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Prevention of Collusion for Innovative Construction

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Abstract

Collusion is an unscrupulous and anticompetitive practices among construction stakeholders which has adverse effect not only on the integrity of the parties or people but also on the overall performance of construction projects. In view of this and in order to ensure healthy competition and alliance among construction stakeholders, this study assessed various measures that can be adopted to minimize or eliminate the practice of collusion in the construction industry. The measures were extracted from existing literature materials and questionnaire was adopted as a means of data collection using a 5-point Likert scale. Using convenience sampling, 49 questionnaires were distributed, 43 were retrieved while 41 were found worthy of further analysis. Among other measures, people involved in construction process including the professionals should be encouraged to report any suspicious acts and transactions including collusion practices, and procurement procedures for construction projects should be open and transparent. There is a need to blacklist and deregister professionals and companies that are caught in the act of collusion as this will enhance project performance and subsequently improve the image of the construction industry. Punishments for the offence should be well documented and there should be strict enforcement of the discipline and regulations when a company or individual is found culpable. This study will help regulatory bodies shouldered with the responsibilities of regulating construction activities - including that of the stakeholders - in their quest to reduce or eliminate the practice of collusion in the construction industry.

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1. Introduction

The Organization of Economic Co-operation and Development [1] defined collusion as an agreement among competitors, who decide between themselves who should win a certain tender. According to the South African legal system, collusion is a hard-core cartel offence and it is prohibited by the competition law Act No. 89 of 1999. There are several existing definitions of collusion by various organizations such as World Bank, Organization of Economic

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Co-operation and Development (OECD), Construction Industry Development Board (CIDB), Competition Commission of South Africa (CCSA). From the available information, collusion can be described as an illegal and unethical agreement between horizontal competitors. This is known as anticompetitive, which is a practice concerned with the aim of fixing prices, rigging bids, setting up restrictive outputs or quotas as well as dividing or sharing markets by allocating clients, territories, suppliers, or lines of commerce.

A cartel, which is a form of collusion, is described as a consortium of independent organization formed to limit competition by controlling the production and distribution of products and services [2]. In addition a cartel is an example of firms belonging to the same industry structure which collude to set prices and or output levels. Gupta [3] also described collusion and its associated activities as an agreements which have as their object or effect the prevention, limiting or distortion of perfect competition. Such agreement include, complementary bidding, bid rotation or cover pricing but are not restricted to activities such as, fixing purchase or selling price or any other trading condition, directly or indirectly, also limiting production levels or controlling markets, investments or technological advances, the last agreement would be sharing resources supplies or markets. These have been identified as major challenges to sustainable and innovative construction and as a result, this research examines various ways of mitigating the practice of collusion in the quest of improving construction project performance and overall image of the construction industry.

2. Review of measures to mitigate collusion

Combating collusion, cartel formation or corruption in every sectors of the economy, including the construction industry, has become a task not only for construction professionals but all stakeholders tasked with the management and regulation of construction activities. There are several guideline prescribed by various organizations such as the Construction Industry Development Board (CIDB), the Organization of Economic Co-operation and Development (OECD), the Competition Commission of South Africa (CCSA) and the World Bank, which provides the best practice standards and codes of conduct for national and international bidding. These best practice standards includes good ethical practice and fair competition.

Furthermore, certain stakeholders provided strategies to combat collusion and corruption. Sohail and Cavill [4] put forward the idea that raising awareness about corruption in the construction industry reduces the chances for contractors to collude or to engage in any corruption practices. In addition, promotion of transparency by concerned regulatory agencies could be a strategy to mitigate corruption [1]. Since professional institution play a vital role in regulating the construction industry, Sohail and Cavill [4] noted that strengthening professional institutions is also a strategy to mitigate the issue of corruption. Ayodele [5] also highlighted that the main root of corruption in the construction industry is that professionals are being dishonest and using their powers for personal gain. Noting that developments of the construction industry are related to ethical standards of stakeholders, the main objective should be to ensure that due diligence actions are taken by contractors, consultants, clients and regulatory bodies to ensure that their business partners (for instance, consortium, agents, joint venture partners and subcontractors) are well monitored. The basic factors necessary to combat collusion in the construction industry are therefore explained.

