

# Non-Pecuniary Factors Affecting The Success Of Construction Projects In United Arab Emirates

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**Abstract:** The Construction Industry is a highly important contributor to the GDP of the United Arab Emirates (UAE). This research study aims to explore the factors that affect the success of construction projects in UAE. This study is focused not only on the positive factors but also the limiting factors that prove to be an obstacle to the growth of the construction industry in UAE. Secondary analysis has critically analysed literature pertaining to the subject and primary analysis employed is a mixed method of both qualitative and quantitative analysis also known as triangulation methodology. Thus, using qualitative and quantitative data analysis techniques, using structured questions as the research instrument and interviews as the method information was collated from five randomly selected construction companies in UAE. For quantitative analysis, the sample selected primarily comprises 30 project management personnel and for Qualitative Analysis 5 senior managers such as project general manager and director of projects and other senior positions, have been selected for the interview. Through Data Analysis and the various responses collated from the respondents it was identified that timely allocation of quality and competent resources combined with a longer-term vision of the leadership is a critical success factor for the construction industry. Application of project management tool and interdepartmental collaboration seemed to have a limited role to play in the success of the projects. It was also identified that the major limitation regarding factors affecting construction projects in UAE is the extreme weather conditions. Non-prescriptive and unclear labour as well as health and safety regulations seem to be causing delays in applying the mandated requirements and causes hindrances in terms of non-compliances and violation notices from authorities. Having employees from various cultural backgrounds and nationalities is also another limiting factor that creates difficulty in streamlining the construction process.

**Keywords:** Construction Industry, Project Management Tool, Health and Safety Regulations, Environmental, Labour, Culture

## INTRODUCTION

In project-based industries, the construction field is considered the most dynamic and challenging field, attracting new brains, capital and the latest invention in technologies. The studies of Ahadzie et al., (2008), state that the characteristics of civil construction projects are quite complex, including time, cost and a high level of risk. In project-based industries, the construction industry can be considered one of the most used examples. Construction projects such as residential, housing and commercial projects are the largest sectors in the construction industry in most developing countries in the world.

## Failure and Success in Construction Projects

A construction project is determined a success, when the project is completed fulfilling all requirements of the project scope and in the defined time, budget and quality satisfying all stakeholders. Takim and Akintove (2002) advocated that a project is considered successful if it fulfils all the requirements and satisfies all the stakeholders and profit to the project contractor. A project success is not fulfilling all the requirements argued in the research studies of Ashmos et al. (2000), their studies stress the importance of exceeding the expectation regarding quality, time, cost, safety and satisfaction of the project sponsor. This has further been referred and stated in the studies of Savnido et al. (1992) that the success of the project depends on fulfilling its goals and objectives. The studies of Bryman et al. (1999) demonstrate the key objectives of the projects are cost, quality and time. They also pointed out that these three factors contribute to achieve the objective of the project and finally success. Julie and Frank (2005) demonstrated the dimensions of a project which are widely known in project management practices as triple constraints. Project planning is one of the most vital elements in any project, both the upstream and downstream inputs have equal importance and failing to input the appropriate elements can cause the project to fail, i.e. without a proper plan the project cannot succeed.

Project success and failures can be measured if appropriate plans have been made with established project management standards (Takim and Akintove, 2002). The widely practised PMI standards demonstrate the importance of triple constraints and point out the impact factors when any of the three factors of the triple constraint, i.e., scope, time and cost is changed, it can have an impact on at least one of the factors. In any project, a required objective is set and cost and time are fixed. However the scope can change, and this is the vital element in the triple constraint. Changes in scope can have a positive or negative impact in achieving the goals of the project (PMI, 2015) Delays in projects can be explained when the project execution goes beyond the agreed completion time. Assaf and Hejji (2006) defined this as the time overrun. The studies of Sambasivan and Soon (2007) pointed out that all over the world delays in construction projects is an issue and it's very rare to identify a project that has been completed on time. El Razek et al. (2008) stated that delays could cost the construction project cost variations and disagreements can arise between the project sponsor and contractor and sometimes the complete project can be cancelled. This statement has further been supported in the studies of Okumbe and Verste (2008) that delays are the core element that is considered as the highest risk in construction projects, the expense of which impacts the cost factors of all the associated aspects of the project. A Project accomplished on time can be considered as an indicator of the efficiency of the project teams and other concerned stakeholders. However, Assaf and Hejji (2006) argued that due to the unpredictable and volatile nature of the construction industry it would be difficult to achieve a project success within the time or without alteration in the cost factor. They also state that impacts include environmental factors, available resources and other contractual conditions.

## Non-Pecuniary Factors that Affect the Construction Industry.

The Construction Industry is primarily clouded and influenced by many factors. Several factors in the form of

political, environmental, and financial affect the construction industry to a great extent. It is impossible to enumerate all the factors that affect the industry. However, on a macroscopic level, listed below are a few broad summarisations of the factors affecting the Construction Industry:

#### **Regulatory / Legal Factors:**

While doing any business, there is a grave importance placed on the local regulations, laws and labour practices of that country. Thus all kind of factors such as construction laws regarding safety, security, electricity connections, etc. play a pivotal role in the said Industry. Every city or state or country is governed by its own set of regulations that examine and govern the construction projects in the area (Laufer and Telem, 2008).

