Construction public client health and safety culture in Botswana: A pilot study

I. Musonda[1], Prof. T. Haupt[2]

1 Department of Construction Management, University of Johannesburg, Johannesburg, innocentmusonda@yahoo.co.uk, Tel: +27(0)11 406 2911

2 SABERC, Cape Peninsula University of Technology, Cape Town hauptt@cput.ac.za , Tel: +27 (0) 21 959 6637, Fax: + 27 (0)21 959 6870

ABSTRACT AND KEY WORDS

Purpose of this paper
This paper presents the preliminary findings of an exploratory pilot study into the health and safety culture of a public sector client in Botswana with a view to identifying aspects to be included in a larger broad-based national survey.

Design / Methodology /approach
Structured interviews were conducted with project managers from two major public client organisations in order to explore clients' commitment to H&S, allocation of resources in terms of H&S, and whether clients were leading by example on H&S.

Findings
The pilot study found that *prima facie* the H&S safety culture of the two public clients was not strong when compared against the expected elements of a good H&S culture.

Limitations
The survey was only conducted in two major public clients and interviews were only conducted with senior project managers and so the results may not be generalised to all public clients in Botswana. Further, only a few selected elements of the many suggested characteristics of H&S culture were assessed in the study.

Originality / value of this paper
The H&S culture of construction clients or owners has not been extensively explored even though it is widely accepted that the client is very important to H&S performance improvement. The paper contributes to this body of knowledge.

Keywords: Botswana, construction, health and safety culture, public client

1.1 INTRODUCTION

Even though it is widely accepted that the client is very important to H&S performance improvement, the H&S culture of construction clients or owners has not been extensively explored

For the purposes of this particular paper, the terms 'client' and 'owner' have been used interchangeably to refer to one and the same entity. Typically they are the initiators of projects and purchasers of the products of construction (Lingard, Blismas, Cooke and Cooper, 2008). However, there are several types of clients and categorisation may take various forms. One such categorisation is that which identifies a client to be either engaged primarily in either the public or private sector (Brook, 2002).

Given that most construction projects in Botswana are executed by public sector clients, it follows therefore that they may be influential on more than half of all construction projects in Botswana. Many researchers affirm that clients can influence H&S on site (Huang and Hinze, 2006; Suraji, 2001 and Smallwood, 1998). Therefore, the H&S culture within client bodies is important since H&S culture has also been identified to have an impact on health and safety goals (CRC, 2006).

However, from evidence in several earlier studies it seems that most clients have not shown serious commitment to H&S. A study conducted by Smallwood (1998) in South Africa; found that most clients give priority equally to cost and quality in comparison to H&S being largely overlooked. This situation is a challenge to health & safety performance improvement.

A further challenge is the perception that H&S management is primarily the responsibility of contractors despite the emergence in recent times of legislative and regulatory frameworks that redistribute responsibility for construction H&S to all parties involved in the construction process. Interventions such as H&S audits are usually designed only to find risks or hazards at the technical or operational level but less concern at managerial level of the project organisation as a whole. Few strategies are directed at improving upstream elements including those involving clients. H&S campaigns are only made for operatives rather than for those who are involved during the concept or design phases of a construction project Suraji et al (2006).

A review of extant literature confirms that examination of the role and culture of clients are almost absent from most studies. Concentration is overly placed on the construction phase of projects and the related operational processes of contractors (Saurin et al, 2003; Sawacha et al, 1999; Carder, 2002; Teo et al, 2005 and Hudson, 2001). However, Huang et al (2006) focused on clients and Lingard et al (2008) on the development of a model client framework for the Australian Government.

Clients if involved can influence worker health & safety (Huang et al, 2006 and Smallwood, 1998). Using total recordable injury rate (TRIR), to determine the relationship between H&S performance and owner involvement, Huang et al (2006) demonstrated that clients can influence H&S outcomes. Smallwood (1998) found that most general contractors believed that the client could potentially influence their health and safety performance.

According to Suraji et al (2006), improving health & safety means to make clients, client representatives, designers and contractors as well as employees to be aware of their roles in the improvement process. Hinze and Gambetese (1996) further argue that involvement of clients is an essential requirement for the zero injuries objective. In fact according to Gambetese (2000), owners should participate with contractors in all project H&S activities.

Bomel (2001) identified the culture of client organisations as presenting considerable opportunities for H&S improvement in the UK construction industry. Improving H&S record has been attributed to an improvement in the H&S culture by many authors (Chinda and Mohammed, 2008; Baram

and Schoebel, 2007; Dingsdad, Biggs and Sheahan, 2006; Muniz, Peon and Ordas, 2007 and CRC, 2006).