2.1. Regulatory perspective

CIDB is a major regulatory body for construction projects and associated activities in South Africa. However, several concerns have been raised on the provided penalties by the CIDB act in the event of contraventions by contractors [6]. The best penalties which are provided by the CIDB is that a contractor can be deregistered or can impose a fine not exceeding 100,000 South African Rand. To ensure that there are few incentives for companies to collude or engage in collusive tendering, Hekima Advisory [7] recommends that the following regulatory interventions should be given special attention. Firstly, the CIDB powers to deal with procurement irregularities should be enhanced. The CIDB will be required to come up with tougher measures such as taking the amount of fines higher as to meet the gravity of the procurement irregularities. The CIDB system for grading contractors should be reviewed, focusing mainly on the capacity of the contractor on undertaking the work as well as projects that are successfully completed [6]. Furthermore, the thresholds have to be revised to be based on the allowable annual turnover thresholds to ensure that contractors do not take work beyond their capacity to perform. The current condition for allowing contractors to

undertake the work according to their grading do not provide the limit in which the contractor can undertake the work, moreover a contractor can take more than two equal projects even though the contractor does not have the capacity to deliver all.

To solve this issue, measures should be established in such way that regulatory framework are supported to enable emerging contractors take part in large infrastructure projects. The enhancement of the CIDB powers can contribute to a competitive and efficient construction industry, thus contributing to the attainment of the objective of both the CIDB Act and competition Act [3].

2.2. Firm level

Measures that can be implemented for promotion and participation of stakeholders in the construction industry for purpose of improving competition include management system for procurement and transparency improvement [5]. In addition to the Certificate of Independent Bid Determination, public sector tenders companies should also be required to declare that they will not engage in any collusive tendering or corruption practice such as compensation to other companies, subcontracting and most importantly kick-backs to clients. All parties involved in the procurement process must adhere to existing code of conduct, promoting emerging contractors by transfer and empowerment of large companies and improving competition by inviting foreign construction companies particularly for large infrastructure projects [8].

In South Africa, the minister of public works suggested that downgrading or ordering a specific performance could be one of the strategies that can be used to stop collusion [9]. It was also added that deregistering or suspending guilty contractors from tendering for public sector contracts is also a strategy to combat collusion. The issue of collusion in the construction industry is not peculiar to on the developing countries, findings revealed that the Dutch Parliamentary Committee (DPC) in reaction to collusion of 2002 in the country proposed a tougher public sector procurement procedure as a strategy to combat the practice among stakeholders [10]. More so, Haberbush [11] recommended that to counteract bid rigging in public procurement, contractors should be required to disclose programs for compliance as part of bidding.

Large contracts are prone to collusion and bid prices are higher when there is a repetition of interaction between contractors in other markets than when there is none [6]. Furthermore, in the construction industry, more especially for large projects or contracts, generally there are few companies that are capable of undertaking the work, as such repeated interaction between companies tends to be inevitable. Regarding this issue, Ayodele [5] therefore recommended that bids should be design such way that companies, with repeated interactions, are encouraged to compete.

Keeping members of a cartel from bidding will reduce unfair competition and improve clients' patronage and trust in the construction sector [3,12]. More so, collusion can be eliminated out by raising awareness on such matters as ethical standards and good business practice [4]. Furthermore, professional institutions should be strengthened like trade associations and most importantly enforcement and monitoring mechanism. Haberbush [11] put forward a mechanism for minimizing collusion which is by avoiding the stereotype of awarding contracts based on the lowest bid. Also, Sohail and Cavill [4] recommended, among other enforcement and mechanisms, that companies that are caught out colluding should be blacklisted. However, it was noted that better designed bid processes will reduce the incentives for contractors to collude [8].

