Causes of Contractors' Failure in the Construction Industry in Rwanda

Kalamagye John, Abednego O. Gwaya, Githae Wanyona

Abstract: ***In Rwanda the construction sector plays a major role in the country's economic development through its contribution to gross domestic product (GDP), gross domestic capital formation (GDCF), creation of employment and production of capital facilities and assets required for production in other sectors. Despite its importance, construction industry faces challenges which cause failure by contractors during the execution of contracts and seek to develop a strategy to mitigate contractors' failure in construction industry in Rwanda. The study aims at identifying and analyzing the challenges which cause failure experienced by contractors during the execution of construction contracts and seeks to develop a strategy to mitigate constructors' failure in the constructor industry in Rwanda. Even if the construction industry in Rwanda is growing at an increasing rate due to the political environment that promotes doing business and a booming private sector driven economy; most construction contractor's companies remain at same level of survival and growth in business for quite a long period of time due to a number of hindering factors. The study focused on the challenges which cause failure encountered by construction contractors during implementation of contracts in Rwanda; the perceptions of contractors, consultants and clients regarding the challenges which cause failure of construction contractors during the execution of contracts in Rwanda; and the strategies to mitigate contractors' failure in construction industry in Rwanda. In the purpose of the study, the online questionnaire survey of 80 construction contractors, 58 consultancy firms and 32 clients was conducted. The researcher surveyed 30 causes that have been categorized into managerial, financial, expansion and external groups which lead to failure of construction contractors from literature and respondents.***

Keywords: Client, Consultancy, contracts, and contractors' failure.

I. INTRODUCTION

Construction is a labor intensive activity with capacity to provide extensive employment with limited investment. The industry provides a point of entry into the labor market to some of the least educated and most disadvantaged section of the society; and in that way it provide the physical infrastructure, which is essential to the development of the economy, (RDB, 2012). The contribution of construction industry in economic development of country; the construction industry worldwide is still facing with the challenges of sustainability in the business. Nevertheless, there exist multitude challenges facing the construction industry today.

Revised Manuscript Received on May 22, 2019.

Mr. John Kalamagye, Bachelor of Science in Engineering (Construction, Engineering and Management). KIST. Msc in Transportation Engineering and Economics. UR. Msc. Construction Project Management, (Ongoing), JKUAT.

Dr. Abednego Gwaya, B.A (Bldg. Econ). U.O.N, MSc Civil Eng, Makerere, PhD (Const Eng. & Mngt), JKUAT.

Dr. Wanyona Githea, B.A BLDG ECONS (U.O.N), M. Engineering (Kyoto University, Japan), PhD (UCT), RSA.

Increasingly, undefeatable social, environmental, health and economic challenges continue to hamper the growth of construction industry. An inconsistent electrical grid, overburdened public water distribution system, poor public sanitation, overcrowded living conditions and failing infrastructure make both the industry's future success and present state difficult to sustain, (Kwaku, Lamia, Paul, 2014).

A number of contractors run bankrupt and many others end up in litigation that eventually lead to the collapse of the construction companies, (Peters, 2004) . Thus, different researchers have attended to the industry's problems in the developing countries suggesting and argued ways to lessen such problems, (Ofori, 1994); (Wells, 1986). Nevertheless, lack of improvement was renowned in addressing such problems resulting from numerous reasons: inappropriate- ness of some of the recommendations and the initiatives adopted poor executive capacity of the implementing agencies, lack of resources for implementation and initiatives, neglect of the construction industry by governments and their lack of commitment to solve its problems, and the lack of progress in construction industry development due to absence of measurable targets in programs for improving the industry's overall performance , (Ofori, 1994)

II. BACKGROUND

In the Journal of Construction in Developing Countries, Vol. 11, No.2, 2006; it was revealed that the industry's problems in developing economies can be categorized into three areas: problems of shortages or inadequacies in industry infrastructure, problems caused by clients and consultants, and problems caused by contractor's incompetence or inadequacies. Moreover, it was observed that the major problems faced by contractors in developing countries have been classified as problems imposed by the industry's infrastructure, problems of inaccurate information and frequent changes in instructions and failure to meet obligations on the part of clients and consultants, and problems imposed by their own shortcomings and this might lead to the financial failure of contractors, (Enshassi, Al-Hallaq, Mohamed, 2006).

