Improving the main contractor-subcontractor relationship through partnering on construction projects[1]

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Abstract

The construction sector plays a significant role in the national economy through consolidating and enabling other sectors. Projects in the construction industry provide basic amenities and infrastructures that support social and economic development. Subcontracting is a major aspect of construction projects as it allows for specialisation, the sharing responsibilities and mitigation of project risks. However, instead of improving project success, subcontracting can act as a catalyst for poor project outcomes. Though there are many reasons that contribute to problems from subcontracting, a strained relationship between main contractors and subcontractors can be seen as a notorious contributor to poor project outcome. The study aimed at investigating the relationship between main contractors and subcontractors in Zambia and to provide a means to improve the relationship. To investigate the relationship, data collection techniques utilised included, literature review, questionnaire survey and interviews. The study established that the relationship between main contractors and subcontractors on most projects in Zambia is poor therefore needing attention. Top factors that can enhance the main contractor-subcontractor relationship were identified. From the factors deduced a non-contractual project partnering model was developed with the aim of improving this relationship

Keywords: Construction Project, Main contractor, Subcontractor, Partnering, Zambia

Introduction

The construction industry contributes significantly towards the economic output of a country (Mirawati et al., 2015). The construction industry in the United Kingdom (UK) contributed £103 billion in economic output which is 6.5 percent of the total output in 2014. It also created 2.1 million jobs which was 6.3 percent of the UK total employment (Rhodes, 2015). In Zambia, the construction industry comprised 9.9 percent of the national Gross Domestic Product (GDP), with a growth rate of 8.9 percent from 2013 (CSO, 2016). A major aspect of projects in the construction industry is subcontracting (Ujene et al, 2011). Research has shown that currently up to 90 percent of the work on a construction project is performed by subcontractors (Rajput and

[1] This paper was prepared as a research dissertation associated with a master's degree in project management in the Department of Civil and Environmental Engineering at the University of Zambia under the supervision and support of Professors Dr B Mwiya and Dr E Mwanaumo.

Agarwal, 2015). Assigning work to a subcontractor reduces work load and limits the contractors risk exposure (Abdullahi, 2014). Manu et al., (2013) indicated that subcontracting is a means of bargaining down labour cost, encourage quicker completion of tasks, externalise less rewarding and dangerous activities and rapidly meet changing product market demands.

However, with all its benefits, subcontracting can be a risk to construction projects (Yoke-Lian et al, 2013). Kaliba, (2010) identified that subcontracting was causing project schedule overruns in Zambia. A major aspect that contributes to the degree of success or failure of projects which are subcontracted is the relationship between main contractors and subcontractors (Jin et al., 2013; Okunlola, 2015; White & Marasini, 2014; McCord and Gunderson, 2014). When utilising subcontracting, interface problems can emanate. These problems include the lack of cooperation, limited trust, and ineffective communication leading to an adversarial relationship between the main contractor and subcontractor (Mirawati et al., 2015). However, a better interface between project parties encourages project success or even improves project performance (Vilasini et al, 2012). Eom et al, (2015) added that maintaining long-term relationships with subcontractors is absolutely necessary to improving the overall efficiency in the supply chain.

Partnering is recognised by many researchers as a means to foster the collaborative relationship between parties and improve project performance (Meng, 2012; Hong Kong CIC, 2012). Partnering is a voluntary process by which two or more organizations act as a team to achieve mutually beneficial goals (Nevada Department of Transportation, 2010). However, the integration and building close relationships in construction projects has not been taken seriously (Meng, 2012). In Zambia virtually no literature is available on relationships and partnering in the construction industry. Therefore, this paper addresses this, and contributes to the body of subcontracting knowledge by detailing a partnering approach for main contractors and subcontractors.

