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Capacity Challenges Facing Civil Engineering Contractors in Kwazulu - Natal, South Africa

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Abstract*— Insolvency maybe broadly defined as an inability of business entity to meet pending financial commitments. For a construction firm, such a situation creates conditions whereby a business entity is unable to fulfill its contractual obligations with regard to work in progress or credit owing. There are indications to suggest that during times of adverse conditions, the occurrences of insolvencies are mutually exclusive and remain a subject of debate. The occurrences of these financial facilities seem to have adversely affected business operations within the civil engineering construction Industry. in South Africa, figures released by the South African Federation of Civil Engineering Contractors (SAFCEC) in 1992 were suggesting an expected general decline in work load handling by this sector. This was a result of scaling down of heavy Infrastructure projects because of government shifting focus to housing and other related projects mainly towards meeting the needs of the previously disadvantaged communities. During that period large contractors suffered financially and some went through insolvency. The South African government had also put emphasis to transform the sector to allow participation of emerging and small contractors but this was not properly regulated as most of these contractors did not have the experience and skills to operate sustainable construction firms. The Construction Industry Development Board (CIDB) was established in 2000 as a statutory body to provide leadership to stakeholders and to stimulate sustainable growth, reform and improvement of the construction sector for effective delivery and the industry's enhanced role in the country's economy. Construction Industry Development Board (CIDB's) regulations were implemented after 2003 and are continuously improving the sector's growth. This research seeks to evaluate the findings of an investigation regarding challenges facing Civil Engineering Contractors in KwaZulu- Natal, South Africa. The research reports on the basis of the hypothesis that "the prominent factors associated with civil engineering contractor's insolvencies are related to operational and strategic issues". The analysis of the findings from the questionnaires and liquidators reports supports the hypothesis that operational management and strategic factors attribute to high failure rate amongst civil engineering contractors. From the findings, a number of recommendations are made to develop strategies to promote growth and sustainability in the civil construction industry especially amongst emerging contractors. This paper focuses on the questionnaire feedback from construction firm owners and will discuss the findings of the survey.

I. INTRODUCTION

Two forms of insolvency exist as recognized by law, namely commercial and factual insolvency. Commercial insolvency occurs where a business entity is unable to service its debts even though its assets may exceed its liabilities, whereas factual insolvency is where a firm's liabilities exceed its assets. The terms bankruptcy and insolvency are often deemed to be interchangeable, although they may represent the same situation, their application differs. Reference [1] refers to bankruptcy as a term pertaining to individuals, whereas insolvency is a broader term incorporating liquidation, receiverships and administration of the company by bankers, or others with a financial stake. Liquidation is referred to also as winding up and involves a process whereby the life of the company is brought to an end when it is unable to pay its debts. Receivership involves an appointment of a receiver liquidator whose main role is to protect the assets of the insolvent company, on behalf of the secured creditors [2]. Incumbent upon his or her appointment, the liquidator may continue running the affairs of the insolvent firm for a while to sell off its assets or streamline its operations for it to be profitable again and sell the company as a going concern. However, given the uncertainty of recovery from loss by the firm, the process of winding up the firm usually follows. The process of winding up can be decreed by the courts of law or may be voluntarily initiated by the members of the firm or creditors [3].

II. LITERATURE REVIEW

During the early 1990's in South Africa, there was a general decline in workload handled by the construction sector. This was as a result of the scale down of heavy infrastructure projects because of the government shifting focus to housing and other related projects mainly towards meeting the needs of the previously disadvantaged communities. This trend was confirmed by [4] in the Western Cape Province where the value of tenders awarded dropped from R 518 million (1994) to R120 million (1995) during the January to May period. In October 1995, three well-established civil engineering contractors in Western Cape went insolvent. In the survey and studies conducted by [5]; [6], insolvency causal factors associated with insolvencies in general construction firms were identified. These factors could be broadly classified into categories of operational management, environmental, strategic, personal, cost overruns and technological factors. Economic factors are worth to note, but may be perceived as being external to firms operations, failure by firms to recognize that their efforts may lead to the termination of a firm's operations. [7]–[10] identified that the construction industry has distinct

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characteristics from others and is susceptible to failure. These are:

- Trading within a high uncertain environment e.g. uncertain ground conditions, unpredictable weather and labour availability
- The necessity to price a product before it is produced.
- Competitive tendering as a means of pricing.
- The low fixed capital requirements for entry into market results in markets being over capacitated.
- Ease of entry into the civil construction industry given the lack in legislation, stating who may or may not build.

