CLIENTS DISSATISFACTION WITH CONSTRUCTION PROJECTS IN JOHANNESBURG, SOUTH AFRICA

Eke C.C.
Department of Construction Management
Quantity Surveying

Aigbavboa C.O.
Faculty of Engineering
& the Built Environment

Thwala W.D.
University of Johannesburg, South Africa

Bonibo H. and Ihezue E.

ABSTRACT The South African construction industry is facing challenges as construction clients/property developers are to ascertain extent dissatisfied with their projects. Clients in the construction industry are primarily dissatisfied with the quality, time and cost of construction projects. Hence the aim of the study is to investigate the factors causing clients dissatisfaction with construction projects with respect to time, cost and quality parameters. The data used for the study was derived from both primary and secondary sources and a quantitative research method was adopted. A well-structured questionnaire survey was used for the primary data collection while the secondary data was derived from the reviewed literature. 65 questionnaires sent out and 56 were received back representing 86% response rate. Findings from the study revealed that technical/managerial skills and decisions by client and advisors received the highest rating for time target; project cost management rated highest for cost target, while time available for completing project activities rated highest for quality target.

Key words: Client dissatisfaction, construction industry,

INTRODUCTION
Clients are dissatisfied by the contractor’s inability to control the project operations on site in terms of quality and cost control to keep the project within the budget and working to the program to achieve the time limit. Client dissatisfaction on construction projects has been brought up in literature (Adanan, 2006; Nkado & Mbachu, 2005; Hanson, 2006; Soetanto & David, 2004). Nkado and Mbachu (2005) highlighted that given current and future prospects in the building industry depend on the extent to which building clients are satisfied with the outcomes of their investment in the building procurement process, the reported prevalence of client dissatisfaction detracts from the viability and sustenance of the construction industry as a whole. Cheng (2006:38) stated that satisfaction is a complex phenomenon as it concerns psychological issues and difficult to measure. For some considerable time, client dissatisfaction has been a problematic issue in the South African construction industry with many projects failing to satisfy client need and meet or exceed client expectation (Construction Industry Development Board (CIDB),2013; Hanson,2006; Nkado and Mbachu,2006). Cheng (2006) further defined client satisfaction as a key performance measure and a major determinant of project success. It is therefore important to understand how these concepts are developed so as to investigate their implications. However, the factors causing clients dissatisfaction with construction projects with respect to time, cost and quality parameters will be the aim to be investigated in this paper.
Time, cost and quality constraints leading to client dissatisfaction

Time

Time over-runs in construction projects have often been one of the more remarkable ‘failure modes’ drawing criticisms of construction industry performance, (Acuna, 2000:8). This has major implication leading to construction client dissatisfaction in the South African industry. According to Alexander (2011:18) continual advances in construction of projects provide contractors and owners the opportunity to manage the impact of cost and time of all projects. This clearly shows that the more the South African construction improves in terms of skills improvement, better policies and the implementation of information technology will assist the construction team of manage projects more effectively. Ameh and Osegbo (2011:58) found that delays and cost overruns construction projects occur entirely in the very early stages of the project; that is during the planning stages of project development. Contractor bears the risk associated with time overrun on matters related to low labor productivity, inadequate scheduling or mismanagement, construction mistakes, weather, equipment breakdowns, staffing problems, etc. Moreover, this clearly shows that time is an independent variable in construction projects. The result of the matters listed above causing time overruns may lead to client dissatisfaction. Menesi (2010:22) highlighted that scheduling the construction process is essential not only so that projects can be completed profitably and on time, but also so that any delays can be evaluated in order to prove entitlement to time and cost compensation. The schedule helps project managers rearrange project tasks and resources so that they can meet the primary objectives of time, cost, and quality under limited resource and budget constraints. Scheduling the construction process will most definitely better the chances of achieving a successful project with more satisfied clients. According to Kelleher (2004:20) project owners frequently require a CPM analysis on variation orders and time extension requests. This helps the client to fully be aware of the reasons for the requests of variation orders and time extensions looking at the activity duration on the CPM. The CPM can be used by the owner, architect, and contractor teamwork to produce a finished product. However, CPM can be abused by any one of the three by either lack of understanding or superior ability in use of the method, (Hegazy and Menesi, 2010:10). Furthermore Crissinger (2005:20) identified weather conditions as another factor which impacts construction projects and might lead to client dissatisfaction. Weather conditions affect the design, construction, and performance of buildings. Weather conditions can affect many aspects of the construction project from site work to worker comfort. Crissinger (2005:22) further elaborates that wet weather is the opposite of dry weather and unlike dry weather, it can cause more problems, big delays, and increased costs. Wet weather is frequently the reason contactors use to request increased contract time or money, which might lead to client dissatisfaction.