Partnering

There is no definite definition of partnering as partnering projects can differ from each other and because it is difficult to define the exact factors that a partnering strategy consists of (Widen et al, 2014). Partnering is generally understood as a commitment by parties involved in a project to work closely or cooperatively, instead of competitively and adversarial. It is a long term commitment between two or more organisations to implement a structured collaborative approach that facilitates team work across contractual boundaries for the purposes of achieving specific business objectives (California Department of Transportation Division of Construction, 2013). It involves the building of harmonious working relationships between stakeholders by aligning of shared goals and objectives. Through this the development of trust and shared goal there is an increase in the likelihood of project success

Types of Partnering

Partnering has been categorised in different ways by various researchers. The categorising employed is usually based on the duration of the partnering arrangement. Here partnering can be either project partnering or strategic partnering. Where project partnering is based on a single project whilst strategic partnering is based on a long term commitment (Meng, 2012). However, for this research partnering methods are classified using Hong Kong Construction Industry Council (Hong Kong CIC, 2012) method where partnering arrangements are categorised based on contractual status. The categories are:

- non-Contractual Partnering, where the partnering arrangement is not legally binding meaning it does not change the terms of contract or the contractual relationships that exist between the parties; and

- contractual Partnering, where partnering principles are incorporated into the construction contract. This is done by either amending the existing traditional contract to make it more partnering friendly or adopting a full standard partnering contract.

Benefits of Partnering

Previous studies on relationships, indicates that partnering has a positive impact on project performance, not only with regard to time, cost and quality, but also improvement in profit margins and reducing litigations (Mirawati et al., 2015). Ohio Department of Transportation, (2013) noted that, projects that have adopted partnering are more likely to meet safety, cost, schedule, and quality goals. Research conducted by Du et al, (2016) revealed that partnering can directly facilitate organisational capability and risk management, thereby improving project performance.

Research Methodology

Extensive literature review was carried out to inform the development of research tools for primary data collection. The questionnaire survey was used as the principal method to gather information and gain insights into the research area. The questionnaire survey was conducted together with interviews to allow for data triangulation. 12 interviews were conducted with individuals from contractors, subcontractors, clients and consultants who are directly involved in the execution of construction projects in Zambia.

A total of 80 questionnaires were distributed. The questionnaires were distributed by hand and also via email. Out of the targeted 80 respondents 56 responded, giving a response rate of 70 percent. Data collected were then analysed statistically using Microsoft Excel software. The Relative Importance Index was used to determine the ranking of factors causing interface problems and those that can improve the relationship. The Relative Importance Index (RII) was computed using the following formula: Equation (1) (Okunlola, 2015).

$$RII = \frac{\sum W}{AN} = \frac{5n_5+4n_4+3n_3+2n_2+1n_1}{5N} \quad (1)$$

Where:
RII = relative importance index
W = the weighting given to each factor by respondents. (ranges from 1 to 5)
n_1 = number of respondents for very important, n_2 = number of respondents for important, n_3 = number of respondents for neutral, n_4 = number of respondents for important = number of respondents for very important.
A = the highest weight (which is 5 in this case)
N = sample number

Finally, the findings were presented using graphs and charts to provide a clear view of the survey.

Findings

The survey focused on determining the nature of the relationship between main contractors and subcontractors in the Zambian construction industry and how it can be improved. Figure 1 Illustrates the results on how the respondents perceived the relationship between main contractors and subcontractors in Zambia.