2.3. Procurement level

Several measures to combat collusive tendering at procurement level were indicated by OECD [13], several potential key interventions that are necessary were highlighted and discussed. The government must take into consideration the spreading out of expenditure on large infrastructure projects over a longer horizon. It must be taken into consideration that large infrastructure projects are divided into packages that allows participation by companies, this will encourage contractors that do not qualify for large projects to bid for those packages. However these packages must be designed in such a way that quality is not compromised.

Consideration must be given to the rules of awarding a tender to the lowest qualifying bid. A new designed model of awarding tenders would make it difficult for companies that are in a cartel to determine which bid should win, the SANRAL and National Treasury is considering such a model. Furthermore, it is important for to consider transparent procurement evaluation and adjudication process, so to avoid manipulation by bidders [6]. A framework for supply chain management should be structured in such a way that a bid must go through separate management committees, evaluation, analysis, historical data, etc.

In 2005, the Ministry of Public Services and Administration of South Africa formed an anti-corruption frameworks to co-ordinate and integrate government's anti-corruption work at the policy level and implementation strategy were proposed. A strategy was established with the aim of balancing prevention, taking action against corruption and appropriate system of guiding against cartel and bid rigging. The Public Service Anti-Corruption Strategy was approved by the Cabinet in January 2002, and the implementation commenced in February of the same year. The frame work consist of eight consideration that are inter-related and mutually supportive, they include:

1. Reviewing and consolidating the legislative framework
2. Increasing the capacity of institutions with the objective to prevent and combat corruption
3. Improve access to report corruption/ wrongdoing and protecting witnesses and whistle-blowers
4. Prohibiting corrupted organization and individuals "blacklisting"
5. Improving management of policies and practices
6. Improving management of ethics for professionals
7. Partnership with stakeholders
8. Social analysis, research and policy advocacy
9. Adequate training or educating government officials and raising awareness on such matters

To further combat collusion, project management in the public sector must be improved to ensure that projects are completed within the specified time, quality and cost [2]. Furthermore, it has to be completed by a clear governance framework with adequate monitoring and evaluation of projects.

3. Research methodology

To evaluate various ways of mitigating against collusion in the construction industry, survey design was adopted for the purpose of obtaining information from individuals and experts in the area. Using quantitative approach, questionnaires were administered on construction professionals practicing within construction, consulting and government establishments within Gauteng region of South Africa. These includes quantity surveyors, architects, construction managers, project managers and engineers. 50 questionnaires were distributed among these professionals using purposive sampling method and 45 were retrieved. A minimum of 5 years working experience was adopted as the basis for the choice of respondents.

The questionnaire was prepared to evaluate the perception of professionals regarding the causes of collusion as well as giving respondents a chance to rank the identified causes. The questionnaire is divided into two sections in which the first section is concerned with general and background information of respondents while the second section focuses essentially on the causes of collusion in the construction industry. A cover page was also provided which is basically a cover letter highlighting a description of the researcher and their firms. The cover letter seeks permission of respondents to participate in the survey and also highlighted the main purpose of the study.

To determine the causes of collusion in the construction industry, a rating scale with five (5) points was adopted. The adopted 5-point scale was as follows: 1=Strongly Disagree (SD); 2=Disagree (D); 3=Neutral (N); 4=Agree (A); and 5=Strongly Agree. The 5-point scale were transformed to mean item score for each aspect to rank the factors. The ranking helped to identify the relative importance of each variable as recognized by the respondents. The calculation of the relative mean item score (MIS) was determined from the total of all weighted respondents and then relating it to the total response on a particular aspect. This was based on the principle that respondents' scores on all the selected criteria, considered together, are the indices of importance of the factors. The mean item score (MIS) was calculated for each item as follows;

$$MIS = \frac{1n1 + 2n2 + 3n3 + 4n4 + 5n5}{\sum N} \quad (1)$$

Where;

n1 = Number of respondents for factor number 1;
 n2 = Number of respondents for factor number 2;
 n3 = Number of respondents for factor number 3;
 n4 = Number of respondents for factor number 4;
 n5 = Number of respondents for factor number 5;
 N = Total number of respondents

After analytical calculation and the computation of standard deviation (SD), the variables were then ranked in descending order of their mean item score from highest to lowest.

