

CORRUPTION IN THE SOUTH AFRICAN CONSTRUCTION INDUSTRY: A MIXED METHODS STUDY

Paul Bowen¹, Peter Edwards², and Keith Cattell¹

¹*Department of Construction Economics and Management, University of Cape Town, Private Bag, Rondebosch 7701, Cape town, South Africa*

²*School of Property, Construction & Project Management, RMIT University, GPO Box 2476, Melbourne 3001, Australia*

The construction industry is susceptible to corruption and the effects are substantial. The experiences and perceptions of corruption in the South African construction industry are investigated through an opinion survey of clients and construction professionals. A mixed methods approach is used to analyse the response data. Corruption is perceived to be widespread. Conflicts of interest, tender rigging (collusion), “fronting” and “kickbacks” are the forms of corruption most encountered. Government officials (as clients), contractors, and sub-contractors are perceived to be the parties most involved in corrupt activities. Forms of corruption most associated with government officials include the awarding of contracts for political gain, nepotism and conflicts of interest, and interference in the tender award process. Corruption is most prevalent during the bid evaluation and tendering phases of projects. Facilitating factors include a lack of transparency in the awarding of contracts and the operating environment of the industry. Barriers to reporting include a lack of confidence in the criminal justice system, a belief that no action will be taken, and a perception that ‘whistle-blowers’ are not adequately protected. Addressing the issues of corruption will require the inclusion of ethics topics in tertiary education and training curricula, special continuing development seminars provided by professional associations and industry bodies, tightening of building procurement procedures, and more forensic detection systems.

Keywords: corruption, mixed methods research, clients, construction professionals, South Africa.

INTRODUCTION

The Competition Commission of South Africa is currently probing alleged bid-rigging and anti-competitive conduct associated with projects associated with the construction of football stadia, and road and rail infrastructure for the 2010 FIFA Soccer World Cup. The Commission is investigating 65 alleged bid-rigging cases in the construction sector involving 70 projects valued at R29bn (Engineering News, 2011). Framed by

¹ Paul.Bowen@uct.ac.za

this perspective, the research reported in this paper examines the personal experiences and views of construction clients and construction professionals with regard to corruption in the South African construction industry. Issues examined include the nature and extent of corruption, participants in corruption, project phases susceptible to corruption, factors facilitating corruption, and barriers to reporting corruption. Using a web-based, online survey questionnaire, data were collected from building clients, and registered construction project managers, architects, civil engineers, quantity surveyors, and construction managers. The paper commences with a background review of corruption in general, and in the construction industry in particular, followed by a description of the survey design and administration. The findings of the opinion survey response data are then presented and discussed.

BACKGROUND TO THE STUDY

Corruption, in the form of dishonest or illegal behavior, is seen as a growing challenge for businesses and society (Transparency International, 2009). Citing World Bank estimates, Ostermann and Staudinger (2008) indicate that corruption represents 5% of the world economy; translating into an estimated US\$1.5 trillion per year. Fantaye (2004) notes that developing countries are particularly susceptible to corruption, and that it impacts negatively on the attainment of sustainable development (Pillay, 2004).

Grobler and Joubert (2004) and Hartley (2009) identify the main forms of corruption as: patronage, nepotism, bribery, ghosting, kickbacks, front companies, embezzlement, bid rigging and collusion, and conflict of interest. The latter, it may be argued, is more a matter of unethical conduct than corruption, but it is appropriate to view it as occurring at the lower end of a long corruption continuum. The construction industry has been identified as the most corrupt sector in the world (de Jong *et al.* 2009). Transparency International (2005) describes construction as an industry possessing characteristics that render it particularly susceptible to corruption. May *et al.* (2001) examined the nature of bid-cutting in construction tendering in Queensland from economic, legal, ethical and management perspectives, finding that, after their tender has been successful, main contractors coerce sub-contractors into reducing the sub-contract prices used to support the original bid. Although the main contractors considered the practice to be ethical, this is not a view shared by the sub-contractors.

