a maximum of 3 million rand. Furthermore, the NYDA was established to address the youth unemployment crisis and provide microfinance grants for survivalist youth entrepreneurs (Bhorat *et al*., 2018). However, despite these government initiatives to fund SMMEs, Mohammed and Nzelibe (2014) cite that the problem with funding SMMEs is not so much the sources of funds but rather the accessibility to them.

- **Training:** Investing in appropriate, significant training is imperative and promotes improved productivity, which, in turn, results in long-term cost savings. According to Molefe *et al.,* (2018), taking advantage of these enterprises' potential for poverty alleviation and improving general economic conditions necessitates creating and supplying innovative training initiatives and entrepreneurship promotion, especially among young people and unemployed individuals.
- **Skills:** South African SMMEs face a skills scarcity as the majority of skilled individuals work in the public sector and established businesses in the private sector. The country suffers from an under-skilled population, which is apparent in a soaring unemployment rate, although various job vacancies are advertised (Vuba, 2019). This low skills profile of SMMEs may present a barrier to growth, as skills, experience, and education are important requirements for the growth and development of a business, in particular the skills and experience of the entrepreneur (Bhorat *et al.,* 2018:7). Vuba (2019) further alludes that South African SMMEs face difficulties recruiting the appropriate skills for their businesses. This skills deficiency is further compounded in its impact on SMMEs, as they are often unavailable and too expensive for SMMEs.

Lekhanya (2015) expressed the deficiency of entrepreneurship education as a major reason for SMME failure in South Africa. Although a report by STATS SA (2019) reveals that South Africa has an abundance of low and unskilled labourers, a profile of the unemployed presented by Statistics South Africa shows that the unemployment rate is higher amongst the following groups; the youth, individuals that did not complete their secondary education, individuals

that completed grade twelve over the period 2009 and 2018, and those without experience.

- **Government regulations:** Related to the supply of services by the government to the rising SMME sector is the subject of fulfillment by small enterprises with permissible standards of business conduct. Most SMME enterprises in South Africa operate in the informal sector (Peters & Naicker, 2013). Shane (2014:1) avers "that compliance with governmental rules and laws is a greater encumbrance on small companies than large ones, and regulation hinders small business formation, growth, and job creation". The impact of COVID-19 pandemic on the SMMEs was clearly visible as the sector lost 1.5 million (90%) jobs in the third quarter of 2020 with the formal being the most affected by the pandemic regulations (SEDA, 2020).

Kruger *et al.* (2015) state that government authorities should embark on campaigns to educate SMME owners and managers about taxation and compliance and create more awareness surrounding the various support institutions available to develop SMMEs. Kruger *et al.* (2015) further mention that municipal regulations take the form of, among others, property rates and taxes, user levies, and service charges, which a business must pay monthly, as well as licensing charges and many businesses, view these municipal charges as expensive. Unfortunately, there is not much that SMMEs can do about such fees and levies, but they can ensure that these fees and levies are paid and that licenses are obtained and renewed on time to avoid unnecessary fines and interest on arrear payments. Compliance with all the legislation that governs the business, such as tax compliance, SABS approvals, health and safety certification, and operating licenses, can be appealing for any new business (Mashimbye, 2018). These challenges impact and hinder the development and sustainability of SMMEs if left unattended. Therefore, the next section discusses some government interventions or initiatives to address and support SMMEs in their businesses.

2.5 GOVERNMENT INITIATIVES TO SUPPORT SMMEs

Numerous SMME development proposals started after the democratically elected South African Government in April 1994. The government saw underdeveloped and

undeveloped SMMEs as a means to tackle the constraints of job creation, economic growth, and fairness in South Africa.

The South African Government provides numerous financial support measures for small businesses, ranging from grants to incentives, offering financial support for entrepreneurs. The following sections discuss South African Government initiatives that support SMMEs financially and non-financially.

2.5.1 The National Empowerment Fund (NEF)

The National Empowerment Fund Act (RSA, 1998) was formed as a vehicle and thought-leader in advancing and assisting black economic involvement by offering financial and non-financial support to black-owned and managed businesses and by promoting a tradition of investments and investment among black people. The Public Finance Management Act (RSA, 1999) administrates the function of the NEF No 1 of 1991 (PFMA), including the National Treasury Regulations, the King III Report on Governance for South Africa, and the Protocol on Corporate Governance in the Public Sector, 2002 (National Empowerment Fund, 2019).

The NEF offers company loans between R250 000 and R75-million across all business sectors for start-ups, development, and equity acquirement plans. Since its beginning, the NEF has processed 927 payments exceeding R9.3 billion for black-owned and managed businesses. Of this, R3.4 billion has been accepted to strengthen businesses owned and managed by black women entrepreneurs. A total of 76% of NEF-funded payments are still active and operational in the economy. The NEF has created work opportunities and empowered over more than 95 798 jobs, with new jobs exceeding 65 359 nationally (NEF, 2019).

2.5.2 Small Enterprise Finance Agency (SEFA)

The organisation is a contributory of the Industrial Development Corporation Limited (IDC) and was formed on 1 April 2012, in terms of Section 3(d) of the Industrial Development Corporation Act (RSA,1940), to merge the three agencies: Khula, the South African Micro-Finance Apex Fund, and the IDC's small entity subsidizing into a single entity. The Department of Small Business Development is SEFA's executive power (Small Enterprise Finance Agency, 2019).

SEFA's primary role is to advance the establishment and growth of SMMEs and co-operatives and add to alleviation of poverty, work opportunities, and economic growth. It offers fiscal products and services to deserving SMMEs and co-operatives, as described in the National Small Business Act (RSA, 1996) and revised in 2004, through a mix of comprehensive and straight lending means within the following sectors:

- Services (including retail & wholesale trades and tourism);
- Manufacturing (including agro-processing);
- Agriculture;
- Construction (small construction contractors);
- Mining (specifically small-scale miners); and
- Green industries (renewable energy, waste and recycling management).

SEFA is executing a five-year strategy to attain a High-Performance Organisation (HPO) position which will ascertain a high degree of deliverance against its directive. The agency has also executed a Gearing for Growth strategy to develop its support to SMMEs and co-operatives. The agency is imperative, as it is also mandated to support the government's small business job creation targets (SEFA, 2019).

SMMEs and co-operatives can access credit services starting at R500 and up to a maximum of R5 million (Small Enterprise Finance Agency). As a result, SEFA approved loans to the value of R703 million and disbursed R1.2 billion into the South African economy. The agency further supported almost 72 897 SMMEs and co-operatives for the period under review, resulting in over 88 632 jobs aided and sustained (SEFA, 2019).

2.5.3 Small Enterprise Development Agency (SEDA)

The Small Enterprise Development Agency (SEDA) is an entity of the Department of Small Business Development was formed in December 2004 through the National Small Business Amendment Act (RSA, 1996). It is directed to execute the government's small business policy, design, and implement a model and shared national delivery network for small enterprise development, and incorporate

government-funded small enterprise support agencies across all levels of government. SEDA's undertaking is to expand, maintain, and endorse small enterprises nationally, ensuring their growth and sustainability in coordination and affiliation with diverse stakeholders, including worldwide partners, availing worldwide best practices for local entrepreneurs (SEDA, 2019b).

The agency (SEDA, 2019a) noted significant successes during the 2018/19 financial year by achieving or exceeding targets on 93% of its planned performance measures, against 75%. Some of the most distinguished achievements during the year under review are:

- 9 110 enterprises were trained in business management;
- 901 co-operatives were adopted and assessed;
- 861 clients trained on national and international standards;
- 2 860 clients supported through incubation;
- 465 clients supported through innovation;
- 6 957 new jobs created by supported clients;
- 19 064 jobs sustained by supported clients;
- 1.75 billion rand turnover increased on supported clients; and
- 12 042 learners participated in entrepreneurship in schools.

According to SEDA (2019a), the above-listed performance compliments SEDA's client journey model. This model advocates for long-term, multiple interventions instead of one-off interventions.

2.5.4 National Youth Development Agency (NYDA)

The National Youth Development Agency (NYDA) was formed by an Act (RSA, 2008) of parliament endorsed mainly to undertake constraints faced by the national youth structures. The agency was formed to be a solitary, unitary entity to address youth empowerment concerns in all spheres of government. The severity of challenges South Africa is faced with needs multi-pronged attempts that concurrently advance the development of sustainable livelihoods, ease poverty and inequality and advance the development of strategies that create a conducive environment for youth empowerment (NYDA, 2019a).

The purpose of the NYDA Grant Funding is to offer youthful entrepreneurs the prospect of receiving both financial and non-financial business development support. The programme focuses on new youth entrepreneurs who demonstrate signs of future prospect but who are not yet entirely promoted. The Grant Funding can be accessed up to R200 000 for any person or youth co-operative. The NYDA is a primary funder in ensuring that all major role players, such as the government, private sector, and civil society, priorities youth development, recognize and apply long-term solutions that resolve youth development challenges (NYDA, 2019a).
The agency (NYDA, 2019a) mentions the following most notable achievements during the financial year under review:

- Total of 825 individual entrepreneurs, 181 enterprises and 97 co-operatives benefited from grant funding.
- NYDA Grant Programme support to 825 entrepreneurs.
- A total of 181 individual youths were supported, and 97 co-operatives were supported.
- Business development support services to 23 942 recipients. The Key Performance Indicator (KPI) covers market linkages, mentorship, business management training, Broad-Based Black Economic Empowerment B-BBEE and sales pitch, voucher programme, and governance training.
- A total of 5 025 jobs were created and sustained through the Grant Programme (2 914), Market Linkages (603) and the Business Consultancy Voucher Programme (1 507).
- A total of 5 474 jobs were created where young people were placed in various job opportunities.
- A total of 1 891 783 people were provided with youth development information.
- A total of 33 public and private key stakeholders were lobbied to implement youth development programmes.

2.5.5 Industrial Development Corporation (IDC)

The Industrial Development Corporation of South Africa Limited (IDC) was formed in 1940 by an Act of Parliament (Industrial Development Corporation Act, No. 22 of

(RSA, 1940) and is entirely owned by the South African Government administered by the Department of Economic Development. It is a national development finance institute authorized to advance economic growth and industrial development, and develop local industrial ability. The IDC's task is to improve the industrial potential of South Africa, including that of the continent, thus improving economic growth and industrial development. It finances entrepreneurs starting new enterprises or supporting companies planning to broaden active operations with start-ups and existing businesses with loans of between R1 million and R1 billion allowed per venture (IDC, 2019).

Between 2013 and 2017, the IDC approved funding to the cumulative value of R68billion and approved 1001 funding applications. In the same period, it created and saved 344 006 direct and indirect jobs in addition to the 32 155 jobs created in rural areas (IDC, 2019). Each province has its own development corporation to steer economic advancement in the province. Below is a summary of a few provinces and their development corporations:

- Eastern Cape Development Corporation (ECDC) – which collaborates with all spheres of government, chambers, private businesses, residents, and other development agencies to execute the economic empowerment guidelines of the Eastern Cape provincial government.
- North West Development Corporation (NWDC) contributes to the inclusive economic growth and transformation of the North West Province.
- The Limpopo Economic Development Agency (LEDA) – was formed in conditions of the Limpopo Development Corporation Act, (RSA, 1994), as a definite economic and development drive, culminate in the incorporation of four organizations in the province.
- Gauteng Growth and Development Agency (GGDA) – its vital intention is to increase the outcome of developing the economy of Gauteng through supporting the growth of the co-operatives' economy, facilitation of trade and investment, and increased strategic economic infrastructure.
- Mpumalanga Economic Growth Agency (MEGA) – responsible for funding SMMEs and co-operatives, delivering housing finance to foster the growth, and the development of Mpumalanga's economy.

The following section will discuss the province development corporation's goals and objectives in the Free State province. This includes several services offered to the public.

2.5.5.1 Free State Development Corporation (FDC)

The Free State Development Corporation (FDC) is a dedicated economic development agency created to provide the Free State public and prospective investors an extensive collection of services that incorporate the following (FDC, 2019):

- Providing SMMEs with support both financially by means of loans and non-financially;
- Property development and management;
- Providing potential investors with an inclusive service in setting up a business; and
- Providing export-ready Free State businesses with support in recognizing new markets and export prospects for their goods.

The primary objectives in the FDC's (2019) SMME advancement approach are:

- Development of sustainable SMME projects that create jobs;
- Growing a balanced and profitable SMME loan portfolio; and
- Advancing black economic development and increasing economic involvement of the historically disadvantaged.

The construction industry is known to produce high-quality infrastructure for the country, which contributes to bringing investors into the country, increases the economic growth, and GDP. However, the decline in the capital projects environment has resulted in the decline or minimal growth of the sector, a decrease in employment, retrenchments, and worse, some major companies being liquidated (Murray & Roberts), filing bankruptcy (Group 5), and others going into business rescue (Liviero Construction & Basil Read). Moreover, the departure of these companies will undoubtedly eventually impact skills migration and depletion, resulting

in the long-term shortage of capacity to deliver on capital project investments and monitoring or mentoring of SMMEs.

The government has initiated some financial interventions through several departments to assist or fund the SMMEs but, with challenges already alluded such as minimal economic growth, a decline in capital infrastructure projects, which also affects the opportunity to subcontract or form Joint Ventures (JV) with established companies, a decline in construction employment and some being liquidated, the desired growth has not been easy to achieve. These challenges further put more constraints in improving the sustainability of SMMEs, thus performing poorly with minimal impact on addressing South Africa's critical high unemployment rate (35.3%) and poverty alleviation.

2.5.6 Department of Economic, Small Business Development, Tourism and Environmental Affairs (DESTEA) Free State Province

The Department of Economic, Small Business Development, Tourism and Environmental Affairs (DESTEA) is mandated to improve the socio-economic livelihoods of the Free State communities through economic and environmental development programmes (DESTEA, 2021). Its constitutional mandate has been derived from Schedule 4 and 5 of the Constitution of the Republic of South Africa to administer and govern the following:

a) Trade;
b) Tourism;
c) Casino, racing, gambling, and wagering, excluding lotteries and sports pools;
d) Consumer protection;
e) Environment;
f) Industrial promotion;
g) Nature conservation;
h) Pollution control;
i) Provincial public enterprises;
j) Soil conservation; and
k) Liquor licenses and control of undertakings that sell liquor to the public.

The Free State province DESTEA offers the following funding initiatives to both interested SMMEs and Cooperatives:

1. Enterprise Development and Support Incentive

It targets start-up enterprises with the objective of providing them with equipment and or upgrade of business properties to support their operations; and

2. Risk-sharing Incentives.

It targets established medium to large enterprises with the objective of providing co-funding contribution to reduce applicant risk by facilitating access to funds from banks and developed funding businesses. During the period of the 2017/18 financial year, a total of 78 SMMEs benefitted from different programmes both financially and non-financially from the Free State Department of Economic, Small Business Development, Tourism and Environmental Affairs (DESTEA) (SEDA, 2019c).

In support of SMMEs, DESTEA provides a grant of between 10% to 40% for SMMEs with approved loans from DFIs and any other funding institutions. As of the 2018/19 financial year, seven applications worth R3.95 million have been approved for funding by DESTEA through this programme, and it has attracted R17.9 million worth of funding from the Development Finance Institutions (DESTEA, 2018). During 2018/19, the FDC made great strides through the Radical Economic Transformation Programme, which provided financial support to 96 SMMEs with total disbursement amounting to R16.2 million. The loan funding was able to create 214 job opportunities in the FS province during the same year. A further total of 198 jobs were created in other SMME support initiatives offered by the FDC (DESTEA, 2019).

2.6 CONCLUSION

The chapter under discussion focused on the literature review for the current study, the overview of SMMEs, their classification, contributions to the economy, employment, poverty alleviation, and more. The national profile was also discussed, active numbers, the race, the formal and informal sectors, provincial numbers, the area of study of different departments supporting SMMEs, and the universal and South African SMME role in the economy. Even though the SMME sector in South Africa has received much consideration from the government in recent years, they

also experience inhibiting factors that threaten their growth and survival in its operations and functional management areas. Several studies have identified factors, such as lack of training and education, poor basic management skills, inexperience in the field of business, limited access to financial resources, inaccessibility to markets, changing government regulations as some of the main challenges hindering the success of SMMEs in developing countries. Several of these barriers are discussed in this study. The government support initiatives such as NEF, SEDA, NYDA, IDT, FDC, and other institutions to address or alleviate such constraints were also discussed.

Despite much of the attention placed on SMMEs by the government, not much has been achieved in terms of success in improving the sustainability of their business. Previous studies revealed that South Africa has the lowest sustainability rate in employment and is amongst the highest in terms of the unemployment rate, poverty, and inequality. As a result, most unemployed people resort to opening a business to meet their basic needs and thus survive, create work opportunities for others, and advance the standard of living for South Africans. As a result, they endeavour to contribute incalculably to the GDP, employment generation, and poverty alleviation. A thriving and growing economy is, therefore, more reliant on the growth and success of SMMEs.

The Durban Chamber of Business (2019) stated that if we are to address the multiple challenges of minimal economic growth, extensive and high unemployment, and lack of socio-economic addition and sustainability, SMMEs are the key. Because SMMEs are the most significant employment sector globally, the government relies on these small businesses to create employment opportunities. It has led to a number of these government institutions investing in projects that will generate employment and stimulate economic growth, introducing 30% subcontracting of local SMMEs to improve their sustainability and promoting preference of prioritizing local SMMEs for any procurement. The next chapter addresses SMMEs in the construction sector with a CIDB grading of one to four in CE and GB categories that operate in the Free State province. Also to be discussed will be the sustainability of SMMEs, the Timmons Model, and the CDPs nationally, which will then be narrowed down to the province, and incubator programmes.

CHAPTER 3: THE SOUTH AFRICAN CONSTRUCTION INDUSTRY

3.1 INTRODUCTION

The South African construction industry has been in decline since 2017, with the industry's output value in real terms contracting by 3.3% in 2019. This decline is attributed to an economic slowdown, coupled with weak consumer and investor confidence, affecting construction projects' public and private sector investments and most recently the COVID-19 pandemic. The negative impact will persist as the industry continues to be struck by the impact of the high national debt, labour shortages, and little infrastructure spending amid a depressed economy. Furthermore, the construction industry contracted further in 2020 (33.3% in second quarter and 19.8% on year-to-year change), as most of the construction activities were temporarily halted in April and May before the industry was allowed to resume operations in June due to the Corona Virus Disease (COVID-19) outbreak and the strict nationwide lockdown imposed from 26 March 2020 by President Cyril Ramaphosa (Research and Markets, 2020).

SMME development in the construction sector is fundamental to warrant that Broad-Based Black Economic Empowerment (B-BBEE) needs are achieved to facilitate and develop the construction sector (Espin, 2019). The support of SMMEs in the construction sector would mean that more considerable numbers of workers would be employed there, and better employment would, in turn, increase the extent for the creation of skills and information in the South African economy (Tshikhudo *et al.,* 2015).

"The new South Africa has encouraged the development of SMME contractors by Historically Disadvantaged Individuals (HDI) entrepreneurs, mainly non-whites that were marginalized under the apartheid regime and excluded from participating in the mainstream construction industry" (Kuju, 2017:13). A study carried out by Ntuli and Allopi (2013:93) reported that "since the CIDB has regulated the industry, it has improved the construction sector, and there is the need for the CIDB to continuously improve its initiatives to address the needs of the contractors and all other stakeholders". According to the CIDB (2019), black ownership by CIDB Grades and Class of Works for black-ownership levels of 51% and more tends to be higher for

GB, followed by CE. Both classes of works between grades two and four boast ownership of 96% and an average of all grades at 81% for GB and 75% for CE. Between the periods of quarter two of 2019 to quarter two of 2020, lack of transformation in black contractor ownership and access to work opportunities were prevalent in grades 7 to 9 resulted in increasing CIDB grade. In the same period a slight increase was recorded in the number of black-owned contractors across grades 2 to 9 (CIDB, 2021b).

The report further reveals that in terms of women ownership of 51% and above for the period of quarter two of 2019 to quarter two of 2020, woman-ownership in grades two to six has increased overtime by 1% to 30% of all contractors, due in part to woman-owned contractors upgrading to higher grades. As in second quarter of 2020, a significant increase was recorded in women ownership above 90%, amounting to 24% (CIDB, 2021b).

The construction industry in the country has endured a decade of diverse conditions, with the drop in private projects due to recession and an explosive increase of infrastructure projects after that, particularly by the spending of the government in preparation for the 2010 FIFA World Cup (Tshikhudo *et al.,* 2015). Notably, the development of SMMEs in the South African construction industry strengthens the economy and improves construction infrastructure quality (Tshikudo *et al,* 2015). However, in preceding years, the construction industry failed to pull itself out of recession, registering its fifth consecutive quarter-to-quarter of negative growth between first quarter in 2019 and 2021 with decreases reported for activities related to residential and non-residential buildings, as well as construction works (CIDB, 2021b).

The slowdown in the construction economy is further negatively impacted by under spending of capital budgets by municipalities. However, an analysis of the municipal expenditure at the second quarter of 2021 that appears in the Construction Monitor: Supply and Demand, show that the total under spending of all municipalities (metro, district and local) decreased by R27.5 billion (quarter two) to around R9.3 billion (quarter three) and R12.9 billion (quarter four). As at second quarter of 2021, 8% of the capital phased budget had been spent by Metros, 32% had been spent by

District Municipalities, and 89% had been spent by Local Municipalities. This is corroborated by Siphika (2020) that the dwindling expenditure in public infrastructure expenses is primarily caused by government institutions significantly under-spending over the past few years. Most municipalities have been under-spending on restricted infrastructure grants and fail to finance their capital projects due to low rates and taxes collection rate. The same tendency is noticeable in infrastructure spending as a percentage of the GDP (CIDB, 2021b).

According to Cokayne (2019), stagnant economic growth and limited investment in new infrastructure in South Africa in recent years have taken a toll on the construction majors, some of which are in business rescue and have been forced to sell or close down operations. The decimation of South Africa's listed construction sector persists, with construction and engineering business Esor substantiating that it will be delisting from the Johannesburg Stock Exchange (JSE) on 22 June 2020. Like most sectors of the economy, the South African construction sector has been battling since before the lockdown instituted by the government in reply to the COVID-19 response. Group Five**,** one of South Africa's largest construction companies, has become the latest company to file for business rescue, a process aimed at saving financially distressed companies from the worst-case scenario of liquidation. After 45 years of operating on the JSE, Group Five's stock was put on hold on 12 March 2019 after filing for business rescue. Group Five's market value was less than R100 million when its shares stopped trading on March 12 – a far cry from when its market value peaked to R8.2 billion in 2007. Group Five is the fifth major South African construction company to file for business rescue in less than a year, with other companies, including Basil Read, NMC Construction (Pty) Ltd, Esor, and the Liviero Group (African M&A Community, 2019).

President Ramaphosa declared prospective pipeline investments in excess of R700 billion over the next decade during the State of the Nation Address to avoid these difficult times and reinvigorate the construction sector. In accumulation, the fund which the Development Bank of Southern Africa administers (DBSA) has concluded a list of shovel-ready projects and has begun work to develop a classified venture into public infrastructure sectors with income streams. These projects include government and non-government contributions in student accommodation, social

housing, independent water production, rail freight branch lines, embedded electricity generation, municipal bulk infrastructure, and broadband rollout.

In closing, the promotion of the development and sustainability of lower-grade construction SMMEs will have a long-term effect on alleviating poverty, creating jobs, and providing much-needed encouragement to those willing to enter the construction industry. Therefore, this chapter will cover the narrative on the construction industry in South Africa, the CDP in terms of past outline of a contractor development programme, basis for contractor development programme, creation of employment opportunities through CDP, CIDB in a contractor development programme, nature of the CDP, shortcomings of the programme, and chapter summary.

3.2 SUSTAINABILITY

Buys (2012:15) mentions that sustainability "entails the ability to view business as a cycle or process to be nurtured and allowed to evolve, simultaneously holding the guiding principles throughout operations, thus changing and growing without harming the present and future". Glavas and Mish (2015) contend that, for sustainability to be truly successful, it must form part of the mind-set of the people in the company.

According to Alhaddi (2015:7), the term sustainability "alludes to the capacity in which a business entity continues to remain in operation to conduct business for an extended period to attain its relevant objectives". Alternatively, Lebacq, Baret and Stilmant (2013:314) view the term sustainability "as how business entities conduct their respective business to achieve their objectives, with the main objective of staying in operation for an extensive period". The research of Bruwer and Van den Berg (2017:8) concluded that "the overall conduciveness of the South African economic environment in all likelihood impacts the sustainability of SMMEs".

Findings by Windapo (2017) established that there are opportunities to sustainably develop and grow small contracting firms into large contractors in South Africa, principally because the South African economy is a growing market; and that there is a declining trend in the total number of contractors listed in grades five and six GB

and CE contractors on the CIDB Register of Contractors between the years of 2013 and 2017.

Furthermore, it was established that the organizational and time-dependent factors responsible for the sustainability and growth of construction contractors consist of: the size of the founding team at inception, members, experience before setting up the company, founding owners' experience and previous experience together, and members' varied expertise in the construction industry experience is responsible for the companies' growth and development (Windapo, 2017). Based on these findings, the study concludes that most contractors were middle-level ones unable to develop and grow sustainably and that low-level construction firms need to use growth strategies to develop sustainably and successfully, which requires time (Windapo, 2017).

Sukitsch, Engert and Baumgartner (2015) mentioned that the extreme focus on and implementation of sustainability could support long-term business success and advance living standards. Civil engineering contractors encounter severe challenges to sustain their businesses, particularly in a fragile economic climate. A certain degree of construction experience, expertise, and training is necessary to control a sustainable construction business (Ntuli & Allopi, 2014). In the South African dispensation, the failure rate of SMMEs is regarded as among the worst in the world, as approximately 75% fail within 42 months after opening (Masama & Bruwer, 2018). The weak sustainability of South African SMMEs is further alluded to by the current unemployment rate of 35.3%, the highest national unemployment rate since 2004 (STATS SA, 2021b).

3.3 THE SOUTH AFRICAN CONSTRUCTION SECTOR

Governments are great sponsors of the vigorous construction industry, as they provide the volume of the infrastructure within a country, which, in turn, requires the services of the construction industry for it to be implemented (Tshikhudo *et al.,* 2015). For this reason, the study will be conducted in the government sector, as most provincial and local government projects fall within these two classes. The South African construction sector focuses on all major contractors and emerging

SMMEs, including formal contractors registered with the CIDB and non-registered micro-contractors operating informally. Government-led plans to change the sector and support the empowerment of SMMEs have resulted in considerable reformation of the industry and the appearance of new players (Veitch, 2019).

SMMEs, particularly those operating in the construction sector, are crucial contributors to the economy and are considered a vehicle for reducing unemployment in South Africa, as defined by the National Credit Regulation Act (RSA, 2005). This is especially significant given that the formal sector continues to retrench when business operations are not constructive (Aigbavboa & Thwala, 2014). Moreover, as a result of sub-contracting in the construction sector, one can be certain that SMMEs will continue to play a fundamental role in the South African construction industry (Tshikhudo, 2016).

As in third quarter in 2020, according to SEDA (2020), there were total of 2.363 million active SMMEs, of which 14.3% (339 120) operate in the construction industry, which improved by 0.04% compared to the preceding quarter. Gauteng (26%), KwaZulu-Natal (23.5%), and Limpopo (13.9%) lead in terms of the number of construction SMMEs, whilst the Free State province contributes only 4.1%, declined from 3.3% of the overall national SMMEs. The industry declined in all provinces with Gauteng being the most affected due to COVID-19 pandemic lockdown regulations.

The construction industry, like any industry, is inclined to dynamics that overturn its sustainability. The issue of corruption and the effects are extensive, with government officials (clients), contractors, and sub-contractors appearing to be the most involved in corrupt deeds. The corruption mainly related with government officials consists of awarding contracts for political gain, nepotism and conflicts of interest, and meddling in the tender award process (Bowen, Edwards & Cattell, 2012). Despite this form of prevalent corruption activities, a study by Bowen *et al.* (2012) exposed a noticeable lack of political will to undertake corruption in the extended South Africa context, complicating matters to enforce discipline in the construction sector.

The industry operates in a project-specific environment, continuously combining different clients, consulting professions, and contractors and subcontractors in a

variable supply chain. The conduct of parties right through the supply chain impacts the capability of the construction industry to bring value and perform capably and competitively. A high standard of conduct is necessary to enterprises' growth, development, and sustainability and empowerment and transformation objectives. It impacts directly on project costs, timely completion and delivered quality. Poor behavior unlocks a window on corruption and escalates the cost of development to South African society (CIDB, 2004). Another derailing factor to its sustainability is the unfinished Tongaat Mall disaster after it partially collapsed, killing a woman and injuring 29 people due to poor workmanship (SA Commercial Property News, 2013) constructed by Rectangle Property Investments. It is also reported that the same contracting company has won numerous lucrative tenders from the eThekwini municipality, the same municipality which ignored an auditor's report citing sub-standard work on his previous projects.

Another form of ensuring exposure of construction SMMEs to larger projects, development of technical skills, growth, or possible upgrade in CIDB grades for enhanced competitive position and sustainability in the construction industry is through Joint Ventures (JVs) agreements. The CIDB (2004) designates those joint ventures may be formed for a diversity of reasons. The most common reasons being the project is too large or complex for a company to carry out with its accessible resources; the project requires specialist skills or abilities, which a company is unable, itself, to provide, where the skills and proficiency of emerging firms can be developed through their organization in joint ventures with reputable experienced companies.

Most activities in the construction industry have negative impacts on the environment, and some regulatory requirements as set by the government and adhered to. According to Maradzano, Dondofema and Matope (2019), lean construction was introduced to focus on these challenges in the South African construction industry; however, it is still in its early stages. Implementing lean construction values is vital in diminishing waste and promoting the South African construction industry. The main benefits of lean construction, as cited by Maradzano *et al.,* (2019), are reduction of waste, customer satisfaction, and overall project cost reduction, while Akinradewo, Oke, Aigbavboa and Ndalamba (2018) add that lean

construction results in the efficiency of equipment, skilled operators, the use of relevant equipment and high performance of adequate equipment. A study by Akinradewo *et al.,* (2018:1275) suggested that companies should use lean construction to recognize and scrutinize waste to advance productivity, reduce time and accidents, enhance reliability and quality, and improved client satisfaction. The subsequent section will discuss the CIDB's responsibility in the South African construction industry.

3.3.1 The Construction Industry Development Board (CIDB)

The Construction Industry Development Board (RSA, 2000) Act, 38 of 2000, mandates the CIDB to advance procurement restructuring and, within the structure of the policy of government, advance the standardization of the procurement procedure in terms of the construction industry. In continuance of this directive, the CIDB has recognized the following:

- The Standard for Uniformity in Construction Procurement which establishes uniform systems, processes, procedures, and documentation across the public sector;
- The RoC grades and categorizes contractors according to competence to execute construction projects;
- iTender and Register of Projects (RoP) providing for mandatory advertising of construction tenders and registration of construction awards on the CIDB website; and
- The Code of Conduct for all parties participating in the sector.

The extent of work of the CIDB excludes home building, which is controlled by the National Home Builders Regulatory Council (NHBRC). Accordingly, contractors participating in public sector housing projects are exempted from registering on the CIDB Register of Contractors. However, all clients are required to register construction projects on the CIDB Register of Projects. Construction contractors also obtain support from the CIDB for registration plus free training on business planning, modeling and marketing (Tshikudi *et al.,* 2015).

3.3.1.1 Tender value range adjustments and regulation amendments

Following extensive consultation with stakeholders, the CIDB proposed amendment of the CIDB Regulations, including the registration criteria for renewal and tender value limits adjustments. The proposed revisions to regulations were designed to better align the RoC with developments in the construction industry, particularly with the development of the emerging sector (CIDB, 2019a).

The tender value limits determine the value of work that registered contractors may undertake in the public sector, but they have not been adjusted since November 2008, rendering them out of kilter with inflation. The amendment will restore market share for various grading categories and offer contractors an opportunity to work at a rand value above what their current grading designations currently provide (CIDB, 2019a). The table underneath illustrates the tender value range amendment as gazetted in July 2019.

Table 3.1: Contractor Classification Criteria

Works capability		
Grade	**Current (Tender Value Range)**	**Proposed adjusted (Tender Value Range)**
1	R200 000	R500 000
2	R650 000	R1 000 000
3	R2 000 000	R3 000 000
4	R4 000 000	R6 000 000
5	R6 500 000	R10 000 000
6	R13 000 000	R20 000 000
7	R40 000 000	R60 000 000
8	R130 000 000	R200 000 000
9	No limit	N/A

Source: CIDB (2019b).

The tender value variety amendments will come into effect on 07 October 2019 and service providers whose consents for registration are handed and accepted by the CIDB before the operation date will be graded as per the current systems (CIDB, 2019b).

Client departments that publicize construction work tenders prior to the execution date of the amended tender value range adjustments will adhere to the current regulations for the adjudication, award, and management of that particular construction work contract. However, client departments that advertise construction work contracts on or after the implementation date of the amended tender value range adjustments must apply and adhere to the new adjustments for the adjudication award and management of that particular construction work contract (CIDB, 2019b).

3.3.2 Construction Registers Service

The Construction Registers Service consists of the Register of Contractors (RoC) and the Register of Projects (RoP) recognized by the CIDB Act (Act 38 of 2000). The service has been centralized to permit contractors with desire to tender for national public sector construction projects. It generates a standard set of registration measure; stimulate greater competence in public procurement (CIDB, 2018a).

3.3.2.1 National and provincial Register of Contractors

The Register of Contractors (RoC), which grades and groups contractors as per the financial and works potential, is mandatory for contractors wishing to do business with the government and public sector clients awarding tenders for construction work. It assists public sector procurement and promotes contractor development. The Register is compulsory for public sector clients to apply in the procurement of construction contracts and further:

- Supports risk management in the tendering process;
- Reduces the administrative burden of contract award;
- Reduces tendering costs to both clients and contractors;
- Enables effective access by the emerging sector to work and development opportunities; and

- Stores and provides data on the size and distribution of contractors.

According to the CIDB, contractors may be registered in multiple classes of work, namely:

- **CE** – Civil engineering;
- **EB** – Electrical Building;
- **EP** – Electrical Infrastructure;
- **GB** – General Building;
- **ME** – Mechanical engineering; and
- **SW** – Specialist class of works.

Source: CIDB (2018a).

The table below illustrates the market shares of active registered contractors per grade. Grade one holds the majority market share of 86% across all classes of work, with GB being the highest by 49% of the market share, followed by CE at 26% market share. On the other hand, grade nine holds the least market share across all classes of work as they all hold less than 1% market share, depicting that the higher the grade, the lesser the number of contractors registered due to higher barriers to entry. Most contractors are registered as grade one contractors, at 87% showing high congestion (CIDB, 2017a).

Table 3.2: Registrations across the grades and classes of works during 2016/2017

Designation	CE	EB	EP	GB	ME	SW	Total
1	37 754	1 834	7 240	71 581	7 015	20 717	146 141
2	2 950	248	305	4 160	443	958	9 064
3	1 416	99	158	1 054	145	238	3 110
4	1 614	166	392	1 527	301	265	4 265
5	913	96	239	798	166	168	2 380
6	1 161	91	278	1 018	199	156	2 903
7	679	51	140	544	106	88	1 608
8	247	9	54	215	56	28	609
9	104	4	39	65	45	12	269
Total	**46 838**	**2 598**	**8 845**	**80 962**	**8 476**	**22 630**	**170 349**

Note: Contractors may be registered in numerous classes of work

Source: CIDB (2017a).

