CLIENT COMMITMENT AND ATTITUDE TO CONSTRUCTION HEALTH AND SAFETY IN BOTSWANA

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ABSTRACT

Purpose of the paper– The purpose of this paper is to present findings of a preliminary survey on the extent to which clients are involved in construction health and safety (H&S) implementation in Botswana.

Methodology – A questionnaire survey was conducted on construction projects to establish the extent to which clients are involved in construction H&S. Physical observations were also conducted on construction sites in order to relate questionnaire responses to what was actually obtained on sites.

Findings – Findings from the survey include: clients do not perceive H&S to be very important on construction projects, most clients do not address H&S adequately in contract documentation and H&S is rarely a major agenda item in progress meetings. Findings were also that clients are not fully committed to H&S implementation. Literature informs that the above are some of the important areas in which clients could show commitment and influence H&S performance.

Value – The importance of the client to H&S implementation and performance improvement has been recognised by various researchers. This paper however provides an insight on the extent to which the client is involved and committed to construction H&S in Botswana.

Keywords: Botswana, client, commitment, construction, health and safety

1.0 INTRODUCTION

Research conducted by the authors in Botswana revealed that the level of H&S awareness in the construction industry is low, H&S legislation is not complied with, the management of contractors is not committed to H&S implementation, there is a lack of H&S management systems, procedures and protocol and designers do not adequately participate in the implementation of H&S (Musonda & Smallwood 2005: 116). A similar study conducted by Ooteghem (2006: 43) revealed that occupational accidents and fatalities continue to be recorded in Botswana. Between the period 2000 and 2003, a total of 251 occupational fatalities were registered with the workmen's compensation authority

from all sectors (Ooteghem 2006: 43). 96 Accidents in the construction sector alone were registered with the workmen's compensation during the same period.

It is estimated that about 4% of the gross domestic product world wide, is lost due to work related accidents and disease. A study conducted in Europe recently, showed that accident costs as a percentage of GDP ranged between 2.5 % and 6% excluding Great Britain and Norway which was determined to be 1% and 10% respectively (www.oit.org/public/english/protection/safework/papers/ecoanal/ecoview.htm).

Research also shows that the construction industry's injury rate is still 50% higher than that of all industries (Huang & Hinze, 2006). The injury rate is also almost twice more than other industries such as manufacturing.

Although quite a lot has been done to address H&S performance improvement including change to regulations in most parts of the World, research still shows that accidents still occur and the construction industry is still one of the most dangerous industries. Sawacha, Naoum & Fong records that in construction the risk of a fatality is five times more likely than a manufacturing based industry, whilst the risk of a major injury is two and half time higher (1999).

Despite much having been done on H&S, the focus of most studies on construction H&S has been on contractors management and design & build firms (Hinze & Gambetese 2001: 159). Studies such as one by Jaselkis, Anderson & Russell (1996), Toole (2002) and Huang & Hinze (2006) on H&S performance have focused more on factors that do not significantly address clients' role, involvement and attitude on H&S in the construction industry. This research will therefore build on what has already been done on the subject and explore more on client commitment and attitude in H&S management.

This research is very important and contributes to the body of knowledge on H&S because very little work has explored the attitude and commitment of clients to H&S. Yet most scholars have recognised and affirm that clients can influence H&S. In order to improve H&S performance, attention has to be paid to client role. Huang and Hinze (2006: 164) in their paper on client's role on H&S argue that the involvement of clients (owners) is an essential requirement for the zero injuries objective. Other researchers have also recognised the importance of the client in the management of H&S. Suraji et al (2006: 55) and Smallwood (1998: 188) maintain that construction H&S can be successfully influenced by clients. Clients have a positive role to play in lowering injury rates

2.0 LITERATURE REVIEW

2.1 CLIENT ROLE IN CONSTRUCTION H&S

Striving for enhanced H&S performance will remain elusive if the client is not actively involved especially in Southern Africa. Huang and Hinze (2006a: 164) rightly argue that the involvement of clients or owners is an essential requirement for the achievement of the zero injuries objective. Other researchers have also recognised the importance of the

client in the management of H&S. Suraji, Sulaiman, Mahyuddin, and Mohamed (2006: 55) and Smallwood (1998: 188) noted that construction H&S can be successfully influenced by clients. Clients have a positive role to play in lowering injury rates (Smallwood, 1998: 188)

To emphasise the point that clients are very important in the management of H&S, Suraji, Duff and Peckitt (2001: 338) argue in their paper on accident causation that construction accidents are caused by inappropriate responses to certain constraints and the environment. They observed for example that the client responses are the actions or failure to act in response to constraints that emerge during the development of the project scope. According to them, these include reducing the project budget, adding new project criteria, changing project objectives and accelerating the design or construction efforts of the project. All of which are factors that impact on H&S and are directly influenced by clients.