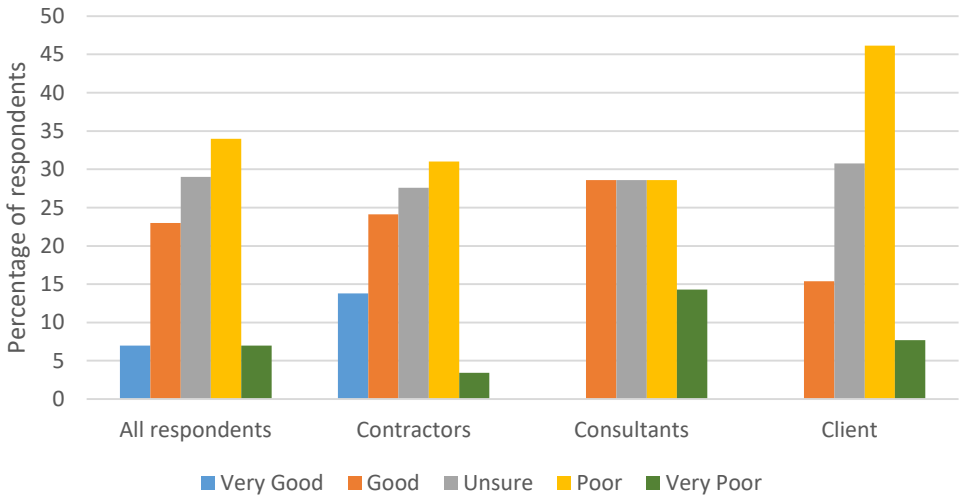

Figure 1: The relationships between main contractors and subcontractors

Among all the respondents 7 percent indicated that the relationship was very poor, 34 percent indicated that it was poor, 29 percent indicated that they were not sure, 23 percent indicated that the relationship was good and 7 percent thought it was very good. This indicates that the overall sentiment among the total respondents is that the relationship between main contractors and subcontractors in the construction industry was poor, therefore needing attention.

In order to improve the main-contractor subcontractor relationship respondents were asked to rate to 19 attributes according to their importance to the main contractor-subcontractor relationship. These attributes were obtained from literature review. The factors were then analysed and ranked according to their RII from highest to lowest in order to adduce the most crucial factors that can help improve the main contractor-subcontractor relationship. Table 1 shows the top ten factors that can improve the relationship.

Table 1. Ranking of Factors that can enhance the relationship between the main contractors and subcontractors

Factor	ALL		Contractor		Client		Consultant	
	RII	Rank	RII	Rank	RII	Rank	RII	Rank
Communicating regularly	0.966	1	0.975	1	0.956	3	0.967	1
Complete and clear contract documents	0.966	1	0.975	1	0.978	1	0.950	5
Information communicated in time	0.959	3	0.950	5	0.956	3	0.967	1
Timely progress payment to subcontractor	0.959	3	0.975	1	0.933	6	0.967	1
Communicating when there is a problem	0.952	5	0.950	5	0.956	3	0.950	5
Good construction work quality	0.952	5	0.975	1	0.933	6	0.950	5
Subcontractor possess enough skilled labour	0.938	7	0.950	5	0.978	1	0.900	10
Adherence to the construction schedule	0.938	7	0.950	5	0.889	9	0.967	1
Adherence to the conditions of the contract	0.931	9	0.950	5	0.911	8	0.933	8
Accuracy of the project cost estimate	0.883	10	0.925	11	0.867	11	0.867	12

As indicated in table 1, 4 of the top 5 factors are related to communication. This shows that communication between main contractors and subcontractors is essential in their relationship. The 4 factors are: communicating regularly, complete and clear contract documents, information communicated in time and communicating when there is a problem. These results agree with Enshassi et al., (2012) who stated that, strain in the relationships between the main contractor and subcontractor can develop due to poor communication and lack of timely information on site. Rajput and Agarwal (2015) specified that in order to improve the relationship between main contractors and subcontractor, the documentation between main contractors and subcontractors regarding designs, drawings, plans, schedules and management systems should be clear and complete. Clear well stated document can help with the avoidance of disputes early in the project cycle. McCord and Gunderson, (2014) added that main contractors should consider recruiting and developing project managers that focus on good communication with the subcontractors, in order to develop a better relationship with the subcontractors and avoid disputes. Finally, the results agree with Manu et al, (2015) who found that project teams

considered it important that subcontractors are honest and open in communicating to all concerned parties, whenever there was an imminent problem related to their work package.

In addition, interviews were conducted to provide additional factors that could have not been obtained through literature review. The top factors obtained from questionnaires and those from interviews were then consolidated together to provide an overview of the top factors that can improve the main contractor-subcontractor relationship. The factors were categorised in groups these group were: financial; communication; work; contract; and other. The classification was done in order to simplify the analysis of the factors. Figure 2 shows the factors that can help improve the main contractor subcontractor relationship.