The most prominent cause of insolvency results from inadequate cash resources and the failure to convince creditors of the availability of money [11]–[12]. Reference [8] concurs with this view that even profitable firms could be forced into liquidation because the demand of payment of outstanding accounts could not be met at the critical time despite the fact that the assets are tied in long-term investments. Furthermore, capital is often required to smoothen out the strains on the cash flows resulting from the occurrence of cost and uncertainty [7]. Escalating materials prices coupled with high interest rates have forced management of construction firms to focus on the control and flow of money as being critical to its survival [8]. Moreover the terms of payment stipulated in the contractual conditions and the escalation formulae (on contracts with escalation) require a great deal of expertise to apply, coupled with the task of ensuring promptness in the submission and payment of bills to ensure that the cash flow situation is controlled and improved upon (i.e. preventing the erosion of profit). Growth in a firm necessitates the injection of the capital, given that at a certain point in time its fund requirement will exceed its fund generation [11]. The financing of construction projects may be external and internal to an organization. Internal sources: Include the contractor's retained earnings from previous projects or investments; depreciation income obtained through depreciating assets, thus the depreciable assets through their sale. External source include large source of external finance through bank loans and other financing mechanisms. These may be short or long term. Good management implies an awareness of all factors making up a successful business namely good strategy, marketing, pricing and financial control [13]. Financial mismanagement and management incompetence have been cited among the attributes that lead to the prominence of construction failures [5], [14]. Reference [14] assert from their study that there needs to be training amongst entrepreneurs on matters relating to financial management such as bookkeeping, tax planning, budgeting and cash flow management. Additionally, the lack of management information also contributes to the failure of businesses. The use of financial ratios and inter-firm comparisons have been cited as the most useful tools in providing management information which measures the overall effectiveness of any business [14]. Furthermore, management information permits management to monitor measure and evaluate performance of the company at certain time intervals, with the attainment of an improvement of profitability in view.

Challenges within the construction industry

The South African government has put emphasis to transform the sector to allow participation of emerging and small contractor but this was not properly regulated as most of these contractors did not have the experience and skills to operate sustainable construction firms. Exacerbating this problem is the inadequate investment skills development across all levels in the sector, despite sufficient funding available from the Construction Education and Training Authority (CETA) and specific deficiencies include inadequate recognition of prior learning and work place training. The Construction Industry Development Board (CIDB) was established in 2000 as a statutory body to provide leadership to stakeholders and to stimulate sustainable growth, reform and improvement of the construction sector for effective delivery and the industry's enhanced role in the country's economy. Construction Industry Development Board (CIDB) regulations were implemented after 2003 and are continuously improving the sector's growth. CIDB has realized 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. This initiative is seen by some as a mechanism amongst others to minimize the advert of insolvent situations in the construction industry [15]. Investing in appropriate suitable training is vital and lead to improvements in productivity and in the long term lead to cost savings. Training should lead to qualification/s recognized by industry and enable employees to demonstrate the level of attainment and competence reached. According to [16] there are 37 545 active contractors, 29 698 are registered as grade one contractors. Grade one can only undertake work that has a maximum value of R200 000,00. This bottom heavy means that many aspirant contactors never win a project restricting the flow upward to grade two or higher. For this reason the Construction Industry Development Board (CIDB) has proposed development programmes that are driven by clients and established contractors for selected contractors. This will lead to fewer but sustainable businesses, especially at the grade one level, in a bid to create a more rational, less cut-throat industry structure. The Construction Industry Development Board (CIDB), alongside the Department of Public Works, has developed a new framework - the National Contractor Development Programme (NCDP) - to alleviate the problems and lack of experience, capacity and business knowledge in order to assist and develop previously disadvantaged individuals (PDIs) and potentially emerging (PE) contractors in South Africa.