Findings by Windapo (2017) recognized that there are prospects to sustainably develop and grow small contracting companies into established contractors in South Africa, primarily because the South African economy is a emergent market; and that there is a deteriorating tendency in the total number of contractors listed in Grades five and six GB and CE contractors on the CIDB Register of Contractors between the years 2013 and 2017. Approximately 24% of contractors experienced difficulties to sustain their CIDB grading at three-year renewal during the period under review due to deprived economic situations and declining work prospects. To ameliorate the situation, the CIDB decided to suspend downgrading for contractors in grades two to six as an interim measure pending a proper review of the registration criteria. The suspension assisted 500 contractors to retain their grades (CIDB, 2017a).

Table 3.3: Provincial registration breakdown per grade

Grade	EC	FS	GP	KZN	LP	MP	NW	NC	WC	Total
1	20 820	7 261	45 985	25 273	14 647	12 719	9 480	3 778	6 177	146 141
2	945	438	2 199	2 838	574	621	602	300	578	9 064
3	319	134	657	1 198	226	175	138	74	189	3 110
4	480	199	1 184	951	457	373	233	85	303	4 265
5	237	104	716	533	233	240	133	47	137	2 380
6	224	151	970	554	335	274	142	49	204	2 903
7	115	53	633	290	163	132	71	21	130	1 608
8	45	25	310	77	31	35	29	12	45	609
9	5	9	190	23	3	6	1	0	30	269
Total	**23 190**	**8 374**	**52 844**	**31 733**	**16 642**	**14 575**	**10 829**	**4 366**	**7 793**	**170 349**

Source: CIDB (2017a).

The number of registrations processed across provincial offices varies significantly with Gauteng and KwaZulu-Natal, the busiest provinces. The table above shows provincial registration market shares per grade and per province, with grade one contractors holding the largest market share of 31.5% in Gauteng, 5% in the Free State, and the least market share of 2.6% in the Northern Cape. Most of the larger firms have established head offices in the Gauteng Province but conduct operations across all provinces.

As at end of March 2021, the CIDB had approved 49 540 new registration applications on the RoC for grade 1 and further 11 426, including 20 573 of grades between 2 and 9 in all classes of works. About 63% of these registrations are at Grade 1 and lack the

required skills or experience (CIDB, 2021a). The CIDB organizational design initiative will consider provincial dynamics when redesigning the CIDB structure to meet the best provincial peculiarities (CIDB, 2017a).

3.3.2.2 Register of Projects

The Register of Projects (RoP) makes advertising of construction tenders and registration of construction awards on the CIDB website mandatory. It collects information on the nature, value and allocation of projects and provides the basis for a best practice project assessment scheme to promote the performance of public and private sector clients in the development of the construction industry. It further submits to public sector contracts with a minimum of R200 000 in significance and private sector and major public sectors projects ranging from R10 million in value (CIDB, 2018a).

Among its indicators is the number of tender notices recorded on the CIDB i-tender and contract awards noted on the Register of Projects (RoP). Low levels of tender notices translating into tender awards would indicate non-compliance with the requirements to register projects on the CIDB Register of Projects.

Table 3.4: Public-sector infrastructure expenditure as at the end of 2017/18 Financial Year

Client type	**Number of projects registered**	**Actual capital expenditure (Billion)**
District municipality	50	R58.8
Local municipality	334	
Metropolitan municipality	182	
Municipal entity	21	R13.2
National department	152	R14.9
Private sector	2	R4.8
Provincial department	667	R62.3
State-owned enterprise	277	R82.2
Total	**1 685**	**R261.2**

Source: CIDB (2018a).

The slowdown in the construction economy is further negatively impacted by under spending of capital budgets by municipalities. However, an analysis of the municipal expenditure at the end of the 2017/18 financial year that appears in the Construction Monitor: Supply and Demand, show that the total under-spending of municipalities decreased from around R15-billion (2016/17) to around R13-billion (2017/18), R11-billion allocations for metros of which only 55% to 78% of their budgets were spent (CIDB, 2019a).

Compliance of i-tender/Register of Projects remains low, although the CIDB offers ongoing capacitating to clients who frequently lose supply chain management personnel. Lack of compliance by clients is addressed through one-on-one interactions, and the situation is expected to improve once the CIDB has established its new compliance department.

3.3.3 Contribution to economic growth and employment.

It is regularly accentuated that SMMEs' performance are interconnected with the economic performance of the country. Accordingly, SMMEs, especially those that operate in the construction sector, are an essential contributor to the economy and are considered a driver for dropping unemployment in South Africa as defined by the NCRA; given that the formal sector continues to retrench when business conditions are not favorable (Aigbavboa *et al.,* 2014).

Balogun *et al.,* (2016) mention that SMMEs in the construction industry contribute to the national socio-economic development by providing considerable employment opportunities at non-skilled and skilled levels. Dithebe, Oke, Aigbavboa and Muyambu (2018) aver that the construction industry can bridge inequality in the country by generating employment and opportunities for jobs for the skilled, semi-skilled and unskilled workforce. Stats SA (2021b) states that, as in the fourth quarter in 2021, the construction industry created employment for more than 1.133 million people all over the country.

According to Windapo (2017), failure by the construction industry to develop sustainable products will lead to enterprise failure, resulting in the skills and

capability accessible to the construction industry today being lost to future generations. Further, the construction industry's capacity to present quality products and services at the right time and economical prices will be destructively affected; its position as a generous employer of labour will be affected; contribution to government taxes will be lost; and the input to the GDP will be negatively impacted (Windapo, 2017).

A warning from banks, economics, and government is that South Africa will experience an unprecedented decline in GDP in 2020 due to the lockdown, with projections ranging between a 5% and 10% decline. In the first quarter of 2020, the construction industry decreased by 5%, second quarter 33.3 and last quarter of 2021 at 2.8 with drops reported for residential, non-residential, and construction works (STATS SA, 2021c). In terms of the monetary value, GDP from construction in South Africa decreased from 101 881.74 million in the last quarter of 2019 to 100 664.93 million in the first quarter of 2020. (Trading Economics, 2020).

Developing a collection of highly skilled, proficient and sustainable contractors for the construction sector is vital to the industry and the economy (Tshikhudo *et al.,* 2014). However, given the significance of construction industry performance in developing countries, South Africa in particular, some alarming hindrances are encountered towards the sustainable construction industry. As a result, the ultimate objective of this study is to explore ways to improve the sustainability of lower construction based SMMEs in the Free State province.

3.3.4 Challenges

With all the contributions and significance of SMMEs in the construction industry, as discussed in the preceding sections, there are still numerous challenges derailing the industry sector. Strydom (2017) asserts that research has indicated that companies often face internal and external challenges. Tshikhudo (2016) asserts that construction SMMEs face barriers denying them further development and growth; hence, only a few survive and remain sustainable. Barriers such as high competition, late payment of submitted invoices, high entry due to lack of regulations, corruption,

lack of industry experience, poor workmanship are among the well-known factors hindering further growth and sustainability of the construction SMMEs.

As reported by the South African Forum for Civil Engineering Contractors (SAFCEC) (2019:3), “competition for tenders intensified in the fourth quarter of 2018, as 99.3% of companies reported that there were more than 11 bids per contract, compared to 98% and 90.8% in the previous two surveys. Overall, 91.2% of firms said that there were between 11 and 25 bids per project. In addition, the CIDB (2019a) identifies lack of work opportunities as the highest constraint to business growth for both contractors’ classes (CE & GB). Another barrier, as pointed out by Bailey (2018:22-23), is that “SMMEs often have limited cash reserves, with delays in payment having significant impacts on their ability to operate, and when experiencing cash flow problems, they are more likely to cut down on future investment in order to stay afloat, impacting growth opportunity”.

“Government regulatory policies created an environment that hampers early-stage entrepreneurial activity within the SMME sector” (Marivate, 2014:57). Sitharam and Hoque (2016) indicate out that most SMMEs are clueless about the regulations that administer them; that the regulatory and legal aspects of doing business are intricate, time-consuming, conflicting and costly, and, therefore, due to their inability to absorb compliance costs, many small businesses simply do not comply. The prevailing structure operated by the CIDB provides relaxed entry barriers for enthusiastic contractors entering the construction industry. Moreover, the system promotes the surfacing of entrepreneurs and, as a result, does not specify any precondition needs for entrance into the industry. According to Govender (2017), relaxed barrier of entry in the industry permits companies to bid for available tenders even if they short of qualifications, skills, experience, and finance. Inadequate supply of building materials is another constraint. Due to supply disruptions and constraints caused by the Covid-19 virus, inadequate supply of building materials has been increasing as a constraint; this has also caused the cost of scarce building materials to increase (CIDB, 2021b).

Another inhibiting factor is that most SMMEs find it challenging to own construction equipment. Govender (2017) avers that a lack of equipment, which forces

contractors to hire equipment, can drastically reduce a contractor's profits, in particular if he is inexperienced of the terms and conditions of the contract applicable on the project. Inadequate work opportunities from government failure to unbundle projects for emerging black businesses are challenges facing black business companies, including the lack of traction in CDPs within the Department of Public Works (DPW) and other public sector bodies focused on outsourcing rather than empowering smaller contractors. The CIBD states that small businesses and cooperatives in the construction sector lacked access to work projects and credit and had challenges with delayed payments and CIDB grading. Inadequate work was as a result of fiscal constraints, deferred spending, and under spending against budget allocations (Parliamentary Monitoring Group, 2017).

One of the factors impeding sustainability in the industry is the failure to provide good quality of work, resulting in some demolitions, collapse, or abandoning of work. Ntuli (2016:18) concludes by stating another barrier to sustainability "is poor cash flow management, which can result in the collapse of a construction company as the construction industry payments are made for work done". According to the CIDB (2017a), there were 170 349 active contractors, of which 146 141 are registered as grade one contractors. However, grade one is restricted to perform to the value not exceeding R200 000. This bottom-heavy industry structure means that many willing contractors never win a project, limiting possible upgrade to higher grades. For this reason, the CIDB has proposed development programmes driven by clients and established contractors for selected contractors. These programmes will lead to fewer but more sustainable businesses, especially at the grade one level, in a bid to create a more rational, less cut-throat industry structure (Ntuli *et al.,* 2013). The subsequent section will discuss government support programmes for construction SMMEs.

Govender (2017) affirms that several emerging contractors in South Africa manage construction companies with a partial technical ability, which eventually averts them from prospering in absence of required skills to implement projects successfully. According to the CIDB (2011c), this lack of skills includes business and financial management skills, project management, estimating, tendering, and the technical skills specific to construction. Although all challenges alluded to hinder improvement

and the sustainability of construction SMMEs, the government does offer some support programmes or initiatives to support the construction SMMEs. The subsequent section will discuss some of these support programmes offered by the government.

3.4 SUPPORT PROGRAMMES FOR CONSTRUCTION SMMEs

The government has taken diverse measures to inspire SMME growth and development. For example, the CIDB, alongside the Department of Public Works (DPW), has developed a new framework - the National Contractor Development Programme (NCDP) - to alleviate the problems and lack of experience, capacity and business understanding in order to support and develop Previously Disadvantaged Individuals (PDIs) and Potentially Emerging (PE) contractors in South Africa (Ntuli *et al.,* 2013). Consequently, the majority provincial governments recognized and formed contractor development programmes with the same objectives as that of the NDPW.

3.4.1 National Contractor Development Programme (NCDP)

Background

The National Department of Public Works (NDPW) established the Emerging Contractor Development Programme (ECDP) to advance entry for primarily black contractors into the construction industry through direct government contracting (CIDB, 2011b). The Expanded Public Works Programme (EPWP) was later considered by Cabinet, mainly to improve job creation in the public sector, but authorized the government to improve its contractor development plans through the Vu'kuphile Programme. Vuk'uphile has been created to construct the capability amongst potential contractors to perform the rising quantity of labour-intensive work that is part of the EPWP (CIDB, 2011b).

The National Contractor Development Programme (NCDP) is a government programme consisting of a corporation between the CIDB, national and provincial public works, and other keen parties (CIDB, 2011b).

The active parties entrust their hard work and resources to develop previously deprived contractors by:

- Establishing an enabling environment for contractor development;
- Improving and supporting contractor development systems, including Emerging Contractor Development Programmes (ECDP's), Joint Ventures (JVs) and other suitable methods;
- Facilitating performance improvement of contractors; and
- Supporting the formation of a group of skilled artisans, supervisors, technicians and technologists for the construction sector.

According to Hadebe (2017), the primary intend of the contractor development or ECDP is to concentrate on the need to open economic growth limitations, expand sustainable contracting competence, and promote enterprise development of previously destitute individuals.

3.4.1.1 Objectives

The objective of the NCDP is to advance impartiality ownership across the diverse contracting groups and grades, as well as advance skills and performance in the delivery and maintenance of capital works across the public sector (CIDB, 2011b).
To accomplish this objective, contractors participating in the NCDP undertake to:

- Develop the grading position of contractors in planned classes and grades;
- Raise participation of black, women, disabled, and youth-owned entities in assigned categories;
- Generate sustainable contracting companies by facilitating constant work through a fair bidding process;
- Enhance the performance of contractors by way of quality, employment practices, skills development, safety, health and the environment by gratifying performance; and
- Enhance the business management and technical skills of the participating contractors.

3.4.1.2 The role of the CIDB (2011b) in the NCDP is to:

- Develop and implement the Framework (NCDP);
- Best practice for the construction industry;
- Support and guide provincial client's contractor development programmes (CDP's);
- Monitor and evaluate contractor development programmes;
- Provide support by creating an enabling environment, e.g. Construction Contact Centres (CCC), best practice guides, delivery management support; and
- Facilitate links, formal interactions and agreements or partnerships, and catalytic interventions.

As indicated in the CIDB (2011b), in support of the NCDP, the CIDB will:

- Develop strategies that the programmes need to conform to as part of the NCDP. These cover assessment and selection of contractors, support mechanisms, accreditation of training providers and mentors, funding requirements and access to work opportunities, as well as accreditation of contractors on departing the programmes; and
- Provide relevant information from the CIDB registers on capacity linked to the demand and existing supply and provide guidelines for targeting strategies.

3.4.1.3 Benefits of participation in the NCDP:

CIDB (2011b) further mentions that participating stakeholders within the NCDP, and specifically National and Provincial Public Works departments, commit to:

- Avail and manage the budgets and resources essential for their programmes;
- Ensure that their programmes are being realised under the principles set out in the NCDP framework, meeting both the objectives of NCDP and their service delivery objectives;
- Establish working relationships with other provincial and local public sector clients in the region and with private and other public sector emerging contractor development initiatives;

- Prepare and present reports on their programmes to the NCDP Steering Committee; and
- Prepare and recommend strategies and implementation plans to the NCDP Steering Committee, which will ensure that the NCDP continuously and pro-actively responds to the changing influences it will be subjected to;
- Provide an opportunity for participants to increase awareness and visibility of their services;
- Launching joint projects;
- Knowledge transfer;
- Standardized services;
- Facilitate the exchange of best practices and expertise;
- Mutual evaluation of the efficacy of enterprise development guidelines;
- Sharing information on contractor performance;
- Use of CIDB registers in targeting potential clients;
- Increasing clients base with pre-risk assessment analysis;
- Facilitate for ease of sector charter implementation (empowerment, contractor capacitating, industry development and streamlining and enterprise development);
- Market and generate visibility of services offered to contractors;
- One-stop shop (contractor, client, financiers and others);
- Business-to-business linkages &networking opportunities;
- Connection to other active government or partnering stakeholders and resources, e.g., CCC, Department of Trade & Industry - SEDA's / National Home Builders Regulatory Council (NHBRC); and
- Demonstrate to contractors that the CIDB and other sector players stand together, i.e. CIDB endorsement.

The figure below depicts the NCDP's overall process for executing the contractor development model.

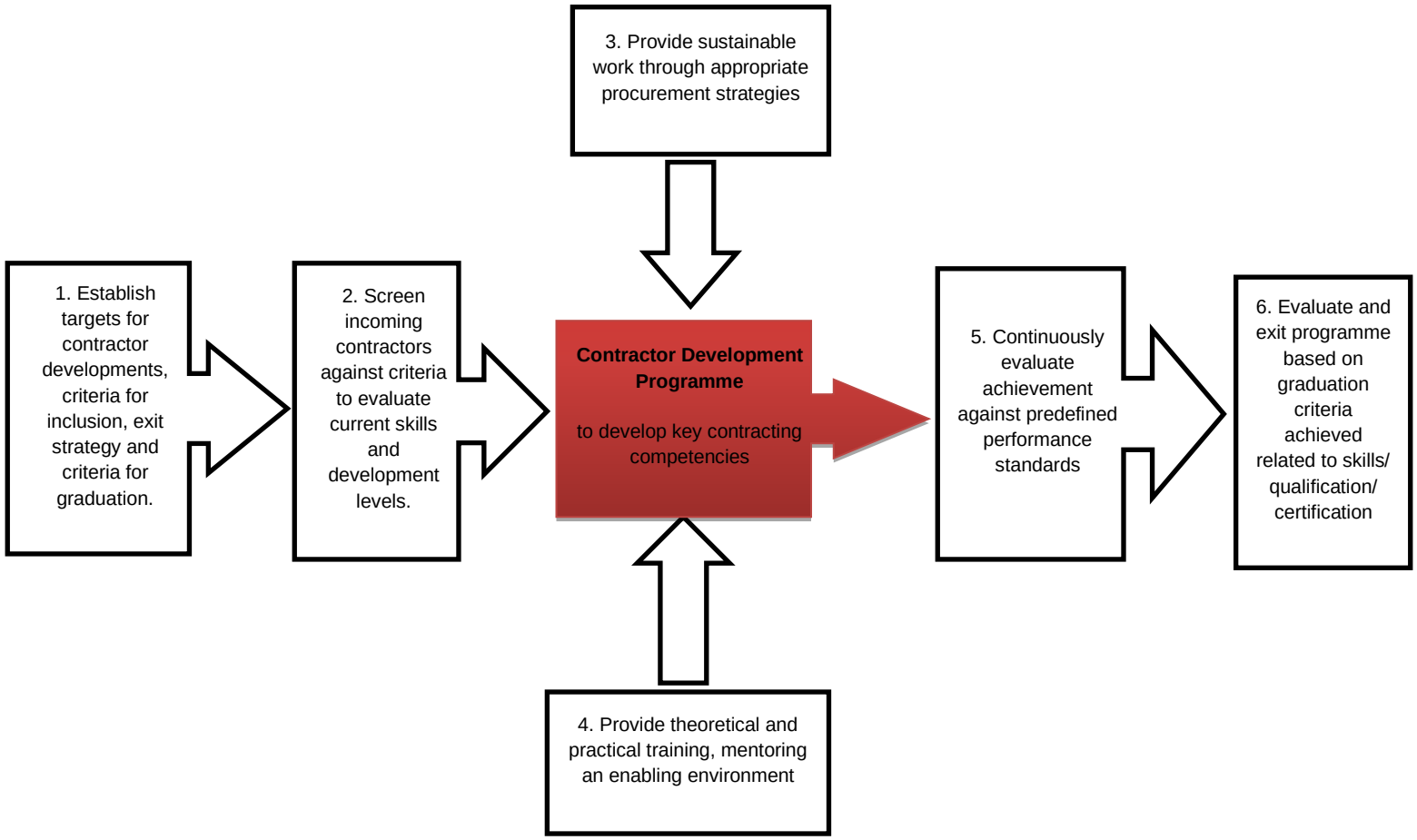


Figure 3.1: NCDP overall process for implementing a contractor development model

Source: CIDB (2011b).

3.4.1.4 Contractor Development Components

CIDB (2011b) lists various components of contractor development addressed by the NCDP are illustrated in the following Table 3.5 and comprise several components, including:

- New entrants (or start-ups);
- Enterprise's development; and
- Performance improvement.

Table 3.5: Contractor Development Component

CIDB grade	Contractor Development Component
9	Performance Improvement
	Enterprise Development
2	Contractor Learner ships

Source: CIDB (2011b).

Contractor Learner ships - Integrate the growth of rising contractor start-ups and will focus on CIDB grade one to three contractors.

Enterprise Development - Enterprises start rising, developing markets for their services, intensifying their workforce, increasing their areas of operation, accruing capital for future growth, intensifying their plant and equipment, and business and technical systems. This stage will focus on the CIDB grade two to six contractors who demonstrate prospective to grow and expand.

Performance Improvement - Established enterprise initiates finest practice structures for health and safety, quality management, environmental management, and more, to advance their performance. This stage will focus on the CIDB grade four to seven contractors who demonstrate prospective to grow.

3.4.1.5 Focus areas of the NCDP

The NCDP will focus on the following strategies:

- Partnering between the provincial Departments of Public Works and the CIDB to establish and operate Construction Contact Centres (CCC's) in the provinces;
- Facilitating access to finance for contractors;
- Facilitating prompt payment of contractors;
- Provision of appropriate contracting conditions which will support contractor development;
- Facilitating mechanisms that promote skills development by providing for workplace training of interns and up-skilling of company employees in programmes that result in nationally accredited outcomes, such as learnerships and accredited skills programmes, and internships for professional candidacy; and
- Client reporting to the CIDB on Contractor Development proposals and their diverse contributions for management and acknowledgment of areas for support.

3.4.1.6 Key stakeholders

Diverse stakeholders will participate within the NCDP based upon their eagerness to offer suitable resources to support the NCDP (CIDB, 2011b). These stakeholders will be provincially managed through Contractor Development Forums, delegate of Contractor Development (CD) practitioners and parties within the relevant provinces. This CD Forum will be the platform for information exchange, provincial statistics reporting, consolidation, and monitoring (CIDB, 2011b). (CIDB, 2011b) further mentions that organizations in both the public sector and private sector that are eager to pledge to the NCDP and commit possessions include:

- CIDB – for general programme supervision and rendering of good practice guides, contractor grading data, contractor registration, promote access to information via the Construction Contact Centres, and coordination of the Provincial CD Forum. It is important to note that the CIDB does not provide finance, training, or projects to contractors;

- National Public Works – a guide department executing contractor development and positioning of ECDP to NCDP, with the EPWP focusing on job creation and learnerships, as well as accessing of funding for grade one development;
- Provincial Public Works – for present and latest contractor development programmes associated to the NCDP;
- Private sector contractor associations and established enterprises – contractor and skills development through training, mentoring, and more;
- Construction Education & Training Authority (CETA) – skills development;
- Banks and financing organizations – financing of working capital, insurance and performance guarantees for contractors; and
- Other stakeholders - who are keen to provide resources and assistance.

3.4.2 Contractor Development Programmes

A Contractor Development Programme (CDP) is body forming part of the NCDP established to offer developmental assistance to contractors. Contractors who partake within CDPs obtain prepared developmental support, planned to attain prearranged developmental objectives (CIDB, 2011c).

The Contractor Development monitor assesses and analyses the role played by the CDPs over the last three years in terms of the development of contractors. As detailed in the following table, 25 CDPs are presently being assessed as part of the Contractor Development monitor.

Table 3.6: Contractor Development Programme member

Province	CDP	Number of contractors
Eastern Cape	Incubator	60
	COEGA Industrial Development Zone (IDZ)	96
	Integrated Contractor Development Programme	200
	Masakhesonke Contractor Development Programme	33
	Mthatha Contractor Development Programme	31
	NMMB Contractor Development Programme	24
Free State	Department of Police Roads and Transport	101
Gauteng	Contractor Incubator Programme (CIP) North West	10
	Independent Development Trust (IDT)Contractor Incubator Programme (CIP) North West	1
	Independent Development Trust (IDT) Vuk'uphile North West	14
	LP IDT Contractor Development	24
	Vuk'uphile Learnership NW	13
	SihambaSonke	27
	Joburg Water (Vuk'uphile) CDP	18
	Vuk'uphile	1
KwaZulu Natal	KZN Master Builders Association (ECDP)	38

Limpopo	Limpopo Contractor Development - Stefanutti Stocks	10
	Vuk'uphile Contractor Development	4
	Vuk'uphile Contractor Development Programme	34
Northern Cape	Department of Roads and Public Works CDP (GB and CE classes of work)	29
North West	Vuk'uphile Tlokwe City Council	63
	Vuk'uphile Contractor Development Programme	9
Western Cape	Advance M & T Shortlist 2016	20
	Department of Transport& Public Works Roads Branch CDP	55
	Siyenyuka	12
Total		**927**

Source: CIDB (2020).

As in July 2020, the CIDB also tracked upgrades achieved within contractor development programmes (CDP), drawing on information available from twenty-five CDPs currently being monitored in the NCDP. Typically, CDPs provide direct contracts and structured developmental support to contractors enrolled and are typically implemented by a government institution or outsourced to a developmental institution. In a study by Mofokeng and Thwala (2012), it was mentioned that many contractors in the Free State province were not exposed to the CDPs like in other provinces. The same authors cite that most construction SMMEs in the FS Province lack the managerial skills and the financial, environmental, and expansion factors that affect the failure of a company. The results also show that the small and medium contractors in the FS do not get work frequently, which also contributes to the proper operation of the companies. However, the contracts they get awarded maintain them ongoing until the next contract is awarded.

However, most recently, an overview of the total number of contractor registrations across any Classes of Works within these CDPs as of quarter two of 2019 is given

below. The graph reflects active registration and that contractor can register in multiple categories and classes of work. A total of 927 contractors countrywide participated in the programme, with the Free State recording a total of 101 under the Department of Police, Roads and Transport (CIDB, 2020). In the Free State province, the CDP contractors were subcontracted on major road projects to the value of R1.247 billion, of which they received 30% of the project value, and they were also incorporated in maintenance projects such as potholes repairs or patchwork, road signs, and grass-cutting (DPR&T, 2019).

Table 3.7: CDP Contractor Registrations as of 2019 Q2

Current Grade	Number Entity	% of distribution
7 & 8	8	1%
5 & 6	60	6%
2 to 4	223	24%
1	636	69%
Total	927	100%

Source: CIDB (2020).

An assessment of contractors that have upgraded one or more grades over the last three years and who are currently or previously have participated in CDPs is given below. Around 36% of all contractors that have entered into a CDP over the period of quarter three of 2016 to quarter two 2019 have upgraded one or more grades since the date of entry. The average number of contractors in grades two to eight that have participated in CDPs is substantially higher than the average of all CIDB registered contractors (i.e. 36% vs. 27%). Furthermore, it is seen that 42% of contractors that entered CDPs on grade one have upgraded one or more grades (CIDB, 2020).

Table 3.8: Contractor Upgrades; 2016Q3 to 2019Q2

Grades	CDPs %	Total %
7 & 8	28%	19%
5 & 6	27%	31%
2 to 4	39%	30%
Average %	36%	27%
1	42%	8%

Source: CIDB (2019c).

As depicted in Table 3.8 above, the CDPs fulfill an objective by awarding construction projects to the historically disadvantaged black contractors to develop competent skills, build feasible construction firms, create jobs, and reallocate wealth (Mofokeng & Thwala, 2012). However, studies found that there is inadequate information on the performance of the contractors within development programmes, and the lack of reports on the effectiveness of CDPs is a challenge to determining whether the CDPs have been beneficial to the end-users (Mahlangu, 2018). A study by Hadebe (2017:61) revealed "a relatively low satisfaction level amongst participants in terms of their growth and development since joining the programme", while Shwala (2018) cites that, despite efforts made by the government to increase accessibility to finance through targeted programmes, targeted programmes have had limited success due to limited awareness and usage of existing promotional programmes.

The recruitment and participation in the programme have been subjects of dissatisfaction amongst unsuccessful applicants, with Haupt, Hadebe and Akinlolu (2019) quoting that the CDP favours only those with political links ahead of those previously deprived. Dapaah, Thwala and Musonda (2016) emphasize that the recruitment of contractors into the CDPs and the procurement strategies of the programmes should be apparent, open, cost-effective and reasonable.

3.4.3 Incubator Programmes – SEDA Construction Incubator (SCI)

The SEDA Construction Incubator (SCI), formed in 2006, is a public benefit organisation directed to build up and tutor rising construction companies in South Africa. The incubator intends to offer support to particular participants for the period of three years by the end. At the end of the term, every emerging contractor should have achieved minimum one financial level above their admission point on the CIDB register and be proficient to operate unaided in the open market. In case where a particular contractor reluctant to progress more than one CIDB financial grading, an alternative main indicator will be decided on, probably “gross income or turnover” if multiple smaller projects are considered the niche market of the particular contractor. The construction incubation model is one of the interventions that can significantly impact addressing the challenges emerging contractors face in South Africa. Most construction SMMEs reject the services presented by the SCI as one of the result to the skills deficiency. However, there is a consensus amongst most client bodies that the model offers an excellent strategy to assist emerging contractors. The point of formality the SCI model brings to the industry is also extensively recognized and acceptable (SEDA, 2018a).

SCI provides support in three phases of the emerging contractors’ development; Tender Phase Support, Construction Phase Support, and General Administrative Support. SCI have recognized these three areas as the mainly crucial in need for development and mentorship involvement. In 2018 review, the SCI supports 338 construction companies in South Africa (SEDA, 2018a).

3.4.3.1 Mandate

SCI’s main trade is to develop emerging contractors through the combination of both technical and business management skills associated with the introduction of technology to improve the effectiveness and management of their businesses (SEDA, 2018a).

3.4.3.2 Rationale and purpose of the Construction Incubator

As previously mentioned, the objective of the Incubator is to offer assistance to particular participants for the period of three years by the end (SEDA, 2018a). At the

end of the term, every emerging contractor should have achieved minimum one financial level above their admission points on the CIDB register and be proficient to operate unaided in the open market. This CIDB graduation system and assistance from CETA forms a considerable indicator of the Incubator's performance and that of the individual contractor (SEDA, 2018a). Emphasis will be placed during the contractor's third (and final) year of tenure on consolidating capacity in preparation for his/her exit from the Incubator. This will involve building capacity and skills around the individual contractor's identified weaknesses, further developing business strategies that take advantage of his/her strengths, ensuring that administrative and management protocol follows accepted norms, and production systems are operational (SEDA, 2018a).

Organizational units include business mentorship; technical mentorship; training unit; finance and administration department; facility department; monitoring and evaluation department; marketing and stakeholder department; and human resources (SEDA, 2018a). It has network branches and funding partners in different provinces, as illustrated in Table 3.9 below:

Table 3.9: Construction Incubators, Provincial branches, and Funding Partners

Province	**Network branch**	**Funding partners**
Kwazulu-Natal	Durban	SEDA
	Kwa-Mashu	SEDA and eThekwini Municipality
	Dundee	SEDA
Eastern Cape	Port Elizabeth	SEDA and Nelson Mandela Bay Municipality
	Mthatha	SEDA
	East London	Eastern Cape Development Corporation
Gauteng	Krugersdorp	SEDA (Mogale City Municipality)
	Ekurhuleni Sparton	Ekurhuleni Metropolitan Municipality
	Attridgeville	City of Tshwane Metropolitan Municipality
	Nellmapius	SEDA and Tshwane Metropolitan Municipality

Limpopo	Steelport	Limpopo Economic Development and Tourism

Source: SEDA (2018a).

3.4.3.3 Programme Structure

For the efficient development of the upcoming contractor, certain selection and development standard are engineered so that during the development of a contractor, efficient allocation of resources and programme design is kept relevant to the contemporary need of the emerging contracting business and industry (SEDA, 2018a).

The SEDA (2018a) Construction Incubator model has four programme phases:

a) The Outreach Programme

It is a programme through which, for six months, an aspirant construction contracting business is introduced to the construction environment and industry so that it is at a state of compliance for the Pre-Incubator programme at the end of the six months. Information sessions and workshops, networking platforms, compliance support, virtual office facilities, i.e. internet and email resources, faxing services, boardroom facilities, messaging services (reception), as well as business development (advisory) and tendering support are provided during this time.

b) The Pre-Incubator Programme

The Pre-Incubator Programme is a programme through which, for a year (12 months), an emerging CIDB grade one and two construction contracting business is supported by keeping its compliance status up to date, tendering support for the acquisition of projects for possible upgrade to the CIDB grade three and four within 12 months. Business development (advisory) services, marketing and business plan development, information and networking platforms, some structured training and support workshops, and virtual office facilities as well as industry technology applications are provided during this time.

c) The Mainstream Incubation

This is the programme through which, for the duration of two to three years, supports emerging CIDB registered companies with grades of between three and five in construction related businesses are assisted to prepare to participate in the open marketplace, and this will be done through business development (advisory) services, marketing and business plan development, information and networking platforms, structured training, support workshops, office facilities as well as industrial technology applications, and tender phase, construction phase and post tender phase support.

d) The Post Incubation

This is defined as the programme through which, for a year, graduating contractors at the year of completion of the Mainstream Incubator Programme, may apply and be granted the Post Incubator status. The application may only be done on the sole discretion of the SCI.

3.4.3.4 Services offered by the SEDA Construction Incubator (SCI)

The service rendered by the SEDA Construction Incubator (2018a) comprises the three stages as defined below:

Tender Phase Support; during this stage, the contractor aims to secure work in the form of contracts, with market-related prices charged, with apparent mark-ups, and all expenditures to be recouped, guarantying a beneficial business and offering competitive advantage to advance success.

Construction Phase Support; after being offered the contract, the contractor must occupy site within a certain legislated construction period. Processes that require the company decision making individuals need to be properly and professionally handled. These necessary administrative functions are sometimes used to measure capability by the attending professional consultant on the project. Acceptable, comprehensible, and brief understanding can be advantageous for future and current projects.

Construction phase support also includes site supervision; a healthy relation with the site foreman is critical in ensuring that all stakeholders are well aware of the information and skill requirements thoroughly in the transfer process. In addition, more extensive consistent site supervision permits the contractor's project team a certain amount of freedom and independence, thereby creating opportunities.

Post Tender Phase Support; assessing the contractor's own business model, having input into real-life business needs, compliance with the law, and other similar "non-construction specific" requirements (SEDA, 2018a).

The SEDA Construction Incubator (2018a) reported the following impact on Financial Years stated below.

a) 2016/17 Financial Year

The 2016/17 financial year was another year of successful delivery by exceeding some targets set. There was a 19% increase in jobs created, an increase in turnover from R319 million in preceding financial years to R382.84 million in the 2016/17 financial year, achieving 50% of women-owned companies with 45% of them falling into the youth category, and a total of 333 SMMEs supported in the current financial year exceeding the target of 300.

b) 2017/18 Financial Year

The table below is a presentation of beneficiaries (contractors) in the programme in light of redressing the inequalities of the industry in a South African context, i.e. B-BBEE. SCI's client base equals 269 contractors in the year under consideration. Of these clients, 34% are female-owned, and 28% are youth-owned enterprises. SCI contractors accumulated a turnover of R299 564 621 in the financial year under review and created 1 033 permanent jobs and 89 casual jobs. The total number of contractors who exited the programme successfully and graduated in 2017/2018 was 65. Where graduation means a contractor complimented the three-year incubation programme cycle by having improved their turnover or grown on the CIDB register and obtained either a National Qualifications Framework (NQF) level two or NQF Level four CETA qualifications in some cases.

Table 3.10 below is a presentation of SCI's performance for the 2017/2018 financial year.

Table 3.10: SCI Performance

SCI KPI	2016/17 FY		2017/18 FY	
	Annual Targets	Achieved	Annual Targets	Achieved
Clients/SMMEs supported	300	333	300	269
Jobs created (permanent)	1 000	1 022	1 000	1 033
Temporal	-	-	N/A	89
Turnover accumulated	-	R342 842 000	R300 million	R299 564 621
Graduation planned	30	34	80%	24%
Women owned	40%	50%	40%	34%
Youth owned	105	150	35%	28%

Source: SEDA (2017a & 2018).

