International Conference on Civil Infrastructure and Construction (CIC 2020)
February 2-5, 2020 Doha, Qatar

Assessment of Response Strategy in Mega Construction Projects

Ayman Mashali
ayman00067@yahoo.com
Faculty of Engineering, University of Mansoura, Egypt

Emad Elbeltagi
eelbelta@mans.edu.eg
Faculty of Engineering, University of Mansoura, Egypt

Ibrahim Motawa
i_a_motawa@mans.edu.eg
Faculty of Engineering, University of Mansoura, Egypt

Mohamed Elshikh
Mohamed_elshikh@yahoo.com
Faculty of Engineering, University of Mansoura, Egypt

ABSTRACT

Mega Construction Projects (MCPs) that are executed unavoidably face several of the organizational challenges and pressures. Due to the stakeholder pressures in the execution of MCPs, organizations may adopt various strategic responses. **Purpose** – The objective of this paper is to investigate the common response strategies (RSs) applied in MCPs in the State of Qatar, in addition to overcoming the construction problems and enhance performance during the construction stage. **Design/methodology/approach** – A questionnaire survey is carried out among the most important firms in construction industry in Qatar. Three steps are used to finalize and evaluate the questionnaire before proceeding with the full survey, validity, pre-testing and pilot study. Quantitative data analysis is carried through the Statistical Package for Social Science software (SPSS). **Findings** – Results define and demonstrate five different types of RSs. They are ranging from passive to active strategies determined by project organization. The RSs include: adaptation strategy, avoidance strategy, compromising strategy, dismissal strategy, and influence strategy. **Originality/value** – This paper identifies and evaluates the RSs in MCPs that could potentially improve project team more efficiently and effectively.

Keywords: Construction industry; Mega projects; Response strategies; Stakeholder management; Stakeholder categories

1 INTRODUCTION

Recently, Qatar has been booming in development, and the Qatari market is considered a rapidly growing one. Like all countries around the world, the construction industry is considered the most efficient contributor in country's development. The construction industry in Qatar is facing massive challenges due to the huge construction development required for the World Cup 2022 and to achieve Qatar vision 2030. As such, many mega construction projects are to be accomplished to improve the country's infrastructure which comprise numerous international companies and multinational professionals. The rapid development of Qatar MCPs in all zones raised the question of stakeholder management (SM) and response strategy in the development of MCPs. Furthermore, the complex

nature and the scale of these projects requires proper SM process. Whereas, Cleland (1986) introduced the perspective of strategic SM and the concept of stakeholders in the domain of project management, the field of construction industry globally has a weak record of SM over the past decades (Olander and Landin 2005). In this paper, the author focusses specifically on MCPs that comprise numerous participants and are executed in the state of Qatar. Through reviewing the records of MCPs, the most unexpected risks in MCPs executed under difficult environments are identified as: conflicts and incidents related to the stakeholder.

2 LITERATURE REVIEW

2.1 Mega Construction Projects

The definition of MCPs from several viewpoints comprises of complexity, size, cost, and time (Othman, 2013). They can, also, be described as wide-scale, complex undertaken that commonly value 1 billion US Dollars or more, need many years for developing and building, require multiple stakeholders, are transformational, and impact millions of people (Flyvbjerg, 2014). El-Sabek and McCabe (2017) agreed with Flyvbjerg's description of mega projects, whereas Canadian oil and gas construction projects are considered mega when they exceed 300 million Canadian Dollar (Rankin et al., 2008). Moreover, from a contractual context, mega-projects are associated with endemic disputes and large numbers of claims of significant magnitude (Dettman et al., 2010). Also, MCPs are highly large-scale investment projects, commonly valuing more than 0.5 Billion Euro (Travaglini and Dunović, 2016). Nevertheless, the implementation of an international MP in the region with its colossal size, complicated scope, technical aspects, and an international team not familiar with local regulations and culture can result in failures (El-Sabek and McCabe, 2017).