There has also been an increasing interest in the subject of safety culture primarily because of its impact on safety outcomes. As a result many definitions of the concept have emerged. A number of authors however agree that there is no unanimity on the definition of the concept of H&S culture (Muniz et al, 2007; Hopkins, 2006 and Cooper, 2000). According to Cooper (2000), H&S culture does not operate in a vacuum. Rather it affects and is affected by other non-H&S related operational processes or organisational systems. For the purpose of this paper and study H&S culture describes the H&S beliefs, values and attitudes that are shared by the majority of people within an organisation (Muniz et al, 2007; CRC, 2006; Australian Government, 2008; Molenaar et al, 2002 and Cooper, 2000). This definition is also summed up by 'the way we do things here' (Cooper, 2000: 115).

There has been debate not only around the definition of the safety culture concept, but also its measurement However, according to Cooper (2000) it is "that observable degree of effort with which all organisational members direct their attention and actions towards improving safety on a daily basis". The units of 'effort' differ and could be the degree to which members give priority to H&S over production. Outcomes of a positive health & safety culture could be a reduction in injury rates. However as Cooper (2000) points out, reductions in injury rates although very important, are not sufficient in themselves to indicate the presence or quality of a H&S culture, where as "that observable degree of effort" is something that can always be measured and assessed.

This paper focuses on commitment to health & safety, allocation of resources and leading by example. In other words, "that observable degree of effort". The paper also focuses on establishing shared values between senior project managers in client organisations.

1.3 RESEARCH METHODOLOGY

A structured questionnaire was used to conduct interviews with representatives at two public construction client organisations. This approach was followed to improve consistency in the responses and ease of analysis. The method was also considered appropriate for a pilot study. In the next phase of the study a Delphi approach will be followed.

1.3.1 Profile of sample

Four project managers from each of the two major public client organisations were interviewed given that they had access to information on policies and their responses on their practices on health & safety would shade light on the way things were done in their organisations. These two public clients, namely X and Y, were selected because they were recurrent clients of constructed facilities together each taking a third largest percentage of the developmental budgetary allocation. Almost 12% of the developmental budget was allocated in the 2009/10 budget to them. They were also directly involved in the management of their construction projects across Botswana.

Most responses to the questions were based on a five point Likert rating scales of agreement or importance.

The generalization of the findings of the study to the entire Botswana construction client sector is limited considering the small sample size. However, considering the market share of the selected clients the findings

are indicative of what the likely trends might be and the issues that need to be examined more closely.

1.4 FINDINGS

1.4.1 Client commitment to Health and safety management

Under the management of health and safety, interviewees were asked to state the frequency of client implementing various health & safety elements. The Likert scale was used to rate interviewees responses ranging from never to always. Interviewees were requested to state the frequency with which the following elements of the safety culture relating to client commitment were undertaken:

1. Appraising designs in terms of health & safety;
2. Client attending health & safety specific meetings on construction projects and
3. Client conducting health & safety audits.

Responses on whether both client organisations appraised designs in terms of health & safety revealed that this was not frequently done in both organisations. In client organisation X, half of the interviewees said designs were 'rarely' appraised in terms of health and safety and the other half indicated that this was done 'sometimes' (Table 1.0).

Table 01: Appraising of designs by clients.

Entity	Response (%)				
	Never	Rarely	Sometimes	Often	Always
Client organisation X	0	50	50	0	0
Client organisation Y	25	25	50	0	0

As to whether clients attended health & safety specific meetings on construction projects, a similar response as in the one above was obtained. Responses in both client organisations were that clients 'rarely' attended these meetings. Half of the interviewees from public client X indicated that this was 'rarely' done whilst all except one from public client Y said their organisation 'rarely' attended the meetings (Table 2.0).

Table 02: Attending health and safety meetings by clients

Entity	Response (%)				
	Never	Rarely	Sometimes	Often	Always
Client organisation X	0	50	25	0	25
Client organisation Y	0	75	25	0	0

Responses on client involvement through conducting of H&S audits were also consistent in a way with the above findings. In client organisation X, responses from half of the interviewees were that clients conducted safety audits 'sometimes' with the other half indicating that this was either 'rarely' or 'never' done. There was however a general agreement in client organisation Y with responses from three quarters indicating that the client 'rarely' conducted health and safety audits.

1.4.2 Allocation of resources and client leading by example

Allocation of resources was assessed through questions on the importance of H&S compared to other contract parameters such as tender sum, completion period and bidder experience, as well as through questions on client activities on health & safety such as conducting audits and general involvement.