#### **Labour or Manpower Factors**

In certain countries, states or cities, labour regulations may vary from negligible to extremely strict Hillebrandt (2012). Just like the land prices, the daily labour wages in certain cities may be far costlier than the wages of some other regions or geographical regions leading to an increase in total costs of the construction projects. Specific regulations also mandate the requirement of the maximum permissible number of hours allowed to work by the labourers on a particular construction project. It has been further corroborated by various other researchers who have delved into this topic such as Lifson and Shaifer, (2011).

#### **Environmental Standards**

Certain Geographical areas have certain environmental factors that affect the construction of new projects in the nearby vicinity Hillebrandt (2012). Certain countries have specific regulations that mandate the construction projects to follow specific green standards which help maintain the environment from being pollution free and thus not being detrimental to the climate or the environment. He further mentions that the erratic or extreme weather temperatures in a country also affects the progress of construction projects in the respective countries.

#### **Quality of Labour**

The Quality of Labour is a crucial factor that contributes to the success of any and every construction project. Additionally, it is considered that the productivity of women and younger workers are generally regarded as lower than that of the labour force as a whole because they have fewer skills and lesser experience. (Chin and Spowage, 2012) Hence, essentially the smaller the tilt of the workforce towards this composition, the higher the success rate of the construction project. Furthermore, it is a universally accepted truth that increased educational qualifications tend to facilitate technological advancement and productivity growth.

#### **Government Regulations**

Despite the government regulations being one of those factors that lie outside the control of construction firms, it is still treated as one of the primary factors that affect the success of construction projects. Government regulations help in restricting competition and thereby protect regulated firms from new technology and new competitors (Saqib and

Lodi, 2012). Innovation and productivity growth, according to the researches of various scholars have found to have rarely flourished in a protected industry which therein would reduce the motivation of the management to innovate. Adel (2009) also mentioned the very same aspects of the fairly recent study.

#### **Health, Safety and Environmental Regulations**

Health, Safety and environmental regulations divert many resources from productive uses which bring about a hit on the normally measured output-to-input ratios. In addition to this, the applications of new regulations are associated with risk and uncertainty which may lead to misallocation of resources and discourages new investment and innovation. Since grave emphasis is placed by the UAE Ministry on Health and Safety regulations for the construction workers as well as the employees at the construction site, Health and Safety standards are an imperative factor that may affect the success or failure of the various construction projects (Oryx Middle East Report, 2010).

#### **Culture**

Interestingly, Culture is also one of the factors that affect a construction organization for reasons more than one. Up until now, construction work has always been concentrated in industrialised countries. Due to this very fact, it is mandatory to reevaluate processes and policies of construction firms with particular emphasis on developing countries, mainly because several such measures are being taken up in various firms across the globe (Elkington and Smallman, 2012). Such a note has also been identified through the research works of Odeh and Battineh (2002). It must also be a matter of concern to the organizations that efforts are necessitated to replicate the cultural practices and beliefs of particular countries in their construction practices and procedures. In several cases, such a 'cultural' factor also has an impact on the Customer Satisfaction Levels. Culture plays a unique factor and is centric to particular groups of people; culture also plays a significant role in the inexorable influence on societies and organisations. Ellington and Smallman (2012) studies pointed out the cultural effect and its influence, and accordingly, it can be confirmed that these effects vary from country to country. Lifson and Shaifer (2011) demonstrated the importance of culture in their research studies and pointed out the importance and necessary steps that have to be taken into consideration when formulating standards, procedures, practices and relationship that are suitable for the culture of each country.

#### **Environmental Factors**

The ecological issues of the different nations are more often than not supplemented by the absence of the administrative experience, budgetary means, and stringent lawful and authoritative frameworks essential to address such an issue through open and formal education and practice of "command and control" measures (legislation and regulations). In addition to this, there is also a requirement of devising and implementation of "economic instruments" Elkington and Smallman (2012). Thus, it can be stated that the ongoing global discussion about environmental impact places into view, the environmental implications of construction projects for the developing countries and as

well as the developed countries by and large. Furthermore, the most pertinent of the adverse impacts to most of the people of these countries is undoubtedly the utilization of resources, since we as mankind rely to a major extent on natural resources (example: - forests and nature) for our survival and livelihood.

### Objectives

1. To identify a list of non-pecuniary factors which contribute to the success of construction projects in UAE in terms of time as a measure of success.
2. To identify the significant limiting factors, those obstruct the development of Construction Projects in UAE.