2.2 CLIENT INVOLVEMENT

A proactive management of H&S as argued by Hinze, requires that a safety approach be adopted that is not dependent on the monitoring of injuries after they occur (lagging indicators of performance) (2005: 1). Rather than basing safety actions on measures of failure a shift in thinking is needed whereby the focus is on those actions that can lead to good safety performance (leading indicators of performance) (Hinze, 2005: 1). Leading indicators and management of these is what will contribute greatly to H&S performance improvement. This function is better performed by the client. Huang et al breaks down the above function into a list of activities which are essentially broad areas in which clients can and should exert influence on H&S as being: setting H&S objectives; selecting suitable contractors in terms of H&S and participating in H&S management (2006: 174). Smallwood goes even further and breaks down the broad areas and argue that clients should:

- provide financial support;
- include H&S as a prequalification criteria;
- schedule H&S requirements prior to bidding process;
- issue contract documentation that is structured to allow for H&S and,
- Conduct audits in H&S (1998: 182).

Considering clients' influence and potential to effectively manage leading indicators, clients should therefore input adequate resources into construction H&S instead of relying on contractors to improve H&S in the construction industry (Huang et al 2006: 180).

Clients have not been significantly involved in H&S. As argued by Smallwood, the major agencies of client influence have been prescriptive, regulatory or coercive measures as opposed to upstream proactive measures such as ones identified above including design, detail and specification and more importantly prioritisation (1998: 185). Clients do not spend enough resources in addressing H&S in the preliminary stages rather would like to address the problem following accidents or incidents.

2.3 H&S LEADERSHIP

H&S performance improvement also depends on the extent to which construction-project clients provide leadership on H&S matters. Loosemore, Lingard, Walker, and Mackenzie (1999: 884) also identified the importance of this and recommends that the lead must come from clients themselves. Without this, they argue, the construction industry has a long way to go in changing attitudes towards H&S. Levitt and Samuelson (1993: 215) also argue that monitoring, which is one of the activities in providing leadership, makes a difference, and that excellent H&S performance can be obtained with the active participation of clients, even from average contractors. If the clients are taking the lead, they must know exactly what is required to develop a detailed comprehensive brief for the design team and to issue H&S specifications. Further, as suggested by Suraji *et al* (2006: 49) the client must take responsibility for preventing accidents. The client should carefully consider H&S control in ordering works, exercising supervision, and providing instructions. Huang *et al* (2006a: 181) also asserts that clients set the H&S culture for a project.

3.0 RESEARCH METHODOLOOGY

The study was quantitative and was aimed at determining the level of client commitment to H&S on construction projects. Therefore, the survey instrument needed to be designed so as to capture clients' actions or lack thereof, and the perceptions of contractors as they are the direct implementers of project goals. Because of the type of data that was required, the survey of supervisory staff on construction sites using questionnaires, coupled with physical observations was deemed to constitute the best method to conduct the research.

Questionnaires were preferred to face-to-face interviews because the researchers are of the view that respondents find it easier to answer questionnaires in privacy and their spare time. On the negative side, the response rate is usually lower with questionnaires that have to be returned. Questionnaires are also a good way of obtaining information because it is cheap and less time consuming. A pilot study was conducted in the preliminary stages. From the questionnaires that were sent out at this stage, the response rate was determined as being between 50% and 70% as slightly more than 60% responded.

The questionnaire was designed to address, *inter alia*, the clients' level of participation or commitment to H&S on construction projects. Both open and closed ended types of questions were used. Care was also taken to avoid bias by providing for alternative responses by related and preceding closed questions. Respondents were asked to 'state or specify'. Closed questions were posed before open-ended questions. Rating scales were also used for respondents to mark the level of importance, frequency, or severity.

On the clients' level of commitment, the evaluation was conducted through the following questions:

- Evidence of active participation, as seen in the client project meetings, by establishing whether H&S was a major agenda item;
- Respondents' view on how clients and designers regarded H&S in relation to other factors on a construction project;

- The purpose of the third question was to identify the respondents' opinion on how H&S could best be improved; client and designer participation is also included to assess whether respondents deemed it important, and
- The extent to which clients and designers address H&S in contract documents.

3.1 ANALYSIS OF DATA

The Primary data that was obtained through questionnaires and physical observations that was obtained by using checklists was analysed and interpreted relative to the literature review. From the above, inferences were drawn regarding the larger and general practice relative to client commitment to H&S.

Percentages and scores were calculated for various responses and observations.