4. Finding and discussion

From the received 45 questionnaires, 41 were completely filled and analyzed accordingly. Analysis of the results indicates that respondents possess an average of about 9 years of experience, have been involved in not less than 4 projects and are currently involved in at least a construction project as at the time of information gathering for this study. 7.3% were Architects, 22.0% Project Managers, 14.6% Construction Manager, 7.3% were Engineers, 24.4% were Quantity Surveyors, 4.9% were Estimators, and 19.5% were Government Officials.

Figure 1 reveals various forms of collusion activities in the construction industry. It could be observed that 29.1% of construction stakeholders participated or was affected by Sub-contracting, bribery account for 25.5%, Bid-rigging accounts for 23.6%, belonging to a cartel accounts for 5.5%, Cover pricing accounts for 12.7%, Bid rotation accounts for 1.8% and same for suppression of bids. The findings further revealed that complementary bidding is not common among stakeholders in the construction within the study area.

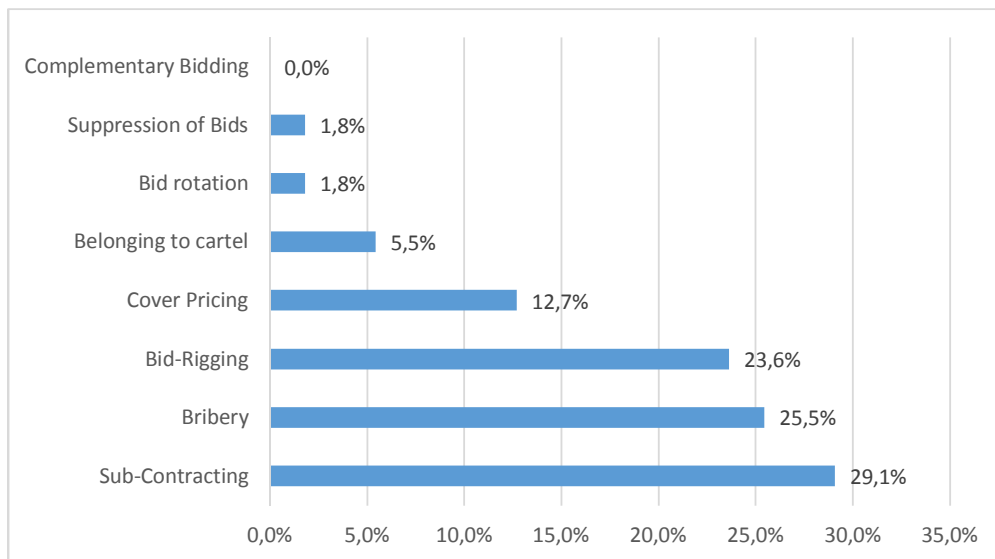


Fig. 1. Construction stakeholders' participation in collusion

Table 1 shows various identified measures to combat collusion in the construction industry, using Gauteng Province of South Africa as a case study. The ranking of the measures to combat collusion in South Africa were in accordance to the calculated mean item score (MIS) and standard deviation (SD) for the identified variables. In cases where two variables have the same MIS value, the one with the lower SD value was ranked higher since lower SD value indicates concordance among respondents in responding to variables. The calculated Cronbach's Alpha value for these measures is 0.791 indicating a level of consistency among measured items.

According to the respondents, the following are the details of various measures to combat collusion in the construction industry. Blacklisting of firms, individuals and companies involved in corruption is the most important

measure with MIS of 4.32 and SD of 0.756. Among other enforcement and mechanisms, existing studies have recommended that companies that are caught colluding should be blacklisted with appropriate sanctions [4, 2]. This will ensure that the companies undertake a serious reform and also serve as lesson for others operating in the industry.