3.4.3.5 Expanded Public Works Programme (Sectors, Vuk'uphile)

The Expanded Public Works Programme (EPWP) was formed in April 2004 to advance economic growth and generate sustainable development. The instant purpose of the EPWP Phase one was to help ease unemployment by creating minimum one million work opportunities. Since its initiation, the centre and importance of the programme were on recruiting minimum 40% of its beneficiaries as women, 30% youth, and 2% being people with disabilities. Between 2009 and 2014, the EPWP had envisaged creating 4.5 million work opportunities, thus ensuring that unemployed youth, women, and persons with disabilities are essentials of the programme.

3.4.3.6 Vuk'uphile Learnership Programme - Creating opportunities

The National Department of Public Works (NDPW) initiated an Emerging Contractor Development Programme, called Vuk'uphile Learnership Programme (VLP). Vuk'uphile has been initiated to build the competence amongst emerging contractors to carry out the growing amount of labour-intensive work that is part of the EPWP (Department of Public Works, 2019). Learner contractors in the programme will also obtain all the training necessary as part of the EPWP exit strategy to ensure they are fully skilled to bid and undertake labour-intensive projects (DPW, 2019). The programme's importance is to develop the learners' administrative, technical, contractual, managerial, and entrepreneurial skills.

Among the skills and empowerment projects across South Africa, the VLP (EPWP, 2019) was introduced as an emerging contractor development programme that would see contractors maximizing the use of labour-intensive methods of construction to undertake government infrastructure related projects such as:

- Low Volume Roads and Sidewalks, Traffic Volume < 500 vehicles per day;
- Storm water drains, i.e. excavations < 1.5m;
- Sewers reticulation, i.e. excavations < 1.5m;
- Water reticulation, i.e. excavations < 1.5m;
- Electrical lines, laying of cables and excavations; and
- Haul of material.

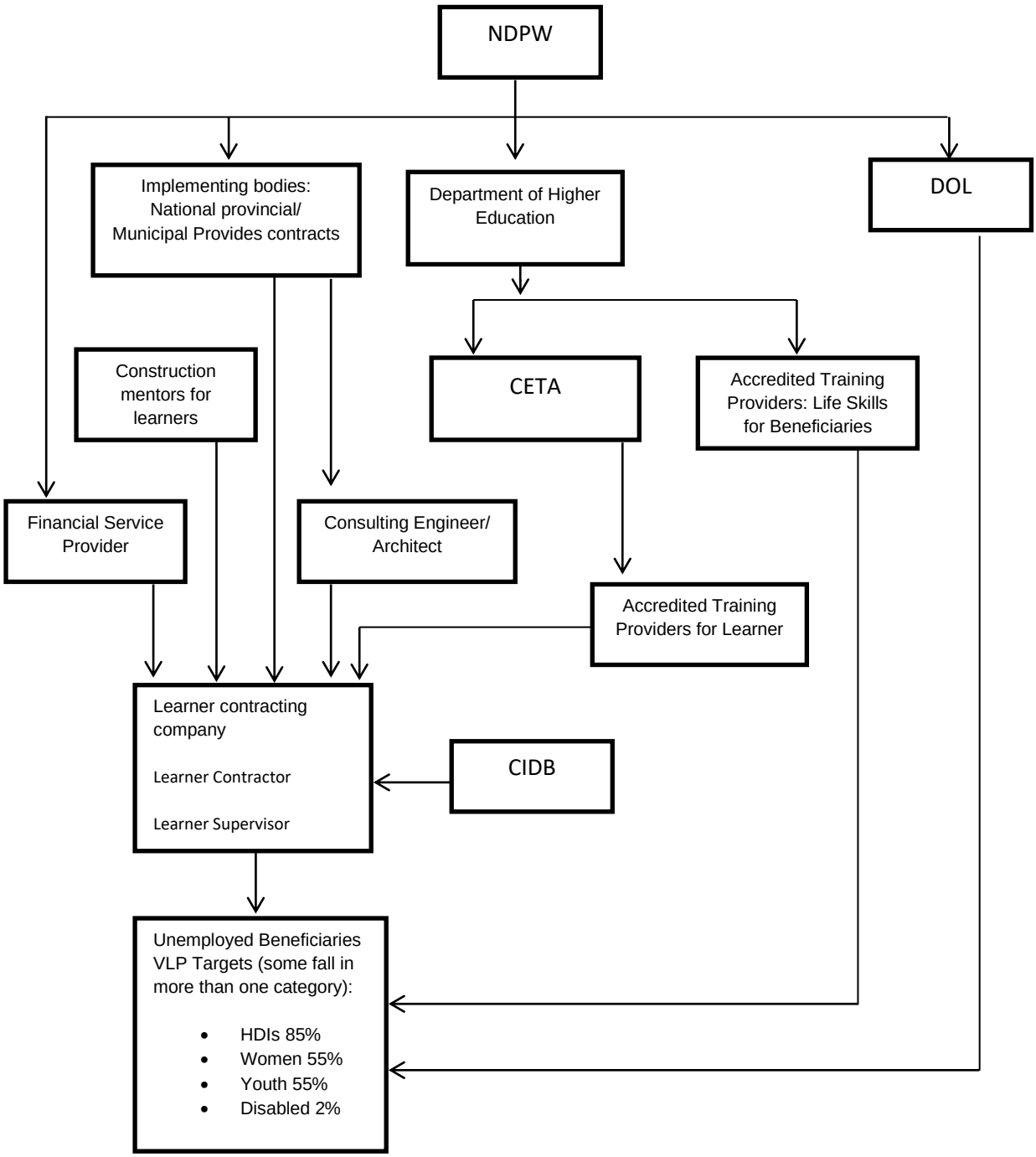


Figure 3.2: A management process chart showing role-players involved with the VLP.

Source: DPW (2019).

Despite having several infrastructure departments, the Free State Province, a metropolitan municipality and approximately five big municipalities still implement CDP in one department, namely the Department of Police Roads and Transport recording 101 CDP contractors (CIDB, 2020). There is multiple multimillion infrastructure capital, small to medium projects being implemented in several spheres of government. Another contributing factor is the congested numbers of grade one registered contractors in the province, which are disproportionately high at between 87% and 96% for grades one to four under CE and GB classes of works. Lastly, looking at the vast geographic area of the province and the number of active or registered construction SMMEs in the CIDB, the researcher believes the study will make a positive contribution to enable ways of implementing more projects (unbundling) in the government sector, more intake or participation in the CDP, not only in the province but also in the local governments, to ease the congested lower CIDB grades and also increase job creation, contribution to the economy, and provincial GDP.

To address the slow progress of construction based SMMEs, the government has introduced CDPs to accelerate construction SMMEs. However, the number of appointed contractors is too low to address the congestion in lower construction grades (CIDB, 2017a). As in July 2017, the CIDB tracked upgrade achieved within CDPs, drawing on information available from 27 CDPs currently being monitored in the National Contractor Development Programme. Typically, CDPs provide direct contracts and structured developmental support to contractors enrolled and are typically implemented by a government institution or outsourced to a developmental institution. Information drawn from CDPs currently being monitored (CIDB, 2017a) shows that a total of 1 178 lower construction SMMEs participated countrywide, with the Free State recording 81 SMMEs under the Department of Police, Roads, and Transport. Approximately a third of all GB contractors that participated in a CDP over the third quarter of 2014 to the second quarter of 2015 have upgraded one or more grades since the date of entry. This rate is lower than that of the CE contractors, which is around 56%. Thus, contractors within CDPs are advancing at a higher rate than those that do not participate in the programme (CIDB, 2017a).

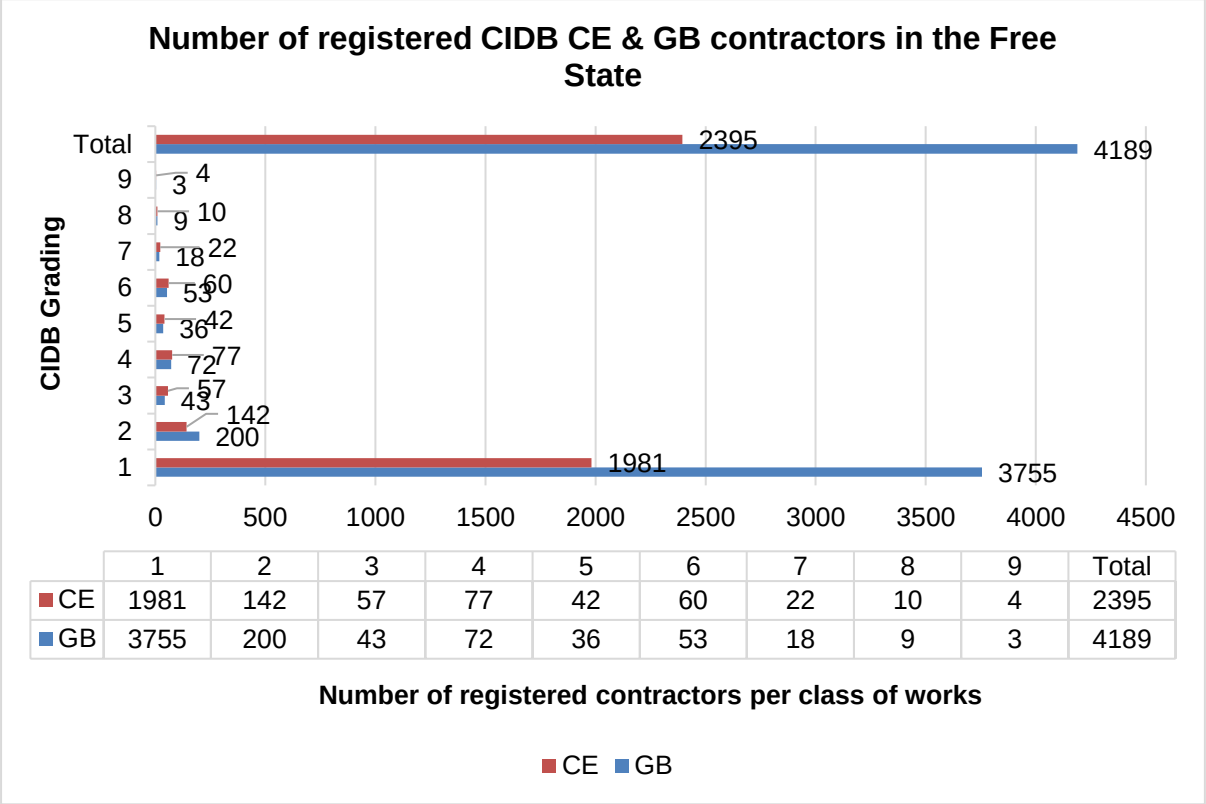
3.5 THE FREE STATE PROVINCE

The Free State is centrally situated in South Africa, surrounded by the Northern Cape, Eastern Cape, North West, Mpumalanga, KwaZulu-Natal, Gauteng provinces, and Lesotho. Even though the FS province is geographically ranked third in South Africa, it has the second-last population of 2 834 714 which equates to approximately 5.1% of the nationally. Its capital city is Bloemfontein, which boosts judicial courts such as High Court and Supreme Court of Appeal.

Two spheres of government is divided into one metropolitan municipality (Mangaung Metropolitan Municipality) and four district municipalities, further subdivided into 18 local municipalities. The number of active registered contractors in the FS province, as depicted in Table 3.3, indicates that the province is the third-lowest behind Western Cape and Northern Cape. Table 3.3 further depicts the number of active CIDB registered contractors in all classes of works in the Free State, totaling 8 374, while the figures from SEDA for quarter three of 2019 indicate that there are 6 527 construction SMMEs in the province. The table below further unpacks the number of registered contractors within the CIDB class of works in CE and GB. Both CE and GB classes of works total 6 584 (79%) of the overall figure in all class of works, and 96% (6 327) falls within grade one and four in both classes. For this reason, the study under the civil engineering category was considered, as most works are done here; furthermore, it comprises more companies.

Construction SMMEs face barriers disallowing them to advance development and growth, hence, only the minority endure and remain sustainable (Tshikhudo, 2016). This is backed by the study population, where 96% (6 327) possess a grade one to four CIDB grading. In a class of works, these grading levels are congested at an average of 96%, with 87% falling within grade one of the CIDB class of works.

The figure below shows the number of registered companies under each class of works in the Free State province.



	1	2	3	4	5	6	7	8	9	Total
CE	1981	142	57	77	42	60	22	10	4	2395
GB	3755	200	43	72	36	53	18	9	3	4189

Figure 3.3: Number of Registered Contractors in CIDB CE & GB Class of Works in the Free State Province

Source: CIDB (2017).

The Free State province recorded an increase of 20 000 employment opportunities in quarter four of 2019, compared to the previous quarter (STATS SA, 2019a). Dlungwana and Rwelamila (2004) state that the majority contractors in many construction sectors fall within the small and medium-size range. The circumstances in the Free State is startling as the numbers of grade one registered contractors in the province are disproportionately high at between 87% and 96% for grades one to four under both CE and GB class of works, respectively. This high concentration of registered lower-grade construction based SMMEs that fail to move up the grade is a significant concern that prompted the need to conduct this study.

The increasing importance of business sustainability makes it imperative for organizations in the construction industry to employ The Timmons Model of the

Entrepreneurial Process, which comprised the opportunity, resources, and team to accomplish the desired sustainability of the business.

3.6 The CONCEPTUAL FRAMEWORK OF THE STUDY

3.6.1 The Timmons Model of the Entrepreneurial Process

The study's conceptual framework is shown in Figure 3.4, which states that to harness the entrepreneurial opportunity by using existing organizational resources and providing the customer with value, Timmons and Spinelli (2012) propose a model for the entrepreneurial process as illustrated in Figure 3.4 below.

The Timmons Model of the Entrepreneurial Process

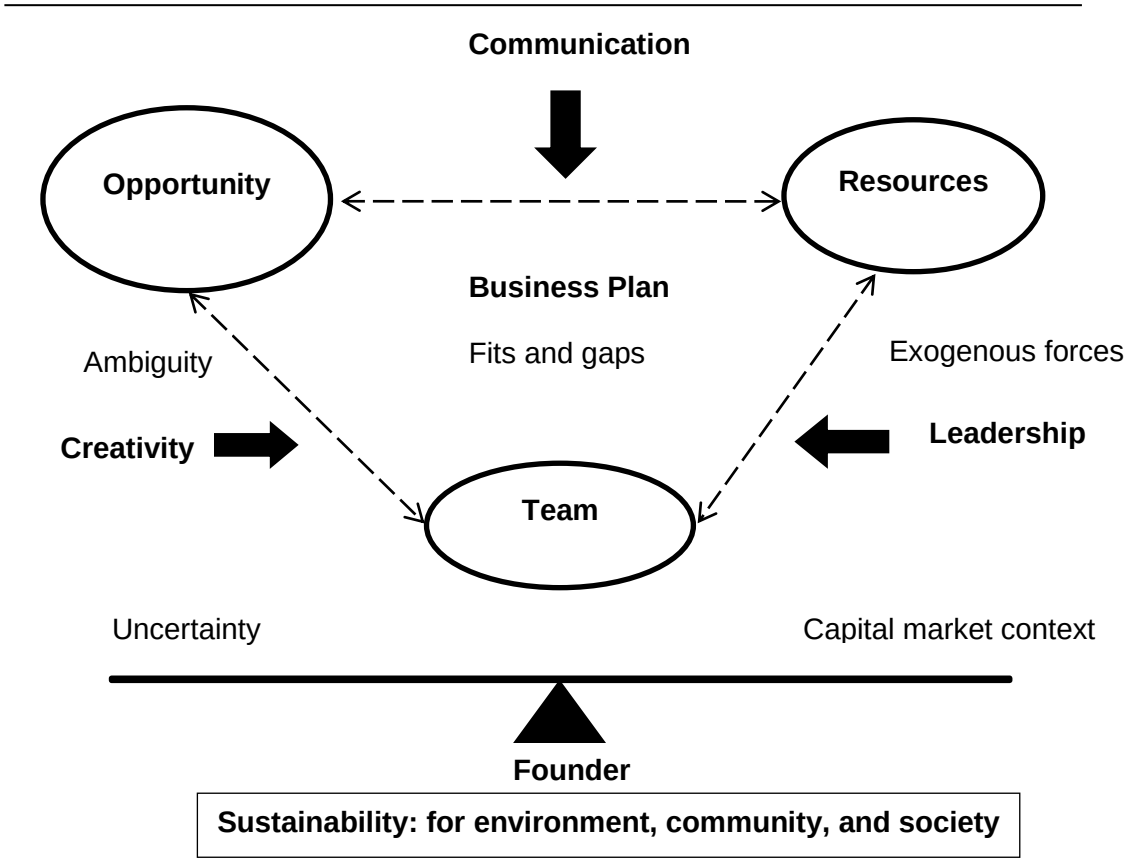


Figure 3.4: The Timmons Model of the Entrepreneurial Process

Source: Spinelli and Adams (2012).

Drawing from the model above (Timmons & Spinelli, 2009), three elements are the main composition of the entrepreneurial process: the resources, opportunity, and the

entrepreneurial team who takes the supplementary responsibilities. The Timmons Model bases itself on the entrepreneur. The entrepreneur explores an opportunity, and on attaining one, profiles the opportunity into a high-potential project by recruiting up a team and acquiring the much-needed resources to start a business that seizes the opportunity available. In starting the business, the entrepreneurs put his or her career in jeopardy, financial stability, and hard-earned savings. The model relies on the principle that the entrepreneurs receive appropriate rewards with the risk and endeavour exerted in opening or investing in the business (Nayab, 2010).

The Timmons Model of the entrepreneurial process involves a market-driven opportunity, availability of a good team, required resources as driving forces before starting the venture and concludes that an entrepreneur's success depends upon the ability to balance all these three forces. These three driving forces of entrepreneurship remain interlinked as circles, with any change in one force impacting the other two (Yeh & Chang, 2018). The model joins the entrepreneurial opportunity with organizational resources, as well as the venture team. Exogenous factors such as creativity, communication, and leadership play an important role in influencing harnessing the opportunity in the form of a gap in the marketplace (Diniso & Schachtebeck, 2018). The elements of the Timmons Model are in steady action, intensifying and contracting as the environment and opportunities varies (Minniti, Zacharakis, Spinelli, Mark, Rice & Timothy, 2007).

According to Timmons *et al.* (2009:111), "the central focus of the entrepreneurial process is the critical element of viable business opportunities that shed more light on the general environment to determine various business opportunities". Viable business opportunities are further constrained due to inadequate resources; thus, the entrepreneurial team is expected to use the least resources at their disposal for maximum competitive advantage (Timmons *et al.*, 2009). In addition, the entrepreneurial team plays an essential role in enhancing the entrepreneurial process to be successful (Timmons *et al.*, 2009).

In essence, the entrepreneur's responsibility is to control and revise the risk-reward method with an eye focusing on sustainability. Because part of the entrepreneur is to create a positive impact without harming the environment, the community, or society,

the perception of sustainability emerges as the basic foundation of the model. In the entrepreneurial procedure illustrates in the Timmons Model, the shape, size, and depth of the opportunity determines the requisite shape, size, and depth of both the resources and team (Timmons *et al.*, 2012). The next topic will deal with the opportunity part of the model.

3.6.1.1 Opportunity recognition

The Timmons Model of entrepreneurship declares that entrepreneurship is opportunity-driven or that the market determines the opportunity. A good idea is not necessarily a good business opportunity, and the underlying market demand determines the idea's potential. An idea develops into feasible only when it remains secured in products or services that generate or put insignificance to consumers and remains enticing, resilient, and opportune (Nayab, 2010).

In contrasting conventional entrepreneurship models that begins with a business idea and recognize an opportunity, the Timmons Model begins with a market opportunity. The business plan and the financing receive secondary importance and come only after identifying a viable opportunity. The model holds that a good business opportunity would readily receive financing, and identifying the opportunity first makes the business plan fail-proof (Nayab, 2010). The business plan presents the language and code for communicating the quality of the three leading elements of the Timmons Model and their fit and steadiness (Spinelli *et al.*, 2012).

Timmons *et al.* (2009) declares that for the entrepreneurs to easily identify opportunities, they should exercise the following principles: The higher growth, magnitude, resilience, and high gross margins and financial freedom, the superior the opportunity. It is further argued that entrepreneurs should look out for the degree of the market deficiency, the higher rate of change, discontinuities and disorder, more significant irregularity in current service and quality, lead times and delay times, and greater vacuums in information and knowledge. All of the above characterize the areas where entrepreneurs should priorities when looking for high prospective opportunities.

Ghee (2018) reveals that opportunities are more indispensable than the skill or proficiency of the lead entrepreneur and the team because the right opportunity warrants the business's long-term achievement. Timmons reiterates that most authentic opportunities exceed either the talent or capability of the team or the primary resources available to the team (Spinelli *et al.*, 2012).

The CIDB (2013) has listed several opportunities available for construction SMMEs in the industry, such as subcontracting as an integral component of the construction industry. Its significance has been mounting in the industry over the last two decades in South Africa and globally. This impacts the division of labour within the industry, employment and skills patterns, productivity and quality, and the industry's health, safety and environmental management practices. In addition, subcontracting further facilitates the production of quality work through the use of specialist subcontractors with the necessary knowledge and skills in specific trades and permits the main contractor to cut operating costs and improve competitiveness.

Regardless of the subcontracting opportunity accessible in both private and public sectors, there has been recent abuse of this opportunity by some business forums in different towns to an extent whereby the National Treasury issued a media statement on 7 August, 2018 about having received complaints about the exploitation in certain provinces and municipalities of the requirement that 30% of public procurement contracts be subcontracted to selected groups, as offered for in the Preferential Procurement Regulations, 2017. It is suspected that some people are now demanding that they be paid in cash 30% of the value of each contract awarded in these provinces or municipalities (RSA, 2018). If their demands are not fulfilled, they intimidate, pressurize contractors, disrupt, or prevent the activities on site. In closing, Spinelli *et al.,* (2012) state that the greater the growth, size, durability, and robustness of the gross and net margins and free cash flow, the greater the opportunity.

3.6.1.2 The Resource Factor

According to Timmons *et al.* (2009), resources are essential in any prosperous enterprise because in generating economic opportunities, entrepreneurs require

resources to generate these opportunities. Hence, entrepreneurs take considered risks with lesser resources to seize and exploit the opportunity. In support of this view, Timmons *et al.* (2009) argue that entrepreneurs should innovatively formulate sparing measures to organize and be in charge of resources. It is additional mentioned that to expand a competitive advantage; entrepreneurs should adopt bootstrapping as a way of life.

Nayab (2010) cites that the Timmons Model discount the popular concept that extensive resources minimize the risk of opening a enterprise and persuades bootstrapping or commencing with the bare minimum requirements as a way to achieve competitive advantages and offer the following bootstrapping advantages:

- Drives down market cost;
- Instills discipline and leanness in the organisation; and
- Promotes innovative resources to attain more with the inadequate amount of money and other resources accessible.

Nayab (2010) further elucidates that some of the realistic applications of bootstrapping consist of rental as an alternative of buying equipment, working out of a garage as an alternative of rented space, and the like. Like the team's formation, the size and type of opportunity determine the level and extent of resources required. Although good resources remain rare, businesses with high probable opportunities and a commendable administration team will not struggle in sourcing money and other resources.

The entrepreneur works to reduce and manage rather than increase and possess. Kor, Mahoney and Michael (2007) mention that entrepreneurship is about eagerness to risks and smartly looks for new ways of mitigating risks while attaining a sizeable growth rate in the business. Knowledge and skill play a vital role in thriving ventures. Entrepreneurs always find innovative ways to finance their ideas, even in fully grown products and service markets. This knowledge is also related to an organization's capacity to lure the essential financial support for the entrepreneurial enterprise.

In the construction industry, numerous resources are needed to ensure the sustainability of lower-grades construction SMMEs, such as effective use and investment in equipment to increase productivity, sound financial management, effective and efficient use of cash flow, retaining and capacitating and recruiting qualified, competent, and experienced staff. Therefore, spending in machinery and equipment (M&E) should be every company's precedence if it aspires to advance its output and production, and eventually, positively contribute to the general economy (Einhorn, 2015). Furthermore, as a business in the construction sector, it is often essential to contribute machinery to jobs, which can help save on labour while providing specialized results.

A study conducted by Dithebe *et al.,* (2018) mention that the scarcity of skilled labour in South Africa impact on the construction industry's performance. As reported in the CIDB 2018/19 Annual Report (CIDB, 2019a), about 85% of contractors listed on the Register of Contractors by the end of March 2019 were at grade one, indicating the attractiveness of the industry to potential entrepreneurs, many of whom, however, do not have the required skills or experience. Thus, investing in suitable training is reiterated by Ntuli and Allopi (2013) as imperative and primary to enhancement in productivity, which leads to reduced costs in future. Moreover, training should lead to qualification/s acknowledged by the industry and permits employees to display the level of accomplishment and proficiency reached.

One of the contributing factors impacting on the failure of contractor development is financial management skills. Shwala (2018) noted that financial management skills allow a contractor to handle their finances better, thus facilitating appropriate expenditures to keep their businesses operational. Lastly, newly established small businesses often do not have the skills to manage their cash flow and perform auditing exercises. Marivate (2014) states that poor cash flow is one of the significant causes of failure in small businesses, and the ability to manage cash flow allows business owners and operators to estimate their cash flow. In addition to this statement, Ntuli (2016) accentuates that poor cash flow management can collapse a construction company as the construction industry payments are made for work done.

3.6.1.3 The Team Factor

Once the entrepreneur recognizes an opportunity, he/she starts a venture by recruiting the team and gathering adequate resources. The Timmons framework places specific significance on the team and considers a good team is essential for success (Yeh & Chang, 2018). The lead entrepreneur and team should play roles in organizing all the key elements appropriately in a persistently varying and vibrant environment (Ghee, 2018). Ghee (2018) further alludes that in the midst of all resources, only a good team can acquire a higher prospective with any opportunity and handle the pressures associated to growth and has two crucial roles in relation to the other critical factors such as:

- Remove the doubt and vagueness of the opportunity by using creativity; and
- Offering leadership to control the available resources efficiently by cooperating with exogenous forces and the ever-changing capital market context.

Many researchers argue that entrepreneurs' biggest challenge today is not necessarily resources but personal characteristics and leadership skills. Successful entrepreneurs should bring together and guide a team that is characterized by the achievement of the objectives. Furthermore, in promoting the winning mentality, an entrepreneur should compensate achievement and support honest failure, distribute capital with those who contributed to creating it, and endeavour to attain improved standards in performance and behavior (Timmons *et al.*, 2009).

In the construction industry, there are numerous entrepreneurial skills that SMMEs must own to ensure the sustainability of their business, such as negotiation skills, interpersonal skills, basic tendering or costing skills, leadership skills, and project management skills. However, Mamabolo (2017) asserts that entrepreneurial skills are the most important and essential basic business skills required for steering small businesses to lead to profitability and viability of the organisation.

According to Shwala (2018), the personal skills necessary for entrepreneurs to develop, include good organizational skills, good communication and negotiation

skills, good problem-solving skills, good leadership skills, and the ability to deal with stress effectively, as well as a high degree of independent decision-making skills. Effective leadership provides the building block for organizational performance, and such leadership skills and the ability to make the right choices enable small businesses to thrive under difficult circumstances (Marivate, 2014). In conclusion, Ntuli's (2016) study indicated that the three crucial skills are project management skills, financial skills, and pricing tenders' skills as they may require some education or experience in construction to perfect them.

3.7 CHAPTER SUMMARY

This chapter discussed the background and a summary of the South African construction sector. The chapter also outlines the historical overview and establishment of the contractor development programme and the Construction Industry Development Board in terms of Act 38 of 2000. The recent tender value limits adjustments which increased the price limits each category grading can tender for, the National and Provincial Register of Contractors depicting several registered or active contractors in each class of work and grading, the Register of Contractors, which grades and class contractors according to financial and works competence. The construction SMMEs' contribution to the economy and employment is also discussed, and the shortcomings SMMEs in the construction industry experience. The government has taken various approaches to stimulate SMME growth and development, such as support programmes for construction SMMEs.

The National Contractor Development Programme's role, its objectives and benefits of participating in NCDP, the Incubator Programmes, services offered by SEDA Construction Incubator, the basis and intention of the Construction Incubator, the Vuk'uphile Learnership Programme as projected to develop emerging contractors into established contractors to allow to execute labour-intensive projects are all discussed. Lastly, and particular to this study, the chapter discussed the Free State province as a study area to develop a framework that will improve the sustainability of lower construction based SMMEs, the importance of sustainability of the business by using the Timmons Model of Entrepreneurship as the conceptual framework of the study.

CHAPTER 4: RESEARCH DESIGN AND METHODOLOGY

4.1 INTRODUCTION

The literature review in Chapters two and three of this study provided, amongst others, an overview of the sustainability of lower-grades construction based SMMEs in the Free State Province, which integrated the profile of SMMEs in South Africa; the number of SMMEs per industry in the Free State province; the South African construction industry; SMMEs' sustainability; the Construction Industry Development Board (RSA, 2000); the National and Provincial Register of Contractors; SMMEs' contribution to economic growth and employment; challenges; support programmes for construction SMMEs; and the Contractor Development Programmes (CDP).

This chapter provides a summary of how the research was conducted. The chapter starts by providing an overview of research design and methodology and the differences between the two. Once the overview of the two concepts is provided, the study will proceeds with providing a detailed account of the approach taken to carry out the research. Details of the flow of the research process through quantitative and qualitative research up to the study's completion is depicted in Figure 4.1.

Further in this chapter, the structure and nature of the enquiry are discussed. It focuses, therefore, on the discussion of methodology, including the research design and approach, data collection, population and sampling, research instrument, data analysis, and ethical considerations. The research design will be elaborated in the subsequently section.

4.2 RESEARCH AIMS AND OBJECTIVES

Babin and Zikmund (2016) refer to the research objectives of a study as the specific goals that need to be accomplished to specify and understand the research problem. According to Boshoff (2014), the research objectives formulated for a study must be based on the research problem.

4.2.1 Primary Objectives

The primary objective of this study is to investigate issues of the sustainability of lower-grade construction-based SMMEs in the Free State province and to develop recommendations to assist their business.

4.2.2 Secondary Objectives

The achievement of this primary objective will lead to the attainment of the following secondary objectives:

a. To examine requirements for the construction industry;
b. To analyze the efficacy of existing contractor development programmes in South Africa;
c. To examine the opportunities that exist for the lower-grade construction industry;
d. To identify the primary resources for the lower-grade construction industry to be sustainable;
e. To analyze the entrepreneurial skills necessary for the lower-grade construction industry to be successful;
f. To identify the barriers to sustainability in lower-grade construction-based SMMEs in the Free State province; and
g. To develop recommendations that will assist lower-grade construction-based SMMEs in the Free State to become sustainable in their business.

4.3 RESEARCH DESIGN AND METHODOLOGY

Hair, Samouel, Page, Celsi and Money (2016) quote that proper and valuable research is a product of a planned, well-thought-through and informed approach, regardless of whether the design followed is qualitative or quantitative. Consequently, the research methodology takes in general one of three forms: quantitative research, qualitative research, or mixed-methods research (Leedy& Ormrod, 2010).

In this section, the consequent aspects of the research methodology of this study are explained: the research design; the research approach; the sample design; the data

collection and instruments; and the procedure that will be followed with the analysis of data from the empirical study. Creswell and Creswell (2018) delineate research design as a kind of investigation within qualitative, quantitative, and mixed methods approaches, which offers detailed guidelines for procedures in a research design. The same authors (2018) describe research methods as the definite modes of data collection, analysis, and interpretation.

Phaswana (2019) defines research methodology as the study's method or procedures in identifying, selecting, processing, and analyzing information on the study topic. Cohen, Manion and Morrison (2018) define a research design as a holistic, overall plan or strategy chosen and drawn up by the researcher to organize the research by incorporating the different components of the study logically. In the same vein, Gwija (2016) preserves that the research design is a comprehensive strategy or plan that the researcher uses in the investigation to attain facts to answer research questions. Finally, Brink, Van der Waltand and Van Rensburg (2018) refer to research design as a set of logical steps the researcher takes to answer the research question.

According to Gumala (2020), the research design specifies the general plan of how the research was set up, what happened to the subjects, and what methods of data collection were used, while in short, Kunene (2020) describes that research design is a procedure for gathering, assessing, and interpreting information in a research study. Most researchers confuse research design with research methodology. The next table displays the comparison between the two research methods.

Table 4.1: Similarities between research design and research methodology

Research design	**Research methodology**
It focuses on the end-product - for example, what kind of study is being planned and what kinds of results are aimed.	It focuses on the end-product - for example, what kind of study is being planned and what kinds of results are aimed.
Focuses on the research process and the kind of tools and measures to be used.	Focuses on the research process and the kind of tools and measures to be

	used.
The exit point is the research problem or question.	The exit point is the research problem or question.

Source: Babbie & Mouton (2010).

The research design further includes the following: historical research; ethnographic research; descriptive research; experimental research; case study research; explanatory research; and exploratory research which all these methods will now be in summary discuss below.

- Historical research

  Historical research aims to discover past events and relate these past activities to the present and the future. The procedures of historical research are similar to other types of research. It is the systematic collection of data that happened in the past, subsequently identifying, classifying, arranging, clarifying, evaluating, synthesizing, developing, and publishing those using scientific methods. It also assists both researchers and readers to examine the current proceedings and recognize future ones (Mohajan, 2018).

- Ethnographic research

  Ethnographic research is qualitative research methods for describing, evaluating, and interpreting a culture-sharing group's shared patterns of behavior, beliefs, and language that develops over time. In ethnography, the researcher offers a comprehensive picture of the culture-sharing group, drawing on diverse sources of information (Creswell, 2012).

  According to Ary, Jacobs, Sorensen and Walker (2014), ethnography requires various data gathering procedures. These procedures may include prolonged observation of the setting, interviewing members of the culture, and studying documents and artefacts.

- Exploratory research

  Rahi (2017) indicates that an explorative research design focuses on a study problem that has not been researched in great detail to establish priorities, develop operational descriptions, and improves the actual research results, while

Saunders and Lewis (2018) cite that exploratory research aims to discover information about a topic that is not understood clearly.

- Descriptive research

  Descriptive studies often make use of surveys or observational methods and are used to describe a studied phenomenon or population's characteristics and provide an overall picture at a specific point in time (Bryman, Bell, Hirschsohn, Dos Santos, Du Toit, Masenge, Van Aardt& Wagner, 2017). In descriptive studies, the researcher searches for correct information about the characteristics of a single sample or about the frequency of a phenomenon's occurrence (Brink *et al.,* 2018).

- Explanatory research

  Explanatory research is carried out to study a situation or a problem to explain the relationships between variables (Saunders *et al.,* 2012). An explanatory study goes beyond description and attempts to explain an event, act, or characteristic measured by research (Cooper and Schindler, 2014).

- Experimental research design

  It involves a study of the effect of systematic manipulation of one variable(s) on another variable. The influenced variable is the experimental treatment or the independent variable, while the observed or measured variable is the dependent variable (Ary *et al.,* 2014).

- Case study research design

  Zikmund *et al.,* (2013) refer to case studies as basically the documented history of a particular person, group, organisation, or event. However, Grima-Farrell (2017) defines the case study design as an "exploration of a bordered structure or case over time through detailed, in-depth data-collection" that is not determined by the number of sites or research participants involved in the study.

In closing, Kok (2017) asserts that research design should be carefully considered, as it determines whether the researcher will achieve the aims of the study. This

study is descriptive since it is concerned with alleviating the congested CIDB lower-graded construction SMMEs by improving their business and developing recommendations that will promote the sustainability of their business. Research methods are discussed in the next section.

