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**SUSTAINABLE BUILT
ENVIRONMENT**

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THE FACTORS CONTRIBUTING TO CONSTRUCTION COST OVERRUNS IN PERAK

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ABSTRACT

Cost increase has severely hit down the economy and reputations for many constructions industry around the world. Thus, this paper aims to identify and cluster the potential construction project cost increase factors. Basically, through literature review, all the potential factors that may cause cost increase were screened thoroughly before they were clustered into of the originating factors, namely project, contract, client, contractor. Meanwhile, the predominant causes of cost increase were poor preconstruction budget and material cost planning, inaccurate quantity take-off and materials cost increased by inflation. The significance of establishing the issues related to time and cost increases for the high-rise building construction project is to provide a greater insight and understanding on the causes of delays, particularly among the main project players: contractors, client, and consultants. The study identifies cost increase in construction industry and purpose of the finding to allowed recommendations to be made regarding budget management in building construction based on contractor view. The analysis of the responses reveals interesting insights regarding the impact of improper planning in construction on increasing costs. The analysis indicates that a significant majority of respondents recognize the correlation between improper planning in construction and an increasing cost.

Keywords: *budget, building, contractor, construction, cost*

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INTRODUCTION

Construction industry performs a fundamental role in the economic growth of any country as it stimulates the development of other industries too. Worldwide large amounts of money are spent on construction development works, which provides essential infrastructures and large number of employment opportunities. The input of the construction industry in growth of national economy requires better efficiency in the industry by means of successful project delivery. Timely completion of construction projects within anticipated cost and to the level of quality standards settled by the owner is an index of successful project delivery. Construction industry in Malaysia is developing rapidly (Ali & Kamaruzzaman, 2010). It plays an important role in the economy, and the activity of the industry is vital to the achievement of national socio-economic development (Oladinrin et al., 2012).

The increasing complexity of the construction projects shows a greater demand on construction managers to deliver projects on time, within planned budget, high quality and achieve project objective (Sindhu Vaardini et al., & Olawale, 2016). Unfortunately, completing the project within the estimated cost has become a serious challenge for the parties in the construction industry. Cost increase is one of the most critical issues encountered during the execution of the construction projects (Arcila & Newton, 2012).

Cost increase involves unexpected costs incurred more than the budget amount due to the underestimation of the actual cost during budgeting (Azis et al., 2013). In recent years, numerous studies have mentioned that the cost increase is a chronic problem worldwide and is worsening in the construction industry (Cindrela Devi & Ananthanarayanan, 2017). According to Flyvbjerg (2002), very comprehensive research done by in global construction project found that, 9 out of 10 projects experience cost increase. This scenario continues with 17.3% from 417 government projects in Malaysia considered as sick and abandoned in the year 2005 (Sambasivan & Soon, 2007). The study identifies cost increase in construction industry and purpose of the finding to allowed recommendations to be made regarding budget management in building construction based on contractor view.

Construction Industry In Malaysia

In Malaysia, the construction industry is the main pillar of economic growth. In the Malaysian economy, a commendable growth was observed in recent years due to an annual increase in the construction work. Not only providing economic growth, but the construction industry in Malaysia is also linked with other industries (Zid. C & Kasim. N., 2020). In the first quarter of 2018, construction work of RM 37.1 billion was done in Malaysia, indicating the contribution of the construction industry in the country's GDP (Osman & Mohd Naw, 2019). However, still, the construction industry

in Malaysia is facing cost increase, where labor related cost is one of the most critical factors (Memon & Rahman, 2014). A significant relationship exists between labor wages, inflation, and the labor productivity in Malaysia, where the inflation rate possesses a negative impact, hence showing it. The construction industry (CI) has played an important role in the Malaysia economic growth. The industry has consistently contributed approximately 3% to 5% of the national Gross Domestic Product (GDP) (Takim, 2005). The growth in construction increased from 6% to 15% from the seventies until the middle nineties. (Shari, 2000).

METHODOLOGY

The purpose of this method is the commonly used and straightforward option for analyzing quantitative data. To achieve the stated objectives of this research, the following has been conducted.

Literature Research

Literature review is a research method related to the identification and evaluation that may be referred to those responsible from researchers, academics and practitioners who have been recorded.

Target Respondent

The sampling method used for the study was a simple random selection. According to the required sampling size, a total number of 50 respondents answer the survey forms (Memon & Rahman, 2014).

Research Sampling

The sampling for this research is selected due to current issues related to local authority's perspective on the factor increasing cost in building construction industry at Perak. The number of contractors in Perak from the local authority is 100 contractors that register with CIDB and Jabatan Kerja Raya (JKR).