### Methodology

This research uses a mixed method with a combination of both qualitative and quantitative. For this study, there is a need for identifying logical conclusions and formulate necessary recommendations for the future. Hence the researcher has chosen phenomenology as the research technique using structured questionnaires as the research instrument and interviews as the method, as the aim of the study is to get an in-depth understanding of factors that helps success of construction projects in UAE. Convenience sampling is selected for the ease of data collection. Convenience sampling is employed in research studies where the participants are not accessible easily (Cooper and Schindler et al. 2003). Examples are senior management members of companies, politicians, members of orthodox societies, ethnic minority members, etc. For quantitative analysis the survey sample selected primarily comprise 30 project management professionals total (such as, Project Managers, Project Engineers, Procurement Managers, Human Resource Managers, Quality Managers, Safety Managers, Project Controllers and Project Supervisors) from five major construction firms based in UAE. For this research project, the five major firms that have been randomly selected and have been identified as A, B, C, D and E. To maintain confidentiality and for ethical purposes, the real identity the company has not revealed. The questionnaire is developed with eight

positively phrased questions reflecting each construction success factors explored, which are as following:

1. Management Vision and Strategy
2. Cross-functional Collaboration
3. Application of Project Management Tools and Techniques
4. Labor Regulations in UAE
5. Health and Safety Regulations
6. Competent resources
7. Multicultural workforce and Environment
8. Climatic Condition of UAE

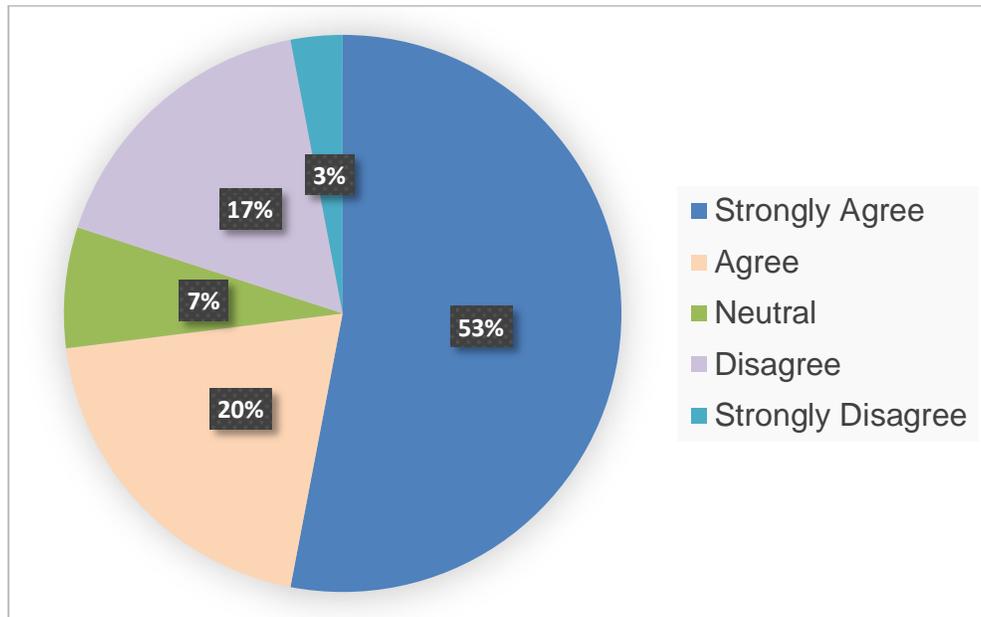
The respondents were required to respond on a five point Likert scale (Strongly agree, agree, neutral, disagree and strongly disagree), against each question. The responses are tabulated in terms of the number of responses against each option, to assess the extent of factor relevance. For Qualitative Analysis, five senior managers such as Project General Manager and Director of Projects and other senior positions, have been selected for the interview from the five selected companies. The project management staff would be able to provide a more detailed insight into the various aspects that govern and influence the construction projects in UAE. They would have clear indication and experience of the various aspects that affect the progress of a project and thus would be able to share their expertise and viewpoints on the factors that they feel are beneficial or disruptive to the Construction Industry in the UAE.

### Data Analysis and Findings

Data Analysis was carried out through graphical analysis of the results of the questionnaire as well as a tabular analysis of the interview. This has been further demonstrated in this section. The key highlights from the personal interview are collated and are presented in a specific format for clear and easy understanding of the data or responses received. Each of the questions stated in the questionnaires are analysed individually subsequently, and the responses by the respondents are charted and clearly represented through graphs. Question No. 1: Your organization has established a long term plan and future vision and is fully equipped with all resources that can successfully complete a project in time.