Furthermore, MPs are completely different types of projects in their aspiration level, lead times, complexity, and stakeholder engagement. Indeed, it is their scale and extreme complexity in both technical and human terms that characterize MPs from traditional projects (Marrewijk, 2007 and Flyvbjerg, 2014). Besides, MPs are distinguished by a high degree of uncertainty, because of a mix of public institutions and sub-contractors, which increases their complexity level (Marrewijk, 2007).

2.2 Stakeholder Definitions

The PMBOK (2018) defines the stakeholder as a person, groups, or organizations that may influence, be influenced through an activity, decision, or project result. The stakeholder literature presents different conceptualisation and definitions of stakeholders ranging from wide to narrow views. Freeman (1984) proposed a classic definition of stakeholders that it is any set and individuals who can impact or be impacted through the fulfilment of a firm's objective. However, this definition is wide in meaning and does not define the stakeholders' relationship with their institution. In general, the most common definition of stakeholder is: any individual or group which can influence or is affected by a project.

2.3 Stakeholders Categories

The PMBOK (2018) categorized stakeholders into two categories: (i) Internal

stakeholders include but are not limited to; the sponsor, project staff, supervision team, and contractors, etc. (ii) External stakeholders involve but are not limited to; the suppliers, project's customers, competitors, and government authority, etc. The scientists of project management have categorized stakeholders differently. Most outstanding in the literature were categorizations established on involvement of stakeholders and their relationship nature with the project, the stakeholders' claims and their attitude for the project, the role of stakeholders, and the level of anticipating of stakeholders' attitude (Aaltonen, 2010; Cova et al, 2002 and Moodley et al, 2008).

The primary stakeholder groups are those stakeholders or individuals who are considered as a base to the presence of the organization, and often most of them have some formal contract with the organization as owners, employees, customers, and suppliers. Secondary stakeholders are the group that plays an essential part in giving credibility and acceptance to the organization for its activities and include: communities, governments, and competition (Ayuso et al, 2006; Podnar and Jancic, 2006). Stakeholders are commonly classified by a broad range of attributes, such as interest, attitude, impact, influence, power, urgency, risk, and satisfaction (Mitchell et al., 1997). Miller and Olleros (2001) stated that projects successful display extraordinary SM and maybe follow the process of stakeholder identification, analysis, and classification, besides management strategy formularization.

2.4 Stakeholder Engagement's Levels

Stakeholder Management is categorized in four levels: involve, inform, consult, and collaborate (Chinyio and Olomolaiye, 2010):

Informing-includes providing the stakeholders with practical, real, and topical information to help them understand problems and suggest solutions. Despite this, set of external stakeholders have a lower probability of impact and lower level of impact, they should be aware and informed regarding all decisions taken, which can affect them directly. Taking into consideration that they will not have an effective or positive role in making any decision (Karlsen, 2002).

Consult-is a method to retain stakeholders awareness of the project by obtaining their feedback on decisions, analysis, and alternatives. While the secondary stakeholders with higher probability of impact need to be 'kept on board,' they should be consulted for their opinions over key decisions that can affect them directly or indirectly. It is improbable that the strategy will be changed because of such consultation, but tactics may be well modified to keep higher levels of obligation (Chinyio and Olomolaiye, 2010).

Involve-includes working fair and directs for the stakeholders during the SM process for ensuring that the attention of stakeholders is retained and their ambitions understood and considered continuously. Stakeholders with a top impact level, especially require to be involved in the project for all activities. Nevertheless, project management should deal directly with these stakeholders continuously to meet their requirements and their satisfaction (Chinyio and Olomolaiye, 2010).

Collaborate-*includes partnering by the stakeholders in all of the sides of a decision, including the evolution of alternative approaches as the principal stakeholders have a significant level of influence on project success.* Therefore, these approaches of working as one group to reduce conflict using multiple viewpoints and different perspectives. So,

they should be considered as partners to increase their engagement and obligation. This can be achieved by revising and tailoring project strategy, objectives, and outcomes if necessary, to win their support (Savage et al., 1991).