ANALYSIS

These are structured sets of questions designed to gather information from individuals or groups. Questionnaires can be administered in person, by mail, online, or through telephone interviews. The instrument is an online survey type that involves distributing questionnaires using social networking sites.

Work Experience

Figure 1 shows out of 50 respondents to the questionnaire, most of them have work experience are 5- 10 years with the number of 18 people which equals 36%. The second highest percentage is 34% which is below 5 years with the number of 17 respondents. The last is for work experience above 10 years with number 15 respondent which equals 30%.

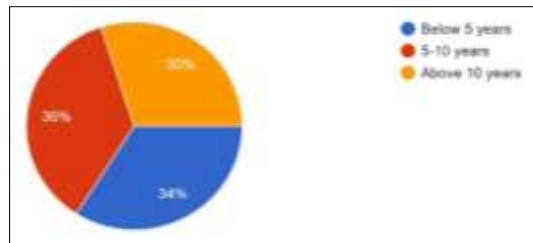


Figure 1: Work Experience

Improper Planning

Figure 2 shows the highest is 48% of the respondents strongly agree that improper planning in construction can cause an increasing cost which consist of 24 respondents. The second highest is 24% of the respondents agree with the statement which consist of 12 respondents, follow by 12% of the respondents disagree with the statement which is 6 respondents.



Figure 2: Improper Planning

Variation Order

Figure 3 shows the highest is 54% of the respondents strongly agree that the variation in material prices in construction can cause an increasing cost which consist of 27 respondents. The second highest is 20% of the respondents agree with the statement which consist of 10 respondents, follow by 10% of the respondents disagree with the statement and the respondents strongly disagree which consist of 5 respondents.



Figure 3: Variation Order

Incompetent Contractor

Figure 4 shows the highest is 44% of the respondents strongly agree that an incompetent contractor can cause an increasing cost which consist of 22 respondents. The second highest is 18% of the respondents agree with the statement which consist of 9 respondents, follow by 16% of the respondents are neutral, indicating neither agreement nor disagreement which consist of 8 respondents.



Figure 4: Incompetent Contractor

Mistake During Construction Work

Figure 5 shows the highest is 44% of the respondents strongly agree that a mistake during construction work can cause an increase in the provided budget which consist of 22 respondents. The second highest is 28% of the respondents agree with the statement which consist of 14 respondents, follow by 12% of the respondents disagree with the statement which consist of 6 respondents.

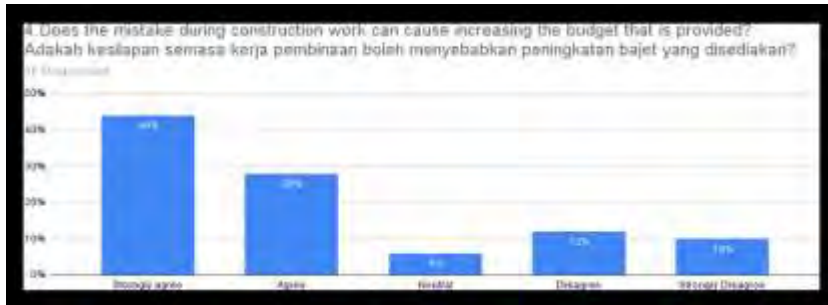


Figure 5: Mistake During Construction Work

Inaccurate Cost Estimate

Figure 6 shows the highest is 32% of the respondents strongly agree that an inaccurate cost estimate in the construction industry can cause an increasing cost which consist of 16 respondents. The second highest is 26% of the respondents agree with the statement which consist of 13 respondents, follow by 18% of the respondents are neutral, indicating neither agreement nor disagreement which consist of 9 respondents.



Figure 6: Inaccurate Cost Estimate

Poor Project Management

Figure 7 shows the highest is 34% of the respondents strongly agree that poor project management in construction is a factor that increases cost, and the respondents agree with the statement which consist of 17 respondents. The second highest is 12% of the respondents disagree with the statement which consist of 6 respondents, follow by 10% of the respondents are neutral, indicating neither agreement nor disagreement and 10% of the respondents strongly disagree which consist of 5 respondents.



Figure 7: Poor Project Management

Frequent Design Change

Figure 8 shows the highest is 38% of the respondents strongly agree that frequent design changes in a building can affect the provided cost which consist of 19 respondents. The second highest is 32% of the respondents agree with the statement which consist of 16 respondents, follow by 16% of the respondents disagree with the statement which consist of 8 respondents.



Figure 8: Frequent Design Change

Lack of Communication

Figure 9 shows the highest 28% of the respondents disagree with the statement which consists of 14 respondents. The second highest is 24% of the respondents strongly agree that lack of communication between parties can affect the cost of the project which consist of 12 respondents follow by 20% of the respondents are neutral, indicating neither agreement nor disagreement which consist of 10 respondents.