**Table No. 1: Management Vision and Strategy**

Response Provided	Company A	Company B	Company C	Company D	Company E	Total No of respondents	% of respondents
Strongly Agree	5	6	1	1	3	16	53%
Agree	1	0	2	1	2	6	20%
Neutral	0	0	1	1	0	2	7%
Disagree	0	0	2	2	1	5	17%
Strongly Disagree	0	0	0	1	0	1	3%
TOTAL	6	6	6	6	6	30	100%



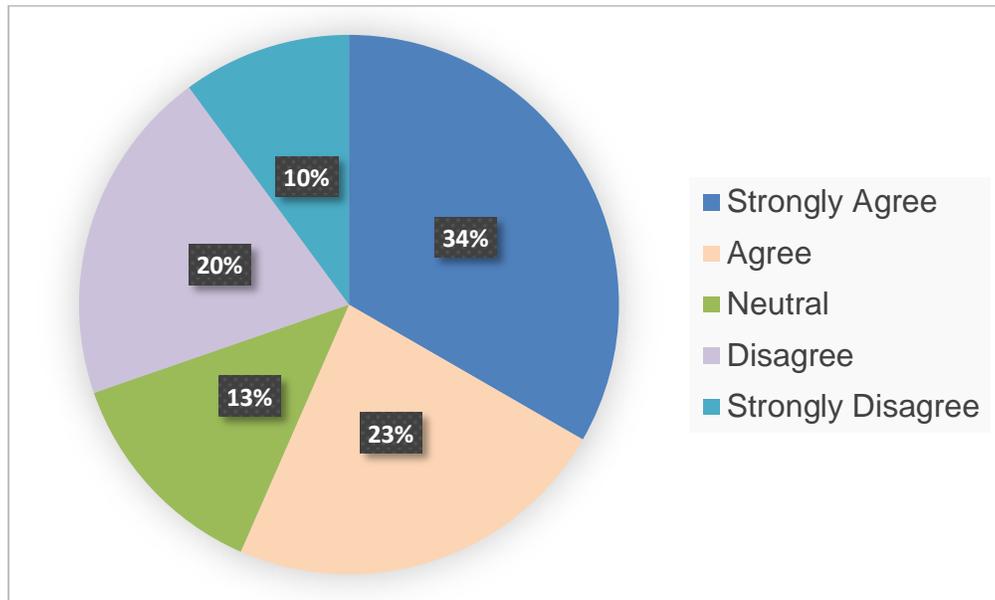
**Fig No. 1: Management Vision and Strategy**

On a generic basis it can be identified through Table No. 1 and Fig No. 1 that most of the firms in the market in UAE, specifically, 73% of the respondents voiced that their respective firm has established a long term plan and future vision and is fully equipped with all resources that can successfully complete a project in time. Adding on to this, they have also mentioned that around 20% of the respondents from various organizations indicated that they are not adequately prepared for this scenario.

Question No 2: Adequate interdepartmental collaboration is evident in your organization

**Table No. 2: Cross-functional Collaboration**

Response Provided	Company A	Company B	Company C	Company D	Company E	Total No of respondents	% of respondents
Strongly Agree	4	2	1	2	1	10	34%
Agree	1	3	1	2	0	7	23%
Neutral	0	1	1	0	2	4	13%
Disagree	1	0	2	1	2	6	20%
Strongly Disagree	0	0	1	1	1	3	10%
TOTAL	6	6	6	6	6	30	100%



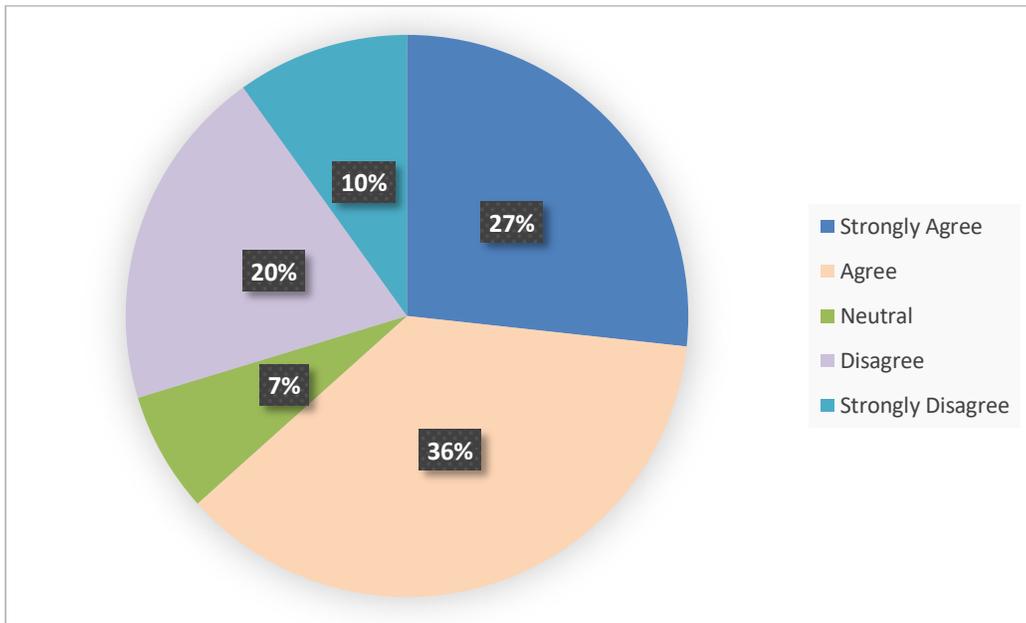
**Fig No 2: Cross-functional Collaboration**

Interdepartmental Collaboration seems to be quite high in all the firms that have been shortlisted. Through the responses provide by the candidates, it was observed that nearly 56% of the total population size agreed to the presence of adequate collaboration amongst the various departments of the organization.