Cost

Cost can be defined as the expenditure of something, necessary such as time, material of labor for the attainment of a goal. According to Nega (2008:11) the construction industry has a great impact on the economy of all countries. The role the construction industry plays in socio-economic development is significant. Nega (2008:41) further elaborates that the construction industry provides a basis upon which other sectors can grow by constructing the physical facilities required for the production and distribution of goods and services. There are processes that are taken to control and manage cost in construction. Cost control is a process that should be continued through the construction period to ensure that cost of the building is kept within the agreed cost limits. All expenditure limit control must be related to the functional requirements of the particular building type. According to Warhoes and Giammalvo (2008:2) change is one of the few constants within a project that a project manager can be
confident will take place. Hence a change is defined as an alteration or variation to a scope of work and/or the schedule for completing the work. Mohammad et al (2010:74) states that variation orders can be classified as detrimental and beneficial depending on the basis and the purpose of classifications. A detrimental variation order is one that negatively impacts the client's value or project performance (Arain and Pheng, 2005). For example a client who is experiencing financial problems may require the substitution of quality standard expensive materials to sub-standard cheap materials. Hence Mohammad et al (2010:74) further elaborate that the contractor may suggest variations to the project or the variations may be required because the contractor fails to fulfill certain requirements for carrying out the project. The contractor related changes includes:

- Lack of contractor's involvement in design;
- Unavailability of equipment;
- Unavailability of skills manpower;
- Contractor's financial difficulties; and
- Defective workmanship.

Detrimental variations may lead to client dissatisfaction since well this puts a strain on the overall budget of the project. The cost suddenly increases, which the investor must not contribute more in order to be able to complete the project. These variations on most construction projects, in addition to the reworking of the original scope, other changes invariably take place. On the surface, each change to a construction contract is unique when compared to all other changes on the same project. According to Alexander (2011:14) the objective of the cost and time analysis in any construction project is to reduce the original project duration, determined form the critical path analysis, to meet a specific deadline, with the least cost. In addition to that it might be necessary to finish the project in a specific time to:

- Finish the project in a predefined deadline date;
- Recover early delays;
- Avoid liquidated damages;
- Free key resources early for other projects;
- Avoid adverse weather conditions that might affect productivity;
- Receive an early completion-bonus; and
- Improve project cash flow.

Total project costs include both direct costs and indirect costs of performing the activities of the project. Direct costs for the project include the costs of materials, labor, equipment, and subcontractors. Indirect costs, on the other hand, are the necessary costs of doing work which cannot be related to a particular activity, and in some cases cannot be related to a specific project. According to Kolhatkar and Dutta (2013:235) construction companies are particularly vulnerable to financial risk due to the nature of the industry, extreme competition, relatively low entry barrier, high uncertainty and risk involved, and capricious fluctuations in construction volume. Hence we need to have a closer understanding of the relationship between the two inter-related topics of risk management and finance on construction projects, it is becoming increasingly crucial to achieve the objectives of the investor, the owner (end – user) and the constructor and its supply chain, especially when the interest in private finance initiative (PFI) and public-private partnerships (PPP) arrangements are continuously growing all around the world.

