

IMPACT OF POOR QUANTITY SURVEYING PRACTICES ON SMALL SCALE CONTRACTORS IN SRI LANKA

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Abstract

Construction industry is one of the devoting force of any country's economy. Around the world, Small Scale Contractors (SSC) has been found to play a significant role in creating jobs, infiltrating new markets and growing the economy in an inspired and inventive way. However, performance of SSCs in developing and minor developed countries is still not in adequate level due to various factors. Poor QS practices is one of the significant factor which affect to the current performance of the SSCs. Hence, this research aims to implement better QS practices to mitigate adverse impact to the small scale contractors due to plenty of poor QS practices. Particularly qualitative research approach was used for this study and accordingly data was collected from semi- structured interviews and analyzed using manual content analysis. Project delays, cost overruns of projects, cash flow problems, unable to win tenders, poor construction quality, delays in payments and contractual disputes were identified as major issues caused by the poor QS practices. This research suggests government to impose laws and regulations, offer tax relieves to contractors and impose legal requirements to participate in CPD sessions to minimize poor QS practices. Further clients and consultants can make timely payments to contractors and key suggestions to contractors are hire experienced and qualified professionals, provide well-coordinated training, adopt new technologies, keep clear and completed drawings and specifications, use cost and time controlling techniques and maintain good record keeping system.

Keywords: *Construction Industry, Small-Scale Contractors, Poor Quantity Surveying Practices*

1. Introduction

The construction industry is widely regarded as unique and distinguish from other economic sectors (Olatunji, Sher, & Gu, 2010). Construction industry is still critical in the socio-economic development aspects of each and every country (Callistus, Felix, Ernest, Stephen, & Andrew, 2014). According to the Central Bank Report 2018, demand for the construction industry increases continuously due to the population growth and economic growth in Sri Lanka. Amoah, Ahadzie, & Danso (2007) pointed out that financial status, experience, plant and equipment and personal qualifications are taken into account when registering as a contractor and classify them as small, medium or large scale contractors. Author further elaborated more than 90% of construction companies in every country are small contractors. In developing countries, Small and Medium Enterprises (SMEs) are one of the significant components in the construction economy and create extensive job opportunities (Dlungwana & Rwelamila, 2000). Small-scale contractor is often seen as a “one-man enterprise with a low budgetary, investment base and having lack of management skills to address the many problematic challenges they continue to function in the industry” (Amoah et al., 2007).

Although small and medium enterprises contribute to the economy, they face obstacles that hinder their development (Mahembe, 2011). According to Handayani (2017), SSCs only consider about short-term profits and they do not need a strategic plan to make profits. Further author highlighted project completion delays, over budgeting, misuse of resources, poor construction quality and construction waste are the most challenging issues for SSCs. Additionally, Bartlett and Bukvic (2016) emphasized challenges of SSCs includes shortcomings in marketing, inadequate management skills, constraints on business skills, lack of human resources, high capital costs and inefficiency. Handayani (2017) further particularized that SSCs have to face huge constraints to develop their competence, service and gain advantage and contactors must improve their performance to survive the industry. Qs are professionals who direct clients on the budgetary and design decisions on implications of value and the monitoring construction costs (Ashworth, Hogg, & Higgs, 2013). To perform the project cost, financial control and contract management at each stage from inception to completion are important tasks of a quantity surveyor (Nagalingam, Jayasena, & Ranadewa, 2013). According Thwala & Phaladi (2009), poor record keeping, poor pricing, poor tendering, lack of contract documentation skills, poor

methods of preparation of interim payment applications, lack of knowledge on claims and variations are the most common QS related issues of the SSCs.

Even though previous researches have covered the different angles on issues of small-scale contractors in both international context (Thwala & Phaladi, 2009) and in Sri Lankan context, significant impact of poor quantity surveying performances on small scale contractors has not been discovered yet. Therefore, this research focused to implement better quantity surveying practices to mitigate adverse impact on small scale contractors due to poor QS practices by determining current quantity surveying practices of SSCs, issues faced by the small-scale contractors due to poor QS practices and by proposing strategies to overcome above issues.