Question No 3: The project management tools and techniques adopted by your organization are appropriate and useful for the success of the project

**Table No. 3: Application of Project Management Tools and Techniques**

Response Provided	Company A	Company B	Company C	Company D	Company E	Total No of respondents	% of respondents
Strongly Agree	3	0	1	0	4	8	27%
Agree	3	6	1	0	1	11	36%
Neutral	0	0	0	2	0	2	7%
Disagree	0	0	3	3	0	6	20%
Strongly Disagree	0	0	1	1	1	3	10%
TOTAL	6	6	6	6	6	30	100%



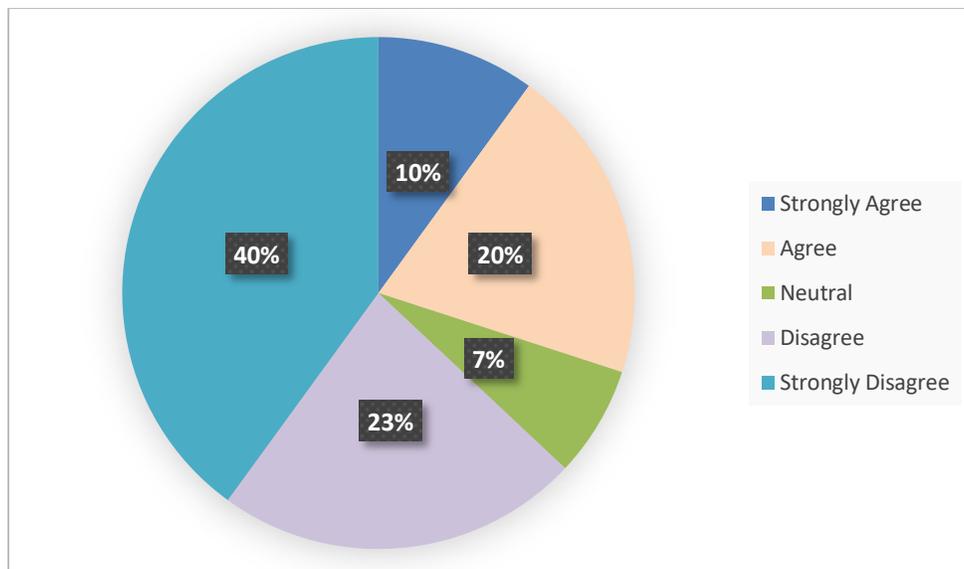
**Fig No 3:** Application of Project Management Tools and Techniques

From a macro perspective, in the construction industry, from amongst the respondents, 64% of them were inclined towards the fact that project management tools and techniques adopted by their organization are appropriate and useful for the success of the construction project.

Question No. 4: The labor regulations in UAE are quite beneficial to the success of the construction industry

**Table No. 4:** Labour Regulations in UAE

Response Provided	Company A	Company B	Company C	Company D	Company E	Total No of respondents	% of respondents
Strongly Agree	3	0	0	0	0	3	10%
Agree	2	1	1	0	2	6	20%
Neutral	0	1	1	0	0	2	7%
Disagree	0	1	4	1	1	7	23%
Strongly Disagree	1	3	0	5	3	12	40%
TOTAL	6	6	6	6	6	30	100%



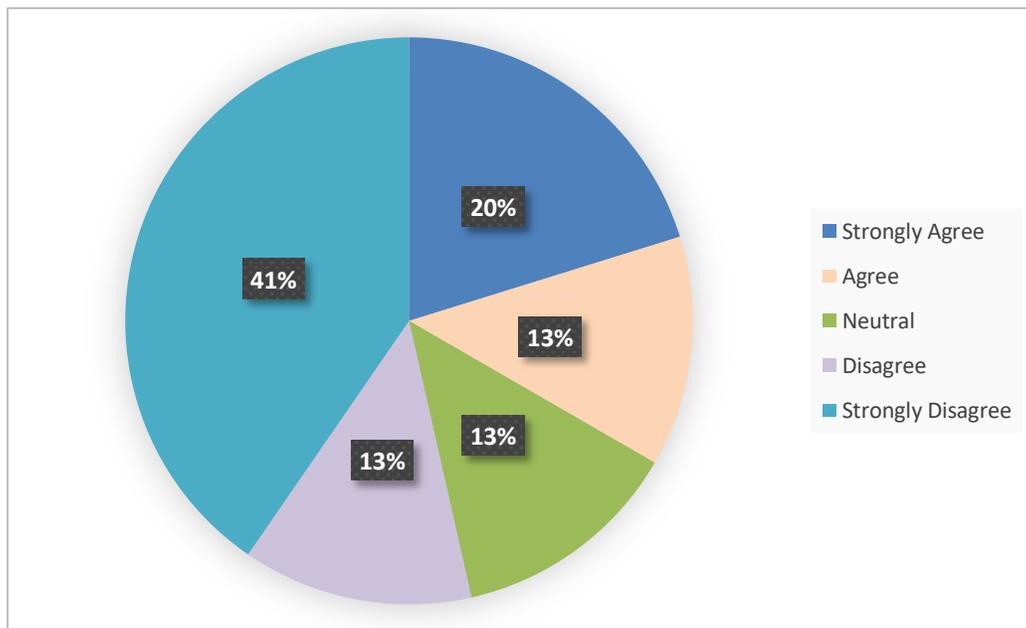
**Fig No. 7: Labour Regulations in UAE**