The calculation of scores was done to establish the order of importance or severity. This was done on a five point scale and a score was allocated to each factor as shown in Table 1. Scores for each factor was arrived at by adding up multiples of the opinion and the number of respondents that were of the particular opinion.

Table 1: Opinion marks on the level of importance.

Opinion	Mark
Very important	25
Important	20
Fairly important	15
Slightly important	10
Not important	5

3.2 THE POPULATION

The selection of the sample stratum was based on the following:

- The number of registered building contractors that were currently undertaking projects in Gaborone, Botswana;
- Limitations of time and financial resources, and
- Anticipated response rate.

A pilot survey conducted before the study revealed that there were about 47 building construction sites in and around Gaborone. For such small populations of less than 100 there is little point in sampling (Leady and Ormrod 2001: 221). As the result the entire population was surveyed.

The study excluded private homebuilders and civil engineering contractors. The justification for this delimitation was the time limit, resources, and the difficulty in obtaining information, especially from private homebuilders.

For the sample to be representative, it was necessary that all categories be represented in the study. The Public Procurement and Asset Disposal Board (PPADB) categorisation is

based upon five categories: for projects worth up to P0.5 Million, between P0.5 Million and P1 Million, between P1 Million and P4 Million, and more than P10 Million.

A sample of 40 contractors was arrived at. Each category contributed 8 contractors. The only exception was the lowest category because there were only 5 building construction sites at the time. 3 more construction sites were randomly selected for the survey. Although some building contractors were working on more than 1 construction site, only 1 site was selected for each building contractor. As there were at least 47 active construction sites within Gaborone during the research period, this meant that all the contractors were surveyed. Table 2 tabulates the summary of the sample stratum.

Questionnaires were addressed to site managers, site engineers, and site agents as they are at operational level and are able to relate what actually transpires on projects. This group was viewed as being of sufficient knowledge and impartial relative to top management and the actual practice on sites and their perception of the client.

Site observations were conducted for all 40 contractors that had been interviewed. Checklists were used to record or tick off the observed elements on sites.

3.3 RESPONSE RATES

In total, 40 questionnaires were distributed to building contractors. 25 questionnaires were completed and collected by the researcher, which equates to a response rate of 62.5%. Response rates for all categories are as tabulated below in Table 3. Category B is the only category that recorded a 100% response rate and the lowest category recorded only 20%. The poor response rate from the lower categories was possibly the result of the owners of organisations managing most sites. The problem could have been that they were too busy, or that they may have been concerned regarding the potential to exposure of any shortcomings.

Table 2: Sample stratum

Category	Value (P)	Sites	Surveys	Observations
OC	< 500 000	5	5	5
A	> 500 000 < 1 000 000	11	8	8
B	> 1 000 000 < 4 000 000	10	8	8
C	> 4 000 000 < 10 000 000	8	8	8
D & E	>10 000 000	13	11	11
Total		47	40	40

Table 3: Questionnaire response rates

Category	Value (P)	Response (No.)	Response rate (%)
OC	< 500 000	1	20.0
A	> 500 000 < 1 000 000	3	37.5
B	>1 000 000 < 4 000 000	8	100.0
C	> 4 000 000 < 10 000 000	6	75.0
D & E	> 10 000 000	7	63.6
Total		25	62.5

4.0 FINDINGS

Respondents were required to indicate how frequently H&S audits and inspections were conducted by clients and other key stakeholders. With respect to clients' commitment to H&S, 56% of the respondents indicated that clients had 'never' conducted H&S audits and inspections, and 28% 'rarely' (Table 4). These findings can be compared to 40% of the respondents who indicated that contractors' top management 'never' conducted H&S audits and inspections, 36% 'rarely', and 20% 'often'. This indicates slightly more commitment by contractors than clients. Only 8% of the respondents indicated that clients 'often' conducted audits and inspections. None of the respondents indicated that clients 'always' conducted audits and inspections. The clients' leadership in H&S and thus commitment is even more questionable as over 50% of the respondents indicated that neither the supervising consultants nor the Government Factories Inspector conducted H&S audits and inspections. Supervising consultants are directly answerable to clients. The above may probably confirm the respondents perception that clients consider cost, time and quality to be more important than H&S (Table 7).

Table 4: Frequency of audits and inspections by all stakeholders

Entity	Response (%)				
	Never	Rarely	Sometimes	Often	Always
Contractor top management	40.0	36.0	0.0	20.0	4.0
Client	56.0	28.0	8.0	8.0	0.0
Supervising consultants	52.0	20.0	16.0	12.0	0.0
Factories Inspector	56.0	32.0	8.0	4.0	0.0
Civil organisations	84.0	4.0	8.0	4.0	0.0

Apart from inspections, site project meetings are important events where all issues regarding H&S can be raised and discussed. To indicate the extent of participation by clients and designers or supervising consultants, the position that they accord to H&S on the agenda of project site meetings would be used for measurement. This is all the more true because they mostly visit the sites at the time of these meetings. Question 2, therefore, sought to determine whether H&S was a major agenda item during client progress meetings. 28% of respondents indicated that H&S was a major item on the agenda and 72% that it was not (Table 6).