4.4 PERMISSION TO CONDUCT RESEARCH

In December 2019, an application seeking ethical clearance to conduct the intended research was submitted to the Faculty of Natural and Agricultural Sciences at the University of the Free State in December 2019 for approval. The application was approved on the 14th of February, 2020 by the chairperson of the Ethics Committee of the faculty (see Annexure B).

4.5 RESEARCH APPROACH

Creswell and Creswell (2018) mention that the research approach encompasses the study's overall plan, guided by the research problem, and involve philosophical assumptions, the research design, and research methods. Patten (2015) cites that, regarding a selection of an optimal method, it needs to be acknowledged that the researcher, their skill sets and personal preferences, and their abilities, play a decisive role in the success of any method, be it quantitative, qualitative or mixed methods. Leavy (2017) describes three primary research methodologies as the quantitative research methodology, the qualitative research methodology, and the mixed-methods research methodology. According to Boncz (2015:22), "the research goal is attainable either by qualitative or quantitative methods or perhaps by using the two together", while Trochim, Donnelly and Arora (2016:142) "mention that quantitative and qualitative research approaches are not necessarily mutually exclusive and could be used in conjunction with each other".

According to Boncz (2015), quantitative research methods are based on the assumption that extensive quantitative data collection with a wide range, systematic, regulated, and unified measurements and numerical expression are necessary tools used to acquire information and can answer research questions.

Figure 4.1 below summarizes the constituents of a research process employed in this empirical research process up to the completion of the study.

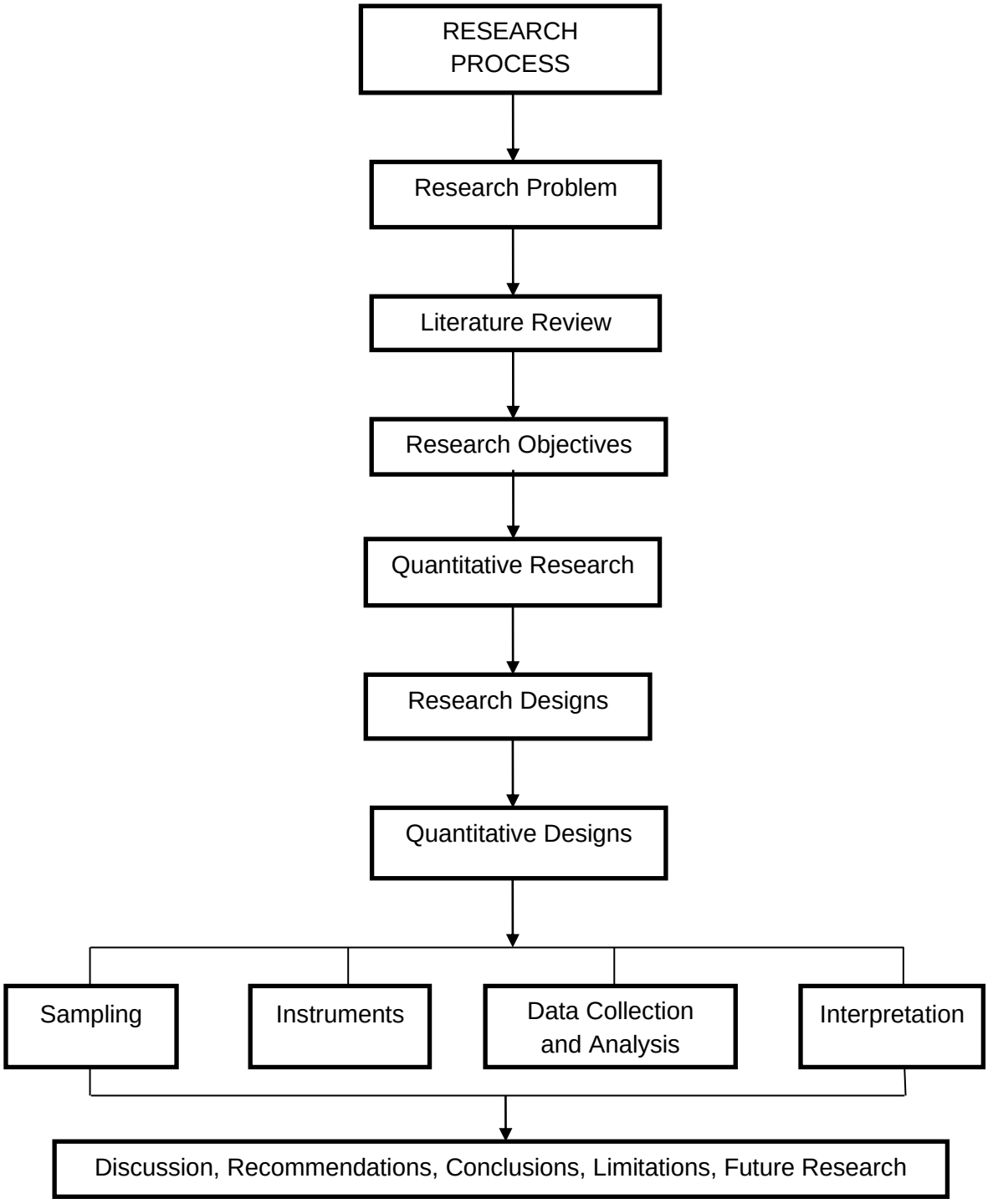


Figure 4.1: Flow of the research process through quantitative research

Source: Own Compilation (2021).

The next sections will discussions discuss briefly the quantitative research methods applicable to the research. The researcher has determined that the quantitative approach is the best method suitable for this research study.

4.5.1 Quantitative research

Polit and Beck (2017) identify quantitative research as part of a progressive planned process with specifically defined tasks. Furthermore, Brannen (2017:24) “insists that quantitative research methodologies can be used to measure the study problem by generating numerical data that can be converted into applied statistics”. On the other hand, Hair *et al.* (2016:153) allude that quantitative research “tends to focus on measurements that rely on the use of numbers and is aligned to statistics”, while Boncz (2015) maintains that quantitative research methods are based on the assumption that extensive quantitative data collection with a wide range, systematic, regulated and unified measurements and numerical expression are essential tools in the process of gaining information needed to answer the research questions.

A quantitative method analyzes objective hypothesis by examining relationships between variables (Creswell & Creswell, 2018). Rahi (2017) mentions that the quantitative method centres on new data collection as per to the problem from a broader population and examination of the data, but disregards an individual’s emotions and feelings or environmental perspective. The same author cites that the quantitative approach operates on an objective and measures it through activities and opinions, which assist the researcher, describe the data rather than interpret the data.

According to Creswell (2012), quantitative research has the following significant characteristics:

- Describing a research problem through a explanation of trends or a need for an description of the relationship between variables;
- Providing a important role for the literature by proposing the research questions to be asked, substantiating the research problem, and creating a need for the direction (purpose statement and research questions or hypotheses) of the study;

- Develop rationale statements, research problems, and theory that is explicit, fine, quantifiable, and apparent;
- Gathering numeric data from majority of people applying tools with pre-set questions and responses;
- Evaluating trends, comparing groups or comparative variables applying statistical analysis, and interpreting results by comparing them with prior predictions and previous research; and
- Writing the research report using standard, fixed structures and evaluation criteria and taking an objective, impartial approach.

4.5.1.1 Questionnaires

According to Wiid and Diggines (2013), a questionnaire comprises a compiled list of questions, where respondents record the answers. This procedure of data collection offers the researcher with particular information to answer the research questions. A self-administered questionnaire with closed questions is completed by respondents themselves and can be personally handed to respondents or sent through post or email. These questionnaires contain a set of questions with a set of pre-selected answers that respondents need to choose from (Bryman *et al.,* 2017). Thus, from a quantitative perspective, the objective of this study is to improve the sustainability of lower-grade construction-based SMMEs in the Free State province and develop recommendations to assist their business. To achieve this aim, respondents were requested to provide empirical data through the use of a questionnaire. The questionnaire was preferred for its advantages. It is less expensive and faster to administer, interviewer effects are minimized, there is no variability in the manner or order that questions are posed, and it is more convenient for participants to complete. Therefore, respondents are more likely to act desirably socially Bryman *et al.* (2017).

In summary, the primary research methodology is quantitative, and deemed relevant in addressing the aim and objectives of this research. Having concluded the research approach, the next step is to establish the research population where the study will be conducted and the sampling methods to be utilised. The subsequently section focuses on both the research population and sample of the study.

4.6 SAMPLE DESIGN

4.6.1 Population

Rahi (2017) delineates population as all people or items that one wishes to examine, while sampling chooses a population segment for investigation. Authors like Hair *et al.* (2016) also share same sentiments by reiterating that the population is the total of all the elements that share a standard set of characteristics. Finally, Phaswana (2019:63) echoes the target population "as the people on whom the survey data reaches interpretations to generalize study findings". "The population is the object of study, which may consist of individuals, groups, organizations, human products and events, or the environment to which they are exposed" (Gumala, 2020:33-34).

The target population for this study included 6 327 active owner-managers of lower-grade construction-based SMMEs within CIDB grading of one to four in GB and CE class of works doing business in all Free State province district municipalities and two provincial departments, to be precise Public Works and Infrastructure and Police, Roads, and Transport.

Aiming to employ a quantitative research method, the sampling strategy for this study involves selecting SMMEs who would complete the quantitative survey questionnaire. Nonetheless, after selecting the study population, it would be impracticable for the researcher to reach all the expected participants. Subsequently, the most prudent way to continue is to employ a sampling procedure. The next section discusses the sampling procedure applied in the study.

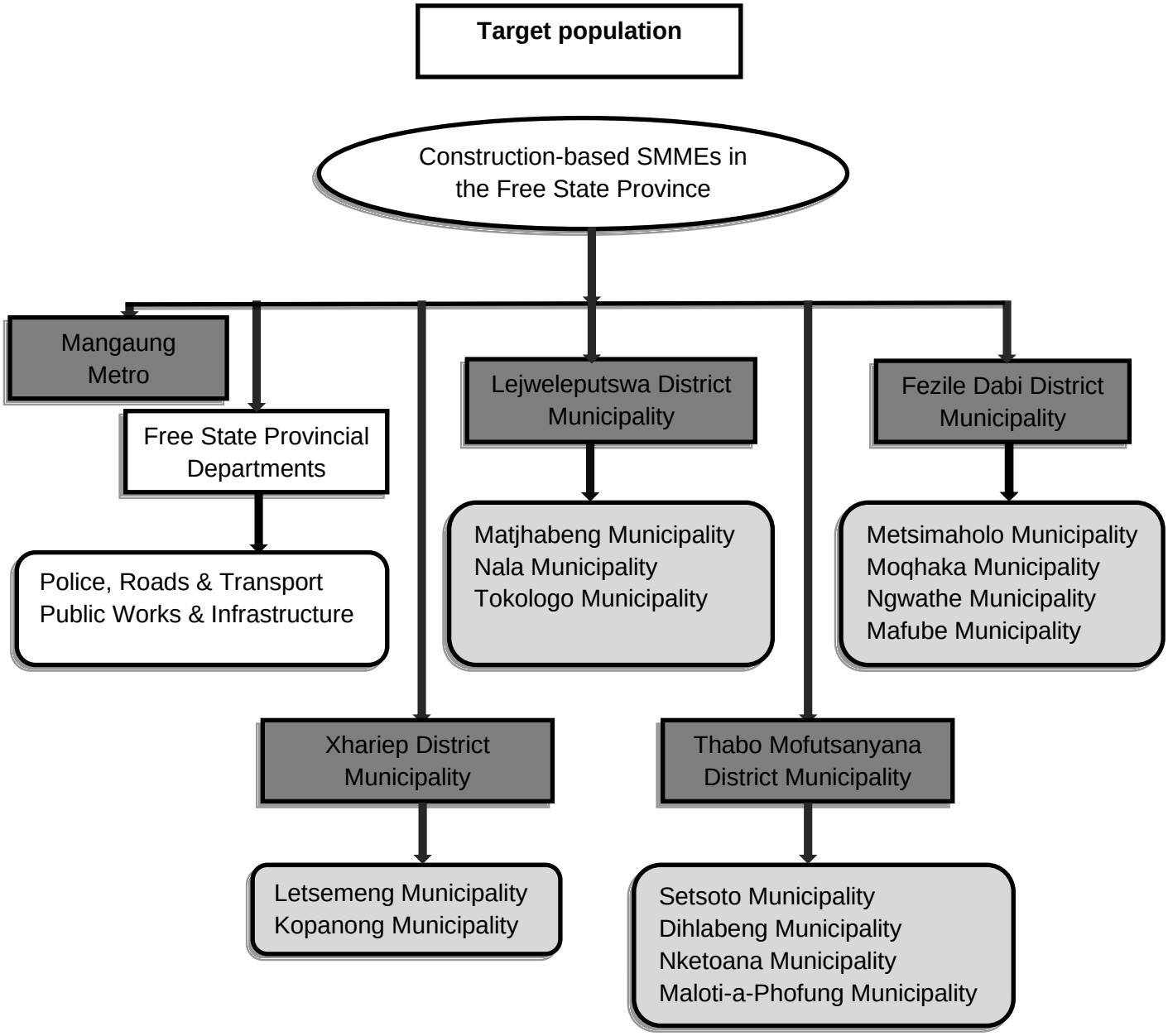


Figure 4.2: Research Population

Source: Researchers' Compilation (2020).

4.6.2 Sampling

Pope and Stanistreet (2017:133) define a sample "as a group of individuals taken from a larger population". Mason (2018:63) refers to a sample "as a part of the population (the totality of entries in which you have an interest), which is the collection of individuals, events, and objects about whom you want to make inferences". Phaswana (2019:63) describes sampling "as the process of orderly

selection of participants from the target (total) population, and it entails choosing people from the total population for the study as a representation of the population to deliver robust findings".

According to Rahi (2017), there are generally two forms of sampling methods, precisely the probability sampling and non-probability sampling. Creswell (2012) further describes the different types of sampling as outlined in the figure below.

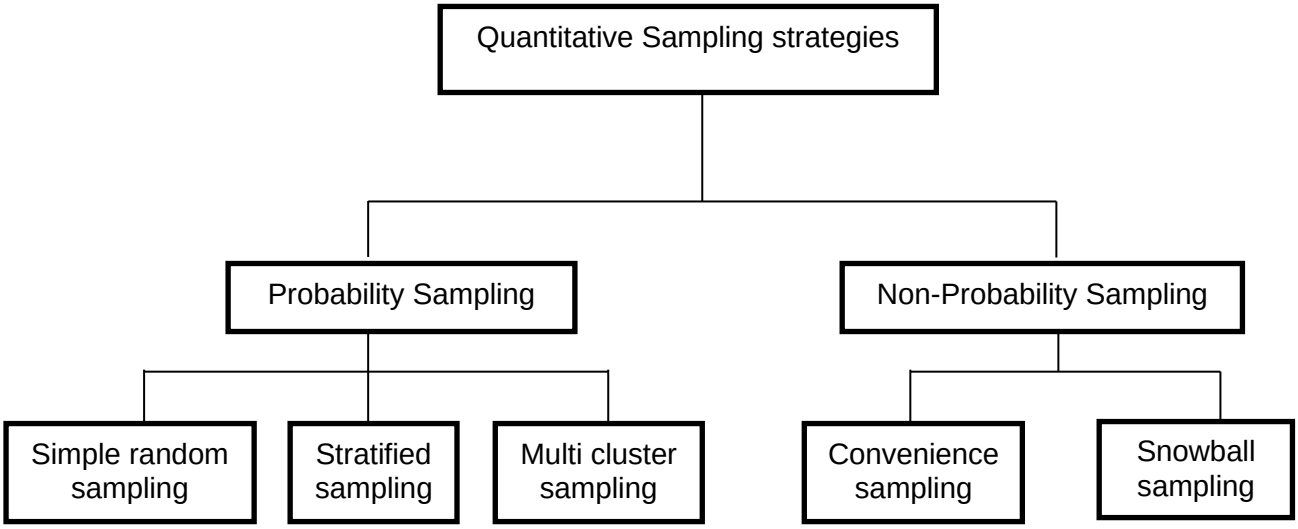


Figure: 4.3 Types of the quantitative sampling strategies

Source: Creswell (2012).

4.6.2.1 Probability sampling

Alvi (2016) refers to probability sampling as a random sampling or representative sampling, where every member of the population has a recognized (non-zero) chance of being part of the sample. Leedy and Ormrod (2015) accentuate that the sample is chosen from the overall population by random selection in probability sampling. It is selected in such a way that each member of the population has an equivalent chance of being chosen. The authors further cite that when such a random sample is chosen, the researcher can presume that the characteristics of the sample fairly accurate the characteristics of the entire population.

Bryman *et al.* (2014) emphasize that “the intention of probability sampling is to maintain sampling inaccuracy to a least number”. According to Creswell (2012), probability sampling techniques encompass simple random sampling, stratified sampling and stratified samplings, which are clarified below as follows:

a. Simple random sampling is the sampling procedure warranting that every element in a population has a fair probability of being considered in the sample (Zikmund & Babin, 2016). Therefore, it is a process whereby each element of a population must be numbered sequentially, such that each element can uniquely be identified (Maree 2014). Similar to this accession, authors like Rahi (2017) reiterates that it is a sampling process in which every population unit has a fair prospect of participation in the sample.

Ary *et al.* (2014) outline that simple random sampling encompasses the following steps:

Define the population;

1. List all members of the population; and
2. Chooses the sample by utilizing a process where absolute chance decides which members on the list are chosen for the sample.

b. Stratified sampling is a probability sampling procedure in which simple random samples that are more or less equal on some characteristics is drawn from within each stratum of the population and is chosen to ensure that the sample will precisely reflect the population based on the criteria applied for stratification (Babin& Zikmund, 2016). This sampling method “is also helpful if a researcher wants to examine certain characteristics of specific population subgroups” (Cooper *et al.,* 2014:351).
c. Cluster sampling is an economically efficient sampling technique in which the primary sampling unit is not the individual element in the population, but a large cluster of elements; clusters are selected randomly. “They become more attractive when lists of a sample population are not available” (Zikmund &Babin, 2016:354). In cluster sampling, the researcher draws a sample out of aggregations of a population that are remotely disseminated and probably incapable of reaching at the same time (Rahi, 2017).

4.6.2.2 Non-probability sampling

Rahi (2017) describes non-probability sampling as the sampling approach, whereby the likelihood of every unit to be chosen is unknown or definite. Procedures for this category of sampling comprise convenience sampling, snowball sampling, quota sampling, and judgement sampling, which are detailed below as follows:

a. The researcher normally employs a convenience sample to acquire results swiftly and efficiently (Zikmund & Babin, 2016).
b. In the snowball sampling technique, the researcher makes an early contract with a small group of people related to the research subject and then uses them as recommendations to get hold of others (Rahi, 2017). According to Alvi (2016), snowball sampling occurs when one element of the population is contacted at a time and then is requested to recommend the researcher to the other essentials of the population. This technique is useful when the researcher knows little about a group or organisation to study; contact with few individuals will direct him to another group (Etikan & Bala, 2017).
c. According to Rahi (2017), quota sampling defines the population's strata and quotas for each stratum's sample elements. The quota sampling method is used when the population is heterogeneous, so subgroups are formed that are homogenous, and the participants are selected non-randomly from each subgroup based on quota (Alvi, 2016).
d. Judgement sampling is a non-probability sampling procedure whereby a skilled person selects the sample based on an individual judgement about some suitable characteristics of the sample affiliate (Zikmund & Babin, 2016). According to Rahi (2017), judgmental sampling is also labeled purposive sampling because it entails a certain intention and is suitable and cost-effective.

It is unrealistic for researchers to perform study in the complete population they aspire to study; there is a need to apply an appropriate sampling technique to reduce the number to a researchable sample (Taherdoost, 2016). According to McNabb (2015), choosing between a probability and non-probability sample is often based on the cost-versus-value principle. Considering the aim of this research, which is to improve the sustainability of lower construction based SMMEs and develops

recommendations, the probability sampling technique, specifically stratified random sampling, was deemed appropriate to ensure that each segment of the population had an equal probability of being chosen (Tracy & Carkin, 2014). The employment of the probability stratified sampling will increase the accuracy and the precision of the sample by ensuring each subgroup within the population receives proper representation within the sample.

4.6.3 The Sample Frame

Mason (2018:69) defines a sampling frame "as a list of all those within a population who can be sampled and may include individuals, a source of material from which a sample is drawn". Rahi (2017) reiterate that the sampling frame is where a target population sample can be created.

The sample frame for the study will be constructed using a database of active lower-grade construction-based SMMEs from four district municipalities, to be precise Lejweleputswa, Thabo Mofutsanyana, Fezile Dabi and Xhariep, Mangaung Metropolitan Municipality, and two provincial departments, namely Police, Roads and Transport and Public Works and Infrastructure in the FS Province.

4.6.4 Sample Size

According to Maree and Pietersen (2016:192), the sample "represents the characteristics the researcher aims to study". Saunders *et al*. (2012:292) reiterates that sample size" is duly affected by the availability of resources, financial support, and time available". Bryman *et al.,* (2017) declare that the sample size is determined by considering time and cost and requires a compromise to be drawn between the aforementioned and precision of findings and generalization.

Gay, Mills, and Airasian, as cited by Leedy and Ormrod (2015), offer the following guidelines for selecting a sample size, which will be referred to by the symbol *N*:

- Where the population size, *N*, equals 100 or lesser, it's impractical to sample and surveying the entire population is recommended;
- Where the population size, *N*, is approximately 1 500, half the population should be sampled;

- Where the population size, *N*, is approximately 1 500, a fifth of the sample should be considered for sampling;
- If the population size, *N* equals 5 000, the population size is huge and sample size of minimum 400 can be used.

Laher (2016:320) states that “the assumption that ‘bigger is better’ applies most to the quantitative tradition in that this type of research seeks to generalize and predict, and as such, it can only do this if samples are large enough and from representative groups”. According to Zikmund *et al.* (2013:431), “increasing sample size reduces the sampling error”, while Brink et al., (2016:143) state that “the absolute size of the sample is more important than the sample size relative to the population size”.

4.6.4.1 Quantitative research

The current number of active lower-grade construction-based SMMEs in the Free State province registered in the CIDB category GB and CE is 6 327. Therefore, for a quantitative study, probability stratified sampling has been adopted with the primary sample size of 485 construction SMMEs participating in the quantitative survey questionnaire. The table 4.2 below demonstrates the biographical information of the research participants per District Municipality (DM).

Table 4.2: The biographical information of the research participants

Statement	Category	Number
Locality (District)	Lejweleputswa DM	93
	Thabo Mofutsanyana DM	87
	Xhariep DM	54
	Fezile Dabi DM	132
	Motheo DM	65
Number of years in construction	Less than two years	41
	2 – 3 years	108
	3 – 4 years	160
	4 – 5 years	122

Statement	Category	Number
Status in the organisation	Owner/Director	397
	Manager/Contracts Manager	22
	Site Agent	12
Gender	Male	235
	Female	196
Age category	18 to 35 years	218
	36 to 45 years	168
	46 to 55 years	38
	56 to 65 years	7
Ethnic group	African	422
	White	0
	Coloured	9
	Indian	0
	Asian	0
Highest qualification	Doctoral Degree	0
	Master's Degree	3
	Diploma/Bachelor's & Honours degree	79
	Trade or any technical school certificate	66
	Secondary School/Grade 12	272
	Primary school or no schooling	14
Years of experience in the construction industry	More than ten years	29
	Between five and ten years	54

Statement	Category	Number
	Between two and five years	305
	Less than two years	43
Professional body affiliation (candidate/ professional)	Engineering Council of South Africa (ECSA)	0
	South African Council for the Project and Construction Management Profession (SACPCMP)	0
	National Home Builders Regulatory Council (NHBRC)	92
	SAFCEC	0
	None	339
CIDB Grading	1CE	149
	1GB	246
	2CE	8
	2BG	8
	3CE	5
	3GB	5
	4CE	5
	4GB	5
Ever participated in the Construction Development Programme (CDP)	Yes	68
	No	363
Ever attended any training related to your business	Yes	87
	No	344

Source: Researchers' Compilation (2020).

The table below depicts the number of respondents per CIDB grade category, class of works, and percentage to demonstrate stratified sampling. Most of the participants fall within grade one, which is also the study's objective.

Table: 4.3 Respondents per Grade and Category of Works

Grade	Class		Number	Percentage
	CE	GB		
1	136	259	395	91.5
2	9	7	16	3.7
3	5	5	10	2.4
4	6	4	10	2.4
Total	156	275	431	100

Source: Researchers' Compilation (2020).

A self-administered questionnaire was sent via email and handed out in print format to 485 constructions-based SMMEs across four districts, including the CDP participants in the Free State province database. The probability stratified sampling method was selected after assessing the sampling methods for this study. This method was deemed most appropriate as it will increase the accuracy and the precision of the sample by ensuring that the SMMEs to be selected are formally registered in CE and GB classes of works, had existed between two and past five years, and that the owner or manager has sufficient knowledge and experience in the construction industry. See distribution in the table below.

Table 4.4: Distribution of participants per category, class, and sphere of government.

Grade	Class of Works and Spheres of Government				Number	Percentage
	Municipal		Provincial Departments			
	CE	GB	CE	GB		
1	58	121	91	161	431	89
2	8	8	3	10	29	6
3	3	3	2	2	10	2
4	5	4	4	2	15	3
Total	**74**	**136**	**100**	**175**	**485**	**100**

Source: Researchers' Compilation (2020).

Taherhoost (2017) states that the larger sample sizes reduce sampling error but at a decreasing rate. The next table below delineates the summary of the sampling methodology.

Table 4.5: Summary of sampling methodology

Population	Active owner-managers of lower-grade construction based SMMEs within CIDB grading of one to four in GB and CE class of works doing business in all Free State Province District Municipalities and two Provincial Departments, namely Public Works and Infrastructure and Police, Roads, and Transport.
Extent	Entire Free State Province Districts.
Sampling frame	To be drawn within the study population.
Sampling method and technique.	Probability stratified random sampling (quantitative).
Sample size	485 participants.

Source: Researchers' Compilation (2020).

After the research design, methodology, research approach, population, sample method, sample frame, and size have been determined, techniques for data collection will be considered for selection. Data collection methods must be considered to address both the research question and yield both qualitative and quantitative data. The following section explains the data collection process applicable on the current study.

4.7 QUANTITATIVE RESEARCH PROCESS

4.7.1 Data Collection and Research Instruments

Data should be understood to refer to “numerical (quantitative) and non-numerical (qualitative) information and evidence that have been carefully gathered according to rules or established procedures” (Neuman, 2014). Watkins and Gioia (2015) broadly define data collection methods as a set of intentional and planned procedures to collect a particular type and number of data sources that will be applied to address a research question. According to Joubert, Hartell and Lombard (2016:112), data collection can be defined “as the method that is used to obtain information for the specific purpose of a study”. Sutton and Austin (2016) conclude by postulating that any theoretical position the researcher is considering, and what the data collection method (e.g., focus group, one-to-one interviews), the process will absorb the creation of an extreme quantity of data.

Laher (2015) cites that researcher must describe the instrument and what it measures, describe the subscales and what they measure (if any), describe the response format and scoring procedures, and consist of some research on the reliability and validity of the instrument as discovered in the local perspective. Gray (2014:684) defines research instruments “as tools used to gather data as part of a research project, such as questionnaires, surveys, or observation schedules”. Methods used to measure each variable “are identified, developed, and standardized with considerable attention given to the validity and reliability of the measurement instruments” (Leedy & Ormrod, 2015:99).

The data collection procedures consist of setting limits for the study, gathering information through interviews, documents, and visual materials, and creating the

procedure for recording information (Creswell, 2014). Before data was collected, especially for construction SMMEs enrolled under Provincial Departments CDP, departmental project managers were requested to engage with interested SMMEs where they also referred others to participate in the study. In addition, emails detailing the purpose of the study and questionnaires were also forwarded to participants who fell within the study's scope and from interested SMMEs. The following subsections will discuss the research instruments used to gather information in this study in more detail.

4.7.2 Secondary Sources

Hair *et al.* (2016) defines secondary data as "data used for research that was not gathered directly and purposefully for the project under consideration" and assist in answering and addressing the research questions. Rathaba (2019:33) alludes that secondary data "complements primary data by providing supporting information that answers the research question of establishing the information needs of SMMEs".

According to Brown *et al.* (2018), secondary data has been previously collected to resolve a specific problem, while Joubert *et al.* (2016:112) cite that secondary data "can be found in textbooks, articles, magazines, newspapers, and on the internet".

4.7.3 Primary Sources

Burns and Bush (2017) delineate primary data as information obtained to gain specific information for a study. The present study adopted a quantitative approach with an anonymous self-administered questionnaire used to collect data. Burns *et al.* (2014) delineate a questionnaire as a printed document intended to draw out information that can be attained by means of the written responses of the research topic. Wiid and Diggines (2013) assume that a questionnaire is formed of a written list of questions, where respondents complete by putting the answers. A self-administered questionnaire with closed questions is completed by respondents themselves and can be personally handed to respondents or sent through post or email. "The questionnaires contain a set of questions with a set of pre-selected answers that respondents need to choose from" (Bryman *et al.,* 2017:191).

The questionnaires (Annexure A) were written in English only and prepared according to the aims, objectives, and literature review. In designing the questionnaire, Leedy *et al.* (2013) state that a high-quality questionnaire should include the following features:

- Questions should be as brief as possible.
- Questions should be easy to read, understand, and respond to.
- Simple and comprehensible instructions on how to undertake the questionnaire.
- The purpose of each question should be obvious to the respondent, especially when the subject matter is sensitive.
- Questions must not come across as being unnecessarily presumptive.
- Questions must be completely objective in that they must not give the respondent the impression that a specific answer is preferable over others.
- There must be built-in checks for consistency, for instance, by asking the same question repeatedly in different ways.

For this study, a total of 485 questionnaires were distributed in two ways, first via email with a brief introduction, ethical clearance from the University of the Free State, and the acquiescence to conduct the study and consent form was sent to chosen respondents. Secondly, questionnaires were physically distributed to both participants and enumerators while electronic mails were also utilized for remote participants. After that, the researcher contacted enumerators and some participants individually to confirm receipt of the questionnaire and reaffirm if they would be participating. In addition, they were briefly advised on the procedure to complete the questionnaires to enhance the study's internal validity, as it would limit questionnaires erroneously completed. Of the total of 485 disseminated questionnaires, a total of 431 questionnaires were completed and returned, representing a successful response rate of 89%. The participants had an option of completing an emailed set of questionnaires or completing the hard copy made available to the enumerators in their respective districts.

Before data collection, a pilot study was conducted to ensure that the questions in the different questionnaires were easily understandable and to determine the

average time needed by respondents to complete all seven sections of the questionnaires, including the demographics. All of the questionnaires collectively consisted of 78 questions. Six construction SMMEs residing in Mafube local municipality, all of whom have been in the business for over two years and are looking for business in the government sector, were approached to participate in the pilot study. All six construction SMMEs found the questions user-friendly, easy to understand, and it took them between 30 and 40 minutes to complete the entire set of questionnaires. Thus, it was established that 15 minutes would be appropriate to explain the purpose of the study to the construction SMMEs and for them to complete the questionnaires.

The data collection process took four months, i.e., from March 2020 to June 2020, and completed response datasets were considered when the respondent answered all the survey questions and submitted them. This period was chosen based on several factors:

- Ethical clearance from the UFS for conducting the study was only obtained on 14 February 2020 after applying on 7 December 2019.
- Remoteness of the Provincial Districts and its towns determined the schedule for appointment of enumerators, engagements of both government officials and the target group.
- Furthermore, the original study accommodated the qualitative focus groups interviews, but this was derailed or hindered by the national COVID-19 lockdown levels regulations that did not allow gatherings and participants adhered to cautionary measures pertaining to the pandemic.

Attached to the questionnaires was the approved UFS ethics cover letter and participants' consent form informing respondents about the study and what it intends to establish. Because of the lengthy nature of the questionnaire, sampled contractors were allowed ten (10) days to take the questionnaire home and complete it at their leisure.

After ten days, a follow-up was done through enumerators with all respondents to ascertain challenges. Others managed to comply with the given time frame, while the

majority took more than three months due to printing, email, and communication challenges because of national COVID-19 lockdown regulations. Table 4.3 displays the district or area of questionnaires distribution dates and receiving dates used for each research participant within this research.

Table 4.6 Chronological data-collection schedule

Data collection District	Date for distribution of questionnaires	Date questionnaires were received
FDDM	12-15/03/2020	22/06/2020
LDM	20-22/03/2020	25/06/2020
XDM	18/03/2020	24/04/2020
TMDM	18/03/2020	28/05/2020
Provincial Departments	11-20/03/2020	04/06/2020

Source: Researchers' Compilation (2020).

From a quantitative perspective, the objective of this study is to improve the sustainability of lower-grade construction-based SMMEs in the Free State province, and develop recommendations to support their business and to achieve this. Research respondents were requested to provide empirical data, which entailed the use of a questionnaire as a research instrument. The questionnaire was preferred for its advantages. It is less expensive and faster to administer, interviewer effects are minimized, there is no variability in the manner or order that questions are posed, and it is more expedient for respondents to complete. Therefore, respondents are more likely to act desirably socially Bryman *et al.* (2017). This study opted to use a questionnaire because it can be distributed to many people (Leedy & Ormrod, 2019); in this case, it is a pool of lower CIDB grades construction SMMEs in the Free State province. The entire data was captured after the intervention and transferred into SPSS 25 (Statistical Package for the Social Sciences) for analysis.

4.7.4 Structure of the Data Collection Instrument

To establish the validity of the data collection instrument, a brief summarization of the data collection instrument structure is necessary, as validity of different parts of the instrument were established through different means. The quantitative data

collection instrument used in this study was divided into seven sections, addressing the research questions from A to G.

The questionnaire consisted of seven sections:

Section A – Collected respondents' demographic information, including number of years in the industry, gender, position in the company, race, educational level, experience in the industry, any professional body affiliation, company CIDB grading, and whether they attended any training or participated in the Contractor Development Programme.

Section B – Respondents' general perceptions about the requirements for the sustainable construction industry, which comprised 14 statements such as relaxing legalities and laws restricting SMMEs' sustainability, adherence to ethical standards, and investment in Plant, Property & Equipment (PPE); to which they rated their responses by choosing from five scales of "strongly agree", "agree", "neutral" "disagree" or "strongly disagree" with the provided statements.

Section C - Respondents' general perceptions about the efficacy of Contractor Development Programmes (CDP) in South Africa, which comprised 13 statements such as CDPs being effective to firms, few SMMEs benefit/participate in the programme, and politically connected SMMEs are considered in the programme; to which they rated their responses by choosing from five scales of "strongly agree", "agree", "neutral" "disagree" or "strongly disagree" with the provided statements.

Section D - Respondents' general perceptions about the types and opportunities that exist for the lower-grades construction industry comprised 11 statements such as promotion of subcontracting or JV with other high grading companies, participation in CDPs, and opportunity to tender in all government spheres nationally; to which they rated their responses by choosing from five scales of "strongly agree", "agree", "neutral" "disagree" or "strongly disagree" with the provided statements.

Section E - Respondents' general perceptions about the primary resources for the lower-grade construction industry to be sustainable, which comprised 13 statements such as retaining good employees, capacitating employees, and investing in equipment; to which they rated their responses by choosing from five scales of

“strongly agree”, “agree”, “neutral” “disagree” or “strongly disagree” with the provided statements.

Section F - Respondents’ general perceptions about the entrepreneurial skills necessary for the lower-grade construction industry to be successful, which comprised 15 statements such as conflict resolution, time management, project management, critical thinking, and leadership skills; to which they rated their responses by choosing from five scales of “strongly agree”, “agree”, “neutral” “disagree” or “strongly disagree” with the provided statements.