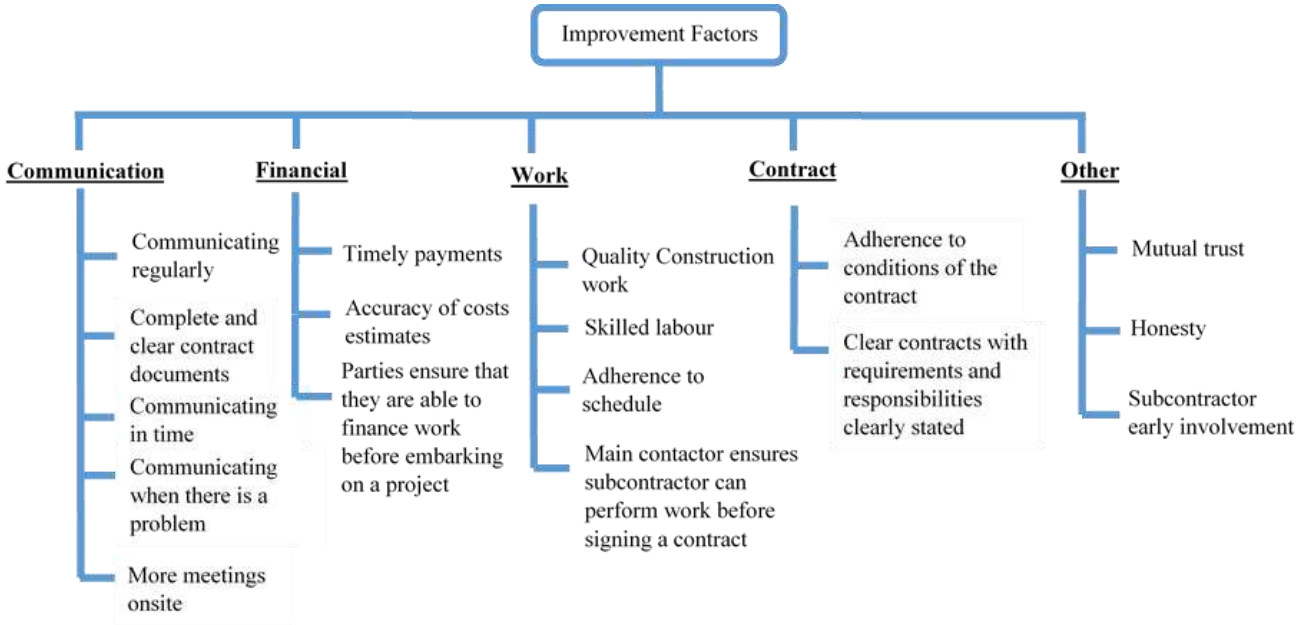

Figure 2: Attributes that can improve the relationship

Partnering was determined to be the suitable framework to be utilised in order to enhance the main contractor-subcontractor relationship. This is because partnering incorporates most the improvement factors identified in this study. In terms of communication, partnering fosters better communication by providing methods to discuss and share information freely regularly through meetings and daily updates (Ghaffari and Jane, 2013). Nevada Department of Transportation (2010) highlighted that partnering provides better risk management that enables an improved ability to look forward, anticipate and avoid problems. Because of this risk management and the collaborative working nature of partnering there are likely to be less financial difficulties on the project (Meng,2012). In terms of work, Meng, (2012) revealed that poor project performance can be reduced by replacing the traditional approach with partnering arrangements. Therefore, a project that performs exceedingly conforms with the contract agreements. Furthermore, partnering encourages the early involvement of suppliers and contractors on a project and encourages trust among parties (Eriksson, 2014).

The Non-contractual project partnering model

With the aim of addressing the relationship problems adduced in this research a partnering model was developed. The partnering model was designed with objective of transforming the adversarial relationship between main contractors into a more collaborative one to improve project success. Ohio Department of Transportation, (2013) found that when project participants in projects truly adopt the partnering concept, the projects are more likely to have a smooth relationship with few, if any, unresolved disputes at project close out.