Data graph No. 7 provides us with some interesting findings. Through the analysis it can be understood that 63% of the respondents disagreed with the statement that labour regulations in UAE are quite beneficial to the success of the construction industry. Thus making it quite evident that the labour regulations in UAE are not really beneficial to the success of the construction industry.

Question No. 5: Health and Safety measures adopted by the UAE government are easy to follow and adopt for construction projects

**Table No. 5: Health and Safety Measures Adopted by UAE Government**

Response Provided	Company A	Company B	Company C	Company D	Company E	Total No of respondents	% of respondents
Strongly Agree	3	0	0	1	2	6	20%
Agree	3	1	0	0	0	4	13%
Neutral	0	3	0	1	0	4	13%
Disagree	0	0	4	0	0	4	13%
Strongly Disagree	0	2	2	4	4	12	40%
TOTAL	6	6	6	6	6	30	100%

**Fig No. 5: Health and Safety Measures Adopted by UAE Government**

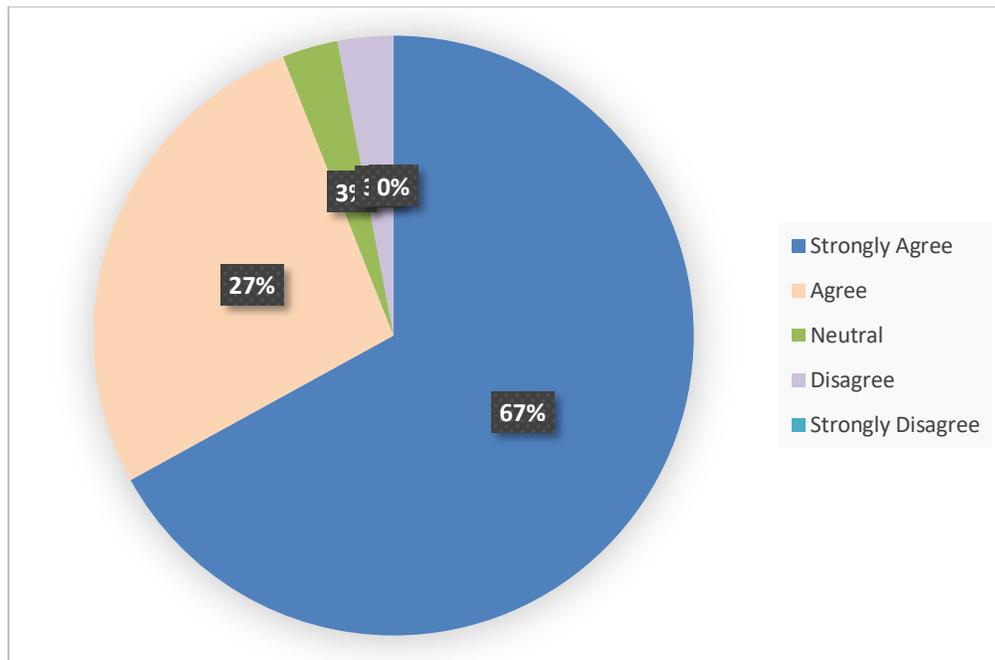
Going along the lines of similar findings noted earlier, it can be etched out that 53% of the respondents disagreed that the health and safety measures adopted by the UAE government are easy to follow and adopt for construction projects. All 100% of the respondents also stated that the health and safety measures adopted by the UAE government are not easy to follow.

Question No. 6: Your organization is equipped with efficient project team and other resources to complete a project in time.