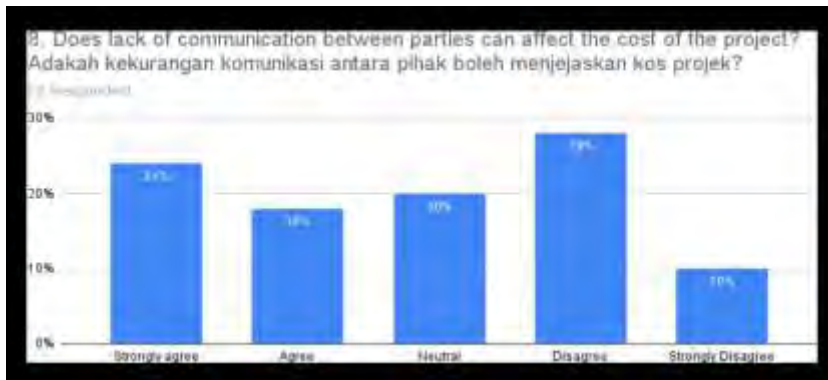


Figure 9: Lack Of Communication

Mistake During Construction

Figure 10 shows the highest is 32% of the respondents strongly agree that mistakes made during construction can raise the project's cost which consist of 16 respondents. The second highest is 24% of the respondents agree with the statement which consists of 12 respondents, followed by 22% of the respondents disagree with the statement which consist of 11 respondents.



Figure 10: Mistake During Construction

Poor Financial Control

Figure 11 shows The highest is 30% of the respondents agree with the statement which consists of 15 respondents. The second highest is 26% of the respondents strongly agree that poor financial control on-site can cause an increase in the cost in that project which consist of 13 respondents, follow by 24% of the respondents disagree with the statement which consist of 12 respondents.



Figure 11: Poor Financial Control

DISCUSSION

The analysis of the responses reveals interesting insights regarding the impact of improper planning in construction on increasing costs. The analysis indicates that a significant majority of respondents recognize the correlation between improper planning in construction and an increasing cost. This finding emphasizes the importance of effective planning processes in construction projects to mitigate the risk of cost increases. However, the differing opinions expressed by a minority of respondents also highlight the need for further investigation and understanding of the various perspectives within the industry.

The analysis highlights a significant proportion of respondents who recognize the impact of inaccurate cost estimates on increasing costs in the construction industry. However, the presence of differing opinions and neutral responses underscores the need for further exploration and understanding of the various perspectives within the industry. It emphasizes the importance of accurate cost estimation practices and the use of reliable data to minimize the risk of cost increase. According to the analysis, a sizeable majority of respondents are aware of how bad project management contributes to rising building prices. But the prevalence of opposing viewpoints and neutral responses highlights the need for more investigation and comprehension of

the many viewpoints inside the sector. It highlights how crucial it is to use efficient project management techniques, such as planning, coordinating, and communicating, to reduce the chance of cost increases and guarantee project success.

The analysis highlights a significant proportion of respondents who believe that frequent design changes in a building can have an impact on the provided cost. However, the presence of differing opinions and neutral responses underscores the need for further exploration and understanding of the various perspectives within the industry. It emphasizes the importance of careful design planning and minimizing changes to manage project costs effectively. The data shows that a sizable majority of respondents are aware of how poor communication affects project costs. However, the presence of contrasting viewpoints and unfavorable comments highlights the need for more investigation and comprehension of the many viewpoints inside the sector. It emphasizes how crucial it is for project stakeholders to communicate effectively to reduce the danger of cost increases and guarantee project success.

CONCLUSION

In the conclusion, cost increase is one of the major problems in construction projects. This study analyzed the causes of cost increase in construction projects in Perak. Through questionnaire survey, 16 causes of cost increase are identified, and several significant causative factors are unveiled which include improper planning, variation in materials prices, poor site management, lack of communication among project parties, and frequent design changes. Each significant cause of cost increase has a minimum of three possible mitigation measures. The scope of this study is limited to Perak construction projects. The results of this study can be useful for construction practitioners to cope with issues of cost increase. In construction, there are several factors that can potentially increase costs. It is crucial to address these factors proactively to manage and mitigate cost increases. The recommendation to manage cost is invest time and resources in accurate cost estimation during the planning phase. Consider all aspects, such as materials, labor, equipment, permits, and overhead costs. Consult experienced professionals and utilize historical data to ensure realistic cost projections.

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Tarikh : 20 Januari 2023

Prof. Madya Dr. Nur Hisham Ibrahim
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Sekian, terima kasih.

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Saya yang menjalankan amanah,

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Timbalan Ketua Pustakawan

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Setuju.

27.1.2023

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