III. QUESTIONNAIRES STATISTICAL ANALYSIS

A. Introduction

The questionnaire was designed with the intention of eliciting a response(s) from the management of civil

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engineering contracting firms, towards determining the principal reasons for the failure of civil engineering contracting. It was assumed that the respondents would be sufficiently familiar with the reasons stated, the questions were kept simple and straight forward and the language employed was at a level commensurate with the survey population in attempting to increase the response level. The format we abstained was to reveal perceived causes of failure in civil engineering contracting firms and provide a body of material constituting opinions as the cause of failure of construction companies. The approached followed, was to find out from the respondents the nature of their business and their perceptions of the construction industry. The questionnaires were answered mainly by the owners or managers of the construction contractor, which gave a clear view of the challenges in their day to day running of the business.

B. Methodology

This summary data analysis is based on randomly selected respondents around KwaZulu Natal, South Africa. It needs to be noted that, no detailed statistical inference could be conducted. For instance, to conduct a test of association using chi-square would require at least 5 expected observations per category, which is not feasible in this case. The only option remaining is to collapse these categories to only two categories, but still it would be difficult to find significance difference. The data does allow for any statistical influence according to the various categories. However, discussions were made using the percentages based on the sample size, N. The number of respondents per category can be re-computed by multiplying the percentage with the respective sample size. However, the information presented below will enable the scientist to discuss and compare some of the categories in respect of the study objectives.

Table I(a): Demographic Characteristics of Respondents

Demographic Factor	Sample (N)	Category	(%)
Sex	21	Male	81,0
		Female	19,0
Race	21	Africa	71,4
		White	23,8
		Indian	4,8
Company Size		Large	71,4
		Medium	28,6
		Small	0,0
Position Held	21	Director	23,8
		Managing Director	9,5
		Manager	14,3
		Managing Member	9,5
		Member	28,6
		Owner	14,3

Table I(b): Demographic Characteristics of Respondent

Demographic Factor	Sample (N)	Category	(%)
Highest Educational Qualification	21	No Schooling	0,0
		Up to Std 1/Gr3/ABET 1	0,0
		Std 2-Std 3/Gr 4-Gr 5/ABET2	0,0
		Std 4-Std 5/Gr 6-Gr 7/ABET3	4,8
		Std 6-Std 7/Gr 8-Gr 9/ABET4	0,0
		Std 8/Gr 10/NTC 1	9,5
		Std 9/Gr 11/NTC 2	9,5
		Std 10/Gr 12/NTC 3	19,0
		Certificate/Diploma with Gr 12	38,1
		Bachelor's Degree	14,3
		Post-graduate degree	4,8

Remark:

African Males who owned companies were the main respondents (Males - 81%; Africans -71%. All respondents had at least a standard 4 level of education with the majority having a certificate/diploma with Grade 12. The majority of the respondents were members of the company.

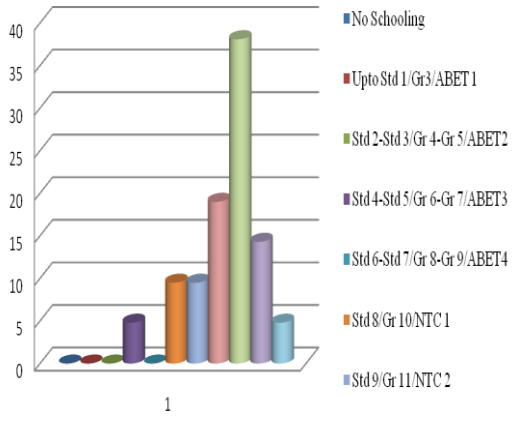

Fig. 1 Highest Educational Qualification

Table II: Problems Known to Hinder the Development/Growth of Construction Companies

Problems know to hinder the development/growth of construction companies	Sample (N)	Percentage of participants ranking problem as					
		1st Main (N=21)	2nd Main (N=21)	3rd Main (N=20)	4th Main (N=21)	5th Main (N=19)	6th Main (N=7)
Lack of financial discipline	21	38,1	28,6	23,8	4,8	4,8	-
Lack of continuity – how to get next tender	21	57,1	23,8	-	9,5	9,5	-

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Problems know to hinder the development/growth of construction companies	Sample (N)	Percentage of participants ranking problem as					
		1st Main (N=21)	2nd Main (N=21)	3rd Main (N=20)	4th Main (N=21)	5th Main (N=19)	6th Main (N=7)
Maintain procurement and suitable order book	20	35,0	20,0	15,0	15,0	15,0	-
No management experience	21	52,4	23,8	4,8	-	19,0	-
Other, please specify:	7	28,6	-	-	-	14,3	57,1

Remark:

Lack of work (57%) received the highest percentage from the participants as the main problem that hinder their growth and development with lack of management experience (52%) and lack of technical experience (47%) are second and third respectively. Tendering for work requires management and operational experience to acquire work at competitive pricing. Without these skills it is difficult to sustain the business with new projects. Other problems indicated were the inexperience with pricing and corruption inside client bodies. Of the respondents, 61,9% had prior construction experience before starting their own companies and 38% did not.