Responses show that health & safety was probably not as important as other parameters in contract award decisions. Both client organisations identified tender sum, construction period and previous experience of bidder as being more important than health and safety. The above parameters were regarded as 'very important' by all interviewees from both client organisations were as health and safety was considered to be of 'very low importance' by 75% of the interviewees.

1.4.3 Shared value of health and safety

Assessment of the shared value of health and safety was another important aspect to the study on health and safety culture of the two public clients. This was done through questions on practices in the organisations as well as well as on their opinions and perceptions on the management of health and safety.

This section presents findings from interviews on questions to do with the interviewees' opinions and perceptions on health and safety management. It was felt that their responses regarding their perceptions would reflect or be informed by what obtains in their separate client organisations.

Opinions were sought on the following:

1. Whether clients should be obliged to pay for ensuring health and safety on construction projects;
2. Whether health and safety should be a primary responsibility of either contractors, clients or designers;
3. Revision of legislation to make client organisations responsible for the management of health and safety.

The above issues generated varied responses suggesting a lack of a common principle or background to strongly inform and influence interviewees' opinions in both organisations. On whether clients should pay for ensuring health and safety, responses ranged equally from 'strongly agreeing' and to 'disagreeing' with the idea. Between the two client organisations, combined responses were that 25% 'strongly agreed', $12^{1/2}$% were 'not sure', 25% 'disagreed' and the other $12^{1/2}$% 'strongly disagreed' with the idea. Similar responses were obtained on the question of whether health and safety should be a primary responsibility of either clients, contractors, designers or indeed be equally shared between all of them. A combined response from both client organisations was that $37^{1/2}$% 'strongly agreed', an equal percentage 'agreed with the idea whilst $12^{1/2}$% 'disagreed' and the other $12^{1/2}$% 'strongly disagreed' with the idea. There was a strong agreement in client organisation X on client to be more responsible for health and safety with all of the interviewees indicating this.

In client organisation Y however, only half 'agreed' with the idea that clients should be more responsible for health and safety whilst the other half either 'disagreed' with the idea. Similar results were obtained on responses regarding whether designers should be more responsible for health and safety. There was however a general agreement that all parties should be involved in the management of health and safety although not so emphatic as on other aspects where there was a strong agreement. Between the two client organisations, responses from 75% of the interviewees 'agreed' that all parties must be responsible for ensuring health and safety on construction sites.

1.5 DISCUSSION

Most research has shown that health & safety on construction sites is influenced by factors that may be remote to it. Management commitment, designer influence and to some extent client influence have been suggested as precursors to health & safety problems on construction sites.

This pilot study has tried to explore the construction public clients' health & safety culture by evaluating two public clients' commitment to health and safety management, whether they led by example and also whether there was a shared value of health and safety among project managers from the two organisations.

Responses on clients' commitment to health and safety seem to suggest a low to medium level of participation in the management of health and safety. Health and safety audits and attendance of health and safety specific meetings are rarely done. Equally, designs are not frequently appraised in terms of health and safety. It is argued that in an organisation where there is a strong health and safety culture, the above 'efforts' are supposed to be basic routine activities.

The responses from the interviewees also suggest that both client organisations may not actually have documented policies and protocol on health and safety management. The argument again is that, in an organisation where policies and protocols are documented or are generally agreed and accepted as a norm, the above basic procedures to manage health and safety could have been established as a basic requirement.

On the aspect of allocation of resources, responses on leading questions seem to suggest that little resource is allocated to the management of health of safety by both clients.

In comparison to other parameters of construction projects such as tender sum, construction period and experience of tenderers, health & safety received a low consideration in the awarding of contracts. Health and safety is considered to be of least importance in deciding on which contractor should be awarded the contract. One would argue therefore that since health and safety is not regarded as important in comparison to other parameters, it follows therefore that even the allocation of resources would be commensurate with the importance that has been placed on the element.

The above argument can be supported by the earlier suggestion that it seems both clients may not have documented policies and protocol on health & safety and therefore it is unlikely that resources may be allocated to an unidentified or unplanned for activity, in this case being health and safety.

The above findings may also suggest a lack of leadership by public client organisations on health & safety. This is inferred from the Interviewees responses that described both clients' level of involvement in health & safety to be low.

As to whether clients led by example on health and safety management, inference can again be made from the level of 'efforts' of both clients to improve health and safety through conducting health and

safety audits, attending health and safety meetings as well as the importance that has been placed on health and safety in relation to other project parameters. Responses reveal a low involvement in health and safety management and as well as having a low regard for health and safety. The above does not suggest that both clients led by example in trying to improve health and safety in the construction industry.