For this model a non-contractual project partnering approach was adopted. Since partnering is not yet practiced extensively in the Zambia construction industry therefore, project parties are deemed to be unwilling to abandon the usual traditional contract and embark on full partnering contract. Non-contractual partnering allows parties to have the contract as a contingency plan in case there is a major dispute that cannot be solved through partnering means. Project partnering was chosen because it allows main contractors to partner with different subcontractors in different projects allowing subcontractors to experience and learn partnering from experience. From this experience, contractors will be able to embark on full contractual partnering that is beneficial on complex major projects. Success in partnering between main contractors and subcontractors will also encourage partnering between clients and main contractors in the Zambian construction industry.

The non-contractual project partnering approach was adopted with guidelines from The Hong Kong Construction Industry Council, (2012) partnering framework. The Hong Kong Construction Industry Council, (2012) highlighted that following the partnering framework can foster open communication, timely escalation of critical issues for resolution, early involvement, trust and honesty between project parties and lastly help improve project performance. The results from the questionnaire survey advocated the need for these factors in the Zambian construction industry therefore it became necessary to implement the framework. However, The Hong Kong Construction Industry Council framework did not have self-assessment process, making offer to partner process and the facilitated dispute resolution session.

Construction Excellence UK, (2004) advocated the importance of self-assessment in the partnering process as it enables an organisation to understand their own readiness for the partnering journey. Self-assessment provides information for an organisation determine if the stuff requires training before embarking on a partnering journey. Therefore, self-assessment reduces the possibility of the organisation reverting back to the contract during the project as a result, the process was included in the non-contractual project partnering model.

California Department of Transportation Division of Construction, (2013), highlighted the importance of including a facilitated dispute resolution session in a partnering process hence the option for a facilitated dispute resolution session was added to the non-contractual project partnering model. The facilitated dispute resolution is held in lieu of a follow-up partnering

session if a conflict or dispute arises and cannot be resolved in the follow-up meetings. The session provides a further step towards dispute resolution before resorting back to the contract.

California Department of Transportation Division of Construction, (2013), included making the offer to partner as a crucial step to the partnering process. This step is important as it does not involve just the making of the offer to partner but also the partner selection. Selection of a partner needs to be conducted carefully through a structured selection process (Construction Excellence UK, 2004). Consequently, making the offer to partner was added to the non-contractual project partnering process.

Figure 1 (on the following page) illustrates the proposed model.