2.5 Stakeholder Management Strategies

Jawahar and McLaughlin (2001) stated that the strategy used by the organization to deal with any stakeholder is dependent on the significance of the stakeholder to the organization compared with concerned stakeholders. Whereas, the perception of the stakeholder's strategic responses and factors impacting them in the sector of project management is not developed (Aaltonen, 2010). Aaltonen and Sivonen (2009) selected four case construction projects that were included an external stakeholder concerned challenges and that had been executed in developing markets. They described and identified five various types of response strategies, varying from passive to active approaches established by focal project institutions. As the legitimacy and power of stakeholders' claims rise, focal institutions favour to involve extra actively and perform more strategies that are active. Furthermore, Oliver (1991) determined various strategies certain institutions have set as a response arising from pressures of the companies' environment. He provides five various types of RSs: compromise, acquiesce, avoid, defy, and manipulate. Despite this, there are still many investigations needed to build a broad understanding of the project SM strategy.

3 RESEARCH METHODOLOGY AND DATA COLLECTION

In order to realize this study's goal, a survey was conducted to gather information among the most representative firms in Qatar, which play an essential role in the local economy and construction sector. The methodology starts with defining the problem, aim and objective of the study followed by an extensive literature review, a questionnaire based on quantitative approach and analysis using scoring rate from 1 (very low) to 5 (Very High). The quantitative approach is used in this research to collect and understand the opinion and perception of construction professionals towards RSs in MCPs. The data collected from the questionnaire are analysed using SPSS. The questionnaire survey involved the engineers at different levels and types of experience. The sample was randomly selected from different stakeholders including: governmental, semi-governmental, and municipalities; Client/Owner/ Engineer; consultants (supervision and design) and contractors/sub-contractors. The questionnaire was sent to 400 people in different types of organizations and 235 (60% response rate) responses were received which is a satisfactory number of responses (Heravi, 2014).

After designing the questionnaire, pre-testing and pilot study were considered to refine and evaluate it. The questionnaire pre-testing was done by sending the questionnaire to five construction experts and requesting their review and comments. Pre-testing is used to determine the effectiveness of the questionnaire concerning strength, formatting, wording, and order to assure that the questionnaire is clear, simple, and easy to respond. Then, a pilot study is performed to gather data from specific sets of respondents (30 individuals). The pilot study is essential to enhance the validity and performance of the research prior to the factual collection of data starts (Naoum, 2007).

4 RESULTS AND DISCUSSIONS

The analysis is conducted for 235 responses. Figure (1) provides a distribution of the respondents for each party. The majority represents supervision (consultant/designer/ management) (43.4%) and contractors (33.1%) which mainly reflect the construction stage. The high percentage of this category reflects an excellent signal that ensures the goodness of the information obtained.

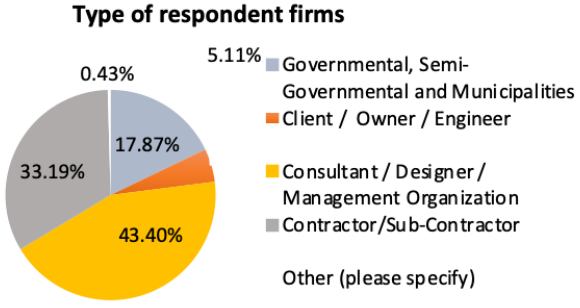

Figure 1: Type of respondent affiliation.

According to Figure (2), further than 70% of the participants are from the senior levels and topmost management, who have managerial and technical skills, who have essential positions that prop the goodness of obtained data. Since this research focuses on SM, the findings of this section emphasize that proper participants in the survey were approached.