Table III: Critical Skills Required Running a Sustainable Construction Company

Critical skills required to run a sustainable construction company	Sample (N)	Percentage of participants ranking critical skills as					
		1st Most important	2nd Most	3rd Most	4th Most	5th Most	6th Most
Financial Skills	21	47,6	19,0	19,0	9,5	-	4,8
Project Management	21	57,1	4,8	9,5	14,3	4,8	9,5
Business Development	21	38,1	9,5	4,8	4,8	14,3	28,6
Pricing Tenders	21	47,6	23,8	-	19,0	9,5	-
Administration	21	22,2	14,3	9,5	19,0	19,0	4,8
Technical Skills	21	47,6	14,3	19,0	9,5	9,5	-

Remark:

The three most important skills as ranked by the participants (47%) are financials, pricing tenders and technical skills. All of these skills may require some education or experience in the construction to perfect them. Since contracting is a business, it's important that the directors are able to be competitive with their pricing, be able to do the work once it's awarded to them and manage their cashflow to sustain their business.

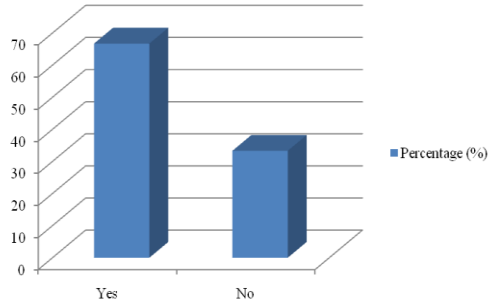

Fig. 2 Construction Industry Development Board (CIDB) Improved Construction Industry

Remark:

The majority of the respondents (66,7%) felt that since the industry has been regulated by Construction Industry Development Board (CIDB), it has improved the construction sector, 33% disagree which may highlight the need for Construction Industry Development Board (CIDB) to continuously improve its initiatives to address the needs of the contractors and all other stakeholders.

Table IV: Causes of Delays in Construction Projects

Causes of delays in construction	Sample (N)	Percentage of participants ranking causes of delays as							
		1st Major	2nd Major	3rd Major	4th Major	5th Major	6th Major	th Maj	th Maj
Inclement Weather	21	**33,3**	**14,3**	**14,3**	**19,0**	**4,8**	**9,5**	**4,8**	-
Late Delivery from Suppliers	21	**28,6**	**9,5**	**14,3**	**23,8**	**4,8**	**19,0**	-	-
Subcontractors	21	**4,8**	**9,5**	**19,0**	**4,8**	**33,3**	**4,8**	**23,8**	-
Late Payment from Clients	21	**23,8**	**9,5**	**28,6**	**14,3**	**4,8**	**19,0**	-	-
Staff Disputes	21	**9,5**	**14,3**	**23,8**	**4,8**	**9,5**	**9,5**	**14,3**	**14,3**
Poor Planning	21	**28,6**	**28,6**	**9,5**	**19,0**	**9,5**	-	-	**4,8**
Scope Creep	21	**14,3**	**19,0**	**4,8**	**14,3**	**9,5**	**4,8**	**19,0**	**14,3**
Obtaining sureties and Insurance	20	**33,3**	**4,8**	-	**9,5**	**4,8**	**4,8**	**9,5**	**28,6**

Remark:

The cause of delay in most projects is inclement weather (33%), this factor is beyond the action of the contractors. Obtaining sureties and insurances is critical before the commencement of construction. The bigger the project the bigger the sureties and insurances required. This could be a challenge if cash is tied up on other payments due to non-payment by clients or the contractor may not have a start up loan. Suppliers received the third highest rank from contractors. This could be attributed to various reasons which could be within the responsibility of the contractor i.e. purchase of materials, payment of suppliers in time before delivery are done. Poor planning received 28%, this may be emanating from contractors poor planning or the clients indecisiveness on the project.