Furthermore, Waste and Resource Action Programme (WRAP, 2007:3) states that the critical point at which contractors and sub-contractors can influence waste is when buying materials for a project, as this activity determines the materials that are to be supplied to site. WRAP (2007:3) further elaborates that the true cost of waste is not just the cost of paying a waste contractor to remove a skip from site, but a combination of costs that are generally paid for by the client, including material and labor costs. Hence this might also lead to client dissatisfaction due to excessive cost which might have been avoided. Since materials are considered inexpensive when compared to labor, a ‘waste allowance’ is generally included within the order to account for design
waste and construction process waste. These waste allowances are often generic and not project specific and as such run a risk of being inaccurate. This can lead to either the order of a surplus of materials (usually entering the waste stream) or a materials shortfall (resulting in additional costs to purchase more materials). Waste is described as any material by-product of human and industrial activities that has no residual value (Serpell & Alarcon, 1998: 628).

Quality
To the client, quality may be defined as one of the components that contributes to “value for money” (Flanagan and Tate, 1997). Cao (2010:4) pointed out that quality is the symbol of human civilization, and with the progress of human civilization, quality control will play an incomparable role in the business. It can be said that if there is no quality control, there is no economic benefit, since well clients will no longer see the need to continue investing in construction. In a country full of a wide variety of industries to choose investments from, investors may not see the need to further invest in construction since well they are dissatisfied with current projects. Construction projects are an extremely complex process, involving a wide range of expertise. There are plenty of factors affecting the quality of construction, such as accuracy of specifications, choice of construction method and so on. According to Alarcon and Mardones (2003:1), it is in the design stage where the requirements of the client are identified and the constructive aspects and the standards of quality are defined through procedures, drawings and technical specifications. Hence Richard and Long (2013:4) state that, specifications and drawings can be defective because of error or omission, incompleteness, inadequate detail or description, conflicts, incompatibility or inconsistence, insufficient legibility to use particular material or specified, commercial unavailability of a specified item or misleading provisions or other similar problems. Various studies conducted by Alman (1989), Smallwood and Rwelamila (1998), and Smallwood (2000) among architectural practices and general contractors consistently identified construction and procurement related barriers as the dominant barriers to the achievement of quality; often together with design-related factors as additional barriers include:

- Design-related factors identified by the authors include inadequate details, inadequate specifications and poor design coordination.
- Lack of management commitment and lack of strict quality control.

However, because of the fixed project location, large volume and different location of different projects, the poor control of these factors may produce quality problems. Construction companies must adhere to the principle of quality first, and insist on quality standards, with the core of artificial control and prevention, to provide more high quality, safe, suitable, and economic composite products. According to Lombard (2006:10), South Africa has not escaped the problem of lack of quality focus in the construction industry. Loxton (2004:28) highlighted that the South African construction industry is under pressure due to a combination of factors such as skills shortage, lack of standardisation, and delays in payment, increased fee competition and variable quality. Bowen et al (2006:49) stressed out that, in order to achieve successful project quality management, three separate drivers to quality management must be managed, namely:

- Integration of the project team so as to have a single objective and a common culture;
- A customer focus for the team thereby facilitating the provision of products and services that will meet the client’s needs; and
- A process of continuous improvement in the management of the construction project.

When these three components are successfully integrated, the project will begin to realize significant, measurable and observable improvements in the attainment of the client’s
objectives. According to CIDB (2011), value to clients is a very complex and often subjective issue, but it is recognized that quality of construction is a key component of perceived value to clients. “Lack of quality in construction is manifested in poor or non-sustainable workmanship, and unsafe structures, and in delays, cost overruns and disputes in construction contracts (French Acronym for International Federation of Consulting Engineers (FIDIC), 2014). Kim et al (2011:2) states that project quality is a consequence of accumulated contribution of all individual activities executed during project life cycle. Hence completing the project by the given due date and within sufficient budget is not sufficient, because work must also be of acceptable quality. Crashing project activities is a typical way to shorten their completion time to meet project due dates. It thus happen that due to less time given to particular activities, the quality of work done becomes poor because of the time pressure of the contractors executing the work. A report by CIDB in 2011 revealed an overview of the state of construction quality in South Africa, from which it is shown that clients are neutral or dissatisfied with the quality of construction on around 20% of all projects; and around 12% of the projects surveyed, had levels of defects which are regarded as inappropriate. It is argued that clients should not be complacent with these levels of dissatisfaction, and that clients should strive to get better value for money. The report also notes that client dissatisfaction is highest in the residential building sector, followed by special works and non-residential building. These levels of client dissatisfaction clearly show that quality in the South African construction is still taken for granted. However, according to Price water-house Coopers (PWC) (2013:21), there are a number of actions that can bring a project back on track. These include the balancing of costs, quality and time. A knee-jerk response may be to cut costs or to rush to get back on schedule. But in trying to cut costs that are out of control, quality may suffer. According to Bowen et al (2007: 55) clients believe their time, cost and quality expectations to be realistic, whereas contractors and consultants do not believe that this is generally so. Clients rate project quality as more important than project time performance, whereas contractors and consultants believe that clients actually hold a converse view. Contractors and clients place great confidence in the time performance of design and build procurement systems but have slightly less confidence in the conventional and management oriented procurement systems.