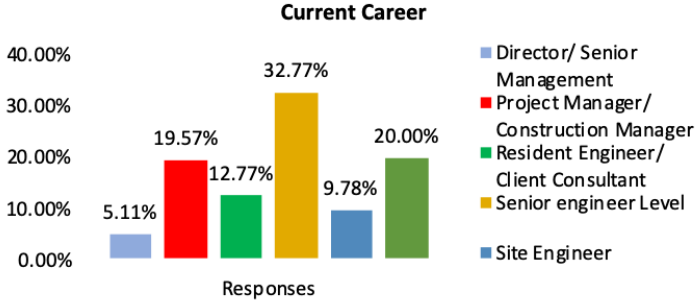

Figure 2: Respondents' roles.

As shown in Figure (3), higher than 15 years' experience in the construction projects of the participants had a good percentage (28%). They act as the leaders and decision-makers of the projects in their organizations. Also, 50.0% of the respondents have prime positions; the highest amount of deep experience increases the level of accuracy of evaluation. It was good for the contributed respondent of juniors to sustain the desired development of the construction project. The variety of experiences will sing the study by various knowledge and information. As shown in Figure (4), more than 88.0% of questionnaires were collected from public/government client organizations. This high percentage reflects the state of construction in Qatar and reflects an accurate assessment

of the current situation in the construction market in Qatar. Moreover, this reflects the high development proceed at this time for construction projects in Qatar.

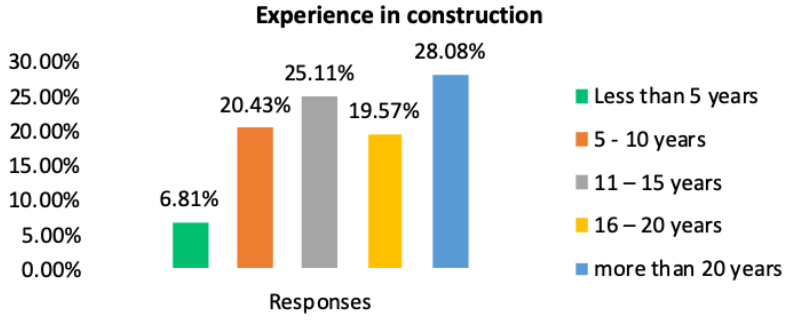

Figure 3: Years of experience.

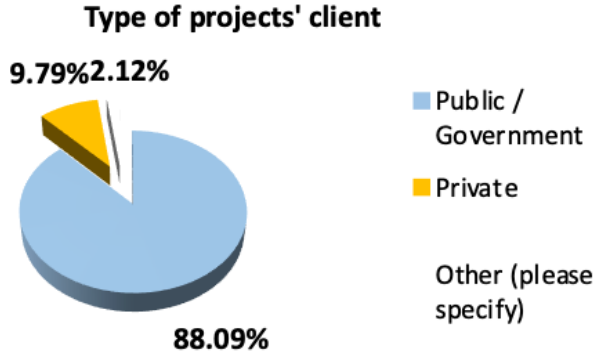

Figure 4: Distribution of client type.

4.1 Type of response strategy to deal with the stakeholder claims

The participants were asked their opinions concerning the types of efficient response strategies for dealing with the stakeholder claims in MPs.

Table 1 Efficient response strategy

Type of Strategy	Mean	Std. Error	Std. Deviation	*RII%	Rank
Adaptation strategy	3.9510	.07898	.94443	79.02	3
Avoidance strategy	3.4056	.09936	1.18819	68.11	4
Compromising strategy	4.1958	.06452	.77149	83.92	1
Dismissal strategy	2.9441	.11086	1.32567	58.46	5
Influence strategy	4.0559	.06259	.74848	81.26	2

*RII: is the relative importance index.

Table (1) shows that the compromising strategy was ranked in the first position, in this set with RII equals (83.92%). The respondents chose this strategy to deal with the demands of the main stakeholders. That is the most preferred strategy in construction projects

because project managers use it in listening to stakeholder claims and requirements, negotiating with them, and presenting possibilities and areas for discussions. This strategy can be considered a lose-lose but useful, where finding a middle ground that satisfies all parties to some degree. Also, in this strategy, no one is delighted with the solution; both parties must abandon something vital to them. That is a lose-lose situation.