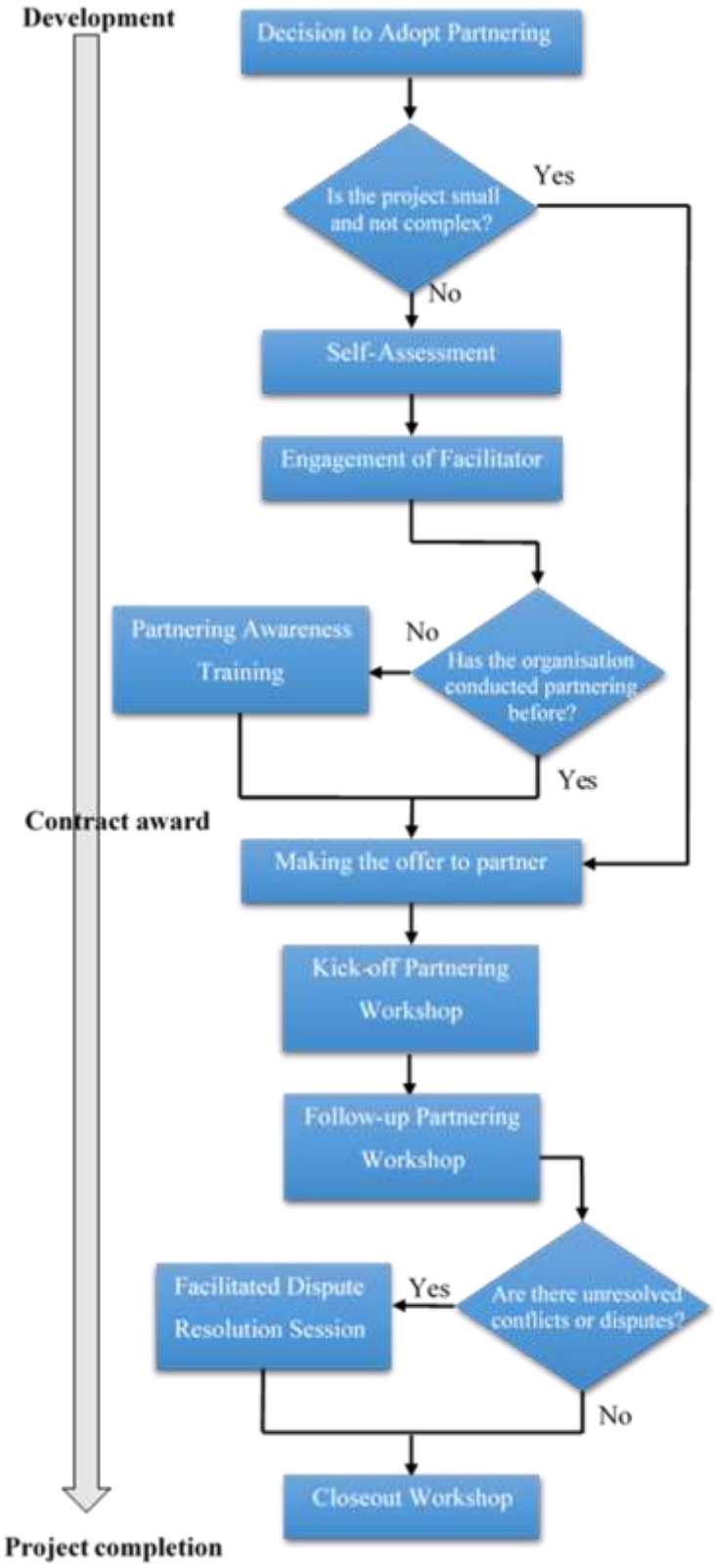

Figure 1: Non-contractual project partnering model

Decision to Adopt Partnering

This is the first step of the partnering process. The decision to adopt partnering must be backed with commitment from the highest level of the organisation management and is continually communicated and reinforced throughout the organisation. The organisation must be willing and prepared to adopt a culture change from the usual way of conducting work to a more collaborative approach.

Self-Assessment

Before embarking on the search for a facilitator and partners, the organisation need to assess themselves to understand their own readiness for a partnering approach. This means understanding: if the organisation is sufficiently flexible and prepared to respond to a cultural change; if there any concerns from people in the organisation towards partnering; if the decision to partner was backed by a satisfactory reason that will not become irrelevant as the project progresses; and if people in the organisation are knowledgeable about partnering. These factors will help determine if the organisation is ready for partnering and if training is required.

Engagement of Facilitator

A partnering facilitator is an independent professional trained to assists in developing an effective partnering process and partnering workshops for the project. However, the facilitator is not the leader of the partnering effort. The parties should engage a partnering facilitator that is experienced in partnering and understand the various aspects of partnering, including its potential benefits, requirements and process of partnering. If the project is small and not complex the project can be internally facilitated meaning the facilitator is not used. Here the facilitation responsibilities are jointly shared by the parties.

Partnering Awareness Training

If an organisation is going to embark on a partnering relationship it is important that the staff of that organisation understands what they will be involved in and how to make it successful. An internal training session can be conducted as per organisational requirements. The internal staff should understand the potential benefits of partnering to the project and the organisation and how to practice partnering. Key project stuff including engineers, architects and surveyors should be present. If the organisation has conducted partnering before this will not be necessary since the kick-off partnering workshop will provide an opportunity a brief training.

Making the Offer to Partner

This offer will be in the form of a letter of invitation. Before the party can make an offer it is important that they possess important information and understand about the other party's work culture. If possible a background check should be done to determine the following factors:

management style, the understanding of partnering, previous partnering experience, health and safety procedures, customer care and environmental policy. Knowing these attributes can help decide if a party is ready for partnering.