2. Literature Synthesis

Construction industry helps for society to accomplish urban and rural development goals (Enshassi, Al-hallaq, & Mohamed, 2006). Construction industry is critical in the socio-economic development of each and every country (Callistus et al., 2014). Through the links of construction industry with other industries, it performs huge role in the economies of every country, thereby reducing unemployment and spread of national wealth (Asante, Kissi, & Badu, 2018). Yogeshwaran, Perera, and Perera (2014) believed that the significant features of the construction industry are: large scale, scattered compared to other industries, high labour intensity, cyclical variations, encouragement of the government as a main client, tailor-made products and using technologies. Such characteristics make the industry as an engine of economic development (Horta, Camanho, Johnes, & Johnes, 2012). In order to maintain economic development while the economy is booming, the function of the construction industry becomes crucial when further infrastructure and facilities are needed (Majdalani, Ajam, & Mezher, 2006). Sri Lankan construction industry contributed 9.3% of GDP in 2017 compared with 2016 and it implied the local construction industry is booming (Economic and social statistics of Sri Lanka, 2018).

Contractor is an individual or organization that commits to carrying out a construction project in compliance with contract documents on behalf of the client (Rameezdeen R., 2006). In Sri Lanka there are more than 2500 number of contractor organizations registered under CIDA. Depending on the specialty in field, building contractors are classified according to the CIDA grading scheme and further they were classified into 11 categories based on the type of the product. However CIDA classification does not categorize contractors as small, medium or large scale contractors. Hence for the purpose of the particular research C5-C9 contractors are considered as SSCs.

2.1 SMALL SCALE CONTRACTORS

The definitions for SSCs are varying from country to country because of the status of economic development (Eyiah, 2004). However, the most common definition for SSCs can be broadly explained as “a construction firm imperfect with initial investment, plant and equipment, and resource constraints, because some support is required to survive in the industry” (Callistus et al., 2014). Usually, a small number of large-scale contractors and a large number of small-scale contractors are involved all around the construction industry in the world (Ashworth et al., 2013). SSCs can be a powerful tool for job creation because SSCs can execute small projects in different remote areas which may not be attractive to large companies due to too expensive, low management costs for SSCs and SSCs can work at more competitive prices. SSCs can assist to expand the construction industry conquered by reputable large scale contractors due to easy entrance with relatively lower skills and resource scale (Thawala & Mvubu, 2008). Most of the registered contractors in Sri Lankan construction industry belongs to the SME category (Balachandra, 2014). Sri Lankan SMEs perform a significant role in the economy by providing employment opportunities like large scale construction firms. However Ranadewa, Sandanayake, & Siriwardena (2015) pointed out that, in Sri Lanka SMEs have been identified as important strategic sectors for economic growth and social development of the country.

2.2 IMPORTANCE OF SMALL SCALE CONTRACTOR

SSCs in developing countries help to generate jobs, contribute to national development, elimination of poverty and the catalyst for economic development (Mohammed & Obeleagu, 2013). According to the Thwala and Phaladi (2009), and Eyiah (2004), there are some importance of SSCs as follows.

- Need less skills and resources than large scale and can easily enter to the industry
- SSCs can assist to spread the construction industry dominated by reputable large-scale contractors
- SSCs are powerful job creators within the industry
- SSCs can carry out small projects at remote areas which are not attractive to large scale contractors
- Can work at more competitive prices due to low overhead cost
- Providing infrastructure facilities needed to improve living conditions and minimizing the extreme unemployment and poverty

2.3 CURRENT QUANTITY SURVEYING PRACTICES IN CONSTRUCTION INDUSTRY

As a prominent career in the construction industry, quantity surveying enhances value to the contractual and financial management of construction projects (Dada & Jagboro, 2012). Quantity surveying can be described as a combined profession of economics, accounting, management, law, information technology, measurement and construction technology which play a vital role in all economic sectors (Ashworth et al., 2013). Fanous (2012) defined, quantity surveying as a combination of various other disciplines in a unique framework of the construction environment. Though, the final objective of the quantity surveyors is to enable the optimal value for the money spent in the construction industry, direct clients on the cost and provide implications for design decisions on value (Fanous, 2012). Currently, Qs have been integrated into other industries such as insurance, manufacturing, finance, valuation and taxation (Hemajith, Perera, Amarathunga, & Ginige, 2007).