The influence strategy was ranked in the second position (RII equals 81.26%). This indicates that the project managers can use this strategy with the main stakeholders to seek to affect their claims in conjunction with the project aim. It requires others to undergo the point of view of one side or another. This is not recommended unless very necessary. Generally, this technique involves pushing one opinion at the expense of another. It is a win-lose situation.

The adaptation strategy was in the third position in this set with RII equals 79.02%. This technique emphasizes agreement rather than differences of opinion. Whereas the project manager can realize that it is better to accept the demand when it is possible and does not have a significant change in the project, this is useful for achieving the project's objectives.

Avoidance/withdrawing strategy is in the fourth position with RII equals 68.11%. This strategy type could be adopted if the need of the stakeholders' claim is above the project capability. Furthermore, the project manager seeks to adopt Avoidance/withdrawing strategy with preventing and covering him/herself from the claims and shifting the liability of the requests to another one in the project.

Avoiding or withdrawing from the conflict or possible conflict and allowing the concerned parties to solve the conflict on their own is strategy not recommended unless it is a very dangerous situation (Lose/Lose).

The dismissal strategy was ranked in the last (RII = 58.46%). Most significant of the participants opposed this strategy. That means that the project managers should transact with stakeholder's matters suitably and properly.

5 CONCLUSION

MCPs are unique due to the enormous stakeholder's relationship networks in the project, with crucial impacts on society and the environment. This study provided an overview of the response strategy dealing with the stakeholder claims in MCPs in Qatar. The compromising strategy is ranked in the first position as a critical factor. Such a result reflects the full agreement of respondents regarding the importance of implementing the strategy based on compromise. Moreover, the respondents considered this approach was useful, and the project managers prefer to use compromising strategies to deal with the primary stakeholder needs, because they can use this strategy for stakeholder negotiating, attending to their requirements associated with the project, displaying opportunities, domain concerning dialogue, obtaining satisfaction, and awarding compensation. Otherwise, the respondents do not accept the use of a dismissal strategy. Additionally, this study mentions that companies may respond to stakeholder pressures in various ways, ranging from passive adaptation strategies to active influence strategies, and it contributes to some understanding of the current challenges for MCPs. Moreover, the selection of the strategy types should be by the engagement methods, information input set, classification, and besides the priority of stakeholders. Formulated strategies

should be fulfilled subsequently. After the strategies being fulfilled, the assessment of the stakeholders' reactions to the selected strategies should be adopted to enhance the aims in the succeeding SM process. Furthermore, this study's results will be valuable for all concerned project stakeholders when considering future execution plans, assist the improvement of researches to overcome the construction obstacles as much as possible to increase the execution level. Moreover, this paper makes a significant contribution by providing a view for implementing a response strategy in MCPs that motivates decision-makers and project players to adopt a compromising strategy in their projects. Although, this paper contributes to a better understanding of the response strategy of MCPs for dealing with project SM challenges; confirming its wide-scale validity to deal with challenges of SM and related response strategy of MCPs requires further research, as clarified by participates.

REFERENCES

Aaltonen, K. (2010). *Stakeholder management in international projects*. PhD thesis, Aalto University, Espoo, Finland.

Aaltonen, K. & Sivonen, R. (2009). Response strategies to stakeholder pressures in global projects. *International Journal of Project Management*, *27*(2), 131-141.

Ayuso, S., Rodrıguez, M. A. & Ricart, J.E. (2006). Responsible competitiveness at the micro level of the firm: Using stakeholder dialogue as a source for new ideas: a dynamic capability underlying sustainable innovation. *Corporate Governance*, *6*(4), 475-490.

Chinyio, E.A. & Olomolaiye, P. (2010). *Construction Stakeholder Management*. Wiley-Blackwell, Oxford.

Cleland, D.I. (1986). Project stakeholder management. *Project Management Journal*, *17*(4), 36-39.