Internationally, several research studies have explored corruption. Vee and Skitmore (2003), in a survey of the Australian construction industry, found that respondents had experienced or witnessed some degree of unethical or corrupt practice in the form of negligence, conflict of interest, collusive tendering, fraud, and bribery.

In the USA, FMI/CMAA (2004) found that 84% of the responding building owners, architects, building services firms, construction managers, contractors and sub-contractors had been exposed to construction industry-related acts or transactions that they would consider unethical. Bid shopping, change order games, payment games, unreliable contractors and claims games were identified as prominent issues. Competitive pressures in a low-profit margin industry and other industry factors were cited as complicating factors.

The Chartered Institute of Building (CIOB, 2006) reported on corruption in the UK construction industry. A small majority of respondents in this study saw corruption in the industry to be fairly common. A lack of a clear definition of 'corruption' was apparent, and ambiguity arose as to what constitutes corruption. 'Shades of grey' were found to exist. Zou (2006) identified the forms of government

official/client/consultant-centred and contractor-centred corruption present in the Chinese construction industry. The former category included administrative interference, the illegal award of contracts or sub-contracts, the disclosure of confidential information to certain tenderers, and the extortion of kickbacks by clients and government officials from contractors. Contractor-centred corruption was found to comprise the offering of bribes (money or benefits in-kind) to clients or tender committee members in an endeavor to secure a tender, collusive tendering and bid rigging, invoice fraud, the use of sub-standard materials and workmanship, and collusion between contractors and supervisory authorities.

Sichombo *et al.* (2009) describe the need for (proactive) and benefits of technical auditing in the Zambian construction industry, and advocate the appointment of technical auditors at the planning stage of construction projects given their finding that the pre-contract stage is the more susceptible to corruption. Benefits of technical auditing are claimed to be increased client confidence, enhanced accountability, and reduced project costs and disputes. Shakantu and Chiocha (2009) investigated corruption in the Malawian construction industry. Forms of corruption were found to include bribery, fraud, collusion, price fixing, kickbacks, and negligence. They conclude that the nature of the industry renders it susceptible to corruption, and that local conditions and procurement systems shape the form and extent of corruption.

The research findings that follow help to establish baseline data for South Africa that were previously not available and which can be used in future to draw comparisons over time.

RESEARCH METHOD

Opinion survey was used for data collection, and the research adopted a mixed methods analytical approach. Mixed methods include '*the collection and analysis of both qualitative and quantitative data in a single study in which the data are collected concurrently or sequentially [and which] involve the integration of data at one or more stages in the process of research*' (Creswell *et al.* 2003: 212). Bak (2011) cites three advantages of mixed method research, namely: convergence and integration of findings; shrinkage of other possible explanations for conclusions; and clarifying different aspects of the phenomenon under investigation. In the study described here, the data were collected concurrently using a web-based online questionnaire survey.

QUESTIONNAIRE DESIGN

Drawing on the work of Zarkada-Fraser and Skitmore (2000), Vee and Skitmore (2003), Shakantu (2006), CIOB (2006, 2009), and Shakantu and Chiocha (2009) to develop an item catalogue, a sectioned opinion survey questionnaire instrument was designed, utilizing a mixture of closed, dichotomous, declarative, multiple-choice, and open-ended questions. The strength of respondents' opinions was elicited by using 5-point Likert scales of agreement or importance. The survey questionnaire sought demographic, cultural and professional background information from respondents; explored the extent of personal exposure to corruption and the prevalence of corrupt activities; investigated the relative levels of participation in corruption by clients, consultants, regulators (building inspectors), contractors (including sub-contractors), and suppliers. It explored perceptions of the causes of, and barriers to, corrupt practices. The reporting of corruption was also investigated. Participants were asked to base their responses on personal experiences rather than third-party hearsay evidence.