Rwanda has registered high achievements in all sectors of the economy since 1994. The construction industry as a distinct sector, which makes a significant contribution to Rwanda's GDP, since it plays a significant role in the socio-economic development and it offers direct employment.

Transport infrastructure provides easy access to markets and inputs, stimulating agricultural production and leading to improved welfare of the population. The economic success of Rwanda has been achieved through deliberate reforms implemented by the government with the support of international financing institutions and donor agencies. This performance has resulted in the expansion of the country's infrastructure in all sectors, including: transport, communications, housing and buildings, water and sanitation, energy, health, education and agriculture. However, the nation's construction industry is still facing different problems, which includes a lack of management, technical capacity, access to credit facilities and work opportunities, (MININFRA, 2009) .

The construction industry in Rwanda has been classified according to the International Standards of Industrial Classification (ISIC Rev 4) into three categories: (1) Construction of buildings, (2) Civil engineering (including construction of roads and bridges, railways, construction of utility projects, and construction of other civil engineering projects), and (3) Specialized construction activities (Demolition and site preparation, electrical, plumbing and other construction installation activities, building completion and finishing, and Other specialized construction activities). This industry is crucial to the development of Rwanda's economy, since it comprises the building, transport and civil engineering sub-sectors so providing the physical infrastructure, which is vital to the development of the country's economy. It also improves the peoples 'life and ways of doing business. Its actions generate business for suppliers and manufacturers and offer employment to professionals, semi-skilled and un-skilled labor. More than 50% of the employment so created in the construction industry is in the unskilled labor market, (RDB, 2012).

Failure is one of the hindrances that affect the growing construction companies. A number of studies on challenges causing failure to contractors in construction industry worldwide were reviewed. For evidence of Ethiopian construction industry, it was noted that this industry was challenged by several problems which tend to confront the sector and thus making efforts at developing the construction industry was very difficult and complex. The underlying problems of the construction sector were classified into two main categories. The first was related to the consequences of the fact that the sector was not viewed and planned in an integrated manner, but rather, operates with fragmented, unrelated and often conflicting components. The second problem was related to deficiencies and market price fluctuation of the inputs required for the construction; and this unpredictably occurring sharp price increases led contractors into failure to complete their projects within the acceptable margin of time and quality for the client and fail to complete within the planned cost margin for themselves. This hindered their growth in all aspects, (Asteway, 2008).

In addition, as it was reported in (Levy, 2007) that the most important reasons for misunderstandings leading to failure of contractors in construction projects in the USA among others were inadequate administration of responsibilities by the client, contractual team, contractors or suppliers; an unwillingness or inability to comply with the intent of the contract or to adhere to industry standards in the performance of work; site conditions which differ materially from those described in the contract documents; inadequate financial strength on the part of the client or contractors. Also Absalom and other researchers argued that " In the construction industry of developing countries, productivity loss is one of the greatest and severe problems arising from lack of documented data for estimating, scheduling and control of the project", (Absalom, Sylvester, Githae, Stephen, Abednego, 2014).

The construction industry in Rwanda is growing at an increasing rate, however due to a number of hindering factors most notably failure experienced by contractors, most construction companies remain at same level for quite a long period of time. It has been observed that most financial losses incurred by contractors in course of the construction have hindered their survival and growth in construction business. Failure results from inefficiencies in elements of construction, contract administration and management and other issues such as inflation, corruption, and accidents on sites.

This article intends to assess the challenges which cause failure experiencing by contractors during the execution of construction contracts. This is mainly due to the prevailing challenges facing the construction industry today including undefeatable social, environmental, economic and management challenges which continue to hamper the growth of Rwandan construction industry.

III. CAUSES OF FAILURE.

There are three principal parties involved, namely, owner, consultants and contractors. The relationship between these parties is adversarial because each party has goals which conflicts with the other party's goals. The relation among the parties could be a major source of a contractors' failure. There is no exact definition of a contractor's failure, however, it could be defined as when a business ceases operation following assignments due to the inability to continue construction, goes into bankruptcy due to failure of collecting money from customers, and voluntarily withdraws because of dissatisfaction with business or profit. The construction industry has very high risks which could lead to contractors' failure, come from the sensitivity of the business to economic cycles, and from high levels of competition. Because there are large numbers of contractors, it's easy to establish a new firm. Since the entry into the construction business is easy, implementation could easily be poor and unorganized, which increase the probability of a contractor's failure, (Bader, 2004),

Business failure was defined as the business that never have been started in the first place, or that the person was not competent to do so, or that the business left behind significant unpaid debt, (Storey, 1994), Watson & Everett (1993) attributed business failure to four different situations: discontinuance for any reason; ceasing to trade and creditor loss; sale to prevent further losses; and failure to make a go of it, (Watson Everett, 1993). The challenges faced by the contractors which lead to failure included; challenges related to construction costs, material related challenges, equipment and plant related challenges, labor related challenges, Financial challenges due to mark up and delays.