Section G - Respondents’ general perceptions regarding barriers to sustainability to lower-grade construction-based SMMEs in the Free State province, which comprised 15 statements such as government regulations, political influence in awarding contracts, lack of industry experience, competition, and late payment of invoices by government; to which they rated their responses by choosing from five scales of “strongly agree”, “agree”, “neutral” “disagree” or “strongly disagree” with the provided statements.

4.7.5 Pre-testing Instrument

Leedy and Ormrod (2015:169) cite that pre-testing “involves testing research instruments to ensure that questions are straightforward and solicit the desired information before conducting the study”. In addition, according to Creswell and Creswell (2018), pre-testing instruments are essential for establishing the content validity of scores on an instrument and evaluating the internal consistency of items. Therefore, conducting pre-test tests permits the researcher to make needed amendment and changes in the instruments.

Pre-testing the data collection instruments was conducted within four days between 5 and 8 March 2020. To ensure and confirm content validity, the researcher used pretesting of the questionnaire by randomly selecting three CIDB registered contractors in both one CE and GB, two in grade two CE and one in grade two GB categories, and requested their participation in responding to the questionnaires. They respondents were requested to present comments on the clarity of questions, the structure of the questionnaire and the logical flow of the questions. The

questionnaire was subsequently amended to incorporate the comments deemed relevant. Once the questionnaire was finalised, the group was also asked to specify how long it took to complete the questionnaire and express views on the clarity of questions, the structure of the questionnaire and the logical flow of the questions.

4.8 VALIDITY AND RELIABILITY

Bryman and Bell (2015:49) cite that both validity and reliability "are the most prominent criteria for evaluating a study". Leedy and Ormrod (2019:103) further reiterate that validity and reliability "are crucial components in any research study which seek to ensure the study's findings are credible". Leedy and Ormrod (2015:99) posit that reliability and validity "play a central role in quantitative research; therefore, data are often collected from a large sample that is presumed to represent a particular population so that generalizations can be made about the population".

In this study, the value of the research findings will be ensured by addressing the issues of both reliability and validity by questions asked in the questionnaire. Research instruments will be pilot-tested to increase validity and questions will be constructed concisely to avoid ambiguity. Both validity and reliability will be discussed below.

4.8.1 Validity of Quantitative Data

Edmonds and Kennedy (2017) refer to validity as the relevance, correctness, significance, and utility of the interpretations that were made by researchers, which were based on the data collected, and whether a study explained what it claimed. Babbie (2016) further classify validity as the degree to which an experimental measure sufficiently reveals the actual meaning of the perception under consideration.

According to Leedy and Ormrod (2015:115), "the validity of a measurement instrument can take several forms, each of which is important in different situations":

a. Face validity is the degree to which, on the surface, an instrument looks like it measures a particular characteristic. Face validity is often helpful in ensuring the cooperation of people who are participating in a research study.
b. Content validity is the degree to which a measurement instrument stands for a sample of the content area being measured. Content validity is often a consideration when a researcher wants to assess people's achievements in some area. Jordaan (2019) articulates content validity as belongings of the scores achieved by an instrument, not of the instrument itself, so that validity should be established anew for each study where the instrument is used. The same author further explains that establishing content validity begins during the design of the instrument. The use of previously validated instruments would contribute to content validity but would not guarantee it, and therefore, validity should be established again during a study.
c. Criterion validity is the degree whereby the results of an evaluation instrument connect with another seemingly related measure.
d. Construct validity is the degree whereby an instrument measures a characteristic that is indirectly observed, but is thought to exist based on people's conduct patterns. Brynard *et al.* (2014) add that construct validity refers to the degree to which a measurement technique reveals the information it was intended to reveal.

4.8.2 Reliability of Quantitative Data

According to McMillan and Schumacher (2014), reliability relates to the reliability of a measure, the degree whereby the results are close to the same each time a participant completes the same instrument. Bryman *et al.* (2017) refer to reliability as how research methods generate reliable and constant results. In other words, is when a test produces the same frequent result under the same condition. Leedy and Ormrod (2019) share a similar view that reliability is related to how an instrument consistently yields the same results when the entity being assessed has not changed. Creswell and Creswell (2018) accentuate that reliability related to consistency and repeatability in the results using the same methodology on more than one occasion, across diverse but related test items or by different respondents.

A reliable instrument would produce the same results when retested amongst the similar population. The origin of reliability is that an observed score in any item is the sum of the true score and an error (Jordaan, 2019).

4.9 DATA ANALYSIS

Leedy and Ormrod (2015) describe data analysis as the breaking down of data into essential parts to simply interpret and answer research questions or test hypotheses. This process entails utilizing logical techniques to both quantitative and qualitative data and incorporating the two forms of data to assess how the information addresses the study's research questions (Creswell & Plano Clark, 2018).

According to Phaswana (2020), data analysis consists of changing, breaking down, numerical exhibition and cleaning to maintain data integrity, to support the study's aim and decision-making. The same author further states that data analysis involves scrutinizing the collected information and reaching specific interpretations, suppositions, and understandings. Flick (2014:370) pronounces the high point that data analysis "an aim to make is a statement concerning implicit and explicit aspects and constructions of meaning-making from the data collected".

The quantitative data from questionnaires were first coded and grouped according to the study's critical questions in Microsoft Excel. With the help of a statistician from the Central University of Technology (CUT) in Bloemfontein campus, this data was then imported into the SPSS version 25 to interpret the data.

4.10 ETHICAL CONSIDERATIONS

According to Babbie and Mouton (2012), ethics indicates adhering to the standards of behavior of a provided profession or group. Lichtman (2014) describes ethics as doing the right thing and treating participants fairly, while Bertram and Christiansen (2014) add that ethics has to do with behavior considered right or wrong. Rubin and Babbie (2016) maintain that ethics is a matter associated with morality and ethical guidelines serve as a standard which forms the basis for the research to evaluate one's conduct.

In this study, written ethical clearance was obtained from the University of the Free State's General Human Research Ethics Committee (See Annexure C attached) for approval for the researcher to conduct the research. Creswell and Poth (2018) posit that any research project undertaken desires to consider ethical issues that may occur during the research process, and appropriate steps or plans need to be taken to mitigate the potential ethical matters.

Since this study used a quantitative design research method to adhere to an ethical code of conduct and to remain competent in his conduct, all ethical standards for this research were observed, and privacy and anonymity were maintained when reporting or publishing the study. Additionally, the respondents were well-versed about the objective of the study and the processes applied to gather the data. The following ethical aspects were taken into account in ensuring respect for human dignity whilst conducting the research: obtaining informed consent; the concern of confidentiality and anonymity; and protection of respondents from harm.

4.10.1 Informed Consent

Parahoo (2014:258) declares that informed consent is also grounded on the ethical principle of autonomy in that "it encompasses the notion of being a self-governing person with decision-making capacity". Creswell (2016:103) maintains that social research participation must be voluntary and that it is essential for subjects to know what they are being asked to be able to give informed consent. According to (Neuman, 2014:151), participants must be aware that they can pull out from the research at any time as their participation is voluntary.

Respondents were informed that participating in the study was voluntary and that no participant was obliged to participate. They were further informed that they have the right to withdraw and are free to discontinue the research should they feel uncomfortable continuing to be part of the study without consequences of any kind. The participants were also offered a copy of an Ethical Clearance Certificate from the UFS, together with the questionnaire, before signing the consent form (See attached Annexure B).

In this study, a transparent research process was presented to the participants. Contact details of the researcher, the promoters, the aim of the research, reasons, and potential benefits for participating in the study, and the participants' rights (Annexure A) were provided in writing and attached to questionnaires.

4.10.2 Confidentiality and Anonymity

According to Liamputtong (2013), the purpose of confidentiality is to hide the real character of the participants. Creswell (2014) maintains that researchers need to guard their research participants. The researcher explained to the participants how the information would be stored, reassurance was given to the participants about the anonymity of the data, and that the data would be accessed only by the researcher, the supervisor, and the translator involved in the research. Data were collected for the study with the consent of the participants, with findings to be compiled, reported on and published without divulging details or information referred to.

4.10.3 Protection of Respondents from Harm

Because participants' harm and discomfort can be emotional, physical, spiritual, or social, the study conducted the research process with the utmost sensitivity. It allowed participants to complete, scan, email or their questionnaires in person to area enumerators at their convenience. In addition, the researcher ensured that the respondents were not subjected to any physical or emotional harm by informing respondents beforehand about the potential impact of the investigation.

4.11 CONCLUSION

In conclusion, chapter four provided an overview of the research approach and practical implementation of this research study. The research aims and objectives were determined. The chosen research design was examined, the process of selecting a research method was described, and quantitative methodology with the questionnaires as a research instrument used by enumerators to collect primary data was applied. The sampling strategy that was used was described, and validity and reliability, have been defined and discussed. An explanation of the methods and approaches used to collect, analyze, and interpret the research findings (descriptive analysis approach) was also discussed.

The chapter concluded with a discussion about the ethical considerations involved in the research. In the next chapter, the results of the empirical research will be presented and discussed.

CHAPTER 5: PRESENTATION, ANALYSIS AND INTERPRETATION OF RESULTS

5.1 INTRODUCTION

The South African construction industry has been deteriorating for the past four years. This decline is attributed to a few macro and market factors, of which the economic slowdown is the most critical instigator. The negative impact will persist as the industry continues to be struck by the impact of the high national debt, labour shortages, and little infrastructure spending amid a depressed economy. Furthermore, during 2020, the COVID-19 outbreak contributed further to the decline in the construction industry because of specific periods of strict lockdown. All the mentioned factors, amongst others, have an impact on the sustainability of each construction SMME.

This chapter will focus now on the presentation of the data, the data analysis, and the interpretation of the research results of the data gathered from lower-grade construction-based SMME's in the FS province. The statistical analysis focused on the realised sample of 431 respondents who completed the questionnaire as the primary tool used to collect data.

Second, the demographics of respondents including district representation (location), number of years in construction, status in the organisation, their gender, age category, ethnic group, highest qualification, numbers of years' experience in the construction industry, professional affiliation, Construction Industry Development Board grading, participation in Construction Development Programme, and relevant business training are illustrated in the form of tables, pie charts and bar graphs.

Third, descriptive analysis tests were conducted to display the position of the data collected. Finally, a chapter conclusion is provided to consolidate points and provide an overarching view of the chapter. The set of questionnaires distributed to respondents were consisted of the following sections (See attached Annexure A for the complete set of questionnaires):

- Section A: Respondents' demographic information (seven questions);

- Section B: Respondents' general perceptions about the requirements for the sustainable construction industry (14 statements);
- Section C: Respondents' general perceptions about the efficacy of Contractor Development Programmes (CDP) in South Africa (13 statements);
- Section D: Respondents' general perceptions about the types and opportunities that exist for the lower-grades construction industry (11 statements);
- Section E: Respondents' general perceptions about the primary resources for the lower-grade construction industry to be sustainable (13 statements);
- Section F: Respondents' general perceptions about the entrepreneurial skills necessary for the lower-grade construction industry to be thriving (15 statements); and
- Section G: Respondents' general perceptions of barriers to sustainability to lower-grade construction-based SMMEs in the Free State province (15 statements).

Section B to G responses, which seek responses from list of secondary objectives as pointed out in chapter one, were measured on a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5).

5.2 DESCRIPTIVE ANALYSIS

Descriptive statistics "enable the researcher to present the data more meaningfully through numerical calculations, graphs, or tables, which allows for a simpler interpretation of the data" (McMillan & Schumacher, 2014:163). The most appropriate results are discussed in detail below and, where relevant, are presented in tabular and graphic format.

5.3 ANALYSIS OF SECTION A OF THE QUESTIONNAIRE

Section A of the questionnaire was constrained to seven questions regarding the participants' biographical information.

5.3.1 Response Rate

The structured sustainability of lower-grade construction-based SMMEs in the Free State province questionnaire, distributed to participants in both hard copies and via

emails, resulted in 431 questionnaires returned. The approximate sample size was made of 485 participants in all five Free State province district municipalities. Out of total 485 questionnaires distributed to participants, thirty-eight questionnaires were never returned, while 16 were incomplete; hence, the study achieved a response rate of 89%, which is considered acceptable. The sample size was calculated following the guidelines by Gay, Mills, and Airasian as cited by Leedy and Ormond (2015), which states that for a population size of over 5000, a sample size of 400 is adequate.

Mugenda and Mugenda, as cited by Oromo and Mwangangi (2017:49), contend that a 50% response rate is tolerable for reporting and analysis, a 60% response rate is respectable, while a 70% and above response rate is exceptional. With a 92.7% response rate, this study recorded an excellent response rate in terms of the above declaration and is, thus, a representative and acceptable rate for the conclusions in this study. The data was captured in the SPSS version 25 to analyze the quantitative data and present it in the form of tables and pie charts.

5.3.2 Demographics

The respondent's demographic information was captured in Section A of the structured questionnaire (see Annexure A). The data captured included several years in the industry, gender, position in the company, race, educational level, and experience in the industry, any professional body affiliation, company CIDB grading, and whether respondents attended any training or participated in the Contractor Development Programme.

5.3.3 Locality

Most of the respondents were from Fezile Dabi, with 133 respondents (30.7%) due to many CDP contractors residing in that district. It was followed by the LDM,TMDM, Motheo District (MDM) and XDM with 93 (21.6%), 87 (20.2%), 65 (15.1%), and 54 (12.5%) respondents respectively. A minority of the respondents emanated from the Xhariep District in only two municipalities, Letsemeng and Kopanong, due to the limited number of construction SMMEs participating in the sample.

Figure 5.1 below presents the frequency and percentages of the various districts in which the respondents were based.

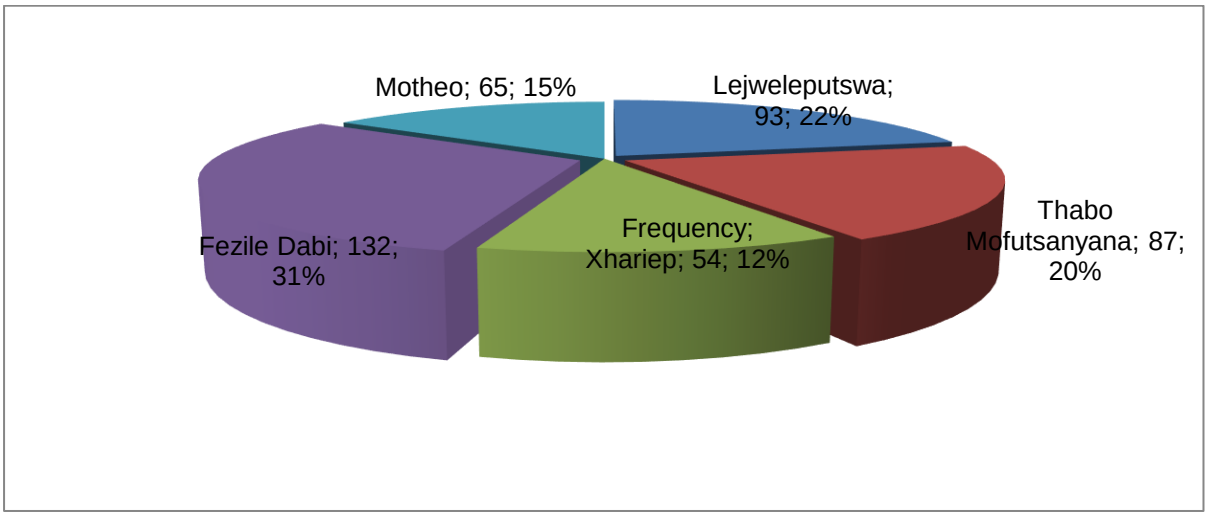


Figure 5.1 District Representations of Respondents

5.3.4 Number of Years in the Construction Industry

In this study, a closer analysis indicates that 160 (37.1%) respondents had between three to four years of relevant experience in the construction industry. The CIDB (2011) determined that to operate in the construction industry, the minimum experience of three (3) years for CIDB registered companies possessing grading of between two and four in Civil Engineering and General Building classes of work is compulsory. Based on this minimum determination by the CIDB, one can conclude that most of the respondents had experience in the industry. It was followed by 122 (28.3%) respondents in possession of experience between four to five years; the expectation can then be drawn that these SMMEs would have acquired a wealth of experience and skills to run their organizations effectively. Fourth-ranked was 108 respondents (25.1%) with two to three years of experience. Finally, there were41 (9.5%) respondents below two years of experience in the construction industry.

Figure 5.2 presents the frequency and percentages of the respondents' years of experience in the construction industry.

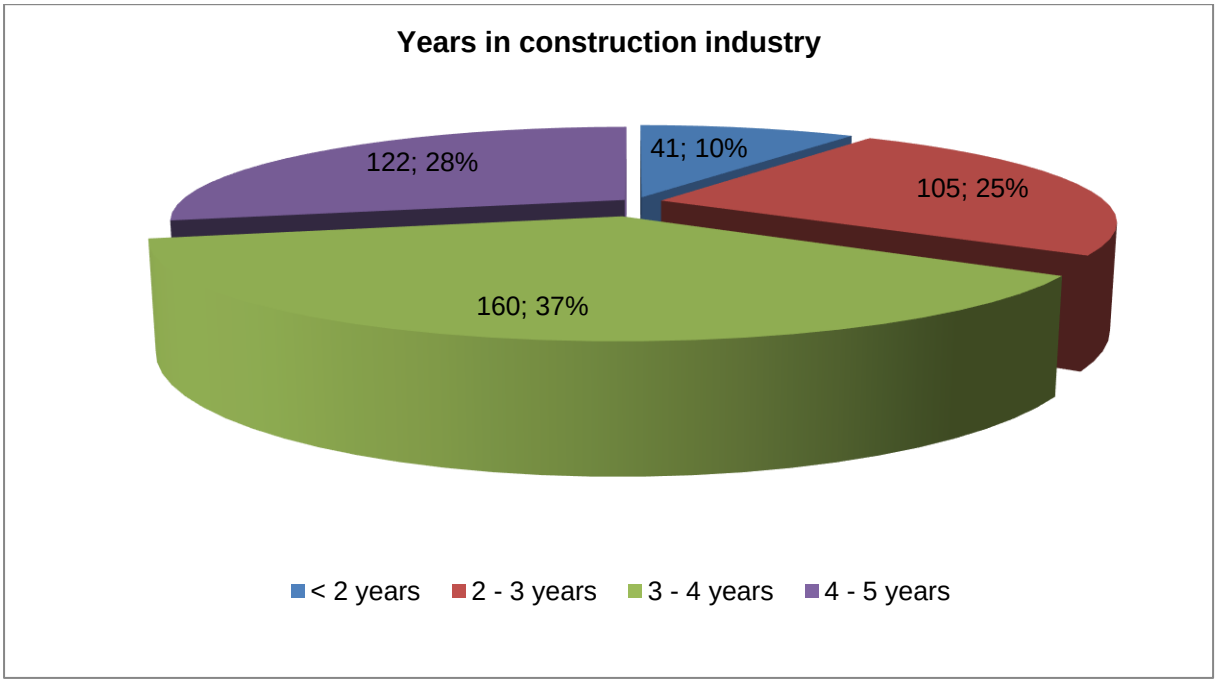


Figure 5.2: Number of years in the construction industry

5.3.5 Status in the organisation

Status in the organisation refers to the position of the respondent, which in this study was predominantly made up of 397 (92.1%) owners or directors of the companies, followed by managers or contracts managers at 22 (5.1%) responding on behalf of the company, and the least of respondents being site agents at 12 (2.8%) of the total study sample.

Figure 5.3 presents the frequency and percentages of the respondents' status or ownership positions in the construction industry.

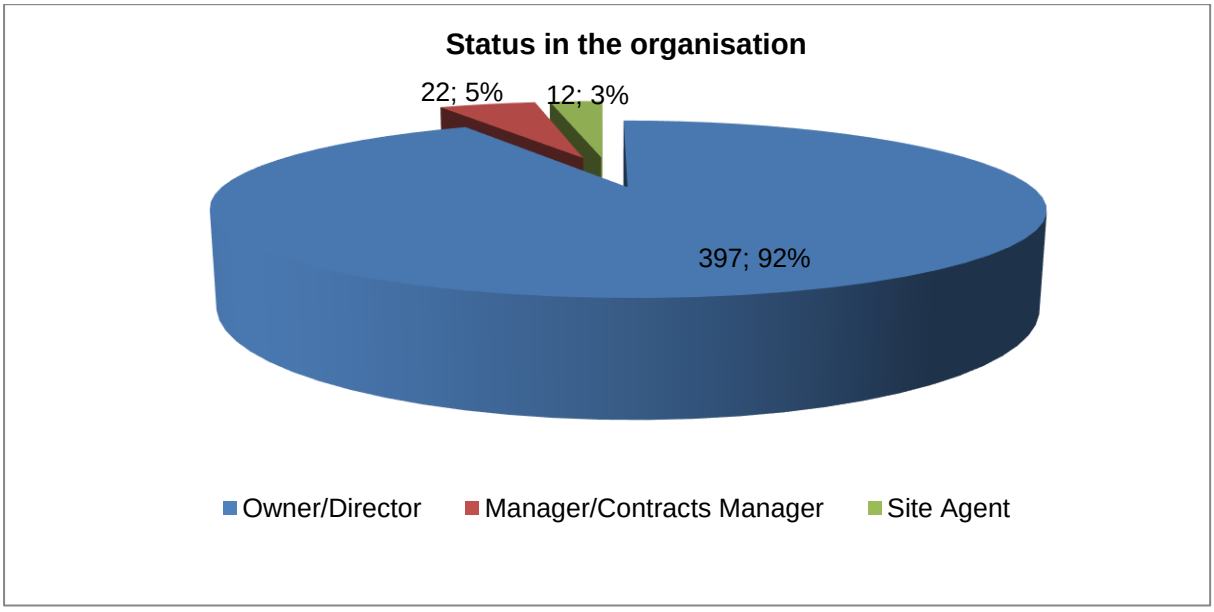


Figure 5.3: Status in the organisation

5.3.6 Gender

Figure 5.4 shows the rationale for gender information; the delineated data indicates that gender comprises 235 (54.5%) males and a relatively low participation rate of 196 (45.5%) female respondents in this study. As the percentages show, the male respondents outnumbered the female respondents, which is true considering the industry is male-dominant. The frequency and percentages of the respondents gender status is depicted on Figure 5.4 below.

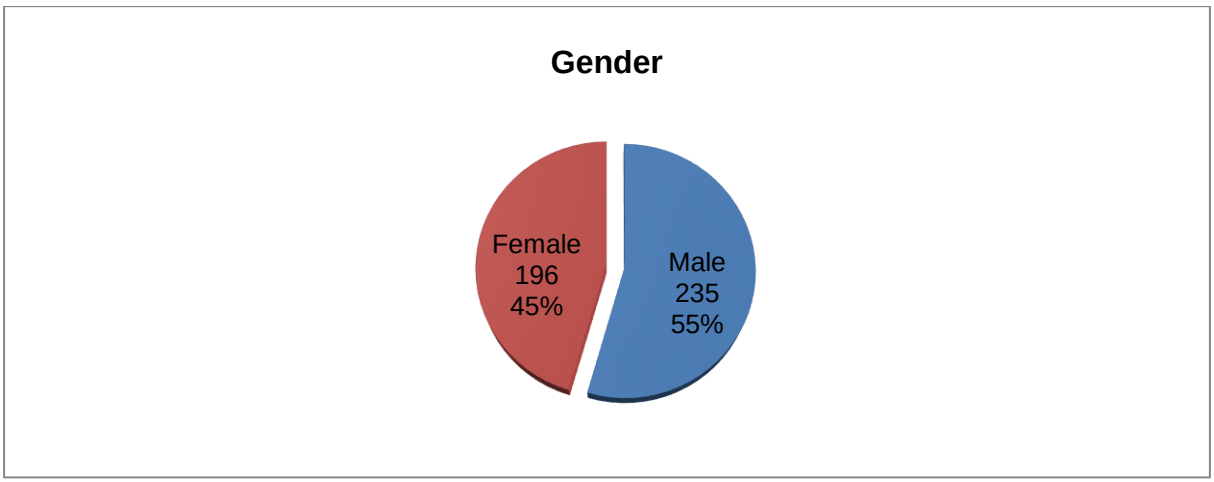


Figure 5.4: Gender Distribution

5.3.7 Age Category

This study includes diverse participants from youths, adults, and older individuals, ranging from 21 to 55 years. According to Bosma, Hill, Ionescu-Somers, Kelley, Levie and Tarnawa (2020), the influence of age on entrepreneurial activity is consistent over time and similar throughout the Global Entrepreneurship Monitor (GEM) global research network, with the highest predominance of entrepreneurial activity being in the midst of individuals aged 25 to 34 years and 35 to 44 years, across all three business development phases. Figure 5.5 confirms this, as it reflects the age distribution of the participants. It was found that the sample primarily consists of 218 participants (50.6%) who fell under the youth age category of between 18 and 35 years old; followed by the age bracket of 36 to 45 years with 168 respondents (39.0%); thirdly, the age category of between 46 to 55 years with 38 respondents (8.8%), and lastly few of respondents were adults aged between 56 to 65 years represented by only seven respondents at 1.6%. Because almost 90% of respondents are below 45 years of age, they are presumed mature, have a high probability of being responsible, and are sufficiently experienced in the industry. The frequency and percentages allocation as per respondents' age categories are depicted in the Figure 5.5 below.

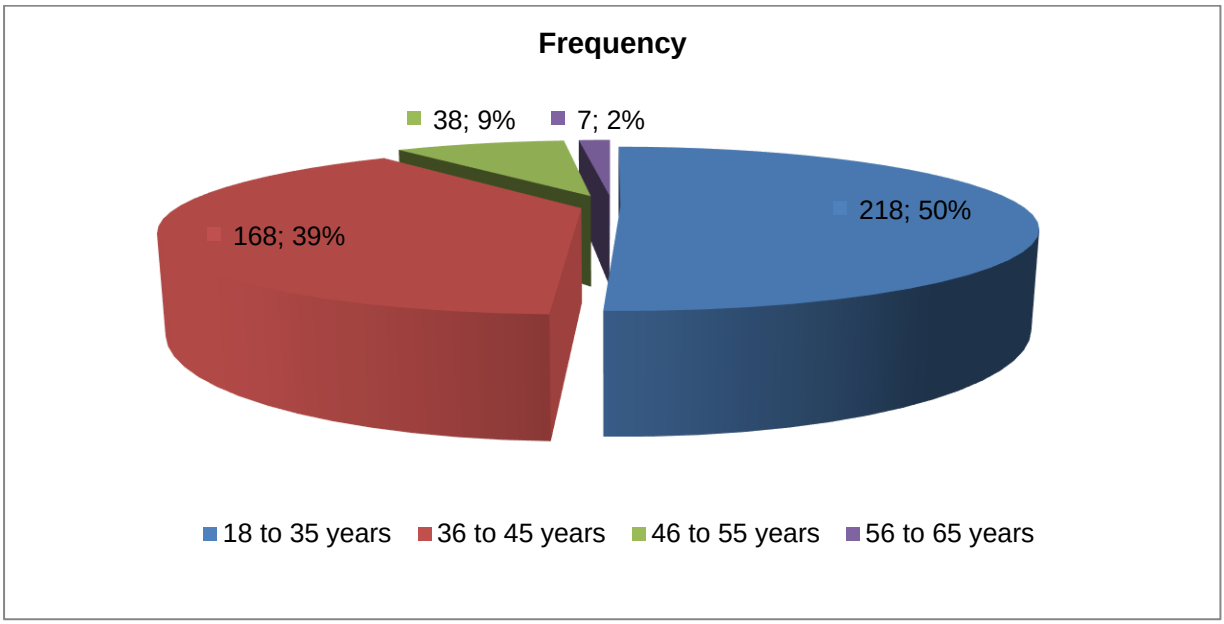


Figure 5.5: Age category

5.3.8 Ethnic Group

Five of the main ethnic groups of respondents, as indicated in Figure 5.6, found in the South African workplace, are African, White, Coloured, Indian, and Asian, as grouped in the study sample. The African or Black ethnicity respondents dominated the sample, as they also represent the majority of the country's population, numbering 422 (97.9%), followed by Coloureds with only nine respondents representing 2.1% of the overall study. Three ethnic groups namely Indians, Whites, and Asians were not represented at all in the study while it was demonstrated that the predominant ethic group were historically disadvantaged individuals. The frequency and percentages allocation as per respondents' ethnic groups are depicted in the Figure 5.6 below.

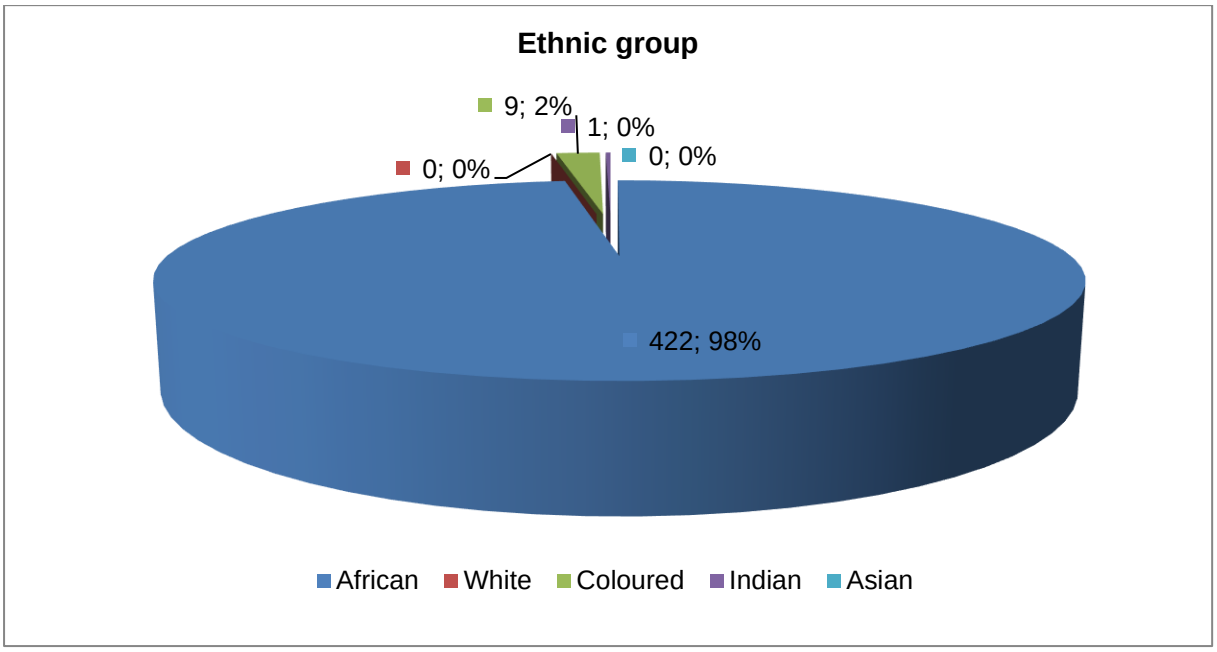


Figure 5.6 Ethnic group

5.3.9 Education

Education, specifically entrepreneurial education, is a foundation requirement for starting a business and succeeding as an entrepreneur, and Global Entrepreneurial Monitor's (GEM's) research has repeatedly shown that the higher their level of education, the higher the possibility of the entrepreneur is to start a business and for the business to develop and thrive (Bowmaker-Falconer & Herrington, 2019). Mudhenge (2018) also cites that the lack of education of the key members, i.e.,

owners and managers, of the emerging contractor, represents another external barrier to development. Based on the above statement, one can conclude that the level of education of a business owner/manager impacts the overall performance or sustainability of a business. Concerning the education demographics, the participants held diverse levels of education, with the majority (272 or 63.1%) of respondents having secondary or grade 12 certificates.

It is followed by a national diploma or bachelor's and honours degree holders with 79 (18.3%) respondents. Trade or any technical school certificate holders ranked third with 66 (15.3%) respondents. A total of 14 (3.2%) respondents represent those with secondary school or no schooling at all while less than one percent (0.7%) of only three respondents had a master's degree. As for a doctoral degree, not a single respondent possessed such a qualification. The frequency and percentages allocation as per respondents' age categories educational backgrounds are depicted in the Figure 5.7 below.

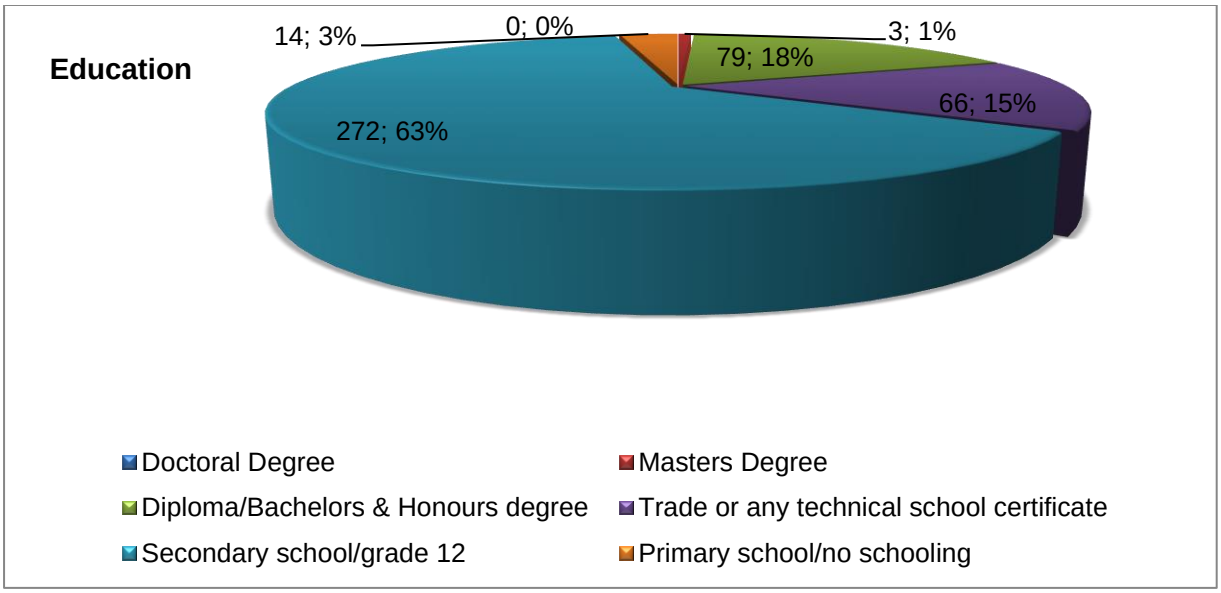


Figure 5.7 Education

5.3.10 Respondents Years of Experience in the Construction Industry

In this study, the highest number of respondents with 305 (70.8%) relevant experience in the construction industry had between two-and five-year' experience. It might be due to congestion in the lower-grade, specifically grade one, and high entry in the construction industry. It was followed by 54 (12.5%) respondents with more

than five years but less than ten years' experience. Finally, few respondents 29 (6.7%) had more than ten years of relevant experience in the construction industry. The CIDB (2011c) determined the minimum experience of three (3) years for companies with CIDB grading of between two and four in General Building (GB) and Civil Engineering (CE) classes of work to operate in the construction industry.

The frequency and percentages allocation as per respondents' number of years' experience in the construction industry are depicted in the Figure 5.8 below.