Nkado & Meyer (2001) emphasized that, the necessity of the quantity surveyor has been changed with time on several aspects of adding value for the construction industry, even beyond the mere consideration of financial terms, from pure cost substitutable design choices to proactive recommendations, while giving the greatest value to clients considering time, cost and quality. Quantitative surveyors play a significant role all over the project life cycle, from preliminary stage to procurement and construction stage, while processing contract claims and unforeseen financial pressures to ensure the completion of construction projects (AIQS, 2012). Yogeshwaran et al. (2014) mentioned that quantity surveyors, as a career that always faces challenges and new opportunities, therefore requires unique competencies to stand out in present and future practice. According to the AIQS (2012) and RICS (2012) there are some major competencies expected from quantity surveyors such as interpersonal skills, cost management, contract administration, procurement and tendering, project finance control and reporting, project programming and planning, conflict avoidance and management, construction technology and environmental services, dispute resolution, economic analysis, cost planning, insurance costing, risk management, quality assurance and building information management.

2.4 POOR QUANTITY SURVEYING PRACTICES OF SMALL SCALE CONTRACTORS

SSCs generally believe that, they do not need a strategic plan to make profits and they can get profits easily by winning the bidding process, so they tend to offer lowest price conceivable by only considering short term profits (Handayani, 2017). However, SSCs in developing and minor developed countries still face complications and problems that hinder and complicate their activities and growth (Mahembe, 2011). Those who succeed in winning lucrative contracts will only get inadequate profits if they are able to finish the project effectively (Thwala & Mvubu, 2009). Financial management skills of Qs assist contractors to better handle their financial situations and let them know when and where to spend money to keep the company functions steady (Nagalingam, Jayasena, and Ranadewa, 2013).

The relative low performance of SSCs is mainly due to insufficient funds and the failure to obtain credit facilities from suppliers (Thwala & Phaladi, 2009). As per the author, these failures are due inability to hire experienced workers, poor pricing of BOQs, poor skills in tendering and contract documentation, poor progress monitoring, absence of adequate training, absence of resources, lack of technical, financial, contractual and managerial skills and delayed payments for completed works. Further Kulemeka, Kululanga, & Morton (2015) highlighted some more poor QS practices such as unable to obtaining interim payments on time, difficulties in procuring work, unable to identifying claims, unable to claim variations, inappropriate contractual conditions, arise of contract disputes, didn't meeting contract deadlines, incomplete contract documents, unable to providing reliable tenders and breach of contracts due to carelessness. Authors further highlighted that poor quality of services, inability to finish projects on time, inadequate tender preparation skills and poor valuation skills were key shortfalls among SSCs. Contractors have lack of abilities to accurately program capitals for proper cash flows of projects in scheduled segments, because of absence of confidence, front loading is not permitted for them and also they do not know how to prepare interim payment applications for timely payments (Illangakoon, 2017). Further author mentioned, there is a high impact on payment delays due to some poor QS practices of contractors. Assaf, Srour, and Hassanain (2013) recognized some QS related causes of contractor failures as lack of experience, weak skills in bidding and pricing, poor practices in estimations, poor usage of project management techniques and poor cash flow management. Due to these poor practices, the small contractors' encountered problems such as client's delays in payments, difficulties in preparing documents accurately, strict contract conditions experienced in projects, imposing significant restrictions, inability of winning the tenders, bad decision making and cash flow issues (Thwala & Mvubu, 2009).

3. Research Methodology

In depth literature survey was conducted as the first step after referring journals, books, thesis and conference proceedings which were accessible in the e-databases in order to find current status related to the research area. As per the Yin (2009), among two types of research approaches called qualitative and quantitative, for this research qualitative approach is more suitable since there are low number of respondents, low awareness of respondents on the poor QS practices of SSCs and being a novel topic. Further this research was associated with the concept of quality, which means this phenomena connected to involving quality or kind.