METHOD OF DATA COLLECTION

The web-based, online questionnaire survey was administered to building clients, professional consultants, and registered construction managers in South Africa.

The registration and professional activities of construction professionals in South Africa are regulated by statutory councils. Target populations for the survey therefore included members of the South African Property Owners' Association (SAPOA) (representing building clients); and construction project managers (Pr.CPM); architects (Pr.Arch); civil engineers (Pr.Eng); quantity surveyors (Pr.QS); and construction managers (Pr.CM), all registered with their relevant statutory councils. A pilot (web-based) study was conducted using a national firm of quantity surveyors to test the adequacy of the survey instrument and the feasibility of its administration. The full survey was conducted between January and March 2011. Clients and registered construction professionals were emailed by their respective associations and statutory bodies, given a URL where the questionnaire could be accessed online, and asked to participate.

Disregarding notified email rejection messages ('bounces'), indicative response rates are: clients (1.3%: $n=50$; $N=3929$); construction project managers (2.5%: $n=44$; $N=1782$); architects (3.4%: $n=78$; $N=2324$); civil engineers (6.6%: $n=132$; $N=2000$); quantity surveyors (9.4%: $n=139$; $N=1477$); and construction managers (7.2%: $n=50$; $N=696$). The overall response is: $n=493$. These response rates are not unusual for web-based surveys of this nature (see Fricker, 2008) and are considered sufficient for the intended level of generalisation of the findings. The response rates for SAPOA members, CPMs and CMs are likely to be higher than stated as many of them are also practicing architects, engineers and quantity surveyors.

DATA ANALYSIS

The *numerical* data associated with responses to Likert-scale questions have been analysed using the Statistical Package for the Social Sciences (SPSS V18.0 for Mac) software application. Pearson's chi-square test at the 5% level of significance is used to compare category groups. The *qualitative* (textual) data, largely arising from responses to open-ended questions, were subjected to thematic analysis using *NVivo (Version 9) software*. The latter analysis confirmed four main themes of corruption as: involvement, forms of corruption, facilitating factors, and combating corruption. Professional sub-group sources of the italicised *verbatim* statements of survey respondents are parenthesised in the analyses presented here.

Survey respondent profile

The majority of the survey respondents are South African, male (88%), 'White' (82%), and aged 40 years or older (74%). Gender ($p=0.003$) and ethnicity ($p=0.014$) are all significantly related to professional grouping of respondents. Proportionately less female construction managers and engineers responded compared to the other groups, with respondents in the architectural profession reflecting the highest proportion of females (18%). The construction manager group reflects the highest proportion of 'Whites' (92%), whilst the client grouping is the more ethnically diverse (29% 'White'). As far as can be determined (given that the age, gender, ethnicity and experience profiles for each profession are not comprehensively accessible) the survey respondent profile broadly corresponds to the available demographics of the target populations.

The nature of the survey topic necessitates the question: are the participants' responses genuinely and honestly made? A definitive answer is impossible, but the data analysis revealed no evident negative indications among the nearly 500 responses.

Additionally, respondents are professionals registered with their respective professional disciplines, and therefore have at least a basic understanding of ethical conduct. Survey participants were encouraged, but not instructed, to offer additional comment to the catalogued question items, so these opinions are freely volunteered. The web-based survey administration meant that participants were self-selecting and this appeared to offer sufficient confidentiality to induce candour among respondents. It is therefore fair to say that there is no evidence to suggest that any responses are other than genuinely honest factual recollections of experiences or expressions of opinion on the part of the survey respondents. However, the analysis identifies instances where the researchers believe exaggeration may have occurred.