**Table No 6: Efficient Project Team and Other Resources**

Response Provided	Company A	Company B	Company C	Company D	Company E	Total No of respondents	% of respondents
Strongly Agree	4	2	5	4	5	20	67%
Agree	1	4	1	2	0	8	27%
Neutral	1	0	0	0	0	1	3%
Disagree	0	0	0	0	1	1	3%

Strongly Disagree	0	0	0	0	0	0	0%
TOTAL	6	6	6	6	6	30	100%



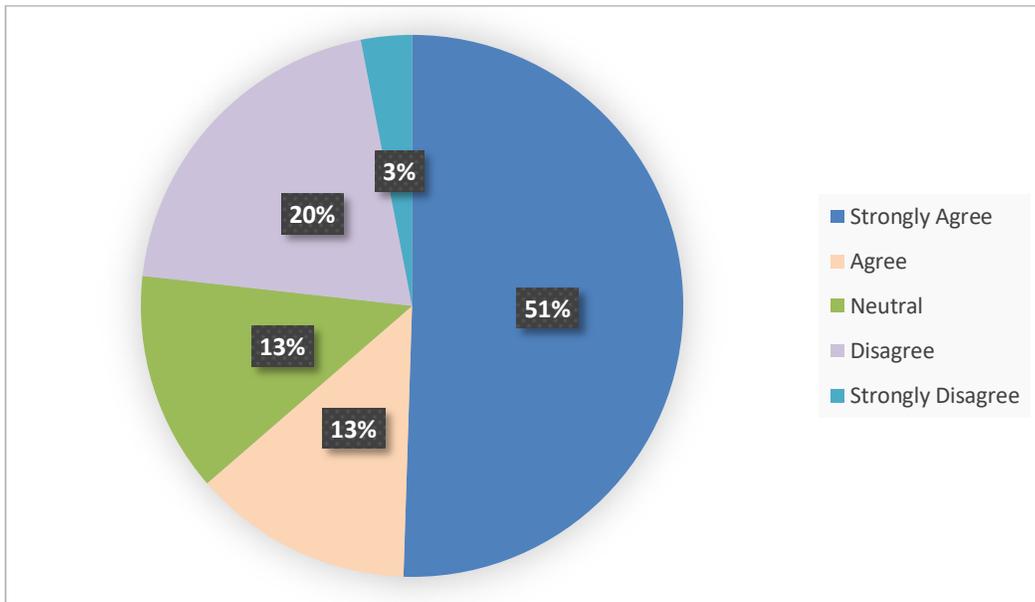
**Fig No 6: Efficient Project Team and Other Resources**

Similar to the previous observation, Table No. 6 and Fig No. 10, it was identified that 94% of the respondents, that is 28 out of 30 respondents, agreed to the statement that their organization is equipped with efficient project team and other resources to complete a project in time. Thus, it does not come as a deviation that only 3% of the total respondent size disagreed to the presence of efficient project team and other resources. Thus it is noted that all organizations have a fully-fledged project management or construction management team in place to initiate all the necessary actions.

Question No. 7: Employees from various cultural backgrounds and nationalities could make it difficult to streamline the construction process

**Table No. 7: Employees from Various Cultural Backgrounds and nationalities :**

Response Provided	Company A	Company B	Company C	Company D	Company E	Total No of respondents	% of respondents
Strongly Agree	4	3	6	2	0	15	50%
Agree	2	0	0	1	1	4	13%
Neutral	0	2	0	2	0	4	13%
Disagree	0	1	0	1	4	6	20%
Strongly Disagree	0	0	0	0	1	1	3%
TOTAL	6	6	6	6	6	30	100%



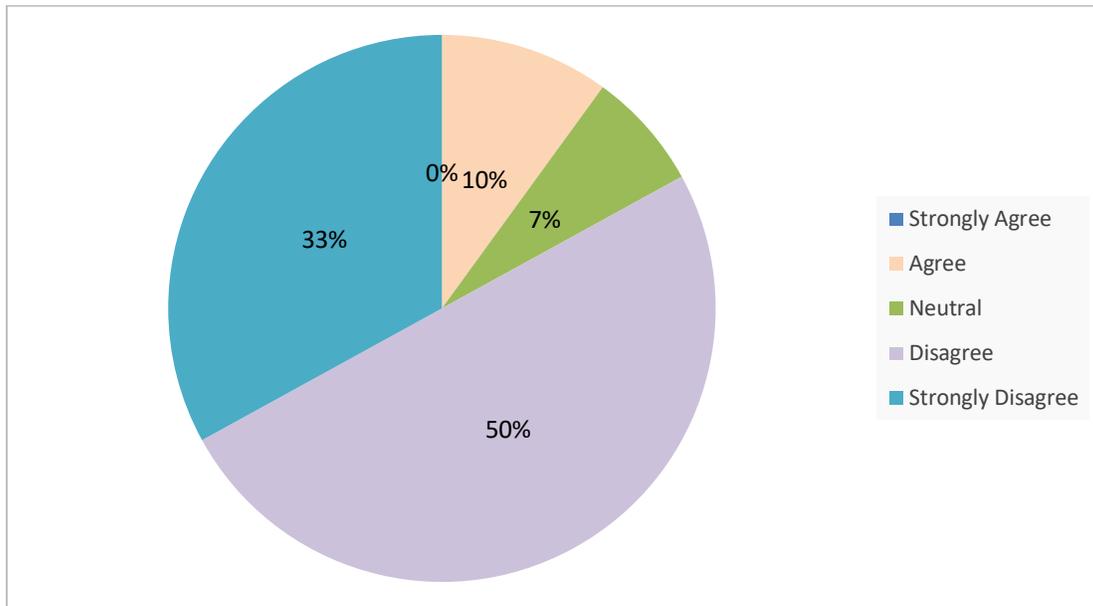
**Fig No. 7:** Employees from Various Cultural Backgrounds and nationalities