3.1 DATA COLLECTION TECHNIQUES

This research was designed to identify impact of poor QS practices on SSCs and get ideas from each parties of the small scale constructions. Therefore, pre-organised questions were not suitable for the interviews and 1 hour face to face semi structured interview sessions were carried out as data collection method to identify the industrial opinions of the poor quantity surveying practices of the SSCs. Nine expert interviews were adopted with owners of SSCs, consultants and clients in the industry that working with the SSCs selected through the convenience sampling method by considering, experience in construction industry, experience in small and medium scale constructions and experts in quantity surveying. The reason for selecting the convenience sampling method was inability to access the total population due to time and cost constrains.

3.2 DATA ANALYSIS TECHNIQUES

Data analysis was mainly followed with collected data from the literature review and expert interviews by analysing, classifying and organizing facts, determine whether the evidence supports the initial data analysis of research project (Rowley, 2002). In here manual content analysis was adopted to analyse data to determine the interrelationships and discrepancies in perspective of expertise interviewees for the proper presentation of research data.

4. Data Analysis And Research Findings

4.1 PROFILE OF INTERVIEWEES

The interviewees were chosen with due regard to their experience, area of involvement and sensitivity to the subject area of the current research objectives. The details of the interviewees are represented in the following table 1.

Table 1, Details of Interviewees

Interviewee	Contractor/Consultant	Designation	Experience	Working sector
R1	Contractor	Owner	21 years	Private and Public
R2	Contractor	Owner/PM	15 years	Private and Public
R3	Contractor	QS	8 years	Private
R4	Consultant	QS	7 years	Private and Public
R5	Consultant	QS	12 years	Private and Public
R6	Consultant	QS	6 years	Public
R7	Contractor/Consultant/Client	Assistant Manager	8 years	Private
R8	Client	TO	6 years	Private
R9	Client	QS	18 years	Private

From the total sample of interviewees, 33% were selected from contractor organizations, 45% from consulting organizations and 22% from client organizations. Further, 56% of interviewees have experience between 5-10 years, 22% has 10-15 years, 11% has 15-20 years and again 11% has more than 20 years of experience. The overview indicates that the respondents have extensive experience and the reliability and information accuracy of the input obtained.

4.2 QUANTITY SURVEYORS INFLUENCE ON SMALL SCALE CONTRACTORS

All interviewees agreed that, quantity surveyors can do huge impact on Sri Lankan SSCs' performance. The interviewee R5 mentioned there was considerable impact on SSCs from Qs by highlighting whether the project is small or large. Interviewee R6, R7 and R1 mentioned most of the times small scale contractors are not employing qualified Qs for such small works like preparation of interim valuations. Interviewee R3 agreed that, "*Owners of small-scale construction companies and technical officers of clients tend to do QS works by them-selves*". Further interviewee R7 indicated that, without qualified QS they could not precisely identify risks such as legal risks, technical risks, financial risks, managerial risks and communication risks when they enter in to contract or particular work without any agreement. Moreover, interviewee R7 further described, most probably SSCs are unable to claim all work done and variations due to lack of knowledge on contractual clauses and contract documents. Therefore above arguments clearly denote that, there is a huge impact on SSCs from Qs.

4.3 COMPETENCIES OF QUANTITY SURVEYORS IN SMALL SCALE CONTRACTORS

According to the interviewee R4, Qs in small scale contractors should have the required competencies; otherwise they cannot perform and survive in the industry. According to the all interviewees, there are some competencies not much required for the functions of SSCs from the identified list in literature. As per the analysis of respondents, below tables 2 consists the required and not required competencies list under key competencies.