Nature and extent of corruption and participants in corrupt activities

Respondents were asked to indicate their assessment (based upon direct knowledge/experience) of whether or not corruption is widespread in the construction industry in South Africa. Differences between groups are not significant. Overall, 71% of *all* respondents report that they consider corruption to be *widespread*. Verbatim responses included statements such as:

[ENG38] *Should you not engage in the bribery, you will either not get the job or you will bump into various obstacles that will prevent you from doing your work as required.*

[PM3] *It is easier to follow the pack, than stand against corruption.*

[CON16] *Corruption in the construction industry is rife, perpetuated mainly by government officials for personal or political gain.*

Respondents' were questioned on their *personal experiences* ('Yes/No') of the various forms of corruption. Multiple responses were permitted. Conflict of interest is reportedly the form of corruption most experienced by all respondents (69%), and for each separate group except construction managers, for whom tender rigging and collusion is most frequently experienced. While conflict of interest might not be considered as corruption *per se*, it could be regarded as a first step on an inevitably slippery slope. Embezzlement and fraud (both criminal activities) are the forms of corruption least frequently experienced by all respondents and by each group. Examples of verbatim statements include:

[ENG50] *When I tender as consulting engineer I'm 99.9% of the times phoned [by public officials] for kickbacks, bribes, etc., sometimes during tender stage, most of the time before they want to award the tender.*

[QS42] *Sex for contracts demanded by [public official] male client representatives.*

While the "99.9%" frequency may be regarded as an exaggeration, the important interpretation here is that, for this respondent, the corrupt solicitations occur more often than not. They are not perceived to be rare and the invitations are overt.

Respondents' assessments regarding the *prevalence* of the various forms of corruption, and the *degree of the involvement* in corruption of various industry stakeholders, were explored. Respondents generally view tender rigging and collusion (65%) as the most prevalent form of corruption, followed by fronting (64%), kickbacks (64%), and

conflicts of interest (63%). Differences between respondent groups regarding prevalence are not significant. A response statement here:

[ENG23] *It is during the tender and evaluation phase where generally corrupt [public] officials within the client bodies are able to manipulate tenders and tender results to suit their own purposes. This is where tenders are deemed non-responsive [ineligible] based on insignificant reasons in order to elevate favoured tenderers.*

There is unanimity across all respondent groups that government officials (as clients) are the most frequently involved in corruption compared to the other respondent groups. Overall, contractors are seen as the next most corrupt grouping, followed by sub-contractors and building inspectors. Engineers, architects and quantity surveyors are reportedly the least corrupt groups of professionals. Some verbatim statements include:

[DEV14] *Local Authorities have fine-tuned their corrupt practices. They promise all tenderers they are going to influence the award of tenders and then extort kickbacks from the successful bidder. There is no apparent paper trail.*

[PM3] *It is standard industry practice that you are obliged to pay [public officials] for work, pay for processing of payments, pay for meetings, and this payment process starts at the top of most [organization] structures and the value [amount] decreases as the position of the individual changes.*

[QS33] [Public officials] *Overpaying favoured contractors irrespective of the QS's payment certificate.*

[ENG41] *I was told by a contractor how they manipulated tender prices as far back as 1983/84.*

[PM3] *Kick backs to M&E consultants is becoming an increasing problem.*

Respondents' experiences were sought regarding the forms of corruption most associated with the various industry participants. Multiple responses were permitted. There is unanimity across respondent groups that government officials (as clients) are most associated with kickbacks, tender rigging and collusion, and conflicts of interest; although the ranking of these activities varies between respondent groups. Architects, engineers and quantity surveyors are most associated with conflict of interest, kickbacks and fronting; whilst contractors are associated with tender rigging, bribery, and fronting.