IV. RELATED WORKS

Researchers had studied on the challenges which causing contracting business failure. Osama (1997) presented a study of the factors that contribute to the failure of construction contractors in Saudi Arabia and found that the most important factors are: difficulty in acquiring work, bad judgment, and lack of experience in the firms line of work, difficulty with cash flow, lack of managerial experience, and low profit margins, (Osama, 1997), [8]. In addition, Bader (2004) and Ibrahim Mahamid (2011) also presented the causes of contractor's failure in Saudi Arabia, and in Palestine respectively and the main causes were grouped into the following categories:(Bader, 2004); (Mahamid, 2011), Managerial Causes' Financial causes; Expansion causes; and External causes.

Arditi et al. (2000) found budgetary and macroeconomic issues as the main reasons for construction company failure in the USA. Over 80% of the failures were caused by five factors, namely insufficient profits (27%), industry weakness (23%), heavy operating expenses (18%), insufficient capital (8%) and burdensome institutional debt (6%), (Arditi, Koksal, Kale, 2000).

Enshassi et al. (2006) concluded that the main causes of contractor's failure are: delay in collecting dibs from clients (donors), closure, depending on banks and paying high profits, lack of capital, cash flow management, lack of experience in the line of work, absence of construction regulations, low margins of profit due to competition, award contract to lowest price, and lack of experience in contracts, (Enshassi, Al-Hallaq, Mohamed, 2006).

Kivrak and Arslan (2008) examined the critical factors causing the failure of construction companies through a survey conducted among 40 small to medium-sized Turkish construction companies A lack of business experience and country's economic conditions were found to be the most influential factors to company failure, (Kivrak Arslan, 2018).

Ramus and Birchall (2005) the causes of financial failure to contractors may arise from any one or more of the following: Inefficient deployment of resources (labor, plant, and materials), excessive wastage or theft of materials, plant being allowed to stand idle or under-utilized, adverse weather or working conditions, and underpricing of tender documents by assumptions in regard to labor times, types and sizes of plant which do not equate with the realities of the construction work, (Ramus Birchall, 2005).

V. RESEARCH METHODOLOGY

Qualitative research is an approach for exploring and understanding the meaning individuals or groups ascribe to a social or human problem. The process of research involves emerging questions and procedures, data typically collected in the participants setting, data analysis inductively building from particulars to general themes, and the researcher making interpretations of the meaning of the data.

While quantitative research is an approach for testing objective theories by examining the relationship among variables. These variables, in turn, can be measured, typically on instruments, so that numbered data can be analyzed using statistical procedures. The report has a set structure consisting of introduction, literature and theory, methods, results, and discussion. Like qualitative researchers, those who engage in this form of inquiry have assumptions about testing theories deductively, building in protections against bias, controlling for alternative explanations, and being able to generalize and replicate the findings, (Creswell, 2014).

Thus, this study employed descriptive research design, where qualitative and quantitative approaches were used. The study was descriptive since it was undertaken in order to ascertain and be able to describe the characteristics of the variables. A systematic description that is as factual and accurate as possible was ensured. The design enabled the researcher to meet the purpose, objectives, and also answered questions of the study.

The target population are 100 construction contractors of roads and bridges of the first five categories namely A, B, C, D and E that have valid registration by the Rwanda Public Procurement Authority (RPPA), where categories A, B subdivided into 2 sub-categories each one as indicated in Table 3.1 below; and the last column of the Table 3.1 below represent the related number of construction contractors which will be taken as sample, its computation are summarized in next section. The population was distributed between into five categories as given

Sixty-Eight consultancy companies were considered as consultancy population of this study, [15]. All 30 districts, City of Kigali, Rwanda Transport Development Agency (RTDA) were taken as main clients of construction.