METHODOLOGY
The study methodology adopted was quantitative research method. The data used for the study was derived from both primary and secondary sources. A well-structured questionnaire survey was used for the primary data collection while the secondary data was derived from the reviewed literature. 65 questionnaires sent out and 56 were received back representing 86% response rate which is acceptable according to Moser and Kalton (1971).

Mean Item Score (MIS)
A five point Likert scale was used to determine the causes of disputes in construction projects. From the reviewed literature, the adopted scale was as follows;

1. = Very dissatisfied
2. = Dissatisfied
3. = Unsure
4. = Satisfied
5. = Very satisfied

The five-point scale was transformed to mean item score (MIS) for each of the factors that cause disputes in construction projects. The indices were then used to determine the rank of each item. The ranking made it possible to analyze the data collected from the questionnaires survey.

\[ \text{MIS} = \frac{1n1 + 2n2 + 3n3 + 4n4 + 5n5}{n} \]
Where;
\[ \sum N \]
\( n_1 = \) Number of respondents for very dissatisfied;
\( n_2 = \) Number of respondents for dissatisfied;
\( n_3 = \) Number of respondents for unsure;
\( n_4 = \) Number of respondents for satisfied;
\( n_5 = \) Number of respondents for very satisfied;
\( N = \) Total number of respondents.

After mathematical computations, the criteria are then ranked in descending order of their mean item score (from the highest to the lowest).

FINDINGS AND DISCUSSION
Factors causing clients dissatisfaction with respect to time, cost and quality parameters

The aim of the study is to investigate the factors causing clients dissatisfaction with construction projects with respect to time, cost and quality parameters. In the aspect of time, findings (Table 1) revealed that majority of clients agreed that both technical/managerial skills (MIS=3.45; SD=0.93; R=1) and decisions by client and advisors (MIS=3.45; SD=0.99; R=1) were ranked highest. Excessive interference by client or his agents (MIS=2.93; SD=1.14; R=10) ranked list in the factors for project time targets. Findings from existing literature identified weather conditions as another factor which impacts construction projects and might lead to client dissatisfaction as weather conditions affect the design, construction, and performance of buildings, (Crissinger, 2005:20). National Economic Development Office (1983) states that a disciplined management effort is needed to complete a construction project on time; and that this concerted management effort will help to control both costs and quality and it is essentially equal to saying that the client’s objectives can be achieved through a management effort that recognizes the nature of which these three parameters (time, cost and quality) depend on each other. Coordination among project participants, however, was identified as the most significant of all the factors, having maximum influence on cost, time and quality performance, Enshassi et al. (2009:270). However, findings revealed by this study that construction clients were unsure whether co-ordination actually contributes to client dissatisfaction or not. Cheng (2008:236) identified strategic decisions made by the client at different project stages have been found to have a significant impact on client satisfaction. Pertaining to this study, construction clients are clients were satisfied with the decisions they took at different project stages.