Blacklisting of firms caught in collusive activities is followed by auditing of construction firms and projects (MIS of 4.2 and SD of 0.843), reporting of suspicious transaction (MIS of 4.17 and SD of 0.667), adoption of transparent procurement procedures (MIS of 4.10 and of SD), adoption of whistle blowing systems (MIS of 4.07 and SD of 0.721) as well as reviewing and consolidating appropriate legislative framework for the construction industry (MIS of 4.00 and SD of 0.866). Other important measures include enforcement of payment periods with MIS of 3.98 and SD of 0.821; management of professional ethics system with MIS of 3.90 and SD of 0.821; the use of social analysis, research and policy advocacy with MIS of 3.90 and SD of 0.90; fraud risk management with MIS of 3.88 and SD of 0.842; awareness training and education on collusion with MIS of 3.85 and SD of 0.91; downgrading contractors involved in collusion with MIS of 3.85 and SD of 1.38; improvement of management policies and practices with MIS of 3.83 and SD of 0.738; partnership with relevant construction stakeholders with MIS of 3.68 and of 0.096; organized public feedback in a form of report cards with MIS of 3.63 and SD of 0.888; as well as decentralization of construction process and activities with MIS of 3.56 and SD of 0.743.

Table 1. Measure to combat collusion in the construction industry

Variables	Mean	Standard Deviation	Rank
Blacklisting of companies caught colluding	4.32	0.756	1
Auditing	4.20	0.843	2
Reporting of suspicious transaction	4.17	0.667	3
Transparent procurement procedures	4.10	0.831	4
Whistle blowing systems	4.07	0.721	5
Reviewing and consolidating the legislative framework	4.00	0.866	6
Enforcement of payment periods	3.98	0.821	7
Managing professional ethics systems	3.90	0.735	8
Social analysis, research and policy advocacy	3.90	0.901	9
Fraud risk management	3.88	0.842	10
Awareness training and education	3.85	0.910	11
Downgrading contractors	3.85	1.038	12
Improve management policies and practices	3.83	0.738	13
Partnership with stakeholders	3.68	0.960	14
Organized public feedback in a form of report cards	3.63	0.888	15
Decentralization	3.56	0.743	16
Privatisation	3.34	0.965	17

The least important measure to combat collusion among stakeholders in the construction industry is the adoption of privatization. However, the MIS value of 3.34 and SD value of 0.965 indicated that the factor is also an important collusion control measure. The findings emanating from this study supported existing research works on reduction of collusion among stakeholders [14, 7]. It recommended similar measures to prevent and eliminate collusion in any sector of the economy, which include blacklisting of affected companies, training and educating relevant government officials, raising awareness among stakeholders, downgrading of contractors caught in collusive activities, enforcement of payment periods and adoption of whistle blowing system. Auditing and clear corporate governance frame work should also be adopted as a vital measure for addressing collusion among stakeholders in any sector of

the economy [2]. Ratshisusu [6] identified transparent selection and use of appropriate procurement system and practices among construction consultants and contractors as an important measures to combat collusion.

5. Conclusion and recommendation

This study has been able to highlight diverse collusion activities among construction stakeholders and assess various measures that can be used to combat the practice in the construction industry. The literature review revealed a variety of measures including reviewing and consolidating the legislative framework, auditing, partnership with stakeholders, transparent procurement procedures, privatization, managing professional ethics systems, whistle blowing systems, improve management policies and practices, awareness training and education, decentralization, organized public feedback in a form of report cards, reporting of suspicious transaction, blacklisting companies caught colluding, enforcement of payment periods, fraud risk management, downgrading contractors and social analysis, research and policy advocacy were some of the measures provided by the literature review.

This study revealed that blacklisting of companies caught colluding, reporting of suspicious transaction, transparent procurement procedures, whistle blowing systems, reviewing and consolidating the legislative framework, enforcement of payment periods, fraud risk management, downgrading contractors, managing professional ethics systems were among the top ten measures to combat collusion among stakeholders in the construction industry. Furthermore education, training and raising awareness are also important as it will enable, particularly government officials to detect collusive tendering. The results of this study will be useful for agencies of government such Construction industry Development Board (CIDB) and Construction Education Training Agencies (CETA) as well as bodies and commissions responsible for the monitoring and management of construction activities, processes and people in construction. It will help them to ensure that construction projects are completed to time, cost, quality and satisfaction of stakeholders by adhering to highlighted measures of combating collusion among construction stakeholders.

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