Table 1: Categorization of Roads and Bridges:

Categories	Number of companies (Population)	Criteria	Number of companies (Sample)
A1	13	Allowed to bid for tender whose value is greater than 2 billion Rwandan Francs (All road projects)	11
A2	3	Allowed to bid for tender whose value is greater than 2 billion Rwandan Francs (All roads except asphalt roads)	2
B1	0	No company has fulfilled requirements for this category	0
B2	4	Allowed to bid for tender whose value is between 1.5-2 billion Rwandan Francs (All roads except asphalt roads)	3
C	16	Allowed to bid for tender whose value is between 800 million-1.5 billion Rwanda francs	13
D	40	Allowed to bid for tender whose value is between 300 -800 million Rwandan Francs	32
E	24	Allowed to bid for tender whose value is between 100-300 million Rwandan Francs	19
Total	100		80

Source: Field Survey, 2019

Online structured questionnaire, where the open and closed questions were used in order to collect the primary data. Similarly, the secondary data were collected from different sources including books, journals, published papers and reports which are related to the field of this study, moreover the electronic sources have been used to get useful information for this article.

Data was systematically organized in a manner that facilitates analysis. Data collected through online structured questionnaires (quantitative) was coded and defining each variable, entering data to a work sheet, and check for accuracy and relevancy of data, summarizing, analyzing and tabulating the collected data using SPSS; furthermore, the descriptive statistics and interpretation have been made to enable the readers to understand the most findings of the article.

The analysis of descriptive statistics was presented in form of frequencies, percentages and mean. Inferential statistics were determined using Spearman rank order correlation and coefficient of determination. The correlation coefficient (r) was used to determine the strength and direction of the relationship between variables (Amin, 2005).

The first and second specific objectives of the study the Relative Impact Index (RII) was used and the Analysis of Variance that can be found in (Richard A.J & Gouri K.B,2010) or any advanced statistical methods book was used to assess if there is a statistical significant difference in means of Relative Impact Index (RII) between each two parties (clients and consultants, client and contractors, consultants and contractors), this enabled us to conclude whether there is or no statistical significant difference in perceptions of contractors, consultants and clients regarding the challenges causing failure of contractors during the execution of contracts.

VI. RESEARCH RESULTS AND FINDINGS

From the table below out of the 170 respondents, the total of 63 of respondents were engineers, where 50.8% have Bachelor's degree and 42.9% of them are master's holders, and only 4.8%, and 1.6% of them are respectively PHD and diploma holders The total 26 of respondents were technicians where 65.4% of them their highest level of education is diploma, and only 7.7% of them have bachelor's degree. Moreover, among all 170 respondents, the total of 20 were directors, 55.0% of them have master's degree and only 4.8% of them were PHD holders

Table 2: Distribution of respondent's position and level of education:

Position of the respondents		Qualification of the respondents					Total
		PhD	Masters	Bachelor	Diploma	Certificate	
	Director	5	11	4	0	0	20
		25.0%	55.0%	20.0%	0.0%	0.0%	100.0%
	Engineer	3	27	32	1	0	63
		4.8%	42.9%	50.8%	1.6%	0.0%	100.0%
	Architect	0	6	13	1	0	20
		0.0%	30.0%	65.0%	5.0%	0.0%	100.0%
	Quantity Surveyor	0	5	7	8	0	20
		0.0%	25.0%	35.0%	40.0%	0.0%	100.0%
	Administrator	2	6	7	6	0	21
		9.5%	28.6%	33.3%	28.6%	0.0%	100.0%
	Technician	0	0	2	17	7	26
		0.0%	0.0%	7.7%	65.4%	26.9%	100.0%
Total		10	55	65	33	7	170
		5.9%	32.4%	38.2%	19.4%	4.1%	100.0%

Source: Field Survey, 2019

Out of 170 respondents 42 of them have less than three years of working experience, and 50%, 33.3% and 16.7% of them are form consultancy firm, client and contractor companies respectively. In addition, the majority of 68, 31 and 29 of respondents have working experience of 3 — 6 years, 6 — 9 years and over 9 years respectively. Moreover, 55.2% of respondents that are experienced over 9 years are from contractor's companies.