Table 1: Factors of project time targets

<table>
<thead>
<tr>
<th>Factors of project time targets</th>
<th>MIS</th>
<th>Standard Deviation</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical/managerial skills</td>
<td>3.45</td>
<td>0.93</td>
<td>1</td>
</tr>
<tr>
<td>Decisions by client and advisors</td>
<td>3.45</td>
<td>0.99</td>
<td>1</td>
</tr>
<tr>
<td>Efficiency of inspections/instructions</td>
<td>3.40</td>
<td>1.15</td>
<td>2</td>
</tr>
<tr>
<td>Communication in the project</td>
<td>3.38</td>
<td>1.15</td>
<td>3</td>
</tr>
<tr>
<td>Methods used in resolving site problems</td>
<td>3.35</td>
<td>1.12</td>
<td>4</td>
</tr>
<tr>
<td>The use of project schedules such as .g Critical Path Method</td>
<td>3.33</td>
<td>1.10</td>
<td>5</td>
</tr>
<tr>
<td>Contractor or subcontractor experience</td>
<td>3.23</td>
<td>1.27</td>
<td>6</td>
</tr>
<tr>
<td>Co-ordinations and supervisions</td>
<td>3.20</td>
<td>1.07</td>
<td>7</td>
</tr>
<tr>
<td>Design complexities</td>
<td>3.20</td>
<td>1.11</td>
<td>7</td>
</tr>
<tr>
<td>Efficiency of supply chain management</td>
<td>3.20</td>
<td>0.97</td>
<td>7</td>
</tr>
<tr>
<td>Design Variations</td>
<td>3.13</td>
<td>1.16</td>
<td>8</td>
</tr>
<tr>
<td>Effects of whether</td>
<td>3.13</td>
<td>1.04</td>
<td>8</td>
</tr>
<tr>
<td>Project planning and control</td>
<td>3.08</td>
<td>1.10</td>
<td>9</td>
</tr>
</tbody>
</table>
Excessive interference by client or his agents | 2.93 | 1.14 | 10

For project cost targets, findings (Table 2) revealed that project cost management (MIS=3.58; SD=1.87; R=1) received the highest rating by respondents while contractual variation and claims (MIS=2.57; SD=1.03; R=9) was rated lowest. Based on existing literature, Crissinger (2005:20) identified weather conditions as another factor which impacts construction projects and might lead to client dissatisfaction. The results from the study revealed that clients rated whether levels to which destructions and delays caused by weather conditions second. WRAP (2007:4) further elaborates that the true cost of waste is not just the cost of paying a waste contractor to remove a skip from site, but a combination of costs that are generally paid for by the client, including material and labor costs. In relation to the findings of this study, clients rated seventh to whether material usage on their construction projects had an impact on cost which might eventually lead to client dissatisfaction. Furthermore, Kolhatkar and Dutta (2013:235) argued that we need to have a closer understanding of the relationship between the two inter-related topics of risk management and finance on construction projects. It is becoming increasingly crucial to achieve the objectives of the investor, the owner (end – user) and the constructor and its supply chain, especially when the interest in private finance initiative (PFI) and public-private partnerships (PPP) arrangements are continuously growing all around the world. Findings of this study revealed that clients rated third to whether risk assessment and interest rate on project finance had an impact on their satisfaction level with regard to project cost targets. Nega (2013:235) highlighted that clients are dissatisfied by the contractor’s inability to control the project operations on site in terms of quality and cost control to keep the project within the budget and working to the program to achieve the time limit. However, the results study were against this statement as according to the findings of this study, it was rated sixth for project cost management on their construction projects.

Table 2: Factors of project cost targets

<table>
<thead>
<tr>
<th>Factors of project cost targets</th>
<th>MIS</th>
<th>Standard Deviation</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project cost management</td>
<td>3.58</td>
<td>1.87</td>
<td>1</td>
</tr>
<tr>
<td>Accuracy of scope of work</td>
<td>3.25</td>
<td>0.95</td>
<td>2</td>
</tr>
<tr>
<td>Levels to which destructions and delays caused by weather conditions</td>
<td>3.25</td>
<td>0.98</td>
<td>2</td>
</tr>
<tr>
<td>Budget in contingency sum to make up for risk assessment</td>
<td>3.23</td>
<td>0.97</td>
<td>3</td>
</tr>
<tr>
<td>Material usage on your project</td>
<td>3.23</td>
<td>0.89</td>
<td>3</td>
</tr>
<tr>
<td>The use of project schedules such e.g. Critical Path Method</td>
<td>3.18</td>
<td>1.08</td>
<td>4</td>
</tr>
<tr>
<td>Impact of interest rate on project finance</td>
<td>3.08</td>
<td>0.80</td>
<td>5</td>
</tr>
<tr>
<td>Contractors ability to keep project within budget</td>
<td>3.00</td>
<td>1.30</td>
<td>6</td>
</tr>
<tr>
<td>Contractual variation and claims</td>
<td>2.57</td>
<td>1.03</td>
<td>7</td>
</tr>
</tbody>
</table>