Table 6: Status of H&S in progress meetings

Response	(%)
Yes	28.0
No	72.0
Unsure	0.0
Total	100.0

It was deemed that contractors would best describe clients' attitudes towards H&S. This would, in turn, explain the level of commitment by clients and designers. Therefore, contractors were asked to rate the importance of various aspects to clients on projects. Remaining within budget was the most important, followed by contract period. Quality and avoiding litigation were ranked third and fourth, whilst H&S was identified as the least important (Table 7).

Table 7: Perceived importance of H&S according to clients

Aspect	Score
Remaining within budget	590
Contract period	565
Quality	555
Avoiding litigation	515
H&S	270

In an endeavour to further establish the extent to which clients participate in H&S, respondents were asked whether, in their opinion, contract documents always addressed H&S implementation. The reasoning behind this question was that one way in which clients would definitely participate in H&S implementation is through allowing and addressing it in the contract documents. 71% of the respondents indicated that H&S was addressed and 29% that it was not addressed. A follow-up question to check the validity of these responses was posed. The responses ranged between 'not being addressed' and 'being fairly addressed'. Only 4.2% and 8.3% of the respondents, respectively, indicated that H&S was 'addressed' and 'fully addressed' in the contract documents (Table 8).

Table 8: Extent to which H&S is addressed in contract documents

Scale	Extent	Response (%)
1	Not addressed	25.0
2	Slightly addressed	29.2
3	Fairly addressed	25.0
4	Addressed	4.2
5	Fully addressed	8.3
	No response	8.3
	Total	100.0

One of the other areas believed to be at least where clients should show commitment and leadership on H&S is in insisting and ensuring that contractors have H&S programs in place. Therefore, respondents were asked whether they had H&S policy, procedures, programs, meetings, representatives, and documented work procedures on their projects (Table 9). More than 50% of respondents indicated that they never had any of the above. Between 20% and 30% of respondents indicated that they had, whilst less than 10% of respondents were not sure.

Table 9: Existence of H&S programme elements

Element	Response (%)			
	Yes	No	Unsure	No response
H&S policy	20.0	64.0	4.0	12.0
H&S procedures	28.0	60.0	0.0	12.0
H&S programs	4.0	64.0	8.0	24.0
H&S meeting	20.0	64.0	0.0	16.0
H&S representatives	12.0	68.0	4.0	16.0
Documented work procedures	32.0	56.0	0.0	12.0

Specifically, 64% of respondents responded in the negative relative to having the required elements of a management system.

5.0 DISCUSSION

Given the aforementioned, it can be concluded that the contribution by non-contractor stakeholders, specifically clients and their agents, designers, is virtually non-existent. Such stakeholder input and commitment is cardinal and essential to H&S performance improvement. The respondents' ratings of the perceived importance of H&S to clients reveal the extent to which the client is committed to H&S. Relative to cost, time, quality, and avoiding litigation, clients view H&S to be the least important aspect on a construction project. The attitude seems to be wrong here and it can be argued that this influences H&S performance in construction.

Based upon clients' attitudes and actions, respondents perceived that they considered H&S to be not important. Responses relative to whether H&S was a major agenda item on the agenda of client progress meetings validates the perception rating - almost 71% of the respondents said that H&S was not a major agenda item. Client progress meetings are an important event during a project as all stakeholders are required to attend such meetings on site. It is also a forum where progress is evaluated and problems on site are discussed. If clients are committed to H&S it will be an agenda item. Standard contract documentation also does not reflect commitment by clients to H&S. Although 70% of the respondents said that H&S was addressed in contracts, only 8% indicated that it was extensively addressed. On average, 26% said it was not, slightly, or fairly addressed.

6.0 CONCLUSIONS

It can be concluded that participation and commitment by clients to H&S is low because of the following;

- Clients and even designers never or rarely conduct H&S audits and inspections;

- H&S is not regarded as a major agenda item in clients' progress meetings; 72 % of the respondents indicated thus, and only 28% indicated that H&S was regarded as a major agenda item, and
- According to contractors, it was found that clients and their agents, designers, regarded H&S to be the least important aspect on a construction project. It follows that, if the clients perceive the importance of H&S to be low, their commitment would be low as well. In fact, avoiding litigation and quality was rated higher than H&S.

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