Table No. 7 details that more than 63% of the respondents opined that the employees from various cultural backgrounds and nationalities could make it difficult to streamline the construction process. This may be primarily due to linguistic and capability barriers as well as cultural clashes that may occur amongst the labour force. Additionally, only 7 out of such 30 respondents have actually strongly disagreed or disagreed to such remarks, which accounts for only 23% of the respondents.

Question No. 8: The climatic condition of Dubai is conducive to the progress of the construction industry

**Table No. 8:** Climatic Condition of UAE

Response Provided	Company A	Company B	Company C	Company D	Company E	Total No of respondents	% of total respondents
Strongly Agree	0	0	0	0	0	0	0%
Agree	1	0	1	0	1	3	10%
Neutral	1	0	0	0	1	2	7%
Disagree	3	3	5	1	3	15	50%
Strongly Disagree	1	3	0	5	1	10	33%
TOTAL	6	6	6	6	6	30	100%



**Fig No. 8:** Employees from Various Cultural Backgrounds and nationalities

Table No. 8 and Fig No. 8, shows that 83% of the respondents, that is 25 out of 30 respondents, disagreed to the fact that the climatic condition of UAE is conducive to the progress of the construction industry. Thus, it does not come as a deviation that only 10% of the total respondent size agreed to the conduciveness of the climatic conditions in UAE.

#### Overview of the above Snapshots:

On analysis of the snapshots of the above companies, it can be generalized that weather conditions are undoubtedly a factor that has a High or Very High impact on the construction industry for almost all countries. Interestingly, almost all the organizations stated that changes in the applicable government regulations and laws by the government is a high impact factor for them. Saqib and Lodi (2012) validates this point further. Despite Social and Cultural factors being important, four out of the five companies chosen for this study mentioned that they are of Low impact to the organization. However, Oden and Battineh (2002) expressed that such aspects must also be given due importance for the overall functioning and success of the organization. Lastly, all factors such as Changes in Orders or Changes in Scope as well as poor communication are considered by the organizations by and large to be "Low Impact" factors and do not have much of an impact on their operations.

## CONCLUSION

Various factors contribute to the success of a construction project. As demonstrated through the data analysis, it can be noticed that approximately 94% of the respondents agreed to the statement that their organization is equipped with an efficient project team and other resources to complete a project in time. From this, we can construe that all organizations have fully-fledged project management or construction management team in place to initiate all the necessary actions without a hint of delay. Only if each of the properties is meeting their deadlines promptly. In other words, each phase of construction of the project and its adherence to the timeline decided is one of the major factors that determine whether the project is a success or not (when the time is a measure). To complement this 73% of respondents agrees that a longer-term vision of the

management is critical to set in place strategies for a sustainable construction practice. It was further confirmed through the qualitative analysis that timely completion of each phase of the construction project is one of the primary factors that contribute to the success of construction industries in the UAE. Completion of phased activities is closely seen linked to the allocation of timely and competent resources. This has been mentioned through the responses received through the interview of several high-level employees / senior management who were interviewed for this study. Application of project management tool and inter-departmental collaboration has been considered evident by over 50% of the respondents. Therefore, there is an equal number of management personnel who doesn't believe strongly that project this practice is critical to their project success. A major limitation regarding factors affecting construction projects in UAE is the extreme weather conditions. Table No. 8 and Fig No. 6, it was identified that 83% of the respondents, that is 25 out of 30 respondents, disagreed with the statement that the climatic condition of UAE is conducive to the progress of the construction industry. This has also been stated in the Qualitative Data Analysis as well wherein it could be seen that all the organizations chosen for this study stated that the erratic climatic conditions of the UAE is one of the singular factors that has affected the success of projects or in other words, has been a limiting factor for the organizations. From the past researches, Hillebrandt (2012) the erratic or extreme weather temperatures in a country also affect the progress of construction projects in the respective country. Also, Elkington and Smallman (2012) described that very high temperatures in some countries could also affect the raw materials and such. Ambiguous labour and health and safety regulations in UAE are noticed to be another limitation, where the majority of the

respondents disagreed that it's easy to understand and comply to regulations in UAE. To add further, Culture is also a factor that acts as a deterrent to the progress of the construction industry. This has a dual impact, that is from the employee side as well as the customer side. From the employee side, it can be seen in the Quantitative Analysis, Question 7, wherein it was noted that more than 63% of the respondents opined that the employees from various cultural backgrounds and nationalities could make it difficult to streamline the construction process. This may be primarily due to the linguistic and capability barriers as well as the cultural clashes that may occur amongst the labour force.

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