Project phases most susceptible to corruption

Across all respondent sub-groups, the *tendering* and *bid evaluation* stages emerged as the most prominent project phases for corrupt activities. The contract close-out ('final account') stage is not seen as particularly susceptible to corrupt practices, although significantly more contractors (41%) see this as a phase in which corruption is widespread. Pertinent verbatim responses include:

[ENG45] [Unspecified parties] *During the contract implementation and closeout money changes hands.*

[QS1] *Bid evaluation and final account provide opportunities [for fraud] to professionals and contractors agents alike.*

Facilitators to corruption, and barriers to reporting corruption

Factors perceived to facilitate corruption

Respondent sub-groups generally hold similar views concerning factors that facilitate corruption, particularly a lack of transparency in the awarding of contracts, and the private opening of tenders; the latter reportedly being used to facilitate tampering with the bid results during the tender evaluation period. At least 77% of all respondents are in agreement about these two concerns. Other factors revealed in verbatim statements include:

[ENG56] *Project planning on government projects is very, very poor. Close Out Reports on government projects are almost non-existent.*

[QS43] *Poor skills lead to poor financial management and lack of auditing procedures which provide ample opportunity for criminal acts such as bribery, theft, and fraud.*

[QS30] *The apparent lack of political will to tackle corruption in the broader RSA context makes it hard to impose discipline in the construction sector.*

Reporting of corruption

Survey respondents suggest that, if corruption is detected, it is reported to a superior or the detector's organization (74%), or to the client and the professional consultants (70%). Differences of opinion are significant between respondent sub-groups in the case of reporting to supervisors ($p=0.019$); with proportionately more contractors and comparatively fewer quantity surveyors and architects adopting this procedure. However, 61% of all respondents report that corruption is sometimes never reported. Recourse to professional councils or regulatory bodies is not generally widespread, being reported by only 45% of all respondents. Reporting to the police is infrequent. Reporting difficulties include:

[ENG45] *It is difficult to report corruption. Very often the party you have to report to is involved. Most people who try to report corruption are marginalised in some manner, or give up. Leaking details to the press is currently the most effective, although they only take up cases selectively. Involving politicians or elected officials is a joke, they do nothing that does not have something in it for them, even the opposition.*

[ENG44] *When reported to ECSA [Engineering Council of South Africa] they do not follow up or when they eventually do, after years of persistent follow-up, it is glossed over. They promise it will be investigated - and then give no further response until prompted some time later. And this is supposed to be the regulatory body. It is a case of "Who guards the guardians?"*

Barriers to the reporting of corruption

Survey respondents report that corruption, once uncovered, is not reported due to: a lack of confidence in the anti-corruption agency and the judicial system (82%); a belief that no action will be forthcoming (83%); a concern that the South African Protected Disclosures Act (Act 26 of 2000) does not adequately protect 'whistle blowers' (67%); and loyalty (albeit misplaced) to friends or an organization (72%). Differences of opinion between respondent groups are not significant, except in the case of 'loyalty', where proportionately fewer project managers were found to hold this view. Other reasons cited by participants as reporting barriers include a fear of retaliation and physical harm to one's self or family, fear of an occupational penalty (e.g. dismissal) by the employer, fear of being stigmatized as a 'whistle blower', and being unaware of the reporting channels to be followed. A majority of *all* respondents share these views,

except in the case of ignorance of reporting channels (47%). Verbatim statements include:

[ENG56] [Corruption is] *Mostly never reported due to distrust in system and due to believe that Government by and large is corrupt at the top echelons - decision makers are the most corrupt regardless of speeches and verbal commitments to get rid of corruption. It is all talk to appease masses.*

[ARCH23] *As long as competitive tendering remains uncontrolled, i.e. known perpetrators are not reported/brought to book, these actions will continue, and will continue to drive conforming business owners out of the industry.*

[ARCH16] *Most of us do not have the time or the resources to give evidence in court or at a hearing.*

DISCUSSION

The survey findings present a somewhat depressing picture of corruption in the South African construction industry, but a valuable baseline has been established, against which future anti-corruption measures can be benchmarked. Such counter-measures must be regarded as essential given the universal perceptions of survey respondents that corruption is presently widespread. The findings generally support those of earlier researchers and suggest that the extent and form of corruption in the construction industry in South Africa is little different to that in other countries. Some addressable priorities can be identified in terms of combating current levels and forms of corruption.