Table3: Distribution of respondent's experience and their business

Experience of respondents		Business type			Total
		Consultancy	Client	Contractor	
	0 - 3 years	21	14	7	42
		50.0%	33.3%	16.7%	100.0%
	3 - 6 years	17	15	36	68
		25.0%	22.1%	52.9%	100.0%
	6 - 9 years	10	0	21	31
		32.3%	0.0%	67.7%	100.0%
	Over 9 years	10	3	16	29
		34.5%	10.3%	55.2%	100.0%
Total		58	32	80	170
		34.1%	18.8%	47.1%	100.0%

Source: Field Survey, 2019

Out of 80 respondents from contractor's companies that participated in this study; it is clear that the majority of 41.25%, 23.75%, 16.25%, 12.50%, 3.75% and 2.5% of all 80 companies are registered in category D, E, C, A1, B2, and A2 respectively as ranked by RPPA.

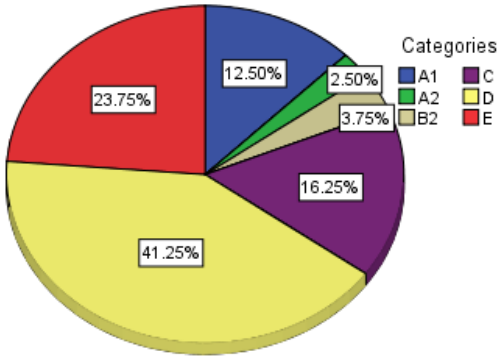

Fig. 4.1: Distribution of the contractor's companies in RPPA categories.

Source: Field Survey, 2019

A. Causes of Contract failure encountered by contractors during implementation of contracts.

To assess the perceptions of all parties about the managerial challenges that cause the failure of contractors firms during the execution of construction contracts; the following managerial causes were adopted from literature and respondents: Adopting unsuitable procurement practices (AUPP), assigning unqualified personnel (AUP), bad decisions in formulating company policy (BDFCP), company organization (CO), frauds, lack of experience in contracts (LEC), lack of labor productivity and improvement (LLPI), lack of using computers applications (LUCA), lack of using project management techniques (LUPMT), and poor accounting and control systems (PACS).

The relative impact index of each cause was used as measure to rank those managerial causes with respect to perceptions of all parties namely consultancy, client, and contractor. For instance, adopting unsuitable procurement practices was ranked on the first place by contractor party and as second by consultancy and client parties. Also, lack of using project management techniques, was ranked as first cause by consultancy and client parties, third by contractors. Lack of labor productivity and improvement was ranked by all parties as the last cause. Similarly, we can obtain from the same table the rank of each cause.

Table 4: Rank of Managerial Causes

Managerial causes	Consultancy		Client		Contractor	
	RII	Ranks	RII	Ranks	RII	Ranks
Adopting unsuitable procurement practices	3.862	2	3.72	2	3.20	1
Assigning unqualified personnel	3.517	8	3.34	8	3.00	8
Bad decisions in formulating company policy	3.638	6	3.47	6	3.03	5
Company organization	3.776	5	3.66	4	2.99	9
Frauds	3.810	3	3.69	3	3.09	2
Lack of experience in contracts	3.483	9	3.31	9	3.06	4
Lack of labor productivity and improvement	1.810	10	3.13	10	2.60	10
Lack of using computers applications	3.776	4	3.66	4	3.01	6
Lack of using project management techniques	3.897	1	4.00	1	3.08	3
Poor accounting and control systems	3.570	7	3.41	7	3.01	7

Source: Field Survey, 2019

Financial causes: Assessment of the perceptions of all parties regarding the financial challenges causing failure of contractors firms during execution of their construction contracts, the following financial causes were adopted from literature and respondents: Award contracts to lower price (ACLP), cash flow mismanagement (CFMM), depending on bank loans and paying high interest (DBL- PHI), difference of local currency exchange with contract currency (DLCECC), employee benefits and compensation (EBC), excessive wastage or theft of materials (EWTM), inefficient deployment of resources (IDR), lack of capital (LC), lack of controlling equipment cost and usage (LCECU), and low margin profit due to competition (LMPDC).

The given ten financial causes were ranked based on their relative impact index of each cause, for instance that lack of capital was ranked as the first financial cause that leads to failure of contractors' firm by all parties, award contracts to lower price was ranked as second cause by consultancy and client parties, however as third cause by contractor party.