Kick-off Partnering Workshop

The kick-off workshop is an important step in creating the partnering relationship as it is the first formal step towards partnering. This is where a party officially signals their intention to adopt a partnering approach from the outset of the project by arranging a kick-off partnering workshop. The workshop enables the partnering parties to meet, build relationships, set expectations, roles, and develop team processes that support the oncoming project. The team processes to be established include: mitigation strategies for project challenges; communication protocols; procedure for decision making and issue resolution; and establish the partnering plan for the project.

Follow-up Partnering Workshops

Follow-up partnering workshops are held at various intervals throughout the project life cycle. Follow-up partnering workshops are short hence they can easily be handled in a few hours. These workshops allow the facilitator and the partnering teams to monitor the success of their partnering efforts. Since subcontracting is Zambia is also conducted with the aim of assisting small subcontractors to learn and develop, these sessions provide the opportunity for subcontractors to gain knowledge from main contractors. The frequency of these workshops depends on the size and complexity of the project. However, it is essential that the parties conduct the follow-up workshops at least twice on a project.

Facilitated Dispute Resolution Session

This is a session or workshop done with the sole purpose of team repairing when there is a dispute between the partnering parties. During the kick-off partnering workshop a dispute resolution plan is devised to deal with disputes. The plan contains dispute resolution ladder where a dispute if unresolved can be raised from one level to another. At the top of the ladder are the two primary parties to the contract, and behind these two are all of the other project stakeholders. When an issue is elevated it is essential that a special face to face meeting between parties at that level is held to discuss the dispute at hand. However, if the issue cannot be resolved through this method, the issue is scheduled to be discussed when all the parties meet during the follow-up partnering workshop. If the issue is not solved during the workshop a facilitated dispute resolution session is scheduled where a discussion is done with all the parties and a neutral facilitator present.

Closeout Workshop

The closeout workshop is the final workshop held at the end of the project. It is not a requirement that a professional facilitator must be present for this meeting. The closeout workshop is primarily structured as a means of reflecting and learning. Therefore, this workshop should create a "lessons learned" and means on how to implement those lessons in future projects. The closeout workshop shop to review the results, celebrate project successes and celebrate the completion of the project.

Continuous Improvement

In a partnering arrangement it is important that the team members are always seeking ways to enhance their relationship to ensure successful project delivery. Procedures should be formulated that will enable the exhaustion of potential opportunities for better project delivery this can be in terms of costs, quality or duration. An organisation should have relevant indicators determined and used to measure performance. These can be compared with internal or external benchmarks to see if the project is performing well and if there are improvements required. In addition, not all stakeholders will participate in the initial workshop for example subcontractors that are contracted after the project commences. Continuous improvement can allow such stakeholders to be identified and progressively integrated into the partnering process as the project progresses this can be done during the review workshop.

Conclusion

Subcontractors play an important role in the successful completion of construction projects. Recent changes in. As a result, the relationship between main contractors and subcontractors now plays a vital role in project success. Strain in this relationship has been a source of disputes and projects not attaining their goals, hence the study was conducted to understand and help improve this relationship. The study found that the relationship between main contractors and subcontractors in the Zambian construction industry is poor on many projects. It was revealed that a bad interface between main contractors and subcontractors was causing project delays.

In order to address the relational problems between main contractors and subcontractors in the construction sector partnering was suggested and a model of processes to be followed was developed. The non-contractual project partnering approach comprised of 10 critical processes. The first step is the company making an informed decision to adopt partnering. Second process is self-assessment where an organisation assesses its readiness for partnering. Third process is the engagement of a facilitator to facilitate the partnering process. The fourth step is conducting partnering awareness training. The fifth step is making a partnering offer to the partner. The seventh step is conducting a kick-off partnering workshop. The eighth process is conducting follow-up partnering workshops. The last step is conducting the closeout workshop. Following these steps

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