Conflicts of interest must be seen as an urgent target for attention. As noted earlier, such conflicts may be regarded as a relatively mild form of corruption and inevitable in a fragmented industry comprising a great number of players where decision-making is diversified but ultimate power relatively focused, thus creating the conditions precedent (i.e. opportunities) for interests to conflict. The pervasive danger of conflicts of interest is that they sow the seeds for more serious corruption activity and serve to anaesthetise the consciences of those who engage in it. Avoiding conflicts of interest is best addressed by the professional associations in the construction industry and by the education and training institutions that serve it. Professional ethics should be strengthened in course *curricula* and reinforced through career development seminars. Public sector officials must be presented with clear procedural guidelines that highlight ethical requirements. The absence of ‘paper trails’ (Respondent DEV14) would, in most contemporary business organisations, be synonymous with the difficulty of tracking and auditing email, text and telephone communications. Modern technology allows this to be done, but it is always likely to lag behind the concealment ingenuity of the perpetrators of corruption. Despite this, random IT audits should not be ignored in the fight against corruption, particularly in public administration.

Other forms of corruption stem largely from opportunities arising in the building procurement process, and more particularly during the tendering and bid evaluation stages. Greater procedural transparency and tighter control measures would help to combat corruption here – removing or minimising opportunities for corruption would automatically reduce the incidence. More forensic approaches to detection should be developed and adopted, particularly in the tender evaluation process, where more sophisticated statistical analysis techniques could be used. This approach would not only facilitate corruption discovery but also act as a deterrent, especially if accompanied by more severe penalties for corrupt behaviours. Besides monetary fines,

penalties (depending upon the transgression) could include suspension or cancellation of professional registration; dismissal from public service with removal or curtailment of benefits; or restriction on capacity to tender for future projects. Importantly, anti-corruption measures should be effective and be seen to be effective ('to have teeth and to bite').

Addressing all the issues of corruption and the barriers to reporting will require a longer-term approach, since it will inevitably involve cultural and attitudinal shifts. These are difficult to achieve: process changes can be rapidly implemented, but mind-sets are more intractable. However, South Africa has unique experience in this over the past two decades, showing that it is not impossible, given patience and perseverance. The paramount aim is to restore integrity to, and trust in, an industry that is increasingly called upon to be at the forefront of national development.

CONCLUSIONS

Concern for the extent and nature of corrupt activities in the construction industry in South Africa is evidenced by the survey findings. Corruption appears to be widely prevalent, most notably in the form of conflicts of interest, but substantially also in terms of tender rigging and collusive pricing. Government officials (generally acting in a *quasi-client* role) are thought to be the people most frequently involved, but no participant group in the construction procurement process is seen as entirely innocent. Counter-measures to corruption require determined activity at all levels: from inclusion in professional education and training *curricula*; career development opportunities through professional and industry associations; improvements in procurement processes and detection procedures; increased severity and targeting of infringement penalties; to seeking shifts in attitudes and cultures.

While the research here has focused upon the construction industry, solutions for combating corruption are unlikely to be industry specific. Nor will they be unidirectional. 'Top-down' approaches should address ethical standards and conduct in public administration and procurement processes across all industries. Anti-corruption commissions/organizations should be adequately resourced and armed. Legislation should be both punitive and deterrent. A 'sideways' approach would involve educators and the professions expanding their responsibilities in terms of inculcating ethical conduct. The 'bottom-up' direction would see enhancement of 'whistle-blower' opportunities and protection. None of these approaches are sufficient in themselves to deal with corruption, and leadership will have to come from government, industries and the professions acting in concert. Failure to act would mean that the construction industry corruption baseline established in this research will reveal inevitable decline in the future.