For the project quality targets, findings (Table 3) revealed that time available for completing project activities (MIS=3.45; SD=0.90; R=1) was ranked the highest while contractor's ability to control the project operations on site in terms of quality (MIS=3.10; SD=1.10; R=5) was ranked the list. Crashing project activities is a typical way to shorten their completion time to meet project due dates. It thus happen that due to less time given to particular activities, the
quality of work done becomes poor because of the time pressure of the contractors executing the work (Kim et al 2011:2). However, the findings of this study revealed that construction clients rated first to whether the time available for completing project activities actually contributes to dissatisfaction. Richard and Long (2013:4) state that specifications and drawings can be defective because of error or omission, incompleteness, inadequate detail or description, conflicts, incompatibility or inconsistence, insufficient legibility to use particular material or specified, commercial unavailability of a specified item or misleading provisions or other similar problems, of which the views expressed by the respondents showed uncertainty regarding accuracy of specifications. Alarcon and Mardones (2003:1) concurred that there are plenty of factors affecting the quality of construction, such as accuracy of specifications, choice of construction method and so on. Findings of this study revealed that construction clients rated fourth to accuracy of specifications from designers and choice of construction methods used in the execution of the projects. Cao (2010:4) pointed out that quality is the symbol of human civilization, and with the progress of human civilization, quality control will play an incomparable role in the business. For the purpose of this study construction clients rated second to whether quality assurance could lead to satisfaction or dissatisfaction. Authors have indicated that majority of project management control systems highlight time and cost, and overlook the relative importance of quality, (Hughes and Williams, 1991:95). Attained by the findings of this study, a conclusion could not be drawn for the statement above since well there uncertainty in the views expressed by the respondents of this study.

### Table 3: Factors of project quality targets

<table>
<thead>
<tr>
<th>Factors of project quality targets</th>
<th>MIS</th>
<th>Standard Deviation</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time available for completing project activities</td>
<td>3.45</td>
<td>0.90</td>
<td>1</td>
</tr>
<tr>
<td>Choice of construction methods and equipment</td>
<td>3.45</td>
<td>0.96</td>
<td>1</td>
</tr>
<tr>
<td>Availability of quality assurance processes</td>
<td>3.38</td>
<td>0.93</td>
<td>2</td>
</tr>
<tr>
<td>Availability of technical and managerial skills</td>
<td>3.30</td>
<td>0.99</td>
<td>3</td>
</tr>
<tr>
<td>Accuracy of specifications</td>
<td>3.25</td>
<td>1.13</td>
<td>4</td>
</tr>
<tr>
<td>Contractor's ability to control the project operations on site in terms of quality</td>
<td>3.10</td>
<td>1.10</td>
<td>5</td>
</tr>
</tbody>
</table>

### CONCLUSION

Client dissatisfaction is an important aspect that cannot be over looked as they create serious threat to the South African building industry sustainability. Clients' dissatisfaction is extended to contractor’s inability to control the project operations on site in terms of quality and cost control to keep the project within the budget and working to the program to achieve the time limit. This study aimed at investigating the factors causing clients dissatisfaction with construction projects with respect to time, cost and quality parameters. However, findings from the tables based on the factors of time, cost and quality targets, technical/managerial skills and decisions by client and advisors, project cost management, and time available for completing project activities were the most rated clients’ dissatisfaction in construction projects in South Africa.

### REFERENCE


WRAP. (2007). Reducing material wastage in construction. Guidance for clients, contractors and sub-contractors on how to deliver good practice in material procurement and usage