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Table V: Importance of Advance Loans in the Success of Businesses

Importance of advance loan (N=21)	Percentage (%)
Very important	38,1
Important	38,1
Fairly important	23,8

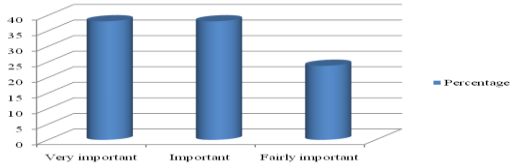

Fig. 3 Importance of Advance Loan

Table VI: Applying for an Advance Loan to Win a Tender

How often do you apply for an advance loan when you win a tender? (N=21)	Percent (%)
Always (100%)	9,5
Often (51-99%)	14,3
Sometimes (25-50%)	19,0
Rarely (1-24%)	38,1
Never (0%)	19,0

Remark:

Advance loan requirements are rated as very important in having a sustainable business. This could be due to inconsistency in payment of invoices by the client. The loan can assist in payment of suppliers who could apply for liquidation if clients do not pay contractors within a reasonable time frame. Of the respondents who responded, 47% had credit with suppliers and 52,4% did not.

Table VII: Company's Strengths and Capabilities

Code	Your Company's Strengths and Capabilities	Sample (N)	*Percentage of participants considering company's strength to be						
			(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1)	Specialist Expertise	21	9,5	4,8	4,8	14,3	19,0	19,0	28,6
(2)	Project Management Capability	21	14,3	9,5	28,6	19,0	9,5	14,3	4,8
(3)	Technical Ability	21	33,3	23,8	9,5	14,3	9,5	4,8	4,8
(4)	Network	21	14,3	9,5	14,3	4,8	14,3	14,3	28,6
(5)	Financial Strength/Access to Finance	21	19,0	33,3	9,5	19,0	14,3	-	4,8
(6)	Knowledgeable on qualified Employees	21	9,5	14,3	28,6	4,8	23,8	14,3	4,8
(7)	Possession of vital Plant and Equipment	21	-	4,8	4,8	23,8	9,5	33,3	23,8

**Percentage of participants who choose a particular strength relative to the other strengths.*

Remark:

The participants chose a particular strength relative to the other strengths. Technical ability was ranked number 1 (33%) by the participants on what they see as their strengths and capabilities. Financial strengths and qualified staff ranked second and third respectively. This is expected since the nature of construction business requires that, you have technical able staff to complete projects successfully and have financial capabilities to acquire resources without delay.

Table VIII: Two Most Common Threats To Company's Survival at Inception

In your opinion, which are the two most common threats to company's survival at inception	Sample (N)	Percentage of participants ranking most common threats				
		1st	2nd	3rd	4th	5th
Lack of adequate financial resources	21	42,9	19,0	19,0	4,8	14,3
Inflation	21	4,8	14,3	38,1	14,3	28,6
Interest rate increase	21	4,8	23,8	38,1	28,6	4,8
Competitors	21	19,0	47,6	23,8	4,8	4,8
Bribery and corruption	21	42,9	23,8	14,3	9,5	5,0

Remark:

Lack of adequate financial resources to start or finish projects is critical for the company to survive at inception, 42,9% of participants indicate. The other most common threats that had a high score (42,9%) was bribery and corruption. Construction Industry Development Board (CIDB) and the government need to have measures in place to counter act bribery and corruption in the industry with other stakeholders playing their roles and to report such activities.

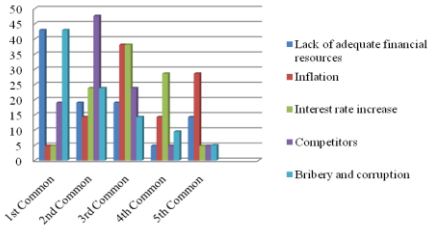

Fig. 4 Most Common Threats

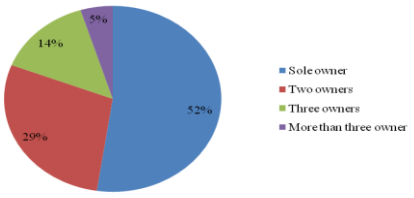

Fig. 5 Owners

Remark:

Most of the participants (52,4%) were sole owners. Ill health of the sole owner could be a huge risk for sustainability of the business and the company would rely on one person to make decisions without checks and balances in the business.