Cova, B., Ghauri, P. & Salle R. (2002). *Project marketing: beyond competitive bidding*. John Wiley & Sons Ltd, Chichester, England.

Dettman, K., Fauchler, D., Bayer, R., Wojtasinski, S. & Mandry, M.J. (2010). In mega projects: Challenges and recommended practices, In P. Levin, ed. construction contract claims, changes, and dispute resolution, Reston VA: *American Council of Engineering*, 469-481.

El-Sabek, L. & McCabe, B. (2017). Coordination challenges of production planning in the construction of international mega-projects in the Middle East. *International Journal of Construction Education and Research*, 1-23.

Flyvbjerg, B. (2014). What you should know about megaprojects and why: An overview. *Project Management Journal*, *45*(2), 6-19.

Freeman, R.E. (1984). *Strategic management: a stakeholder approach*. Pitman, Boston, the USA.

Heravi, A. (2014). *Improving construction management: an investigation into the influences of effective stakeholder involvement on project quality outcomes.* Dissertation, Faculty of Science and Engineering, Queensland University of Technology, Austraila.

Jawahar, I. M. & McLaughlin, G. L. (2001). Toward a descriptive stake-holder theory: An organizational life cycle approach. *Academy of Management Review*, *26*(3), 397-414.

Karlsen, J. T. (2002). Project stakeholder management. *Engineering Management Journal*, *14*(4), 19-24.

Marrewijk, A.V. (2007). Managing project culture: The case of environ mega-project. *International Journal of Project Management*, *25*(3), 290-299.

Miller, R. & Olleros, X. (2001). Project shaping as a competitive advantage, In: Miller R, Lessard DR, editors. *The strategic management of large engineering projects: shaping institutions, risks and governance*, Cambridge, MA: MIT Press, 93-112.

Mitchell, R.K., Agle, A.R. & Wood, D.J. (1997). Toward a theory of stakeholder identification and salience: Defining the principle of who and what really counts. *Acad. Manag. Rev.*, *22*(4), 853–886, 1997.

Moodley, K., Smith, N. & Preece, C.N. (2008). Stakeholder matrix for ethical relationships in the construction industry. *Construction Management and Economics*, *26*(6), 625-632.

Naoum, S.G. (2007). *Research and Writing for Construction Students*. Dissertation, British Library Cataloguing in Publication Data.

Olander S. & Landin, A. (2005). Evaluation of stakeholder influence in the implementation of construction projects. *International Journal of Project Management*, *23*(4), 321-328.

Oliver C. (1991). Strategic responses to institutional processes. *Acad. Manag. Rev.*, *16*(1), 145–179.

Othman, A. (2013). Challenges of mega construction projects in developing countries, Organisation, Technology and Management in Cons. *An International Journal* DOI10.5592.

PMBOK (2018). A guide to the project management body of knowledge (PMBOK), Sixth Edition. *Project Management Institute (PMI)*, the USA.

Podnar, K. & Jancic, Z. (2006). Towards a categorization of stake-holder groups: An empirical verification of a three-level model. *Journal of Marketing Communications*, *12*(4), 297-308.

Rankin, L., Slootman, T. & Jergeas, G. (2008). The industry's perspective on workforce planning for major projects. *AACE International Transactions*, PM.12.1–12.

Savage, G., Nix, T., Whitehead, C. & Blair, J. (1991). Strategies for assessing and managing stakeholders. *Academy of Management Executive*, *5*(2), 61-75.

Travaglini, A. & Dunović, I.B. (2016). *Megaproject case studies: a stakeholder management perspective*, (International Conference on Industrial Engineering and Operations Management), Kuala Lumpur, Malaysia.

Cite this article as: Mashali A., Elbeltagi E., Motawa I., Elshikh M., "Assessment of Response Strategy in Mega Construction Projects", *International Conference on Civil Infrastructure and Construction (CIC 2020)*, Doha, Qatar, 2-5 February 2020, DOI: https://doi.org/10.29117/cic.2020.0028