Table 2, required and not required competencies of Qs

Business Administration		Construction Management	
Required	Not required	Required	Not required
Co-operate Recovery and Insolvency	Research and Development	Contract Administration	General Procurement Advice
Team work		Resource Analyze	Construction Audit
Communication		Risk Management	Quality Assurance

Business Management Leadership		Contract Documentation	
Client care		Tendering Process	
Construction Technology		Value Management	
Required	Not required	Capital Allowance	
Construction technology	Sustainability	Special Assessment	
Health and Safety		Project Management	
Construction Information Technology		Construction Economics	
Required	Not required	Required	Not required
Computer Service		Cost Planning	Statistical Analysis
Construction Law		Cost Estimating	Life Cycle Cost Analysis
Required	Not required	Cash Flow Monitoring	Feasibility Study
Ethics and Professional Conduct	Dispute Resolution		Property development
Government Law and Regulation	Expert Witness		Strategic Planning

As per the above table majority of the competencies of QSs were identified as significant for the small contractors and only few competencies are not highly important for the small scale contractors such as general procurement advice, construction auditing, quality assurance, research and development, statistical analysis, life cycle cost analysis, dispute resolution, expert witness, property development and strategic planning. As per the all interviewees, most of these competencies are useful in construction of mega projects. Additionally Interviewee R8 suggested that, “*knowledge sharing ability and team management would be useful in performing well for SSCs in Sri Lanka*”. According to the interviewee R5, “*It is better to have cash flow monitoring for small scale contractors, because their financial strength is limited compared to other type of contractors, to avoid any losses and to maintain consistency of cash throughout the project life cycle. Therefore, Cost monitoring is essential for small scale contractors to ensure the project completion within the budget*”. Further, consultant and client interviewees notified that, if QS in SSCs have value management skills they can improve their organizations performance in considerable way.

4.4 POOR QUANTITY SURVEYING PRACTICES AND ASSOCIATED ISSUES IN SMALL SCALE CONTRACTORS

In the literature, several poor QS practices and associated issues were identified which are affecting to the small-scale contractors and applicability of those issues to the Sri Lankan context was discussed with the opinions of the interviewees. All interviewees highlighted that, considerable improvement of small-scale contractors is not visible mainly due to poor quantity surveying practices.

Interviewee R1 stated that most of time SSCs experience delays to submit IPAs on time. Therefore, SSCs have to continue the construction process from their own cost by facing more difficulties. R4 added to this situation that, getting a tender is also very difficult, if the staff is not knowledgeable. Further interviewee R4 pointed out that, when preparing IPAs and variations, SSCs have to face disputes and other difficulties. Additionally, interviewee R5 indicated that to greater extent, a project can be lost in the contractor perspective if the quantity surveyor has not followed the project requirements and procedures. Furthermore, interviewee R7 stated most of the time both cost and time will be increased in the small constructions and quality compromising can be expected. Moreover, lot of variations might occur during the construction period. Interviewee R8 pointed out that cost control have a huge impact on clients’ money allocation. Furthermore, interviewee R8 highlighted that, it will affect the profit of the contractor. As per the interviewees’ opinions following poor QS practices and associated issues were listed as in table 3.

Table 3, Poor QS practices and associated issues in SSCs

Poor QS Practices	Associated Issues
inappropriate contract documentation	Contractual disputes
unable to program the project resources as monthly segments to achieve healthy cash flow	Unable to win tenders
failures to recognise the preparation of interim payment applications for timely payment	Project delays
poor pricing of BOQs	Cost overruns
poor skills in tendering and poor knowledge on tendering process	Poor performance
poor coordination	Poor construction quality
poor documentation	Delays in payments by the client
delays in obtaining interim payments	Cash flow problems
poor knowledge on conditions of contracts	
poor resolving of contractual disputes	
incomplete contract documents	
double taxation	
unable to identify claims	
unable to claim variations	