Table 4: Rank of Financial Causes

Financial causes	Consultancy		Client		Contractor	
	RII	Ranks	RII	Ranks	RII	Ranks
Award contracts to lower price	3.79	2	3.69	2	3.18	3
Cash flow mis-management	3.72	3	3.63	3	3.14	5
Depending on bank loans and paying high interest	3.55	7	3.34	7	2.99	7
Difference of local currency exchange with contract currency	3.28	10	3.09	10	2.59	10
Employee benefits and compensation	3.40	9	3.19	9	2.95	8
Excessive wastage or theft of materials	3.55	7	3.34	7	2.91	9
Inefficient deployment of resources	3.57	5	3.41	5	3.18	2
Lack of capital	4.00	1	4.00	1	3.20	1
Lack of controlling equipment cost and usage	3.57	5	3.41	5	3.16	4
Low margin profit due to competition	3.62	4	3.44	4	3.05	6

Source: Field Survey, 2019

Expansion causes: Assessment of the perceptions of all parties regarding the expansion challenges causing failure of contractors firms during execution of their construction contracts, the following expansion causes were adopted from literature and respondents: Large construction types with less experience (LCTLE), expanding into new geographic locations (EINGL), increased number of projects (INP), increased size of projects (ISP), and lack of managerial maturity as the company grow (LMMCG).

The Five expansion causes were ranked based on their relative impact index of each cause. Large construction types with less experience was ranked as the first cause by consultancy and client parties, but on second place by contractor party, lack of managerial maturity as the company grow was ranked by client and contractor parties as the first cause, and second by consultancy party, increased size of projects was ranked as the third causes by consultancy and clients, and as fourth cause by contractor.

Table 5: Rank of Expansion causes

Expansion causes	Consultancy		Client		Contractor	
	RII	Ranks	RII	Ranks	RII	Ranks
Large construction types with less experience	3.62	1	3.44	1	3.11	2
Expanding into new geographic locations	3.03	5	2.72	5	2.35	5
Increased number of projects	3.28	3	3.09	3	2.41	4
Increased size of projects	3.22	4	3.06	4	2.43	3
Lack of managerial maturity as the company grow	3.59	2	3.44	1	3.14	1

External causes. Assessment of the perceptions of all parties regarding the external challenges causing failure of contractors firms during execution of their construction contracts, the following external causes were adopted from literature and respondents: Banks policies (BP), construction industry regulation (CIR), delay in payment by clients (DPC), inflation, and monopoly.

Table 6: Rank of Expansion causes

External causes	Consultancy		Client		Contractor	
	RII	Ranks	RII	Ranks	RII	Ranks
Banks policies	2.95	5	2.63	5	2.13	5
Construction industry regulation	3.03	4	2.75	4	2.2	4
Delay in payment by clients	3.50	2	3.25	2	2.48	2
Inflation	3.22	3	3	3	2.41	3
Monopoly	3.57	1	3.44	1	2.54	1

Source: Field Survey, 2019

Perceptions of parties

Perceptions of parties about managerial causes. To understand if there is or no statistical significant difference in perceptions of contractors, consultants and clients regarding the managerial challenges causing failure of contractors during the execution of contracts; the One Way Analysis of Variance was performed as in Table 7.

Table 7: ANOVA table for Managerial Causes

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.802	2	.901	5.766	.008
Within Groups	4.219	27	.156		
Total	6.022	29			

Source: Field Survey, 2019

We can conclude that there is statistical significant difference in means of Relative Impact Index from different three parties that are under study. Since the p-value of 0.008 which is less than to our level of significance of 5% was observed.

Perceptions of parties about Financial causes. To understand if there is or not a statistical significant difference in perceptions of contractors, consultants and clients regarding the financial challenges causing failure of contractors during the execution of contracts; the One Way Analysis of Variance was performed as in Table 8.

Table 8: ANOVA table for Financial causes

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.744	2	.872	18.170	.000
Within Groups	1.296	27	.048		
Total	3.040	29			

Source: Field Survey, 2019

We can conclude that there is a significant difference in means of Relative Impact Index from different three parties that are under study. Since the p-value of 0.000 which is less than to our level of significance of 5%. Thus, to know where there is a difference, the multiple comparisons shown in the following table are used

Perceptions of parties about Expansion Causes. To investigate whether there is or no statistical significant difference in perceptions of contractors, consultants and clients regarding the expansion challenges causing failure of contractors during the execution of their construction contracts; the One Way Analysis of Variance was performed as in Table 9.