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Construction businesses require a set of skills and it is difficult for one person to possess all of them.

Table IX: One Key Factor that Aided Growth and Success of the Construction Company

One key factor that aided growth and success of your construction company	Frequency	Percent (%)
Diversity Matrix (Spreading risk)	1	5,0
Network	5	25,0
Financial Strengths	2	10,0
Developing a strong workforce	1	5,0
Small overheads	1	5,0
Make the least mistakes	2	10,0
Quality products	7	35,0
Subcontracting / outsourcing	1	5,0
Total	**20**	**100,0**

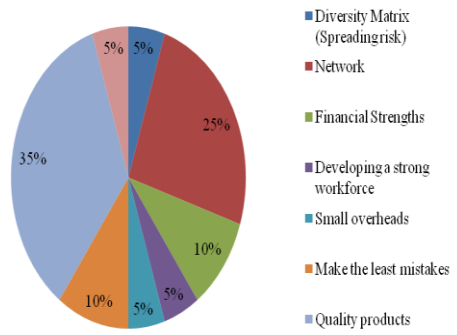

Fig. 6 Factors Aided Growth

Remark:

Quality products got the highest (35%) from the participants as critical in making their businesses successful. In all construction projects, quality control is critical. The contractors' invoices are approved by the engineer if their materials and workmanship meet specific quality requirements. Network seems to be second most important in making a success of any business, 25% of the respondents see it as a critical factor for growth. Networking helps with meeting other people who might have better experience in dealing with your weakness. Since most of the businesses are sole owned (see Table X), sharing of knowledge amongst business owners can assist in closing the weaknesses in business operations. This could aid growth in any business.

Table X: Number of Permanent Employees During 2007 to 2011

N° of employees	Frequency				
	2007	2008	2009	2010	2011
None	6	6	4	3	0
1-10	9	9	11	10	15
11-20	1	0	0	2	2
21-30	1	2	1	1	0
31 and more	2	2	3	3	4
Total	**19**	**19**	**19**	**19**	**21**

Remark:

Majority of companies had 1 to 10 permanent employees in years between 2007 - 2011. Cases of company with no employee exist for 2007 to 2010 period.

Table XI: Causes of Insolvencies

Causes of Insolvencies	Sample (N)	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree
Operational Management						
Poor Management of Debt	21	7	10	4	-	-
Inaccurate Estimating	21	9	10	1	1	-
Poor Supervision of Staff	21	10	2	4	3	2
Skill Shortages	21	6	3	6	2	4
Strategic Factors						
Reliance on Few Clients	21	2	13	3	3	-
Reliance on Few Suppliers	21	2	7	5	4	3
Personal						
Disagreement with Partners	21	4	6	4	3	4
Ill Health	21	3	6	4	5	3
Technological						
No Previous Experience	21	10	8	-	3	-
Use of Inferior Materials	21	2	6	9	4	-

Remark:

It is apparent from the table above that operational and strategic factors are to be the most prominent cause of insolvency according to the respondents. In both cases the respondents strongly agree that these factors may cause insolvencies. Most companies are started by people who are technically sound but lack operational and strategic skills to run their businesses. This is supported by Table 8 where the majority of the respondents say their company's strengths lies in technical ability. Some companies require operation assistance from better qualified professionals to manage finances and quantity surveyors to offer pricing services. Reliance on few clients has over 70% respondents either strongly agree or agree as a huge risk in running a construction business. This could be a result of the company being sole owned and the owner is responsible for everything from tender to commissioning projects, thus not focusing in business development and diversity of their client base. Relationships and networking are critical in all business growth. If business owners don't give clients attention, they are running a risk of stagnation. Disagreement with partners. In Table X most respondents are sole owners, which may support the perception that disagreement with partners can affect the running of a successful business. 76% of the respondents strongly agree or agree that lack of experience within the construction contracting cause insolvencies. It will be very difficult to be competitive if the owners are novice in

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construction. Pricing of tenders is critical in getting projects and it influence how you execute projects in order to make a healthy margin at the end of the project. The risk is higher to run the construction firm if the owner lacks contracting experience.