Interviewee R9 stated that main reason for the poor QS practice is unavailability of qualified QSs in the small and medium contractors. However, interviewee R1 and R2 agreed that if they recruit qualified QS, contractors can earn more money rather than their expenditure. The interviewee R9 argued that the unavailability of qualified QSs are affected due to the fact that contractor's opinion of preparing IPA is the only capability of QSs and they have lack of knowledge about the competencies of QS. Furthermore, interviewees who represent consultants, described that negligence was the major reason for the poor QSs practices of the small contractors. Respondent R3 stated that some contractors think in-depth training causing a non-essential expense and expect new employees to learn on the job from supervisors and experienced employees. According to interviewees there are some reasons affecting the poor QS practices of the SSCs such as lack of knowledge and experience, poor communication skills, poor coordination with others, less commitment, lack of knowledge on conditions of contract, inadequate knowledge about quantity surveying practices, inadequate technical skills, lack of training and lack of supervision. In addition, newly employed employees do not have all the competencies that are usually required to perform their jobs well. Respondent R3 stated that some contractors think in-depth training causing unnecessary expenses and expect new employees to learn on the job from supervisors and experienced employees. Though, this type of training is often insufficient and creates many difficulties for the company and employees.

4.5 SUGGESTIONS TO OVERCOME ISSUES DUE TO POOR QUANTITY SURVEYING PRACTICES OF SMALL-SCALE CONTRACTORS

4.5.1 Government / Regulatory Body Involvement

According to the interviewee R3, government has the responsibility to advice the small-scale contractors regarding the advantages of having QS in-house to get more performance. Responsible organisations like CIDA can assist to organize that kind of awareness programs. Further interviewees described that their long-term practice is to get another profession to do the QS job. Therefore, by imposing laws and regulations, government can change their mal practices. If the government can also offer tax relieves to such kind of small scale contractors like mega projects, they can hire professional QSs with that savings. Interviewee R7 argued that a formal procedure should be established to improve the skills of small-scale contractors such conducting CPD sessions. However, a mandatory legal requirement should be established for small scale contractors to participate in those CPD sessions.

4.5.2 Client / Consultant Involvement

Interviewee R2 stated that, if small contractors can maintain a healthy cash flow, they can recruit qualified QS to minimize poor QS practices. Therefore, consultants and clients have a responsibility to

give payments to small contractors on time without delaying unless there is a contractor's fault. Further interviewee R9 suggested that consultants or clients should implement conditions for the contractors in projects to have qualified QSs. If employers implement those conditions in practice, the poor QS practices could be eliminated from the small scale contractors.

4.5.3 Contractor Involvement

According to the interviewees, there are some methods to mitigate poor QS practices such as use experienced and qualified professionals, provide well-coordinated training facilities, supervision of the works, coordinate with other professions, improving training programs, adopt new technologies, keep clear and completed drawings and specifications, proper site investigation prior to constructions, use cost and time controlling techniques and maintain good record keeping. Most of the time small scale contractors followed quality compromising issues because they expect small percentage of profit from each cost element. Contractors must tend to avoid this because reworks would definitely happen and it would also be damage to the reputation of the contractor.

5. Conclusion

Small scale contractors play a comparatively negligible role in development and transitional growth of the country. Quantity Surveyors play an extensive role in SSCs throughout the project life cycle, from inception to completion by cost management, cost processing, administrating contracts and controlling unexpected financial pressure. As per the literature review and semi structured interviews of the research, performance of the small-scale contractors is not adequate level in Sri Lanka. Poor quantity surveying practices are the major factors affecting to the current performance of SSCs. Through this research, it has been strongly recommended that practice of good quantity surveying is more important to maintain the performance of the small scale contractors. Moreover, by mitigating the identified reasons for poor QS practices of contractors, they can enhance the quality of small-scale constructions. With the findings of the research, it has been noted several solutions for the poor QS practices which are recommended to the government, regulatory bodies, consultants, clients and contractors. Government or regulatory body (CIDA) have a huge responsibility to contribute for the improvement of the small contractors. Government serves as the largest single client in the construction industry in Sri Lanka and the government's sole aim is to raise the living standards of the general public by providing their requirements. Therefore, government must implement new strategies and techniques to standardize the small scale constructions. Furthermore, a better attention must be needed for the SSCs in addition to the registration and grading them from the government or the regulatory body. Further researches can be conducted to identify the impact of financial barriers that affect the performance of small-scale contractors and impact of poor QS practices on the profits of SSCs.

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