Table 9: ANOVA table for Expansion Causes

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.150	2	.575	5.503	.020
Within Groups	1.254	12	.104		
Total	2.403	14			

Source: Field Survey, 2019

Perceptions of parties about External Causes. To understand if there is or not a statistical significant difference in perceptions of contractors, consultants and clients regarding the external challenges causing failure of contractors during the execution of contracts; the One Way Analysis of Variance was performed as in Table 10.

Table 10: ANOVA table for Expansion Causes

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.195	2	1.098	14.861	.001
Within Groups	.886	12	.074		
Total	3.082	14			

Source: Field Survey, 2019

We can conclude that there is a significant difference in means of Relative Impact Index from different three parties that are under study. Since the p-value of 0.001 which is less than to our level of significance of 5%.

B. Strategic mitigation of contractors' failure structure.

The building team needs to have a well-structured communication strategy. Whereby there should be a link between cost, quality and time.

Published By:
Blue Eyes Intelligence Engineering
& Sciences Publication

Regarding the quality, the consultants should emphasis on quality by putting in place the measures to mitigate malpractices. To do so, the documents should be clearly perused and revised and also all institutions should be communicated through right channels and on time. Moreover, if there is need to change scope of work, it should be done by taking into account cost and time. The proposed link between all stakeholders in construction projects by taking into account the cost, time and the quality of the end product to mitigate the failure of construction contractors during execution of their construction contracts.

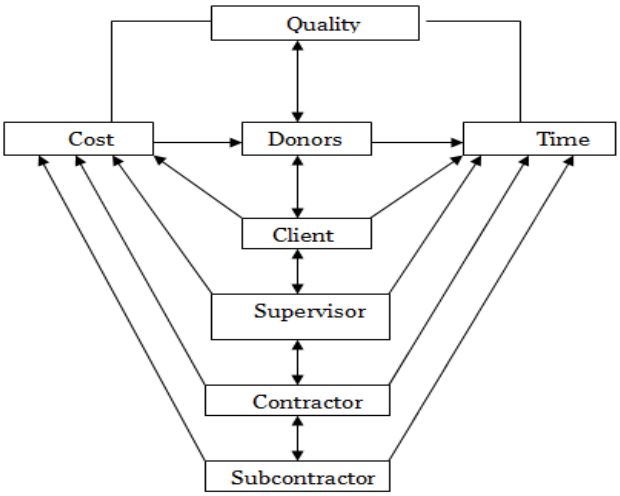

Fig. 4.2 Strategic mitigation of contractors' failure structure

Source: Field Survey, 2019

VII. CONCLUSION AND RECOMMENDATIONS

The construction sector plays an important role in the Rwanda's economic development through its contribution to gross domestic product (GDP), gross domestic capital formation (GDCF), establishment of employment and production of capital facilities and assets essential for production in supplementary sectors. In spite of the challenges which cause failure by contractors during the execution of contracts and there is need to pursue development strategies to mitigate contractors' failure in construction industry in Rwanda. To attain this, it is recommended that; Contractors should find the way to increase their capital since lack of capital was ranked by all parties as the first cause that leads failure of contractor. Contractors should adopt the suitable procurement practices. Since adopting unsuitable procurement practices was observed to be the first cause of contractors. Contractors should be aware of risks involved in contracting contracts to lower price, and contract to suitable price. The contractor should appreciate the importance of having skillful in project management techniques. The researcher to recommends to further researchers who will be interested in the area of this study to investigate more causes of failure on contractors in general, not only on roads and bridges.