Table XII: Number of Years Company Existed and Age of Respondent

Variable	Sample (N)	Minimum	Maximum	Mean	Median	Standard Deviation	Variance
Age of the respondent	21	25	60	41,52	41.0	8,98	80,66
Number of years the company had been in operation	21	1	26	7,2	6.0	5,59	33,26

Remark:

The average respondent was aged 42 years and the average length most company has been operating stand at 7 years.

IV. OVERALL SUMMARY AND FINDINGS

A study by [17], measuring satisfaction of key stakeholders, contractors, clients, suppliers and consultants assisted us to understand how far we have come since the Construction Industry Development Board (CIDB) was established. Some of the key findings in the 2010 survey for 2307 projects completed in 2009 were as follows:

- Only 52% of all contractors were paid in time, within 30 days, with the metropolitan and regional districts being the worst performers. This 52% is an improvement on the result of the previous survey (42%).
- Higher financially graded contractors (7-9) were less satisfied with their material suppliers.
- There was no relationship between project and financial grade of contractors as small contractors made just as good a project as the higher graded contractors.
- Contractors made a loss on 4% of all projects completed.
- There is a strong indication of political intervention in the tender adjudication practices of many employer bodies, e.g. the provincial department of Limpopo and Mpumalanga overruled tender recommendations in 54% and 56% of their tenders awarded. In KwaZulu-Natal 68% of tender recommendations were overruled. This warrant that adjudication practices must be reviewed.

C. Major Problem Facing Construction Industry Development Board (CIDB)

One of the key measures of success for the Construction Industry Development Board (CIDB) is to have smaller contractor move up the grades to handle bigger complex projects and create jobs in the process. Unfortunately the rapid expansion of the sector has not yet yielded as rapid a conversion rate of small contractors into larger entities according to [16] the registered contractors, grade one has 79% of the total number of registered contractors, which poses many challenges with the industry. In March 2005, the Construction Industry Development Board (CIDB) had 1295 contractors registered but the number had swollen to 47 000 but a little more than 10 000 of these contractors were suspended as they didn't submit tax clearance certificates, financials and other required documentation. The key challenge was 37 545 active contractors, and of those 29 608 remain grade one contractors. The government doesn't have many projects to make some grade one contractors to get work and improve their grading. It is realised that due to high unemployment rate in the country most of the grade one contractors are job seekers. Unfortunately the South African Government hasn't implemented a National Contractor development program which must be adopted by all government departments or provinces. There are different kinds of programmes which have varied objectives. An effective "Contractor Development Programme" supported by SA Government is urgently required to address most of the factors which cause unsustainable practices that lead to insolvencies.

D. Other Recommendations

The questionnaires from the contractors, have highlighted that operational and strategy factors were found to be major causes of insolvencies in civil engineering contraction and were thus consistent with the hypothesis. Moreover, the late payments from employers cause much undetermined cashflow strain in the running of a sustainable business. It is in the interest of all stakeholders to play their roles in making sure that the construction industry is sustainable and grows everyone involved. We suggest the following:

- Regular training must be provided on management of finance, project and equipment, through an institution recognised by all stakeholders.
- Persuade financial institutions to relax lending conditions to contractors and accept contract documents as a good collateral for government funded projects.
- Government must strive to improve payment to service providers at least to be a maximum of 30 days after invoicing.
- Contractors must use the services of professionals (Engineers, Accountants, Quantity Surveyors and Lawyers) in managing their businesses and contracts, if they do not have such skills, to minimise risk of liquidation.
- Corporate governance for small and medium enterprises should be mandatory to improve accountability, transparency and sustainability of the business, especially for businesses with sole owners.
- There should be a contractors' performance assessment/feedback process to Construction Industry Development Board (CIDB) by an independent party / professional, on all projects undertaken by the contractor

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before Construction Industry Development Board (CIDB) certification is renewed.

- Construction Industry Development Board (CIDB) must conduct annual workshops to serve three purposes:

  (a) Provide a forum for contractors and other stakeholders to discuss common problems affecting the performance of contractors.

  (b) Enable contractors to interact with each other and share experiences.

  (c) Assist in continuously formulating / improving of contractor development programmes.

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