Responses also seem to indicate a lack of a shared value of health and safety in both public client organisations. This can be seen from a range of responses obtained from interviewees on various aspects of health and safety management. As suggested earlier, the above was not considered to be surprising. It seems both organisations do not have policies and protocols that can guide and shape clients' values on health and safety and thus have a strongly influence on interviewees' opinions on health and safety management.

1.6 CONCLUSION

Literature informs that clients or owners can influence health & safety on construction sites. It is suggested in this paper that it should follow therefore that the clients' health & safety culture is important to the industry's health & safety performance. It is from this basis that a pilot study was conducted to explore clients' health & safety culture looking only at three elements of commitment, leading by example, allocation of resources and shared value of health & safety out of the many elements that constitute health and safety culture.

It has been found that, there is low commitment to health and safety by both clients, results do not suggest an equitable allocation of resources to ensure health and safety improvement, there is no suggestion of leadership by public clients and there is generally a lack of shared value of health & safety in both client organisations.

Findings from this pilot study seem to suggest that the health & safety culture of construction public clients in Botswana is not strong.

The above findings seem to suggest that more work on health & safety improvement need to focus on client organisations especially public clients such as the ones in this study. A development of the Australian model client framework, although assumption is made of a client having a positive or strong health & safety culture, is one effort that should be encouraged. More research should also be focused at improving clients' health and safety culture.

1.7 REFERENCES

Bomel, 2001, *Contract report research 387/2001 Improving health and safety in construction: phase 1: data collection, review and structuring,* (London: Health and Safety Executive).

Carder, B. and Ragan, P.W., 2003, A survey based system for safety measurement and improvement. *Journal of safety research, **34**, 157-165.*

Chinda, T. and Mohammed, S., 2008, Structural equation model of construction safety culture. *Engineering construction and management, **15** (2), 114 – 131.*

Cooper, M. D., 2000, Towards a model of safety culture. *Safety science, **36**, 111- 136*

Central Statistics Office, 2008 Formal employment statistics. *Stats brief. No 1, 2008/9* (Gaborone: CSO)

CRC Construction Innovation, 2006, *A Construction safety competency framework: Improving OH&S performance by creating and maintaining a safety culture.* (Brisbane: Icon.Net)

Gambetese, J., and Hinze J. 1999, Addressing Construction worker safety in the design phase Designing for construction worker safety. *Automation in Construction, **8** (6), 643 – 649.*

Groeneweg, J., 1994, *Controlling the controllable: The management of safety. 2nd revised Ed.,* (Leiden: DSWO press).

Hopkins, A., 2006, Studying organisational cultures and their effects on safety. *Safety Science, **44,** 875 – 889.*

Huang, X. and Hinze, J., 2006a, Owner's role in construction Safety. *Journal of construction engineering and management, **132**(2), 164-173.*

Huang, X. and Hinze, J., 2006b, Owner's role in construction Safety. *Journal of construction engineering and management, **132**(2), 174-181.*

Lingard, H., Blismas, N. and Cooke, T., 2009, The model client framework. *International journal of managing projects in Business, **2**(1), 131 - 140.*

Molenaar, K., Brown, H., Caile, S. and Smith, R., 2002, Corporate Culture. *Professional safety, **July 2002,** 18 -27*

Mmegi, 2009, Non- Mining has greater GDP. *Mmegi online, Vol. **25** (175)*

Musonda, I. and Smallwood, J., 2005, Construction health and safety awareness and implementation in Botswana's construction industry. In: Haupt, T.C. and Smallwood, J. (Eds.), *Rethinking and revitalising construction health safety, environment and quality,* (Walmer: CREAT).

Saurin, T.A., Formoso, T.C., Guimaraes, L.B.M., 2004, Safety and production: An integrated planning and control model. *Construction Management and Economics, **22**, 159-169.*

Sawacha, E., Naoum, S., and Fong, D., 1999, Factors affecting safety performance on construction sites. *International journal of Project Managers, **17**(5), 309-315.*

Smallwood, J., 1998, Client Influence on contractor health and safety in South Africa. *Building Research & Information, **26**(3), 181-189.*

Suraji, A., Duff, R.A., and Peckitt, J.S., 2001, Development of causal model of construction accident causation. *Journal of Construction Engineering and Management, **127**(4), 344- 344.*

Suraji, A., Sulaiman, K., Mahyuddin, N. and Mohamed, O., 2006, Rethinking construction safety: an introduction to total safety management. *Journal of construction research, **7**, (1&2), 49-63.*