REFERENCES

1. Abatemam, A. (2006). M.Sc. thesis, Delays in Public Building Construction Projects and their Consequences; AAU Civil Engineering Department
2. Abedi. (2000). Highway to Success. Credit Management Journal
3. Abigail, A. F., Harris, F. (1995). A methodology for predicting company failure in the con- traction industry. Construction Management and Economics, 13, 189196.
4. Absalom, H. L., Sylvester, M. M., Githae, W., Stephen, D., Abednego, O. G. (2014). Factors Influencing Effective Productivity on Construction Sites in Nairobi County. International Journal of Soft Computing and Engineering (IJSCE), 4 (5).
5. Alienate, H. M., Makala, J. A., Hansson, B. (2007). Factors affecting the productivity of building craftsmen: Case studies of Uganda. Journal of Civil Engineering and Manage- mint, 3 (13), 169-176.
6. Altman, E. l. (1968). Financial ratios discriminate analysis and the prediction of corporate bankruptcy. Journal of Finance, American Finance Association (23), 589609.
7. Aridity, D., Koala, A., Kale, S. (2000). Business failures in the construction industry. Engineering, Construction and Architectural Management, 120-132.
8. Argentic, J. (1976). Corporate Collapse. UK: John Wiley and Sons. Asiimwe. (2009). MK Fundamental.
9. Assar, S. A., Al-Hajji, S. (2006). Causes of delay in large construction projects. International Journal of Project Management, 4 (24), 349357.
10. Asteway, Y. (2008). Study on the effects of unpredictable price fluctuation on the capacity of construction contractors. Addis Ababa University, Addis Ababa.
11. Ayyub, B., Mc Coen, R. (2000). Probability, Statistics and Reliability for Engineers, States- tics and Scientists. USA: Chapman and Hall.
12. Ayudhya. (2011). Evaluation of Common Delay Causes. Journal of Civil Engineering and Architecture, 5 (11).
13. Bader, M. (2004).Causes of Contractors Failure in Saudi Arabia. Bailey, D. K. (1978). Methods of social research.
14. Banks, J. (1900). Contempory challenges in project management. New York. Bernard. (1944). Research hypothesis.
15. Bluman, A. (2011). Elementary Statistics: A Step by Step Approach. McGraw-Hill
16. Bora. (2015). the contribution of credit management in the performance of commercial bank in Rwanda.
17. Brick, J. M., Kalton, G. (1996). Handling missing data in survey research. Statistical Methods in Medical Research, 215-238.
18. Burns, N., Grove, S. (1987). The practice of nursing research; conduct, critique and utilization. W. B. Saunders Company.
19. Chitkara, K. K. (1995). Construction project management, planning, scheduling, and controlling.
20. Creswell, J. W. (2014). Research design: Qualitative, Quantitative, and mixed methods approaches (4 ed.). UK: SAGE Publications Ltd.
21. Enshassi, A., Al-Hallaq, K., Mohamed, S. (2006). Causes of Contractor's Business Failure in Developing Countries: The Case of Palestine. Journal of Construction in Developing Countries, 2 (11), 1-14.
22. Fellows, R., Liu, A. (1997). Research methods for construction. Blackwell Science.
23. Florence, M., Abuja, N. J. (2013). Causes of Financial Distress: A Survey of Firms Funded by Industrial and Commercial Development Corporation in Kenya. Institute of Inter- disciplinary Business Research, 4 (12).
24. Foster, L., Harington, A. (1976). Contractors and equipment used. UK: Longman. Frederikslust, R. I. (1978). Predictability of Corporate Failure. Garry, C. (2011). Construction contracts and management (5 ed.). New Orleans: Harper. George, S. (1982). Inflation and the Construction Industry; Transactions. AACE.
25. Grants, C. (1990). Administration in construction. Mumbai: Singh.
26. Hamzah, A. (1994). A perspective of material management practices in fast developing economy: The case of Malaysia. Construction economics and Management, 413 -422.

Published By:
Blue Eyes Intelligence Engineering
& Sciences Publication

27. Hamzah, A. (1994). A perspective of material management practices in fast developing economy: The case of Malaysia. Construction economics and Management, 413 -422.

AUTHORS' PROFILE

Mr. John Kalamagye: Bachelor of Science in Engineering (Construction, Engineering and Management). KIST. Msc in Transportation Engineering and Economics. UR. Msc. Construction Project Management, (Ongoing), JKUAT.

Dr. Abednego Gwaya: B.A (Bldg. Econ). U.O.N, MSc Civil Eng, Makerere, PhD (Const Eng. & Mngt), JKUAT. Specialization: Construction Project Management, Civil Engineering construction, Contract Documentation, Project Management modeling, Project Procurement Systems and General Quantity Surveying.

Dr. Wanyona Githea: B.A BLDG ECONS (U.O.N), M. Engineering (Kyoto University, Japan), PhD (UCT), RSA. Specialization: Construction Project Management, Contract Documentation, Project Risk Management, Project Procurement Systems and General Quantity Surveying.