REFERENCES

- Bak, O. (2011) The role of qualitative research in a mixed methods study. *Qualitative Research Journal*, **11**(2), 76-84.
- Chartered Institute of Building (CIOB) (2006) *Corruption in the UK Construction Industry*. Available at: <http://www.ciob.org.uk/document/corruption-uk-construction-industry>, accessed 5th July 2011.
- Chartered Institute of Building (CIOB) (2009) *Crime in the Construction Industry*. Available at: <http://www.ciob.org.uk/node/16580>, accessed 5th July 2011.

- Creswell, J. W., Clark, V. L. P., Gutmann, M. L. and Hanson, W. E. (2003) Advanced mixed method research design. In A. Tashakkori and C. Teddlie (Eds.) *Handbook of Mixed Methods in Social and Behavioral Research*, Thousand Oaks, CA: Sage, pp.209-214.
- de Jong, M., Henry, W.P. and Stansbury, N. (2009) Eliminating corruption in our engineering/construction industry. *Leadership and Management in Engineering*, **9**, 105-111.
- Engineering News (2011) Construction bid rigging probed, firms asked to come clean. Cramer Media's *Engineering News*, 1st February 2011. Available at: <http://www.engineeringnews.co.za/article/construction-bid-rigging-probed-firms-asked-to-come-clean-2011-02-01>, accessed 6th July 2011.
- Fantaye, D. (2004) Fighting corruption and embezzlement in Third World Countries. *Journal of Criminal Law*, **68**(2), 170-176.
- FMI/CMAA (2004) *Survey of Construction Industry Ethical Practices*. Construction Management Association of America, Virginia, USA.
- Fricker Jr., R.D. (2008) Sampling methods for Web and E-mail surveys. In Fielding, N., Lee, R.M. and Blank, G. (Eds.) *The SAGE Handbook of Online Research Methods*, SAGE Publications, India, Chapter 11, pp.195-216.
- Grobler, E. and Joubert, S.J. (2004) Corruption in the public sector: the elusive crime. *Acta Criminologica*, **17**(1), 90-102.
- Hartley, R. (2009) Fighting corruption in the Australian construction industry: the National Code of Practice. *Leadership and Management in Engineering*, **9**(3), 131-136.
- May, D., Wilson, O.D. and Skitmore, R.M. (2001) Bid cutting: an empirical study of practice in south-east Queensland. *Engineering, Construction and Architectural Management*, **8**(4), 250-256.
- Ostermann, H. and Staudinger, R. (2008) Corruption, transparency, and e-government. *Encyclopedia of Digital Government*, IGI Global, pp.251-259.
- Pillay, S. (2004) Corruption - the challenge to good governance: a South African perspective. *International Journal of Public Sector Management*, **17**(7), 586-605.
- Shakantu, W. (2006) Corruption in the construction industry: forms, susceptibility and possible solutions. *Civil Engineering*, **14**(7), 43-47.
- Shakantu, W. and Chiocha, C. (2009) Corruption in the construction industry: the case of Malawi, in *RICS COBRA 2009 Research Conference* proceedings, University of Cape Town, Cape Town, South Africa, 10-11th September. Available at: http://www.rics.org/site/download_feed.aspx?fileID=5018&fileExtension=PDF, accessed 15th March 2010.
- Sichombo, B., Muya, M., Shakantu, W. and Kaliba, C. (2009) The need for technical auditing in the Zambian construction industry. *International Journal of Project Management*, **27**(8), 821-832.
- Transparency International (2005) *Global Corruption Report 2005*. Transparency International, Cambridge University Press, New York.
- Transparency International (2009) *Global Corruption Report 2009*. Transparency International, Cambridge University Press, New York.
- Vee, C. and Skitmore, R.M. (2003) Professional ethics in the construction industry. *Engineering, Construction and Architectural Management*, **10**(2), 117-127.
- Zarkada-Fraser, A. and Skitmore, R.M. (2000) Decision with moral content: collusion. *Construction Management and Economics*, **18**(1), 101-111.

Zou, P.X.W. (2006) Strategies for minimizing corruption in the construction industry in China. *Journal of Construction in Developing Countries*, **11**(2), 15-29.