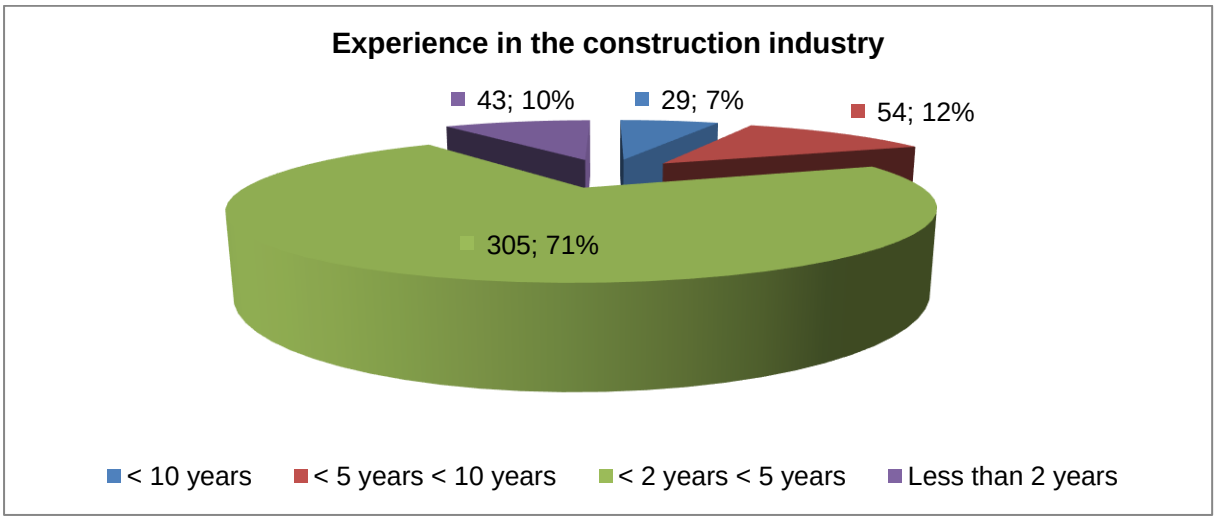


Figure 5.8 Respondents number of years in the Construction Industry

5.3.11 Any Professional Body Affiliation either as a Candidate or Professional

Table 5.1 shows the respondents' affiliation to any South African registered professional body relevant to the construction industry. Only 92 (21.3%) of respondents in the study had professional body registrations with the statutory body within the built environment in South Africa, which is known as National Home Builders Regulation Council (NHBRC). The National Home Builders Registration Council (NHBRC) is a regulatory structure of the home building sector to preserve the interests of housing clients and by ensuring that building companies conform to the prescribed building sector values. This means that only 92 (21.3%) of the respondents are registered and certified by the NHBRC as they meet the prescribed industry standards criteria in terms of technical competence, construction experience and financial capability. These norms are part of the bidding process functionality criteria used for selection of bidders.

At the same time, the remaining 339 (78.7%) are not registered with any of the listed construction or engineering professional body affiliations. None of the respondents are professionally registered with bodies such as the Engineering Council of South Africa (ECSA), South African Council for the Project and Construction Management Professions (SACPCMP) and South African Forum of Civil Engineering Contractors (SAFCEC). It shows that most SMME contractors do not have any proclivity to become professionally registered at this stage due to limited qualified personnel in their business structure, as most are starters and such bodies require an annual subscription to keep membership active, which might be the hindering factor.

Table 5.1 Professional body affiliation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NHBRC	92	21.3	21.3	21.3
	None	339	78.7	78.7	100.0
	Total	431	100.0	100.0	

5.3.12 CIDB grading

The Construction Industry Development Board (CIDB) was formed by Act 38 of 2000 to ease and advance the improved contribution of the construction industry to SA's economy and society. Amongst others, the CIDB promotes equality in construction procurement, efficient and effective infrastructure delivery; construction industry performance improvement; and industry transformation and skills development (CIDB, 2004).

In this study, under General Building (GB) class of works, grade one had a greater number of respondents recording 246 (57.1%) due to most participants are doing business with the provincial department, mainly constructing low-income houses, that is Reconstruction and Development Programme (RDP). This number was followed by 149 (34.6%) recorded in the grade one Civil Engineering and mostly looking for work in the local government. The two categories alone contribute approximately 92% of the study population, proving that most companies are congested in the grade one categories. The remaining grades two to four in both

categories share approximately 8% of the study population's years of experience in the construction industry.

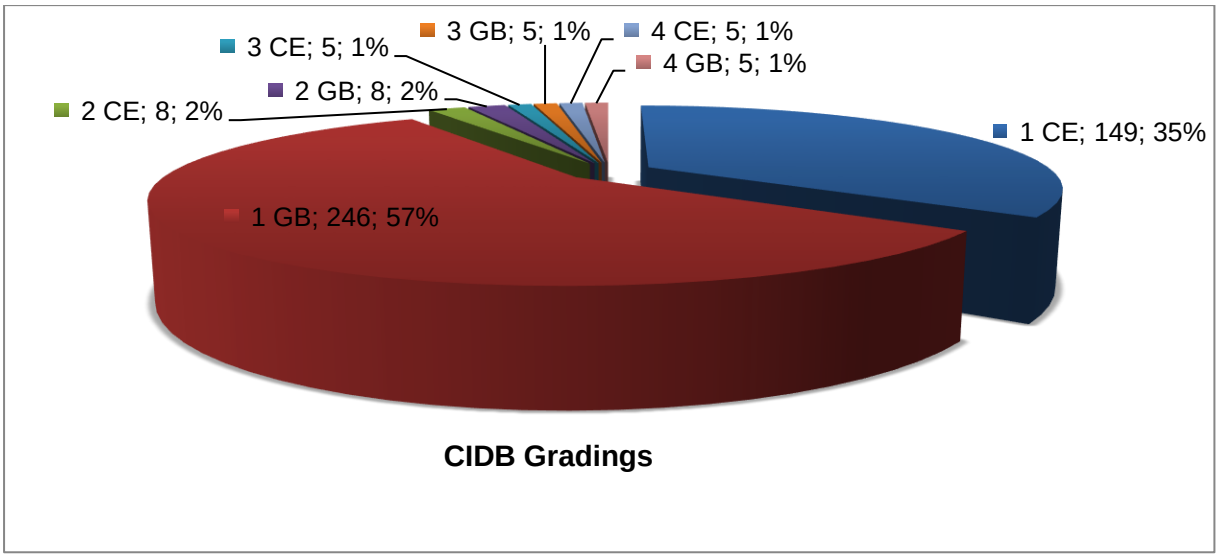


Figure 5.9 CIDB Gradings

5.3.13 Participation in the Construction Development Programme (CDP)

A Contractor Development Programme (CDP) is described within the National Contractor Development Programme (NCDP) as a body created to present developmental support to contractors. Contractors who participate within CDPs obtain structured developmental support, which is aimed at accomplishing prearranged developmental goals. The Construction Industry Development Board (CIDB) describes CDP as a premeditated and administered procedure to attain targeted developmental results that advance contractor grading status; performance and quality; and equity, and targeted ownership. Several government institutions and construction industry stakeholders also offer CDPs to strengthen and provide skill to the emerging contractors (CIDB: 2011b).

Figure 5.9 below reflects the rationale for respondents' participation in the CDP information; it indicates that in this study, only 71 (16.5%) of participants attended the CDP and were outnumbered by their counterparts at 360 (83.5%) of the total respondents.

Figure 5.9 presents the frequency and percentages of the respondents for participation in the CDP.

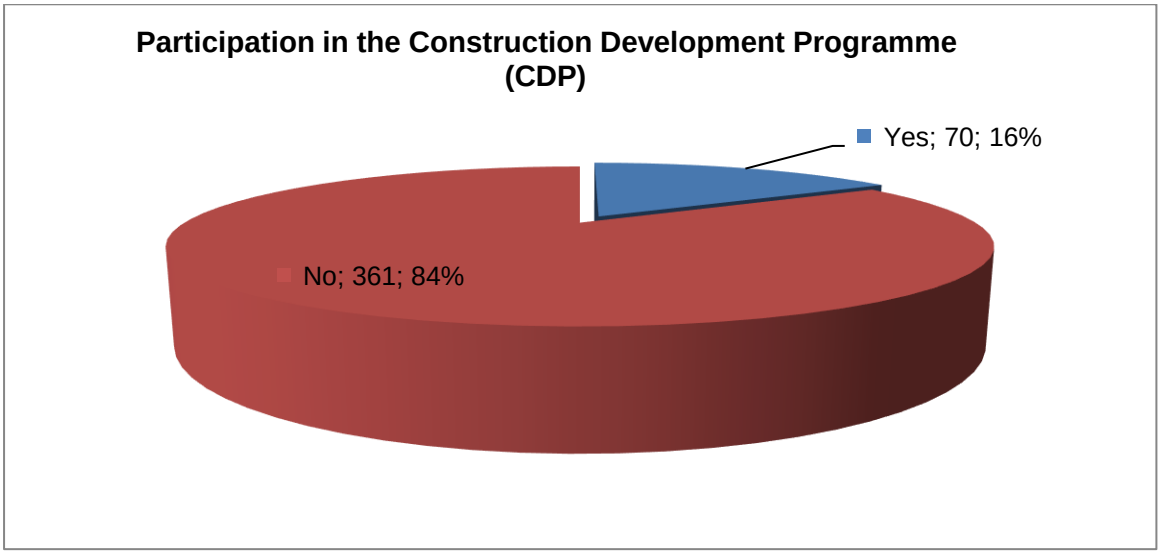


Figure 5.10 Participation in the Construction Development Programme (CDP)

5.3.14 Training Related to the Construction Business

Figure 5.11 below reveals the business-related training attended by the construction SMMEs; it indicates that only 91 (21.1%) participants attended the training to help them improve their business and were outnumbered by their counterparts at 340 (78.9%) of the total respondents.

Figure 5.11 present the frequency and percentages of business-related training attended by the respondents.

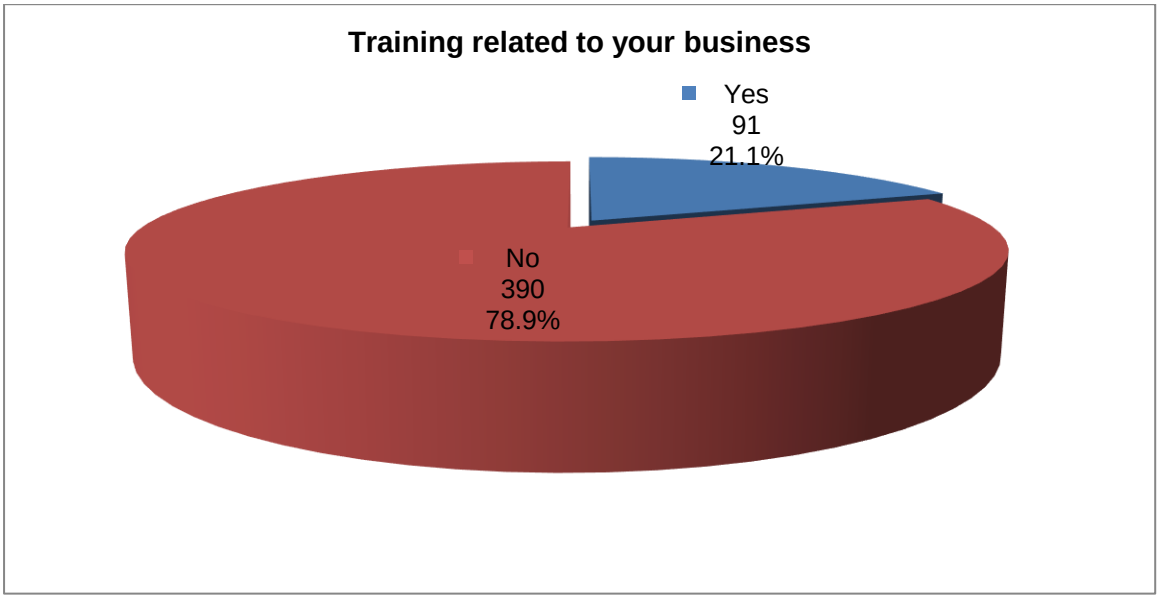


Figure 5.11: Training related to your business

5.4 STATISTICAL DATA ANALYSIS

There are many methods to collect primary data. In this study, questionnaires were used as the primary and exclusively method for gathering the required data from respondents. Section B of the questionnaire contained fourteen statements posed to respondents to get their views on the sustainable construction industry requirements. A 5-point Likert scale determined to what extent the respondents agreed with the given statements, namely 1- Strongly disagrees, 2- Disagrees, 3-Neutral, 4- Agrees and 5- Strongly agrees. After data collection, the information was captured onto the relevant Excel sheet and then sent to the statistician to calculate descriptive statistical analysis.

5.4.1 Findings on Requirements for the Sustainable Construction Industry

The factors determined through the literature review and that were asked in the questionnaire were now analyzed and ranked according to their mean item scores and standard deviations. A 5-point Likert type scale was adopted to establish the sustainability of lower-grade construction based SMMEs in the Free State province. The adopted scale is therefore further defined as follows, 1 denoting strongly

disagreement; 2 = disagree; 3 = neutral view; 4 = agree and 5 denoting strong agreement.

Table 5.2 Requirements for the sustainable construction industry

Statement	N	Mean	STD	Ranking
B2) Government's immediate acting and imposing of harsh penalties against corrupt activities within the construction industry.	431	4.75	0.60	1
B6) Construction companies must adhere to the highest ethical standards in business.	431	4.71	0.50	2
B5) National blacklisting of contractors that fail to complete projects and provide poor workmanship.	431	4.70	0.52	3
B11) Companies must reinvest their portion of profits back into the business.	431	4.68	0.57	4
B12) Companies that consider joint ventures with other higher grading companies gain valuable experience and remain sustainable and competitive.	431	4.66	0.51	5
B3) Government's consideration to open a bank that would fund SMMEs in the construction industry.	431	4.60	0.86	6
B8) Investment in construction Property, Plant and Equipment (PPE) to minimize hiring of plant equipment contributes to the sustainability of the business.	431	4.57	0.65	7
B10) Application of lean construction methods and innovative ways enhance the business' sustainability.	431	4.53	0.61	8
B9) Financial cash flow and efficient use and management of resources enhance the business' sustainability.	431	4.38	0.54	9
B13) Good interpersonal, verbal, and written	431	4.28	0.47	10

communication skills are vital towards building a viable and sustainable SMME.				
B7) Recruitment and retention of competent and experienced personnel increases productivity and success, and sustainability of the SMMEs.	431	4.26	0.61	11
B1) Government regulations will promote competitiveness and ensure the sustainability of the industry.	431	4.02	0.85	12
B14) Consistent good entrepreneurship and leadership skills influence good management practice and hence an improvement of SMME performance.	431	4.01	0.72	13
B4) Government to consider relaxing laws (business and commercial) limiting SMMEs sustainability.	431	3.91	1.20	14

Table 5.2 above shows a scale of 1 to 5, emanating from using a 5-point Likert scale questionnaire, whereby participants were requested to indicate their level of agreement with the statement about the most significant general perceptions about the requirements for the sustainable construction industry. Since several authors have mentioned in previous chapters that the failure rate amongst the SMMEs in the early stages is very high, the purpose was to obtain participants' views about what factors can contribute to the improvement and sustainability of the construction industry.

A study by Tshikhudo *et al.,* (2015) revealed that those SMMEs emerging without skills, resources, or management skills are bound to fail and their failure due to lack of necessary skills is linked with the fact that many obtain opportunities through corrupt means. Creamer Media Reporter (2020) cited that in South Africa, we had seen abundant proof of these corrupt activities with examples of contracts being awarded for political gain, nepotism, abominably exorbitant costs, and deliberate meddling in the tender award procedures. Most respondents agree that to sustain the

industry, the government must act immediately by imposing harsh penalties against corrupt activities within the construction industry, and led with a mean item score (MIS) of 4.75 and a standard deviation (SD) of 0.60. However, despite many respondents agreeing that corruption is a significant problem, the government has been slow in acting against corruption in the industry. It can be corroborated by the fact that, during the construction of FIFA World Cup stadiums in South Africa, numerous constructions firms, including Grinaker-LTA, Wilson Bayly Holmes-Ovcon (WBHO), Murray & Roberts, Group Five, Concor, Basil Read, and Stefanutti, were convicted by the Competition Commission following its investigation into a conspiracy in the construction sector. The first tranche of settlement was dominated by Aveng, Murray & Roberts, WBHO, and Stefanutti, which incurred a penalty of more than R300-million each, including Basil Read, which was fined R95-million (Mail & Guardian, 2015).

The respondents' view that construction companies must adhere to the highest ethical standards in business was ranked second, holding mean item score of 4.71 and the standard deviation of 0.50. They are also of the view that contractors that fail to complete projects and provide poor workmanship must be nationally blacklisted, and the perception was ranked third, by mean item score and standard deviation of 4.70 and 0.52 respectively. Aigbavboa and Thwala (2014:4) revealed that "producing good work quality is one critical success factor for the survival of small-, medium- and micro-enterprises in the South African construction industry".

In the Limpopo province, the Giyani Water Scheme to supply water to over 50 villages has been dragging for years. The project was initially appointed for R500 million, but R3.3 billion has been spent with only 48% of the work done, and the residents still cannot access water out of their taps (Infrastructure News, 2021). One can conclude that it is clear from the time taken to investigate the project over three years that government is slow in dealing with corruption in the construction industry. The company under investigation is still operating and securing tenders in the government. One would have expected that, considering this high-profile case, the government would have considered a temporary blacklisting either through the CIDB or National Treasury until the finalization of the investigation.

The CIDB (2011a) has listed some of the challenges facing contractors, including small contractors lacking capital equipment such as vehicles, heavy machinery, and scaffolding. In addressing such a challenge, the respondents felt that companies must reinvest their portion of profits back into the business and was ranked fourth, in possession of mean item score and standard deviation of 4.68 and 0.57 respectively. Despite the study findings, lack of investment in construction equipment is still perceived as the biggest challenge facing construction SMMEs. The challenge may emanate from scarcity of job opportunities due to high competition and the decline in government infrastructure spending, while some use their business as a source of income.

Respondents were of the opinion that companies that consider JV with other higher grading companies gain valuable experience and remain sustainable and competitive with the mean item score and standard deviation of 4.66 and 0.51 respectively. The government's consideration to open a bank that would fund SMMEs in the construction industry was ranked sixth, with a mean item score of 4.60 and standard deviation of 0.86. Finally, the statement that government should consider relaxing business legalities and commercial laws restricting SMMEs sustainability was ranked last, fourteenth in possession of mean item score and standard deviation of 3.91 and 1.20 respectively, indicating that most participants are in agreement with the statement.

According to Martin (2013), most SMMEs which are predominately owned and managed by Historical Disadvantaged Individuals (HDIs) contractors in the South African construction industry struggle to develop their businesses into sustainable and competitive enterprise. However, findings by Anugwo (2017) revealed that most of the organizations survived the first five years in construction by upholding business ethics and integrity in their conduct; have an educational background and qualification in building and civil works; had experience in the construction industry before establishing their own business; by creating an enabling working environment for employees; and by their capability to deliver quality projects to clients.

Findings from the study reveal that the perception that government regulations will promote competitiveness and ensure the industry's sustainability in possession of

mean item score and standard deviation of 4.02 and 0.85 respectively was ranked last. This is despite the study by Haupt *et al.;* (2019) that revealed the government's infrastructure investment has seen an influx of entrepreneurs under the small and medium categories who are trying to venture into the construction sector. Government system controls in place to regulate the influx of these emerging contractors appear to be weak, thus opening up to any individual to qualify to be an entrepreneur. This finding is clear, based on the educational profile of respondents, as the study revealed that only 35% have a post-grade 12 qualification from various fields. This high influx, with few people having relevant civil engineering or building formal qualification, is one of the primary contributing factors to the deficiency of sustainability and soaring failure rate in the early stages. Most of these businesses are attracted to the industry by financial gains rather than the passion for improving the business to become competitive and sustainable.

The findings show that the government's immediate acting and imposing of harsh penalties against corrupt activities within the construction industry; obedience of construction companies to the uppermost ethical standards in business; national blacklisting of those construction companies that fail to complete projects and provide poor workmanship; reinvesting their portion of profits back into the business to provide growth and sustainability; companies that consider joint ventures with other higher grading companies gain valuable experience and remain sustainable and competitive; and government must consider opening a bank that would fund SMMEs in the construction industry to improve their sustainability are crucial. While the government might not have a bank to fund SMMEs, it does have business development initiatives such as SEDA, SEFA and NYDA for the development and growth of SMMEs, and they also offer financial and non-financial business development support and services to eligible SMMEs.

5.4.2 Findings on the Efficacy of the Existing Contractor Development Programmes in South Africa

According to the CIDB (2011c), clients should apply criteria such as competence, financial upgrading, socio-economic goals; and developments to determine which contractors access CDPs. However, most of the respondents in this study feel that political connection play a bigger role in being considered for the programmes.

Table 5.3 The efficacy of existing Contractor Development Programmes in South Africa.

Statement	N	Mean	STD	Ranking
C11) Politically connected SMMEs are primarily considered in the programmes.	431	4.44	1.02	1
C12) CDPs improve the business management and technical skills of SMME contractors in the programmes.	431	4.10	0.98	2
C7) Few construction SMMEs benefit from the programmes.	431	4.01	0.64	3
C9) CDPs improve the performance of contractors in terms of quality, employment practices, skills development, safety, health and the environment.	431	4.01	1.03	3
C8) The programmes promote the development of lower-grade SMMEs.	431	3.77	1.36	4
C2) Being part of a CDP enhances SMMEs capability.	431	2.75	1.38	5
C5) The recruitment process into the programmes is open and transparent to all construction SMMEs.	431	2.48	1.34	6
C3) CDPs are effective in the development of my firm.	431	2.41	1.26	7
C4) CDPs provide an opportunity for my company to grow.	431	2.29	1.27	8
C10) Government spheres implement structured programmes that facilitate the development of construction SMMEs through skills and business enhancement initiatives.	431	2.29	1.21	8
C1) There are enough Contractor Development	431	2.20	1.26	9

Programmes in the province.				
C6) Allocation of project scope and budget is done fairly.	431	2.19	1.60	10
C13) CDPs are aligned with service delivery, and the industry needs to improve the performance of SMME contractors.	431	2.09	1.24	11

Table 5.3 above reveals participants' ranking on the efficacy of existing CDPs in South Africa. To most respondents, however, the perception that politically connected SMMEs are primarily considered in the programmes was ranked first, in possession of mean item score and standard deviation of 4.44 and 1.02 respectively. Respondents strongly reflect the same sentiments of the study conducted by Haupt *et al.,* (2019), whereby they felt that the CDP benefitted only those with political connections instead of those previously disadvantaged.

Mahlangu (2018) cites that the CIDB has placed minimal focus on technical qualifications or competency of the owners or managers of construction enterprises, and that CDPs do not stipulate relevant experience in contracting and construction-related activities as a criterion for entry into the CPD. However, despite these findings, the CIDB (2011b) mention that by participating in the NCDP, contractors will have appropriate technical capability and capacity. A strong credibility from participants corroborates that CDPs improve the business management and technical skills of SMME contractors in the programmes with an MIS of 4.10 and an SD of 0.98.

The respondents felt that few construction SMMEs benefit from the programmes, and the statement was ranked third, with an MIS of 4.01 and an SD of 0.64. This study's findings are contrary to Haupt *et al*., (2019) study on the effectiveness of a contractor programme in the development in Kwazulu-Natal, where the study found that CDPs are more beneficial to contractors. One of the objectives of NCDP, as indicated in the CIDB Framework for National Contractor Development Programme (2011), is to improve the performance of contractors with regard to quality, employment practices, skills development, safety, health and the environment. The feeling was positively ranked third by respondents, with an MIS of 4.01 and an SD of

1.03. On the contrary, the study conducted by Haupt *et al.,* (2019) found that CDPs had been less beneficial to the end-users, with beneficiaries expressing that they did not reap the intended benefits of the programme.

Mahlangu's (2018) research found that the performance improvement of contractors enrolled in CDPs is often not well reported. Despite the research findings, the respondents shared a strong perception that the programmes promote the development of lower-grade SMMEs with an MIS and SD of 3.77 and 1.36respectively. The non-reporting of the performance improvement might result from a lack of consistent reporting of all national contractors that participated in the CDPs.

The notion that being part of a CDP enhances SMMEs' capability was ranked fifth, with an MIS of 2.75 and an SD of 1.38, and the minority of respondents with an MIS of 2.09 and an SD of 1.24 disagreed that CDPs are aligned with service delivery. The statement that the industry needs to improve the performance of SMME contractors was ranked last.

A study conducted by the CIDB (2011a) confirms that CDPs have experienced several impediments towards their success, which include the selection of inappropriate entrants such as those with insufficient basic skills or those with motives not necessarily prioritizing their development; inadequate or inappropriate training and skills development; lack of work opportunities to sustain the contractors; contractors being derailed by failure to access finance; the difficult industry environment, even for established contractors; and that apposite monitoring and evaluation processes in most programmes is lacking.

In closing, Anugwo (2017) cites that without developing the local and SMME contractors' and building skills capacity and competitive business strategies, the SMMEs would not overcome the numerous challenges facing the local industries and contractors.

5.4.3 Findings on Types of Opportunities that Exist for the Lower-grade Construction Industry

The following table depicts the different types of opportunities available to contractors in the lower-grade construction industry in South Africa. The most ubiquitous types of subcontracting are in provision of labour-only, trade contracting in the building sector, and specialist subcontracting in the building and civil sectors (CIDB, 2013b).

Table: 5.4 Types of opportunities that exist for the lower-grade construction industry

Statement	N	Mean	STD	Ranking
D1) Subcontracting or joint ventures with higher grading contractors.	431	4.50	0.62	1
D2) Compulsory government 30% subcontracting to local construction SMMEs.	431	4.36	0.83	2
D8) Opportunity to tender in all government spheres nationally.	431	4.01	1.05	3
D5) Participation in Contractor Development Programmes (CDPs).	431	4.00	1.02	4
D9) Government offers a user-friendly procurement procedure and tender/contract documentation for SMMEs.	431	3.40	1.25	5
D10) Government has created an environment that is less restrictive and more conducive to ensure that SMMEs are able to compete and succeed.	431	2.92	1.33	6
D11) SMMEs have access through a wide range of funding programmes and financing schemes by both the public- and private-sector funding agencies.	431	2.78	1.51	7
D3) Government's unbundling of projects into smaller contracts that promote the participation, development and sustainability of construction SMMEs.	431	2.60	1.33	8
D7) Government's policies are in place to support procurement opportunities for SMMEs.	431	2.41	1.37	9

D6) Government has sufficient contractor incubator programmes to assist construction SMMEs.	431	2.37	1.27	10
D4) Government held road shows or workshops sharing information with construction SMMEs of opportunities available to them.	431	2.24	1.11	11

Table 5.4 above reveals participants' ranking in descending order on the types of opportunities for the lower-grade construction industry based on the respondents' mean rating of the variables. Subcontracting is very familiar in the South African construction industry, contributing to approximately 70% of the building and 30% of civil construction projects. Findings from the study revealed that most respondents consider subcontracting or joint ventures with higher grading contractors to gain experience and possibly improve grading. They ranked it first, with a mean item score of 4.50 and a standard deviation of 0.62.

Secondly, respondents had strong credence that compulsory government allocation of 30% to subcontracting local construction SMMEs with an MIS of 4.36 and an SD of 0.83. On the same statement, the Preferential Procurement Regulations, 2017 states that, if feasible, 30% of all government contracts above R30 million must be to subcontract for a local business, and an organ of state must apply to subcontract to advance designated groups. These SMMEs include, but are not limited to, black female-owned and black-owned businesses.

The view of available opportunities for construction SMMEs to tender in all government spheres nationally was ranked third, with an MIS of 4.01 and an SD of 1.05. In asserting the statement above, by registering with the National Treasury E-tender portal, all construction SMMEs will have admittance to any tender issued by government institutions in all spheres of government. The portal has tenders advertised in all government institutions, including State-Owned Enterprises (SOEs) and constitutional bodies presenting information related to advertised, awarded, closed and cancelled bids, as well as templates of bid documents (RSA, 2003).

The respondents perceived that participation in CDPs, which was ranked fourth, with an MIS of 4.00 and an SD of 1.02, also offers an opportunity for a lower-grade.

Some respondents held the view that government offers a user-friendly procurement procedure and tender or contract documentation for SMMEs, and this notion was ranked fifth, with an MIS of 3.40 and an SD of 1.25, while the minority of respondents with an MIS of 2.24 and an SD of 1.11 were of the view that government-held road shows or workshops for sharing information regarding types of opportunities available to construction SMMEs was ranked last.

5.4.4 Findings on Main Resources for the Lower-grade Construction Industry to be Sustainable

CIDB (2011a) indicates some of the constraints to contractors, particularly small contractors, include late payments by clients, which impacts contractor cash flows and causes delays in the completion of projects, erodes profit margins, and ties up working capital, encouraging corruption. Table 5.5 represents the main resources that lower-grade SMMEs in the construction industry require to be sustainable.

Table 5.5: Main resources for the lower-grade construction industry to be sustainable

Statement	N	Mean	STD	Ranking
E6) Effective and efficient use of cash flow is key to sustain the business.	431	4.66	0.48	1
E8) Investing in the right equipment is good for business success.	431	4.63	0.48	2
E10) Investing in construction equipment is more cost-effective when it is to be used over the long term.	431	4.62	0.49	3
E5) Good financial management is key for the success of the SMME.	431	4.57	0.60	4
E1) Recruiting qualified, competent, and experienced personnel are vital towards the sustainability of the SMME.	431	4.55	0.57	5
E2) Retaining good employees has a direct impact on the SMME's growth and sustainability.	431	4.52	0.61	6
E3) Capacitating employees improves operations and	431	4.38	0.69	7

increases productivity of the business				
E4) Channelling resources towards the SMME sector ultimately leads to a range of benefits for the entire South African population and economy.	431	4.37	0.62	8
E9) Effective use of equipment increases productivity.	431	4.19	0.98	9
E7) There is relevant financial support provided by both the private and public sectors for the success of SMMEs in South Africa.	431	3.53	1.40	10

Table 5.5 presents participants' ranking in descending order on the primary resources for the lower-grade construction industry to be sustainable based on the respondents' mean rating of the variables. Based on the respondents' perception, most felt that effective and efficient use of cash flow is key to sustain their business, and this was primarily ranked, with the mean item score and standard deviation of 4.66 and 0.68 respectively; this was followed by strong credence that investing in the right equipment is crucial for business success and was ranked second by respondents, with the mean item score and standard deviation of 4.63 and 0.48 respectively.

Moreover, most respondents perceived that investing in construction equipment is more cost-effective when it is to be used over the long term as a critical resource for the sustainability of the lower-grade construction SMMEs. This statement was ranked third, with an MIS of 4.62 and an SD of 0.49. Investment in a plant will save the business plant rental and possible standing time costs in case of unforeseen circumstances, while also reaping the benefits of reliable equipment that would enhance the production efficiency on site.

The statement that sound financial management is vital for the success of the SMME was ranked fourth by respondents, with the mean item score and standard deviation of 4.57 and 0.60 respectively. It is also supported by the study conducted by Ntuli and Alopi (2014) that management skills are important areas of focus, and the construction industry needs to invest in training from the bottom to the top. The same authors further emphasised that the quality of the company's employees is also reflected in the quality of the service. Mohlala (2015) found that many emerging

contractors do not have the necessary technical and management skills, qualifications, knowledge, and experience, resulting in project delays and budget overruns. Skills challenges, ranked fifth, with an MIS of 4.55 and an SD of 0.57, was the respondents' perception that recruiting qualified, competent, and experienced personnel is key to the sustainability of the SMME. Ntuli and Alopi (2014) affirm that the CIDB has realised that a vibrant and successful construction industry is only possible if those employed within it have the required skills and competency to function effectively in their roles.

A minority of respondents, with an MIS of 3.53 and an SD of 1.40 felt that there is relevant financial support provided by both the private and public sectors to enhance the success of SMMEs in South Africa. Following the national COVID-19 lockdown, the government, through the Department of Small Business Development (DSBD), has developed and introduced several interventions to respond to the COVID-19pandemic and the particular adjustment budget to support SMMEs and co-operatives affected by the COVID-19 pandemic. The interventions include the Business Growth and Resilience Facility; SMME Relief Finance Scheme and the SEFA-Debt Restructuring Facility; Automotive Aftermarkets Support Scheme; Small Scale Bakeries and Confectioneries Business Support Scheme; Small Scale and Micro Clothing, Textile and Leather Business Support Scheme; Spaza Shop Support Programme, amongst others.

5.4.5 Findings on Entrepreneurial Skills Necessary for the Lower-grade Construction Industry

Mamabolo, Kerrin and Kele (2017) describe entrepreneurial skills as the proficiency in performing duties in the entrepreneurial stages as a result of human capital investments (formal and education, entrepreneurial education, work, industry and entrepreneurship experiences) and can be improved by training, practice and development. In addition, Mamabolo (2017) asserts that entrepreneurial skills are the most important and essential basic business skills required for steering small businesses to lead to profitability and viability of the organisation.

Table 5.6: Entrepreneurial skills necessary for the lower-grade construction industry

Statement	N	Mean	STD	Ranking
F13) Ability to work under pressure.	431	4.75	0.43	1
F7) Team working skills.	431	4.72	0.45	2
F6) Leadership skills.	431	4.68	0.47	3
F14) Negotiation skills.	431	4.64	0.48	4
F12) Time management.	431	4.64	0.48	4
F9) Interpersonal skills.	431	4.61	0.49	5
F11) Conflict resolution.	431	4.51	0.50	6
F3) Decision making.	431	4.51	0.60	6
F2) Computer literacy.	431	4.49	0.65	7
F8) Enthusiasm and Commitment.	431	4.46	0.56	8
F10) Critical thinking.	431	4.43	0.59	9
F5) Verbal and written communication skills.	431	4.35	0.48	10
F4) Basic tendering or costing skills.	431	4.35	0.73	10
F15) Project Management skills.	431	4.32	1.05	11
F1) Relevant engineering/technical and management skills.	431	4.30	0.51	12

From Table 5.6 above, it is evident that the tabulated factors significantly impact the sustainability of lower construction-based SMMEs. Even so, there are factors that had a significant impact on others. They include ability to work under pressure, with an MIS of 3.53 and an SD of 1.40; and team working skills, which is ranked second with an MIS of 4.72 and an SD of 0.45. This finding agrees with the study conducted by Dithebe *et al.,* (2018), which emphasizes having necessary skills as one of the factors of SMME development improvement in South Africa. The same authors further mention that without skilled labour, employee performance deteriorates in the construction industry, directly affecting organizational performance.

Marivate (2014) emphasised the necessity to have leadership skills by citing that effective leadership provides the building blocks for organizational performance, and

such leadership skills and the ability to make the right choices enable small businesses to thrive under challenging circumstances. Anugwo (2017) adds that SMME contractors need to acquire creative knowledge and leadership skills that would enable them to overcome the present market challenges and to achieve competitiveness in the industry. The respondents ranked the importance of leadership skills with the mean item score and standard deviation of 4.67 and 0.47 respectively.

There was strong credence that negotiation skills and time management are equally ranked in fourth place, with an MIS of 4.64 and an SD of 0.48, respectively. Furthermore, according to Tshabangu (2016), successful entrepreneurs seem to possess many skill sets, such as interpersonal skills, personal skills, technological skills, and leadership skills. Finally, the respondents felt that interpersonal skills are necessary entrepreneurial skills to improve construction SMMEs by ranking them in the fifth position, with the mean item score and standard deviation of 4.69 and 0.49 respectively.

A minority of the respondents felt that relevant engineering, technical, and management skills are essential (ranked last), with an MIS of 4.30 and an SD of 0.51 to improve the sustainability of construction SMMEs in the Free State province. Their response might be from a previous study by Akinshipe, Aigbavboa, Maake and Thwala (2019), which revealed that the main factors responsible for engineering skills deficiency in the South African construction industry include; retirement of veteran engineers; low success rate in STEM subjects; bad career counselling; and inadequate practical training. Ntuli and Allopi (2013) also agreed with the finding by enunciating the lack of management and technical experience as problems that hinder the development and growth of construction companies.

5.4.6 Findings on Barriers to Sustainability in Lower-grade Construction-based SMMEs in the Free State Province

Despite its positive contribution, various factors have contributed to the decline of the construction industry within the country, which also affected the growth and sustainability, especially in lower-grades. These factors range from skills constraints;

unethical conduct by companies; government limited infrastructure investment; corruption or collusion in awarding tenders; high failure rate due to lack of skill and experience, disruption of projects by business forums; force themselves and sometimes stops the smooth running of infrastructure projects; lack of leadership skills; competition; late payments of invoices by government institutions; failure to complete projects on time which derails the service delivery and the impacts on the general state of the economy.

Table 5.7 Barriers to sustainability in lower-grade construction-based SMMEs in the Free State province

Statement	N	Mean	STD	Ranking
G13) High competition and limited access to projects/work opportunities.	431	4.66	0.48	1
G9) Late payment of submitted invoice by government hindered the cash flow.	431	4.59	0.49	2
G14) Higher entry due to lack of regulations.	431	4.53	0.58	3
G11) Shortage of construction equipment forcing SMMEs to hire plant equipment.	431	4.53	0.50	3
G10) Inadequate unbundling of projects to suit construction SMMEs.	431	4.43	0.55	4
G5) Political influence in awarding contracts.	431	4.43	0.89	4
G2) Failure to complete projects.	431	4.34	0.94	5
G8) Lack of industry experience.	431	4.34	0.58	5
G12) Failure to attract or retain skilled personnel.	431	4.31	0.56	6
G1) Industry/government regulations.	431	4.22	0.83	7
G15) Poor quality workmanship leading to demolition or reconstruction.	431	4.19	0.95	8
G6) Poor cash flow management.	431	4.09	1.17	9
G7) Over-reliance on largely contested government tenders due to limited access to private sector contracts.	431	4.08	0.90	10
G3) Lack of management skills (including business).	431	3.85	1.17	11
G4) Failure to pay municipal rates and taxes.	431	3.79	1.16	12

Table 5.7 above presents participants' ranking in descending order on the barriers to sustainability in lower-grade construction-based SMMEs in the Free State province. Intense competition, especially in the lower scales of construction enterprises, and difficulty in competing with larger construction firms were highlighted as challenges facing small contractors, according to the CIDB (2011a). The respondents shared the same sentiment, that high competition and limited access to projects or work opportunities were the primary barriers to sustainability and ranked with a mean item score MIS of 4.66 and an SD of 0.48.

Secondly, the respondents opined that the government's late payment of submitted invoices hinders the construction-based SMMEs cash flow and scores an MIS of 4.59 and an SD of 0.49. These findings confirm with those of the other existing studies conducted by Shwala (2018) on collateral to access finance and Dithebe *et al.,* (2018) on backlogs of payment to contractors, which is a barrier to sustainability in lower-grade construction-based SMMEs in the Free State province. In addition, the same sentiment was shared by a study conducted by Ntuli and Alopi (2014), which highlighted that late payment, affects business cash flow as one of the main challenges hindering sustainability in the construction industry.

The higher entries, due to lack of regulations and shortage of construction equipment forcing SMMEs to hire plant equipment, were jointly ranked in third position, by sharing a mean item score MIS of 4.53 while raking an SD of 0.58 and 0.50, respectively. Anugwo (2017) the study revealed that most contractors survived the harsh economic conditions by re-investing the profits made in acquiring strategic plant equipment.

According to Mahlangu (2018), the CIDB registration criteria for contractors do not consider technical capability in determining contractor grading. This low barrier to entry has resulted in an incredible increase in the number of registered contractors, especially in the lower-grade one category. Govender (2017) recommended that the CIDB grading system be re-evaluated to form an upper barrier of entry into the industry, which will finally relieve the total number of incoming contractors in the industry. Additionally, this will restrain the increased registration entry in the

construction industry. The fourth-ranking was also jointly shared with the respondents' perception that inadequate unbundling of projects to suit construction SMMEs and political influence in awarding contracts hinders sustainability of construction SMMEs. The two statements shared the mean item score MIS of 4.43 and SD of 0.55 and 0.89, respectively.

The lowest-ranked statement respondents perceived was SMMEs' failure to pay municipal rates and taxes, with a mean item score and standard deviation of 3.79 and 1.16 respectively. Regarding the same barrier, a study conducted by Pahwa, Bester, van Nieuwenhuyzen, Dawood, Pieterse, Kane, Schlemmer, Bot, Hamilton, Madel and Van Eeden (2006) on the impact of Municipal Regulations on SMMEs weighs little on property rates by recommending that municipalities might need to engage with SMMEs before formulating and implementing their property rates guidelines to assure that rational levels of rates are put in place. In terms of probable risks from specific clauses of the Act, SMMEs might need support in understanding how such clauses in particular impact them, especially if they want to formalize or grow. The same authors also recommend that SMMEs be aware of the Property Rates Act clauses that may carry potential risks.

The construction industry is one of the most vital sectors globally, protecting the physical environment and social well-being of the country. Moreover, despite the recent global pandemic, it continues to experience significant growth due to increased investment in infrastructure, contributing to its economic growth, serving as an imperative source of job creation and reduction of poverty. Therefore, the building and construction industry is one of the most critical sectors and is active mainly towards new infrastructure development.

The concern of apposite skills has been predominantly mentioned in the industry, with findings revealing a deficiency in construction skills. The lack of construction relevant education appears to be one of the significant hurdles for SMMEs. Approximately a third of respondents possess post grade 12certificate, even though it was ambiguous to determine what fraction possesses construction-related qualifications. However, there is a need to capacitate employees in basic construction skills, tendering skills, managerial skills, and financial management to

assist them improve their daily business operations and management. Construction skills and experience are pertinent in assisting construction SMMEs in good project management, resource distribution and team management. Therefore, the number of key staff members' years of experience in the industry is vital for effective and efficient resource allocations and management of a business.

Several corrupt activities within the industry have been reported, whereby some payments have been authorized without physical work done on-site. The government has failed to act swiftly on those implicated in corrupt activities, and there is public outcry for instant blacklisting of such implicated construction companies until they are absolved from any alleged wrong doings. Recruitment and retention of competent and experienced staff have been challenging in the industry due to professionals migrating to other countries, leaving a severe shortage of technically qualified professionals. Various reasons such as political stability, unstable economic climate, the corruption that erodes work opportunities, and declining infrastructure developments have been cited as contributing factors to the migration of skilled professionals.

Despite all constraints to the sustainability of construction SMMEs, the government has availed mandatory procurement 30% subcontracting opportunities to local SMMEs to ensure an increase in SMMEs' participation. The opportunity can also be in the form of JV, which promotes skills transfer, gaining experience, and promoting the independence of SMMEs. However, despite the government's good initiative intent, the intervention has also invited opportunistic unethical behaviours from the rapidly increased information of business forums that hijack every little project offered in the public sector. Further need for compulsory unbundling of projects on specific CIDB grades depending on the complexity, nature, and class of work can be a comprehensive solution for the increase in work opportunities for construction SMMEs.

Cash flow management is one key skill needed for ensuring the business remains in operation, retains staff, and is competitive and sustainable. Having basic management and technical skills gives a company a competitive edge in handling resources and business expansion, and further limits the potential insolvency or

failure rate in the early stages. Due to high fleet rental costs, savvy SMMEs may consider investing in appropriate construction equipment with proficient basic management and technical skills. As a result, they can adequately utilise plants for improvements in productivity and maximizing contractor profit. However, financial mismanagement and management incompetence are attributed to the reputation of construction failures, which is why continuous skills development is necessary for the industry.

Though some of the constraints identified as impeding the development and sustainability of SMMEs from the literature review have existed for some time, there is little evidence available to suggest that these constraints are invalid due to the paucity of relevant and reliable information on the subject. Whilst on the barriers, the existing preferential procurement system encourages historically disadvantaged individuals from establishing their own companies resulting in high entry of SMMEs in the industry due to lack of regulations, thus creating high competition in lower-grades. These further hinder new entrants' possibility of improving their grading, remaining sustainable and economic empowerment. With these high industry entries, an option for the government to consider regulating the level of skills and training in the industry may improve the sustainability of lower-grades SMMEs.

Another factor that constrains the development and sustainability of construction SMMEs is the defects liability period. Contractors must to wait for 12 months for it to lapse according to the General Conditions of Contracts of 2015 before their retention and guarantee money are released. The use of political connections to get tender awards results in unhealthy levels of competition, and exacerbates already congested lower-grades by impeding the development of SMMEs capabilities and sustainability. It further harms the industry by promoting unethical behavior, which has led to intensified public outcry, calling for the scrapping of tender systems in the country. Failure to complete projects is directly related to the technical skills, basic management skills, and contractors' level of experience in the industry. Another constraint is contractors' poor workmanship, which lacks value for money, delays projects, and results in high levels of non-completion of projects, poor resource management, and low productivity. Poor workmanship has been more prevalent in

the construction of low-cost houses (RDP) in many provinces, whereby some works were left incomplete while others had to be demolished due to poor workmanship.

5.5 CONCLUSION

The study's objective is to recommend ways to sustain lower construction-based SMMEs in the Free State province. The reviewed literature looked at the requirements for the sustainable construction industry; the efficacy of existing CDPs in South Africa; types of opportunities; primary resources; entrepreneurial skills; and barrier factors to overcome to improve the sustainability of lower-grade construction based SMMEs. The findings of the questionnaire survey disclosed that the primary recommended requirements for sustainable construction industry factors were the government's instant actions and imposing of harsh penalties against corrupt activities within the construction industry; adherence to the highest ethical standards in business by construction companies; consideration of national blacklisting of contractors that fail to complete projects and provide poor workmanship; companies reinvesting a fraction of proceeds back into the business; as well as companies that consider joint ventures with other higher grading companies gain valuable experience and remain sustainable and competitive.

In recuperating the sustainability of construction SMMEs by looking at the efficacy of existing CDPs in South Africa, the findings revealed that politically connected SMMEs are primarily considered in the programmes; that CDPs advance the business management and technical skills of SMME contractors in the programmes; few construction SMMEs benefit from the programmes; CDPs advance the performance of contractors in terms of quality, employment practices, skills development, safety, health and the environment; and the programmes advance the empowerment of lower-grade SMMEs.

Types of opportunities for the sustainability of lower-grade construction industry include subcontracting or joint ventures with higher grading contractors; compulsory government subcontracting to local construction SMMEs at a rate of 30%; available opportunity to tender in all national spheres of government; and participation in CDPs. On the primary resources to improve the sustainability of the lower-grades

construction based SMMEs, effective and efficient use of cash flow is key to sustain the business; the idea that investing in the right equipment is good practice for business success; investing in construction equipment is more cost-effective when it is to be used over the long term; and sound financial management is key for the success of the SMME were all included.

The entrepreneurial skills necessary to improve the sustainability of the lower-level SMMEs in the construction industry include working under pressure; teamwork; leadership skills; negotiation skills; and time management. The barrier factors to sustainability in lower-grade construction-based SMMEs in the Free State province included high competition and limited access to projects/work opportunities; late payment of a submitted invoice by government hindered the cash flow; higher entry due to lack of regulations; lack of construction equipment or plant forcing SMMEs to hire plant equipment; and inadequate unbundling of projects to suit construction SMMEs.

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

6.1 INTRODUCTION

This chapter's objective is to present the theoretical summary, main empirical findings and conclusions, and recommendations to improve the sustainability of lower-grades construction SMMEs in the Free State province. Moreover, in reference to the results from the quantitative research and the different findings from the literature review, this chapter will provide the detailed recommendations towards achievements of the study objectives.

From chapter one of the study, the primary and secondary objectives was expounded. These stated objectives resulted in the formulation of the six different factors seeking respondents' opinions on improving the sustainability of their businesses. Chapter six looks at how the study results have been able to assist in meeting the primary and secondary objectives. Once the objectives have been met, the study will contribute towards recommendations to improve the sustainability of lower-grades construction SMMEs in the Free State province.

6.2 SUMMARY OF THE THEORETICAL FINDINGS

The main objective of this study was to examine how to improve the sustainability of lower-grade construction-based SMMEs in the Free State province and develop recommendations to assist their business. In order to accomplish this, the researcher set out to examine and establish requirements for the sustainability of the construction industry; the efficacy of existing Contractor Development Programmes in South Africa; types of opportunities that exist for the lower-grade construction industry; primary resources for the lower-grade construction industry to be sustainable; entrepreneurial skills necessary for the lower-grade construction industry; and barriers to sustainability in lower-grade construction-based SMMEs in the Free State province.

Additionally, to accomplish the main objective of the study, the following secondary objectives were formulated:

a) To examine requirements for the sustainable construction industry;
b) To analyze the efficacy of existing contractor development programmes in South Africa;
c) To examine the types of opportunities that exist for the lower-grade construction industry;
d) To identify the primary resources for the lower-grade construction industry to be sustainable;
e) To analyze the entrepreneurial skills necessary for the lower-grade construction industry to be successful;
f) To identify the barriers to sustainability in lower-grade construction-based SMMEs in the Free State province; and
g) To develop recommendations that will assist lower-grade construction-based SMMEs in the Free State to become sustainable in their business.

Chapter two discussed how SMMEs are seen as essential drivers of economic success and their contribution to employment. Countries globally, such as the European Union, United Kingdom, Ghana, Nigeria, Egypt, and South Africa, contributed to employment and GDP. The overview of SMMEs in South Africa; the expanded explanations of SMMEs in the National Small Business Act 102 of 1996; the SMMEs in the South African context and South Africa's total entrepreneurial activity in comparison to BRICS counterparts, as outlined in the Global Entrepreneurship Monitor report of 2019, were discussed. The national profile (population, formal or informal, race, industry, province, gender and age groups of SMMEs in South Africa); the world-wide and South African SMME contribution to the economy; the government support initiatives such as the NEF, SEDA, NYDA, IDT, and FDC to address or alleviate such constraints were also discussed.

Chapter three discussed amongst others the definitions of sustainability by different authors; dependent factors responsible for the sustainability and growth of construction contractors, such as the size of the founding team at inception, members, experience before setting up the company, founding owners' experience,

and members' varied expertise in the construction industry experience were mentioned. The requirements to administer a sustainable construction company; the effects of the weak sustainability of South African SMMEs' context and an overview of the South African construction sector; the historical outline and establishment of the contractor development programme; and the CIDB in terms of Act 38 of 2000 were all discussed. The recent tender value limits adjustments, which increased the price limits each category grading can tender for; the National and Provincial Register of Contractors depicting some registered or active contractors in each class of work and grading according to financial and works capability were discussed. The chapter ended with the discussion on construction SMMEs' contribution to the economy and employment, and the shortcomings SMMEs in the construction industry experience.

Chapter four provided an overview of the research approach and practical implementation of this research study. First, the research aims and objectives were determined. Then, the chosen research design was examined, the process of selecting a research method was described, and the quantitative method using the questionnaires as a research instrument facilitated by enumerators to collect primary data was applied. The sampling strategy that was used as described, followed by a broader discussion on research validity and reliability, and was also defined. Next, the methods and approaches used to collect, analyze and interpret the research findings (descriptive analysis approach) were explained. Finally, the chapter completed discussion around the ethical considerations involved in the research.

In chapter five, the presentation, analysis, and the interpretation of the research results from demographic information of respondents, including district representation (location);number of years in construction; status in the organisation; their gender; age category; ethnic group; highest qualification; years of experience in the construction industry; professional affiliation; CIDB grading; participation in CDP and relevant business training were presented in Section A of the research questionnaire in the form of pie charts and bar graphs. After that, Section B to G of the research questionnaires measured reliability and validity using descriptive statistics - such as mean and standard deviation depicting the respondents' perception of the statements about the requirements for the sustainable construction

industry; the efficacy of existing Contractor Development Programmes in South Africa; types of opportunities that exist for the lower-grade construction industry; primary resources for the lower-grade construction industry to be sustainable; entrepreneurial skills necessary for the lower-grade construction industry; and barriers to sustainability in lower-grade construction-based SMMEs in the Free State province were analyzed and demonstrated in the ranking of the data collected.

6.3 SUMMARY OF THE EMPIRICAL FINDINGS

The study focused on six factors determined through the literature review towards achieving the study's primary objective: to improve the sustainability of lower-grades construction SMMEs in the Free State province. The following aspects were considered the requirements for the sustainable construction industry: the efficacy of existing Contractor Development Programmes in South Africa; types of opportunities that exist for the lower-grade construction industry; primary resources for the lower-grade construction industry to be sustainable; entrepreneurial skills necessary for the lower-grade construction industry; and barriers to sustainability in lower-grade construction-based SMMEs in the FS Province.

The study was comprised of 96% of the participants, which is explained below as follows:

- Majority (63%) were in possession of secondary school level or grade 12;
- Minority (18%)were in possession of national diploma or bachelor and honours degree holders; and
- Minority (15%) were in possession of trade or any technical school certificate holders.

Deriving from the empirical findings, the results further disclosed the following demographical information regarding the respondents:

- Majority (71%) were in possession of between two and five years of relevant construction experience, and
- Minority (12.5%) were in possession of between five and ten years relevant construction experience.

The findings illustrated that, despite SMMEs' level of education and relevant experience in the construction industry and with expectations that they would have acquired a wealth of experience and skills to run their organizations effectively, they did not have much impact on the improvement of their business since most are still congested in the lower CIDB grades as discussed in the literature.

6.3.1 Requirements for the Sustainable Construction Industry

The empirical study illuminated that most participants felt that the government's direct-acting and imposing harsh penalties against corrupt activities within the construction industry must be prioritized. In recent month of April 2021, the Hawks have apprehended eight people, including six municipal officials, on fraud charges related to an R25 million toilet infrastructure tender in Setsoto Municipality in the Free State (Ngcobo, 2021).

The idea of the government imposing some regulations about registration requirements in the industry will promote competitiveness, minimize high entry, and ensure the sustainability of the industry were emphasised by some respondents, especially those with relevant qualifications and experience. However, this was not considered to be of high significance by the majority of the respondents.

6.3.2 The Efficacy of Existing Contractor Development Programmes in South Africa

The study findings revealed that most respondents were aggrieved with selection criteria for participation in the Contractor Development Programmes, with most respondents accentuating that most politically connected SMMEs are considered in the programmes. None of the respondents ever participated in the programme in one municipality, while in another municipality; there were over 80% of the CDP participants in the sample. The recruitment process into the programme was considered relatively open and transparent to all construction SMMEs by respondents. The statement concurs with the study done by Haupt *et al.,* (2019), whereby respondents felt that the objectives of the CDP were not clear; they had no improvement in performance since joining the programme, and they received no training from the CDP.

6.3.3 Types of Opportunities that Exist for the Lower-grade Construction Industry

On the opportunities factors, the results also illustrated that most respondents support the compulsory 30% subcontracting of government tenders to local construction SMMEs. Even though regulations compel companies awarded tenders worth more than R30 million to be subcontracted to locals, the policy does categories local as any company that resides in South Africa and not the area where the work is being done. Business forums have misinterpreted this in the country, for example, Durban based Delangokubona Business Forum, which has invaded construction sites vigorously insisting subcontracting opportunities in their South African National Roads Agency (SANRAL), holding a multi-million-rand project (Mthethwa, 2018).

6.3.4 The Primary Resources for the Lower-grade Construction Industry to be Sustainable

Recruiting qualified, competent and experienced personnel was unsurprisingly considered insignificant towards the sustainability of the SMME by average respondents, considering that only 33% of respondents had qualifications. On the contrary, in the study by Tshikhudo *et al.,* (2015) respondents agreed that to have the necessary education, skills, or qualification are part the key factors that may assist the development of the construction SMMEs. The study by (Haupt *et al.*, 2019) raised this as a significant cause for concern, citing that emerging construction SMMEs without skills, resources, or management skills are bound to fail. The importance of having good management skills for the success of the SMMEs was also accentuated by the same authors, who argue that owners possess qualifications in construction, but lack basic management skills, which leads to mismanagement of funds, poor operations, and not meeting project deadlines.

6.3.5 The Entrepreneurial Skills Necessary for the Lower-grade Construction Industry to be Successful

The results obtained regarding the entrepreneurial skills factors illustrated a minority of respondents highlighting project management skills as key entrepreneurial skills necessary for the lower-level construction industry. On the contrary, Ntuli and Allopi's (2013) study revealed project management skills as critical skills required for running

a sustainable construction company. According to Haupt *et al.,* (2019), the failure of emerging contractors due to lack of necessary skills is linked with the fact that many obtain opportunities through corrupt means. Donkoras, quoted by Tshikhudo (2016), declared that irrespective of how emerging the business is or well established it is, the achievement is dependent on contractors' skills in recruiting the relevant people on board, and how both relate to each other. The findings attained illustrated that a minority of respondents consider verbal and written communication skills as less critical (ranked very low) towards the sustainability of the business, while on the contrary, a study conducted by Tshikhudo (2016) explicates that having good communication is an essential characteristic of the entrepreneur to the success of the SMME.

6.3.6 Barriers to Sustainability in Lower-grade Construction-based SMMEs in the Free State Province

Lastly, despite all the efforts and initiatives of the government to support SMMEs, findings revealed that higher entry due to lack of regulations, high competition, and limited access to projects/work opportunities top the list of barriers to sustainability in lower-grade construction-based SMMEs in the Free State province. A study by Botha *et al.,* (2020) revealed that the very small businesses regard competition as moderate to high, whereas small businesses regard competition as a low-to-moderate challenge. The finding is also maintained by a study conducted by Thwala and Aigbavboa (2014), which revealed the most critical challenges facing black-owned SMMEs in Mbombela Municipality in Nelspruit, was the lack of access to work opportunities. A study by Botha, Smulders, Combrink and Meiring (2020) also postulated that the smaller the business, the less challenging it is to attract and retain skilled personnel, probably because no additional staffs are needed.

6.4 RECOMMENDATIONS ON THE MAIN FINDINGS

The research recommendations follow the literature review and the empirical findings obtained and analyzed in this study. The recommendations were formulated and discussed to improve lower-grade construction-based SMMEs in the Free State province. The research findings show that the South African construction industry, the government, and other key stakeholders, such as the private sector, critically

need to address the ever-escalating congestion of lower CIDB grades construction SMMEs. In addition, their failure rate, and ways to improve their business in order to be sustainable must also be looked into.

The recommendations are discussed according to the order of the set secondary objectives of this study in the following section. The following recommendations are therefore suggested in order to improve the sustainability in lower-grade construction-based SMMEs in the Free State province:

6.4.1 Secondary objective 1

To examine requirements for a sustainable construction industry

The study focused on the requirements for a sustainable construction industry, which the government institutions have supported. Therefore, the construction industry literature in relation to the requirements for a sustainable construction industry is discussed.

From the theoretical view, Bowen *et al.,* (2012) cite that the construction industry, like any industry, is susceptible to factors that derail its sustainability with the issue of corruption between government officials (as clients), main contractors, and sub-contractors are alleged to mostly participate or collude in illegal activities. The same authors (2012) reveal that despite this form of prevalent corruption activities, an apparent lack of political will to root out corruption nationally complicates measures to enforce accountability and consequence management in the construction sector. The same sentiment was corroborated by the Auditor General findings on constructing a sports complex in Metsimaholo municipality, whereby R21.7 million in the 2017/18 financial year was spent only on the fence (Makinana, 2020). The empirical study has highlighted those respondents indicate the essential need for sustainability is the government's immediate acting and enforcing relentless penalties against any dishonest activities within the construction industry. These corrupt activities come in the form of collusion that sometimes involves the contractor, employer representative, and consulting engineer to approve payments for work not done.

A recommendation can then be the establishment and recruitment of an Infrastructure Projects Panel of Experts from all engineering fields to monitor progress and quality and recommend payments of invoices submitted. The panel must consist of experienced, qualified, and competent professional candidates registered with engineering professions such as ECSA or SACPCMP. In addition to this recommendation are that penalties such as blacklisting for a minimum period of ten years be imposed on contractors engaging in collusion or corrupt activities; employee representatives involved immediately be dismissed and blacklisted from working in government for a minimum often years. For consulting engineers, their business membership status with Consulting Engineers South Africa (CESA) is suspended or deactivated and their responsible employee professional status with any engineering profession is cancelled. Lastly, criminal charges must be instituted against all responsible individuals.

CIDB (2000) is authorized to establish and promote uniform and ethical standards "that regulate the actions, exercises and measures of parties participating in construction contracts" and stipulates that the CIDB "must publish a code of conduct for all industry-related procurement and all parties partaking in the bidding process. Furthermore, the study also highlighted the need for construction companies to adhere to the highest ethical standards in business and national blacklisting of contractors that fail to complete projects and provide poor workmanship.

The recommendation is that compulsory registration with Engineering Construction bodies before any work is awarded to a contractor, regardless of the grading, would improve compliance to specific body ethical standards. Secondly, through the provincial CIDB offices, the government should convene a quarterly business code of conducts workshop for all districts, encouraging stakeholders in the construction industry to uphold a high standard of ethics in their business engagements. Lastly, a district CIDB Monitoring Unit should be set up and established with a call centre to attend to complaints from all community members. In addition, general District Anti-Corruption Hotlines should be established, and effective awareness campaigns held to educate the community about the importance of reporting any fraud and corruption activities within the community. Special Investigating Units (SIUs) can also have satellite offices to deal with reported cases in each district.

Several infrastructure projects have been deserted for some evident reasons. The Practice Note 30 of the CIDB (2013a) is clear on this issue, as it discusses actions that organs of state can take against contractors for non-performance by a contractor, where non-performance includes deserting the works before reaching the practical completion; failure to comply with the conditions of contract; and being unable to rectify key construction defects post project handover, commissioning and practical completion but within the defect's liability period.

The Practice Note suggested blacklisting the contractor on the National Treasury database of constrained suppliers and restricting the contractor from being awarded business from any state entity for a period up to ten years. Again, as recommended for imposing harsh penalties on corrupt activities, national blacklisting for a minimum of ten years must be imposed on contractors failing to complete or abandon projects or providing poor workmanship. The penalty must apply to all public projects, and if possible, the state must institute legal actions to recover the money wasted or lost.

The CIDB (2004) point out that joint ventures may be formed for multiple reasons, with the most common being the project is too big or compound for a single company to execute it with its accessible resources. The study also emphasised the need for companies to consider joint ventures (JV) with other higher grading companies to gain experience and remain sustainable. From the empirical findings, it is recommended that Parliament passes a law compelling all government institutions to include in their tender documents a compulsory joint venture with local based construction SMMEs for all work valued at R10 million and above. Doing so will enable skills transfer and upgrading to higher CIDB grades. Once passed by Parliament, the National Treasury must gazette and prepare a circular to be disseminated to all government institutions stipulating that every tender document of R10 million and above must comply with compulsory JV conditions, and failure to hold on to such conditions must affirm the bidder as non-responsive. In addition, all appointed bidders must be reported to the relevant provincial department for verification within 14 days of successful bidder appointment.

The empirical survey with lower CIDB grades construction SMMEs in the Free State province has indicated that their most significant challenges are access to funding

and cash flow management. Some SMMEs have to loan or borrow money every time they get contracts to execute them, and these loans have exorbitant repayment interest. Bailey (2018) declares that SMMEs often have inadequate cash flows, with delayed processing of payments extensively impacting on their capacity to operate, and when experiencing cash flow challenges, they are more likely to cut down on future investment in order to stay afloat, impacting growth opportunity. Based on limited cash reserves experienced by SMMEs, the government's need to consider opening state banks that would fund SMMEs in the construction industry was emphasised.

It is recommended that strictly SMMEs funding bank units be established and centralized at Provincial Treasury Departments with District Units offices established to process applications once submitted by SMMEs after receiving contracts from government institutions. The banks' objectives will include improving access to finance for SMMEs to enable businesses that cannot offer security/collateral to access bank finance. Priority will be given to those creditworthy SMMEs that are struggling to access bank guarantees. Banks can directly procure material on behalf of the SMME direct from suppliers to be used on the specific contract awarded; an agreement is signed with the SMMEs to allow the client to pay the state bank money owed for material purchased, including whatever interest they would have agreed on.

6.4.2 Secondary objective 2

To analyze the efficacy of existing contractor development programmes in South Africa

Despite their superior objectives, Contractor Development Programmes (CDPs) have experience numerous hindrances towards their success. Typically, these include the selection of inappropriate entrants such as those with poor basic skills or those with motives not necessarily prioritizing their development; inadequate or inappropriate training/skills development; lack of work opportunities to sustain the contractors; contractors being derailed by limited access to finance; and insufficient proper monitoring and evaluation processes that would discover and attend to limitations (CIDB, 2011a).

A study by Haupt *et al.,* (2019) revealed that the recruitment and participation in the programme had been a subject of discontent amongst unsuccessful SMMEs contractors with some mentioning that the CDP favoured only those having close ties with politicians as an alternative to those previously disadvantaged. The sentiment is further corroborated by Myburgh's (2018) newspaper article report that a brother and daughter of ANC Secretary-General, Ace Magashule, and the sons of current Free State Premier, Sisi Ntombela, were implicated in fraud in CDP designed to support emerging companies in the Free State province. The article further reports that affiliated companies were gifted bakkies, trailers, and related equipment, and also awarded contracts for roads maintenance and grass cutting as part of a preferential procurement initiative that cost taxpayers at least R300 million since 2016. The empirical findings revealed that most respondents felt that those with political connections are considered ahead of the previously disadvantaged construction SMMEs. Therefore, it is recommended that the recruitment process for the interested contractors be stringent, yet done in an objective, fair, and transparent manner.

The CIDB (2011c) mentions, amongst others, a lack of insistence on prior experience in the industry and on prior technical, managerial, and construction-related skills as one of the main impediments towards the success of Contractor Development Programmes. Lack of construction-specific skills, such as pricing, project management and the programming of site activities, contract conditions, and risk management, are also cited as some of the challenges. The empirical study indicated that the majority (78.9%) of respondents have never participated in any construction-related training, while the minority (21.1%) previously enrolled for or attended training to help them improve their business. It is recommended that the shortage of skills within the programme be addressed by the government partnering with different private companies operating in the construction industry to offer some additional training programs on the CDP. Organizations such as South African Forum of Civil Engineering Construction (SAFCEC), which drives education, training and the development of contractors, and the National Construction Incubator (NCI), also develop and mentor emerging construction companies in South Africa. Training programmes can vary from health and safety management, essential construction management, financial management, and resources management.

Hadebe's (2017) study revealed a relatively low satisfaction level amongst participants regarding their growth and development since joining the CDP. However, on the contrary, the empirical study indicated that an average number of those SMMEs who participated in the CDP felt it was effective and provided an opportunity for their company to grow. In contrast, the minority felt allocation of project scope and budget is not done fairly. It might be that, regardless of being in the programme, some exited the programme without getting any work and others minimal work opportunities to advance or upgrade to higher grading. From empirical findings, it is recommended that provincial government sector departments ensure that each municipality is fairly represented and potential SMMEs be given opportunities based on their geographical area. Furthermore, the CDP scope can be expanded to local government spheres by implementing structured programmes that facilitate construction SMMEs through skills and business enhancement initiatives. It can be implemented within the technical directorate whereby the pool of construction SMMEs can be given less critical maintenance work, such as patching potholes, cleaning and constructing lower-level storm water channels, repairing and maintaining buildings, and water network and unblocking of sewer lines. Doing this would address the need for aligning CDPs with service delivery, and the industry needs to improve the performance of SMME contractors as most challenges faced by the local government involving CDPs would address some challenges.

Figure 6.1 below depicts the proposed Technical Services organogram aligning CDPs with service delivery which

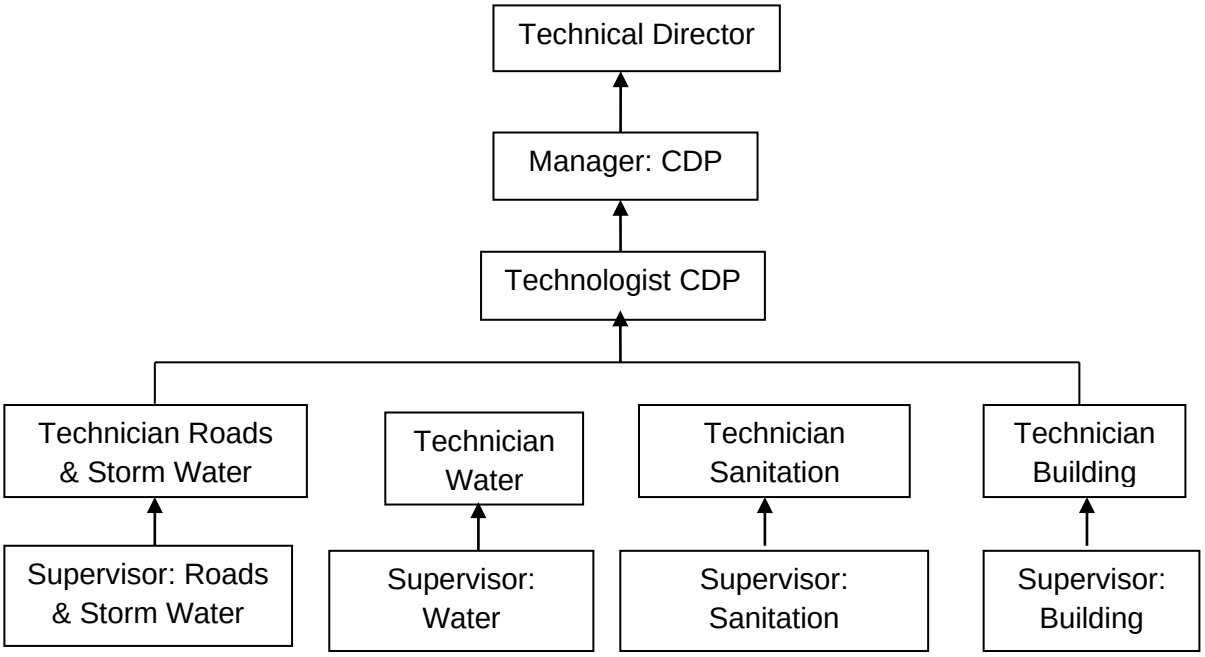


Figure 6.1: Technical Services organogram

Source: Own Compilation (2021).

The conclusion that most respondents opined that CDPs improved their performance in terms of quality, employment practices, skills development, safety, health and the environment contradict the previous study conducted by Haupt *et al.* (2019) in which respondents indicated that their time, cost, quality and health and safety management performances have not improved since they joined the CDP. However, having mentioned that, it is recommended that to develop and improve prospects for sustainable construction SMMEs, intensive monitoring and evaluation of the programme is done quarterly to address such shortfalls as raised by participants.

6.4.3 Secondary objective 3

To examine the types of opportunities for the lower-grade construction industry

The CIDB (2013b) acknowledges subcontracting as an industry approach used by established contractors to handle doubts in the construction market and permits the

main contractor to minimize operating costs by improving competition in the industry. It is prevailing in the South African construction industry, with the most familiar types of subcontracting being labour-only, trade contracting in the construction sector, and professional subcontracting in the building and civil sectors. The least allowed work to be subcontracted out is 30% in the civil sector due to its complex nature, while the building sectors can subcontract up to 70% of the works. Due to prevailing subcontracting in the construction sector, it is apparent that SMMEs will maintain playing an imperative part in the South African construction industry (Tshikhudo, 2016).

The study emphasised the need for government to set aside 30% of contract value compulsory for subcontracting to local construction SMMEs. Even though The Preferential Procurement Regulations, 2017 states that, if feasible, 30% of all government contracts above R30 million must be to subcontract for a local SMME, the state organ must get permission to subcontract work in order to progress nominated groups. In Mafube local municipality, all appointed service providers for construction capital projects are appointed on condition that they subcontract 30% of the value of work to local construction SMMEs through transparent procurement processes. Subsequent to the appointment, the service provider is given seven days to accept or reject the appointment with set subcontracting conditions. To ensure maximum compliance to the 30% subcontracting, the engineer and contractor must prepare and present to the client the scope of works to be subcontracted for approval. Once approved, briefing sessions are held for all interested bidders, whereby the Bill of Quantities (BoQ) is distributed to bidders for prices. Successful bidders will be appointed with a detailed scope of work for the 30% subcontracting allocation.

The subcontracting will eliminate a highly congested number of lower-graded contractors by ensuring some are eligible to upgrade to higher grading after the projects. With this, a recommendation is that all government spheres formulate policies that would ensure that in all construction projects, regardless of the value of the contract, 30% be set aside for empowerment of local (area where the project is implemented) construction SMMEs. All developed policies by government spheres (national, provincial and local) must be taken to the Executive Council for approval

and implementation. Through the Treasury Department, the national government must ascertain that all capital grants allocations to provincial and local governments have the compulsory condition that 30% subcontracting allocation is set aside to promote local construction SMMEs. Such a clause must be included in every bid document, and government institutions must report the number of SMMEs appointed per project, work opportunities created and the expenditure monthly, to the National Treasury.

On the finding that the government's unbundling of projects into more minor contracts would promote the participation, development, and sustainability of construction SMMEs, respondents did not rate this high, even though it is critical towards ensuring construction SMMEs are allowed to grow potentially. Some of the capital grants conditions such as the Municipal Infrastructure Grant (MIG), Water Services Infrastructure Grant (WSIG), Integrated National Electrification Programme (INEP), and Regional Bulk Infrastructure Grant (RBIG) are not in favour of unbundling of projects.

From empirical findings, it is recommended that guidelines for conditional grants be revised or reviewed to accommodate at least 20% of allocated budget to government spheres towards unbundling of projects specifically to lower (grade 1 to 2) CIDB contractors. For example, a 2 kilometer upgrading of gravel road to a paved road can be unbundled in sections of 500 meters each.

The scope is further unbundled to earthworks, a combination of construction on a storm water channel, concrete edge beams and kerbing, and laying of interlocking paving bricks alone. Up to 12 CIDB grade one to two construction SMMEs can benefit from the unbundling of a project and enable them to upgrade to higher grades after the project. Secondly, projects are designed and packaged into small construction or maintenance contracts to present a wide range of economically feasible job opportunities for construction SMMEs. A retired experienced professional Civil Engineer can be appointed for project management, mentoring, and skills transfer to construction SMMEs to ensure they are financially viable and have adequate technical and management skills at the end of the project.

Most respondents who participated in this study felt some government policies do not support procurement opportunities for SMMEs. For example, current municipal supply chain policies state that for all service providers willing to do business with the government, their rates and taxes accounts must not be older than 90 days; otherwise, they would be disqualified.

A recommendation is that those who need to be exempted from the regulation and bid for contracts advertised be requested to submit six months' company bank statements as proof that they do not have any source of income. The certified bank statement must be supported by a bank rating letter and the company accountant's confirmation of sole banking details. It will eliminate the potential risk of opening multiple bank accounts to circumvent municipal rates and taxes payment.

Furthermore, government spheres must prepare and adopt SMMEs development credit policy, which will offer discounts for payment of outstanding municipal rates and taxes. Only CIDB grades one and two must be exempted to meet the mentioned criteria, and once they have been awarded a contract by the government institution, municipal credit policy can be applied to SMMEs by giving discounted rates to SMMEs and making necessary payment arrangements, subject to the value of the contract awarded or works order issued.

6.4.4 Secondary objective 4

To identify the primary resources for the lower-grade construction industry to be sustainable

Einhorn (2015) declares that investing in machinery and equipment (M&E) should be of the utmost priority of each company's if it aspires to enhance its productivity and production, and ultimately, positively contribute to the overall economy. Govender (2017) postulates that the lack of equipment that forces contractors to hire equipment can drastically reduce a contractor's profits, particularly if he is unknown with the terms and conditions of the contract applicable to the project. The capability of SMMEs to develop depends significantly on their potential to reinvest in the construction by buying relevant equipment. Investing in a plant saves hiring costs and ensures present and future long-term financial security. A similar sentiment was

uncovered in most respondents who felt prioritizing the importance of investing in the right equipment is good practice for business success.

It can therefore be recommended that the government, through the CIDB, amend the requirements, making it compulsory for construction companies to own some plants to qualify for specifically advertised construction grading tenders. For advertised tenders of CIDB grade five and higher, ownership of appropriate equipment for tender in consideration must form part of at least 20% of the functionality criteria. For example, on road construction projects, equipment such as bakkies, tipper trucks, water carts, motor graders, rollers and backhoe must be allocated points. This recommendation can be replicated on water and sewer related projects. Minimal points can also be allocated to companies providing rental agreements of heavy or critical equipment.

According to Shwala (2018), some contractors formed construction companies without possessing any technical skills themselves, while others depend on hiring skilled personnel when they intend to tender for jobs. However, the empirical study revealed that recruiting qualified, competent, and experienced personnel was not a significant resource towards the sustainability of the lower-grade construction SMMEs. The findings further revealed that respondents felt that retaining skilled employees less directly impacted the SMME's growth and sustainability.

The prevailing challenge is that some SMMEs face difficulties in employing and retaining skilled graduates because skilled and qualified personnel go for months, if not years, without getting a contract to retain and pay skilled employees as they prefer to work for higher salaries and have job security. It is unfortunate considering the importance of having skilled and qualified staff when implementing infrastructure projects and the high failure rate and congestion of lower-grade construction SMMEs in the CIDB grading.

It is recommended that for every tender or job opportunity for lower SMMEs to be advertised, point allocation for several years' experience and level of education is included as the compulsory functionality measures for SMMEs. Functionality points can be allocated based on appropriate levels of education such as degree, national

diploma, a certificate in the company, and number of relevant years of experience in the construction industry, i.e. more experience leads to higher points allocated.

6.4.5 Secondary objective 5

To analyze the entrepreneurial skills necessary for the lower-grade construction industry to be successful

Mamabolo (2017) asserts that entrepreneurial skills are the most critical and essential basic business skills required for steering small businesses to lead to the profitability and viability of the organisation. The deficiency of skilled personnel and poor financial management in the South African SMME sector affects or deteriorates the organizational performance of the construction industry. The empirical survey with construction SMMEs in the Free State province has indicated that teamwork skills, leadership, negotiation, time, interpersonal, and conflict resolution skills were regarded as key entrepreneurial traits necessary for the sustainability of the lower-level construction industry. Without the right skills, which are generally managerial skills, many SMMEs will struggle to be sustainable; therefore, any construction SMME owner must ensure that they have a pool of skilled professionals in their workforce.

The findings indicate that the majority, approximately 90% of respondents, are below the age of 45 years, a total of 66% have primary and secondary education levels of education, 16% of the participated in the CDP, and only 21% of the participants have been underwent training related to construction industry. As a result, they lack essential financial management, project management, and tendering or costing skills training. Therefore, it is recommended that government, through its provincial CIDB offices, appoint a district skills training service provider to offer training and advisory services to SMMEs in construction. The training may include developing and implementing basic training schemes in business, financial, and general management training programmes to obtain a generic and fundamental theoretical understanding of construction business. Where it is feasible, relevant training must be sponsored by a national government (particularly through skill development levies). Furthermore, the government must put measures in place to enhance the effective and efficient monitoring and evaluation of service providers. Lastly, basic

business, financial, and general management training skills must form part of the compulsory requirement when approving SMME application for CIDB grading registration.

The CIDB (2011) cited that the lack of skills of the contractors includes business and financial management skills, and project management, estimating, tendering, and the technical skills specific to construction. Lack of skills is further accentuated by Ntuli (2016), who revealed that the three most essential skills are project management skills, financial and pricing tenders' skills as they may require some education or experience in construction to perfect them. In addition, the study conducted by Aigbavboa *et al.,* (2014) revealed good management skills as the most critical success factor for the survival of SMMEs contracting firms in the Johannesburg Metro.

The empirical findings indicate that a minority, approximately 34% of the respondents, owned a national diploma, bachelor and honours degree, trade or any relevant Technical and Vocational Education and Training (TVET) certificate and master's degree. Interestingly, very few SMME owners perceived relevant engineering/technical and management skills as the biggest constraint to improvement and sustainability of the lower-grade construction industry.

The researcher therefore recommends that the government invest more in the basic technical or engineering skills and management skills of construction SMMEs to advance their competitiveness and sustainability. Government must priorities Labour Intensive Construction (LIC) training courses in essential water and sanitation provision, building works and paved road construction and through institutions like Construction Education and Training Authority (CETA) which provide skills development services to the construction sector and basic management skills and supervision courses through construction incubation programmes. Courses such as basic tendering skills, financial management, project management and construction management should be made available.

6.4.6 Secondary objective 6

To identify the barriers to sustainability in lower-grade construction-based SMMEs in the Free State province

The SAFCEC (2019) reported that competition for tenders intensified in the 4th quarter of 2018, as 99.3% of companies reported that there were more than 11 bids per contract, compared to 98% in the previous two surveys. The CIDB Annual Report (2019a) also identified a lack of work opportunities as the highest constraint to business growth for both contractors' classes (CE & GB). To any individual SMMEs business, competition poses a threat to survival, but at the same time, competition is the main factor of economic growth as it drives firms to improve productivity and enhances their sustainability. SMMEs compete at the level of small and medium-sized projects that they can execute and through opportunities to subcontract work from established, experienced companies or form a joint venture and partnership.

Based on the findings from the study, the SMMEs explicitly highlighted the primary barrier to their sustainability as high competition and limited access to projects or work opportunities. Some do get a contract in one year and can sometimes go for two subsequent years after that without work. High competition does tend to have a significant effect on the CIDB grade, which in turn does not allow them to apply for an upgrade, because the upgrade requires the entities to demonstrate cumulative engagement and the availability of capital reserves requisite for keeping them within the specific grade. Thus, the high competition due to limited work opportunities amongst the congested lower-grades contractors has caused some to use their political connections and collusion with some officials to access contracts. A study by Shwala (2018) revealed that most respondents agreed that fraud and corruption are the main contributing factors in limiting access to projects/work opportunities among the SMME contractors in South Africa.

The recommendation in this regard is that the CIDB, in consultation with broader industry stakeholders inclusive of SMMEs, review the current regulations such as contractor grading designation; contractor grading designations for joint ventures;

application of the register of contractors; and a procedure for the invitation, evaluation, and award of quotations. Secondly, construction companies with higher grading should be prohibited from bidding for all work opportunities that require a CIDB grading below three. Lastly, for all work opportunities seeking CIDB grading of one or two within local government, only local SMMEs are allowed to bid to alleviate the congestion, improve their business, and ensure their sustainability.

Bailey (2018) cites that SMMEs often have limited cash reserves, with delays in payment having significant impacts on their ability to operate, and when experiencing cash flow problems, they are more likely to cut down on future investment in order to stay afloat, impacting growth opportunity. Therefore, the timeous payment of construction SMMEs upon successful monthly completion of verified and approved works is significant for ensuring the unnecessary interruption of work and completion of projects within planned the desired achievement of quality, time, and budget. The appointed consulting engineer and internal employees must verify the completion of work as depicted in Figure 6.1. to ensure the payment recommended for the processing meets value for money. This procedure is to be followed up until the certificate of completion is reached (issued to the contractor), whereby the last payment is processed with half of the retention money kept during the construction stages.

Consistent payment of SMMEs in construction is likely to prevent cost and time overruns and allows SMMEs to plan appropriately, execute, and complete the project. On the other hand, delay; the reduction of productivity; abandonment; and instigation of labour unrest become unavoidable if the implementing agent does not realize that cash flow is salient to the successful implementation of the projects. The results of the study revealed that the majority of the respondents felt that late payment of a submitted invoice by the government hindered their cash flow. In dissimilarity to well-established construction companies in higher CIDB grading, SMMEs are not in the position to easily withstand the impact of late payments, as a majority of them are in the business to survive, have employees to pay, and sometimes are forced to borrow money to meet their contractual obligations to avoid delays as they would have an impact on the sustainability of the business.

Though the National Treasury has championed many initiatives addressing the late payment of service providers through the Municipal Finance Management Act (RSA, 2009) *Circular No. 49 Non-Payment of Obligations*, which asserts that "*municipal managers to ensure that all money owing by the municipality to the service providers be paid within 30 days of receiving the relevant invoice or statement".* It has been found that the 30-day payment rule as per MFMA overrides the SMME business' sustainability, irrespective of contract type.

To eliminate some of the limiting factors to the sustainability of SMMEs, it is recommended that the government draft and approve regulations that would allow SMMEs to charge all government spheres interest on submitted invoices once the allowed 30 days by the National Treasury has elapsed.

Govender (2017) declares that many emerging contractors in South Africa operate construction companies with a limited technical ability, which eventually limits their success due to skills deficiency to perform projects successfully. Industry experience has not been unanimously labeled as the main barrier to sustainability of SMMEs, as less than 30% of the respondents have less than 10 years' construction experience, and 63% have up to grade 12certificate level. However, it has been regularly proven that lack of construction experience is a significant constraint on sustainability in lower-grade construction-based SMMEs.

Most SMMEs within the targeted grades do not possess the requisite-built environment experience to run their business successfully within the industry. However, construction experience and process maturity (business and construction processes) are relevant for the growth of SMMEs (CIDB, 2020). Therefore, it is recommended that, as part of the functionality, compulsory employment (either temporarily or permanent) of personnel possessing relevant experience on the type of construction work is advertised to be one of the main contributing factors in the CIDB grading of two or lower. This will increase productivity, stability, improve the quality of work done, and contribute towards the success and sustainability of the SMMEs whilst also reducing the high failure rate amongst lower-grades CIDB registered construction SMMEs.

To address the functionality aspects of the tender, the tender data should generally be based on the demonstration of the following criteria namely the professional and technical qualifications; professional and technical competence; financial resources; equipment and other physical facilities necessary for the execution of the works; and the managerial capacity, reliability, relevant work experience. Tender evaluation criteria need to be disclosed to tenderers in a reasonable, impartial and transparent procurement system. Accordingly, all criteria and weightings need to be disclosed within the procurement documents, and no additional criteria may be imposed after the tenders close and all tender offers or bidders will be evaluated in accordance with the functionality ratings stated in the tender document.

As per the proposed matrix for selection of contractors, the maximum points (weight) are to be allocated for each of the functionality criteria (F.1; F.2; F.3; F.4 and F.5) as described below and depicted in the Table 6.1 below:

For individual bidder minimum experience (F1), depending on the nature of the work under evaluation, the weight is allocated as follows:

- Experience (0 to 2 years) – 2 points
- Experience (2 to 5 years) – 5 points
- Experience (over 5 years) – 10 points

For individual bidder Key Plant & Equipment (Owned/Hired) (F2), depending on the nature of the work under evaluation, the weight is allocated as follows:

- Plant owned (registration documents to be submitted) – 10 points
- Plant to be hired (confirmation letter with plant registration documents to be submitted) – 5 points

For individual bidder Key staff relevant qualification (F3), depending on the nature of the work under evaluation, the weight is allocated as follows:

- Contracts Manager (7 years experience and NQF 7) – 10 points
- Site Agent (5 years experience and NQF 6) – 5 points
- Other key staff such as Foreman and Health and Safety Officer (5 year’s experience and NQF 5) – 5 points

For individual bidder Financial Viability (F4), depending on the nature of the work under evaluation, the weight is allocated as follows:

- Credit rating of A to C: banking details to be provided – 10 points
- Credit rating of D to F: banking details to be provided – 5 points

For individual bidder experience on similar projects (F5), depending on the nature of the work under evaluation, the weight is allocated as follows:

- 5 appointment letters and 5 completion certificates – 50 points
- 4 appointment letters and 4 completion certificates – 40 points
- 3 appointment letters and 3 completion certificates – 30 points
- 2 appointment letters and 2completion certificates – 20 points

The maximum possible score for functionality is 100 and the score of 80 points is considered good while the minimum threshold score of 70 is considered satisfactory. Table 6.1 below depicts the proposed matrix for selection of contractors.

Table 6.1: Proposed matrix for selection of contractors

FUNCTIONALITY EVALUATION		Functional Criteria					
		Minimum construction experience					F.1
		Key Plant & Equipment (Owned/Hired)					F.2
		Relevant qualification					F.3
		Financial Viability					F.4
		Experience on similar projects (completion certificates)					F.5
Name of bidder	**Maximum points (weight) to be allocated**	**10**	**10**	**20**	**10**	**50**	**100**
	Requirements	**F.1**	**F.2**	**F.3**	**F.4**	**F.5**	**Total**
		0	0	0	0	0	**0**

F1: Minimum construction experience

Min. Experience	Weight	Points
<3	3	0
3 to 4	4	0
4 to 6	8	0
6 or more	10	0
Sub-total	**10**	**0**

F2: Key Plant & Equipment (Owned/Hired)

Plant & Equipment	Weight	Points
Owned	10	0
To be hired	5	0
Sub-total	**10**	**0**

Proof of plant ownership to be provided
Plant lease agreement to be provided

F3: Relevant qualification

Relevant qualification	Weight	Points
Certificate, NQF 4	8	0
S4, NQF 5	12	0
N.D, NQF 6	15	0
B.Tech; NQF 7	20	0
Sub-total	**20**	**0**

Certified qualifications to be provided

F4: Financial Viability

Credit Rating	Weight	Points
F	4	0
E	6	0
D	8	0
C	10	0
Sub-total	**10**	**0**

***Banking Details to be provided*

F5: Experience on similar projects

Completion certificates	Weight	Points
1	10	0
2	20	0
3	30	0
4	40	0
5	50	**0**
Sub-total	**50**	**0**

Completion certificates to be provided

Table 6.1: Technical Services organogram

Source: Own Compilation (2021).

Govender (2017) indicates that the low barrier of entry in the industry allows companies to bid work advertised even if they short of qualifications, proficiency, experience, and finances. Although the government has made efforts to transform the construction sector to allow the participation of SMMEs, no regulations have

been effected as most of these contractors lack the experience and skills necessary to manage sustainable construction business. The absence of regulations continues to pose grave hindrances to the improvement and sustainability of construction SMMEs.

The results of the study revealed that the majority of the responding construction SMMEs possesses CIDB grading one in both GB (57.1%) and CE (34.6%). The two classes of works prove to have high congestion of registered contractors, as previously stated in the theoretical studies. On the other hand, there are low barriers to entry in the construction sector; thus, the high congestion of construction SMMEs in lower-grades due to lack of regulations limits the competitiveness and enables sustainability of the industry.

The recommendation is therefore that the government considers setting minimum requirements, such as several years of experience in the construction industry; formal qualification or pre-requisite relevant basic skills training; professional body affiliation; and creating tendering processes based on SMMEs' profiles. Secondly, the government must consider exempting SMMEs in grades one and two from the imposition of a new national minimum wage.

RSA (2003) state that the mayor of a municipality must offer general political leadership over the financial affairs of the municipality; he may further monitor and, to the degree afforded in the MFMA, administer the exercise of responsibilities to the accounting officer and the chief financial officer, but may not meddle in the exercise of those responsibilities.

The study revealed that there is political influence in awarding of tender contracts in the government spheres. Adding to this, Writer (2019) cited that engineering professionals also raised the over-politicization of infrastructure departments within the public sector as one reason preventing them from joining the public sector. The over-politicization is affirmed by an article in the Times Live (2020) that nine people allegedly colluded in tender corruption worth about R75m in Nelson Mandela Bay Municipality. It was also suspected that some of the accused and the late Nelson Mandela Metro Councillor Mongameli Bobani and political office bearers "abused

their political power" within the metro, by manipulating key officials in the procurement process.

To avoid persistent perceived political influence in awarding contracts, it is recommended that external experts in finance, law, and engineering fields that are not actively involved in politics form part of all spheres of government tender committees to ensure good ethical practices. Secondly, bid evaluation and adjudication meetings must be voice recorded with a declaration of interests and confidentiality forms signed by all members. Thirdly, a review of the current tender system must be considered, such as electronic submission and evaluation of tenders, and lastly, Tenders Corruption Hotlines should be established in every district for efficient and prompt investigation of reported cases.

6.5 CONCLUSION

The ailing construction industry experienced a decline in operations during the level five national COVID-19 lockdown as work on construction sites was suspended for more than a month. When the country moved to level four lockdown, only critical civil engineering projects slowly resumed with the phased reopening of the economy, while many projects were halted until restrictions were eased around June 2020. The impact of the pandemic on all construction companies, including SMMEs, has varied. The construction SMMEs were affected on both the supply and demand sides of the economy, creating a vicious cycle. Due to the pandemic, the decline in construction work opportunities, the supply of material, and access to capital funding were significant constraints to sustainability. The industry performance was exacerbated by a decline in government and private sector investment, as more funds were diverted to essential services to curb the spread of the pandemic.

Given the impact of the national lockdown on the economy, the construction sector, which plays a critical role in the growth and development of countries through its contribution to employment, suffered 24 000 job losses between third and last quarters of 2021 and gained approximately 210 000 jobs since the inception of the pandemic in first quarter of 2020 (STATS SA, 2021b).

This study was undertaken to identify factors needed to improve lower-grade construction-based SMMEs in the Free State province. Through the survey of the owners or managers of lower-grade construction based SMMEs, the study revealed the factors acknowledged in the literature as contributory to the sustainability of construction SMMEs in the Free State province.

Based on the findings, the study concludes that the essential requirements for a sustainable construction industry were the government's direct-acting and imposing harsh penalties against corrupt activities within the construction industry and companies that consider joint ventures with other higher grading companies gain valuable experience remain sustainable and competitive.

The ever-rampant increase of using political connections and collusions with government officials to gain unfair advantage over other bidders and get awarded contracts is rife in the country. Most contracts are now being investigated; some set aside, invalidated, and those who conspired to be convicted. As indicated in the empirical studies, there is a high need for construction companies to adhere to the business' highest ethical standards.

There is a general indication of questioning the CDP recruitment process' fairness and transparency. Many respondents agreed that politically connected SMMEs are mostly considered in the CDP, even amongst those, only few SMMEs benefitting from the programmes and its improvement SMMEs business management and technical skills. Most construction forums in the country are demanding a 30% subcontracting share in all government projects. The demand of 30% has led to many projects being delayed, suspended, and abandoned, with additional project cost implications for standing time, re-advertisement, or unspent funds forfeited by the government entity. They further derail the much-expected delivery of services or infrastructure.

SMMEs normally face financial constraints derailing ideal financing of investment and operational needs. Inadequate cash flow, like previously stated, has also been revealed as the biggest SMME constraint. Inadequate cash flow occurs in many ways, such as mismanagement of funds, poor decision making, need to pay bribes,

and inconsistent payment of invoices by the client. The need to retain a certain percentage of company funds to enable operating up to three months without any payment must be considered by many construction SMMEs.

Increasing new SMME registrations overcrowd the already congested CIDB grade one numbers due to higher entry because of a lack of regulations, opening possibilities for the unfair practice of awarding contracts due to high competition and limited access to work opportunities. Moreover, as most do not have management skills and relevant industry experience; awarding contracts to such SMMEs set them up for failure by not completing projects, providing poor quality workmanship, which might lead to demolition or reconstruction. Therefore, to ensure improvement and sustainability in the industry, it is critical that the government show commitment by giving more attention and recognition to construction SMMEs, regulate the sector, set up pre-requisite requirements, offer them appropriate training (financial and management), provide mentoring with regular visits post mentoring stage, and blacklist those implicated in corrupt activities. These would decrease high entry, encourage SMME to pursue opportunities other than making quick money, and have a sustainable industry with increased job creation.

This study has added to the body of knowledge, as it brings to light the most critical aspects that are affecting the sustainability of lower-grades construction-based SMMEs in the Free State province. It further provides concrete recommendations to stimulate sustainability in the construction SMME sector. It is assumed that if the findings and recommendations of this study are well thought-out and implemented, the study will go a long way in contributing to the reduction in congested lower-grades, provides sustainability to SMMEs, and reduces the unemployment rate.

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ANNEXURE A: RESEARCH QUESTIONNAIRES

PLEASE NOTE

This questionnaire must only be completed by active owner-managers of lower-grade construction based SMMEs within CIDB grading of 1 to 4 in GB and CE class of works doing business in all Free State Province District Municipalities and two Provincial Departments, namely Public Works and Infrastructure and Police, Roads, and Transport.

All information will be treated as STRICTLY CONFIDENTIAL and will only be used for academic purposes.
Instructions for completion:

1. Please answer the questions as objectively and honestly as possible.
2. For the sections A to E place a cross (X) in the space provided at each question which reflects your answer the most accurately. Use the following key: 1 = Strongly disagree; 2 = Disagree; 3 = Neutral view; 4 = Agree; 5 = Strongly agree.
3. It is essential you indicate your choice clearly with a pen.
4. Please answer all the questions, as this will provide more information to the researcher so that an accurate analysis and interpretation of data can be made.

Thank you for your co-operation. We hope that you will find the questionnaire interesting and stimulating.

CONSTRUCTION SMME RESEARCH QUESTIONNAIRE

SECTION A: DEMOGRAPHIC DATA

Referring to the attached, please complete the following details

1. Locality - Head office: ☐

2. Name of the organisation: ☐

Please tick **X** in the following:

3. Number of years as SMME in the construction industry:

Less than 2 years		2 –3 years		3 – 4 years		4 – 5 yeas	

4. Please indicate your status in the organisation

Owner/Director	
Manager/Contracts Manager	
Site Agent	

5. Gender: Male ☐ Female ☐

6. Please indicate which age category you fall into:

18 to 35 years ☐ 36 to 45 years ☐ 46 to 55 years ☐ 56 to 65 years ☐

7. Please indicate your ethnicity:

African ☐ White ☐ Coloured ☐ Indian ☐ Asian ☐

8. Please indicate your highest formal qualification:

Doctoral Degree	
Masters Degree	
Diploma/Bachelors and Honours degree	
Trade or Any Technical school certificate	
Secondary School/Grade 12	
Primary school/or No schooling	

9. Numbers of years' experience in the construction industry:

More than 10 years	
More than 5 years but less than 10 years	
More than 2 years but less than 5 years	
Less than 2 years	

10. Any professional body affiliation either as a candidate or professional?

Professional Body	Registration Number	Candidate or Professional
ECSA		
SACPCMP		
SAFCEC		
NHBRC		
Other (indicate)		

11. Your company CIDB grading:

CIDB grade 1	
CIDB grade 2	
CIDB grade 3	
CIDB grade 4	

12. Has your business ever participated in the Construction Development Programme (CDP)?

YES		NO	

13. Did you attend any training related to your business?

YES		NO	

SECTION B: REQUIREMENTS FOR A SUSTAINABLE CONSTRUCTION INDUSTRY

Instructions: Please read each statement carefully and indicate to what extent you agree or disagree with the statements. Rate them on a scale 1-5 by using a thick (√) or a cross (X) on the applicable block. (1) Strongly disagree, (2) Disagree, (3) Neutral, (4) Agree, (5) Strongly agree.

No.	Statement	1	2	3	4	5
B1	Government regulations will promote competitiveness and ensure sustainability of the industry					
B2	Government's immediate acting and imposing of harsh penalties against corrupt activities within the construction industry					
B3	Government's consideration to open a bank that would fund SMMEs in the construction industry					
B4	Government to consider relaxing business legalities and commercial laws restricting SMMEs sustainability					
B5	National blacklisting of contractors that fail to complete projects and provide poor workmanship					
B6	Construction companies must adhere to the highest ethical standards in business					
B7	Recruitment and retention of competent and experienced personnel increases productivity and success and sustainability of the SMMEs					
B8	Investment in construction PPE (Property, Plant and Equipment) to minimize hiring of plant equipment contributes to sustainability of the business					
B9	Financial cash flow and efficient use and management of resources enhances the business' sustainability					
B10	Application of lean construction methods and innovative ways enhance the business' sustainability					
B11	Companies must reinvest their portion of profits back into the business					
B12	Companies that consider joint ventures with other higher grading companies gain valuable experience and remain sustainable and competitive					
B13	Good interpersonal, verbal and written communication skills are vital towards building a viable and sustainable SMME					

B14	Consistent good entrepreneurship and leadership skills influence good management practice and hence improvement of SMME performance					

SECTION C: EFFICACY OF EXISTING CONTRACTOR DEVELOPMENT PROGRAMMES IN SOUTH AFRICA

Instructions: Please read each statement carefully and indicate to what extent you agree or disagree with the statements. Rate them on a scale 1-5 by using a thick (√) or a cross (X) on the applicable block. (1) Strongly disagree, (2) Disagree, (3) Neutral, (4) Agree, (5) Strongly agree.

No.	Statement	1	2	3	4	5
C1	There are enough Contractor Development Programmes in the province.					
C2	Being part of a CDP enhances SMMEs capability.					
C3	CDPs are effective in the development of my firm.					
C4	CDPs provide an opportunity for my company to grow.					
C5	The recruitment process into the programmes is open and transparent to all construction SMMEs.					
C6	Allocation of project scope and budget is done fairly.					
C7	Few construction SMMEs benefit from the programmes.					
C8	The programmes promote development of lower-grade SMMEs.					
C9	CDPs improve the performance of contractors in terms of quality, employment practices, skills development, safety, health and the environment.					
C10	Government spheres implement structured programmes that facilitate the development of construction SMMEs through skills and business enhancement initiatives.					
C11	Politically connected SMMEs are mostly considered in the programmes.					
C12	CDPs improve the business management and technical skills of SMME contractors in the programmes.					
C13	CDPs are aligned with service delivery and industry needs to improve the performance of SMME contractors.					

SECTION D: TYPES OF OPPORTUNITIES THAT EXIST FOR THE LOWER-GRADE CONSTRUCTION INDUSTRY

Instructions: Please read each statement carefully and indicate to what extent you agree or disagree with the statements. Rate them on a scale 1-5 by using a thick (√) or a cross (X) on the applicable block. (1) Strongly disagree, (2) Disagree, (3) Neutral, (4) Agree, (5) Strongly agree.

No.	Statement	1	2	3	4	5
D1	Subcontracting or joint ventures with higher grading contractors.					
D2	Compulsory government 30% subcontracting to local construction SMMEs.					
D3	Government's unbundling of projects into smaller contracts that promote the participation, development and sustainability of construction SMMEs.					
D4	Government held road shows or workshops sharing information with construction SMMEs of opportunities available to them.					
D5	Participation in Contractor Development Programmes (CDPs).					
D6	Government has sufficient contractor incubator programmes to assist construction SMMEs.					
D7	Government's policies are in place to support procurement opportunities for SMMEs.					
D8	Opportunity to tender in all government spheres nationally.					
D9	Government offers a user-friendly procurement procedure and tender/contract documentation for SMMEs.					
D10	Government has created an environment that is less restrictive and more conducive to ensure that SMMEs are able to compete and succeed.					
D11	SMMEs have access through a wide range of funding programmes and financing schemes by both the public- and private-sector funding agencies.					

SECTION E: MAIN RESOURCES FOR THE LOWER-GRADE CONSTRUCTION INDUSTRY TO BE SUSTAINABLE

Instructions: Please read each statement carefully and indicate to what extent you agree or disagree with the statements. Rate them on a scale 1-5 by using a thick (√) or a cross (X) on the applicable block. (1) Strongly disagree, (2) Disagree, (3) Neutral, (4) Agree, (5) Strongly agree.

No.	Statement	1	2	3	4	5
E1	Recruiting qualified, competent and experienced personnel is key towards the sustainability of the SMME.					
E2	Retaining good employees has a direct impact on the SMME's growth and sustainability.					
E3	Capacitating employees improves operations and increase productivity of the business					
E4	Channelling of resources towards the SMME sector ultimately leads to a range of benefits for the entire South African population and economy.					
E5	Good financial management is key for the success of the SMME.					
E6	Effective and efficient use of cash flow is key to sustain the business.					
E7	There is relevant financial support provided by both the private and public sectors for the success of SMMEs in South Africa.					
E8	Investing in the right equipment is good for business success.					
E9	Effective use of equipment increases productivity.					
E10	Investing in construction equipment is more cost-effective when it is to be used over the long term.					

SECTION F: ENTREPRENEURIAL SKILLS NECESSARY FOR THE LOWER-GRADE CONSTRUCTION INDUSTRY TO BE SUCCESSFUL

Instructions: Please read each statement carefully and indicate to what extent you agree or disagree with the statements. Rate them on a scale 1-5 by using a thick (√) or a cross (X) on the applicable block. (1) Strongly disagree, (2) Disagree, (3) Neutral, (4) Agree, (5) Strongly agree.

No.	Statement	1	2	3	4	5
F1	Relevant engineering/technical and management skills.					
F2	Computer literacy.					
F3	Decision making.					
F4	Basic tendering or costing skills.					
F5	Verbal and written communication skills.					
F6	Leadership skills.					
F7	Team working skills.					
F8	Enthusiasm and Commitment					
F9	Interpersonal skills.					
F10	Critical thinking.					
F11	Conflict resolution.					
F12	Time management.					
F13	Ability to work under pressure.					
F14	Negotiation skills.					
F15	Project Management skills.					

SECTION G: BARRIERS TO SUSTAINABILITY IN LOWER-GRADE CONSTRUCTION-BASED SMMES IN THE FREE STATE PROVINCE

Instructions: Please read each statement carefully and indicate to what extent you agree or disagree with the statements. Rate them on a scale 1-5 by using a thick (√) or a cross (X) on the applicable block. (1) Strongly disagree, (2) Disagree, (3) Neutral, (4) Agree, (5) Strongly agree

No.	Statement	1	2	3	4	5
G1	Industry/government regulations.					
G2	Failure to complete projects.					
G3	Lack of management skills (including business).					
G4	Failure to pay municipal rates and taxes.					
G5	Political influence in awarding contracts.					
G6	Poor cash flow management.					
G7	Over reliance on largely contested government tenders due to limited access to private sector contracts.					
G8	Lack of industry experience.					
G9	Late payment of submitted invoice by government hindered the cash flow.					
G10	Inadequate unbundling of projects to suit construction SMMEs.					
G11	Shortage of construction equipment forcing SMMEs to hire plant equipment.					
G12	Failure to attract or retain skilled personnel.					
G13	High competition and limited access to projects/work opportunities.					
G14	Higher entry due to lack of regulations.					
G15	Poor quality workmanship leading to demolition or reconstruction.					

Thank you for your time and patience in answering the questions. Your contribution to the study is highly appreciated.

ANNEXURE B: CONSENT FORM

CONSENT TO PARTICIPATE IN THIS STUDY

I, _____ (participant name), confirm that the person asking my consent to take part in this research has told me about the nature, procedure, potential benefits and anticipated inconvenience of participation.

I have read (or had explained to me) and understood the study as explained in the information sheet. I have had sufficient opportunity to ask questions and am prepared to participate in the study. I understand that my participation is voluntary and that I am free to withdraw at any time without penalty (if applicable). I am aware that the findings of this study will be anonymously processed into a research report, journal publications and/or conference proceedings.

I have received a signed copy of the informed consent agreement.

Full Name of Participant: _____

Signature of Participant: _____ Date: _____

Full Name(s) of Researcher(s): _____

Signature of Researcher: _____Date: _____

ANNEXURE C: ETHICAL CLEARANCE CERTIFICATE

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