

## Determining Controllability Level of Project Issues in Malaysian Landscape Architectural Project

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### Abstract

The study aims to examine current project issues and the level of controllability in Malaysian landscape architecture projects. The data collection fieldwork was conducted via a semi-structured interview with twenty-four landscape architect professionals based in Klang Valley region. Content and thematic analysis were used to analyse the collected data. Found that project issues are controllable if the project is capable of anticipating and treating them in advance. Nonetheless, issues continue to occur as a result of insufficient action taken in response to predicted issues affecting project outcomes. Study recommends developing a process for systematically forecasting, evaluating, and treating future issues.

Keywords: landscape architecture; project issues; controllability; Malaysia

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### 1.0 Introduction

Landscape architecture projects are viewed as dynamic, with subjective outcomes and a range of challenges resulting from the projects' inherent uncertainty and complexity, resulting in multiple issues. As a result of this scenario, the project's processes, environment, and stakeholders all contribute to the project's failure. As a result, issues must be anticipated and addressed before hurting the project's outcome. Malaysia landscape architecture projects are a subset of the construction industry, which is recognised for a variety of project issues, most notably safety, financial viability, technical proficiency, and environmental stewardship (Hasan et al., 2018; Kurzi & Schroth, 2018; Marmaya & Mahbub, 2018; Mohit, 2018; Sani et al., 2018; Shafie et al., 2018; Shamsudin & Majid, 2019; Thani et al., 2017; Wena et al., 2017). In Malaysia, landscape architecture projects frequently face several difficulties, including insufficient human resources, insufficient skills and expertise, a lack of knowledge, a limited budget, a lack of interest, insufficient tools and equipment, poor quality planting materials, insufficient landscape personnel training, and a lack of civic awareness and attitude (Ackerman et al., 2019; Hussain & Byrd, 2012; Wang, 2018; Yang et al., 2016)

These risks become project issues, affecting the project's quality, cost, schedule, scope, and objectives (Farooq et al., 2018; PMI, 2017). Preliminary observations indicate that landscape architects, as practitioners of landscape architecture, can anticipate project issues. The practitioner's knowledge base must be extended to meet the scope of practice, which encompasses all phases of work

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during the development of a project (Hasan et al., 2018). Additionally, they can recommend control measures to avoid the occurrence of anticipated project issues. Regardless of their ability, project issues continue to occur as a result of ineffective problem-solving. Landscape architecture projects are a landscape architectural firm's primary source of revenue. Failure to meet project objectives will harm the firm's financial performance, operations, culture, and business reputation. Understanding the controllability of current project issues is critical for the project practitioner to plan necessary actions to manage and control these project issues in the future (S.Muthuveeran et al., 2020). Landscape architecture projects are viewed as dynamic, with subjective outcomes and a variety of challenges resulting from the projects' inherent uncertainty and complexity, which inevitably results in multiple issues. As a result of this scenario, the project's processes, environment, and stakeholders all contribute to the project's failure. As a result, issues must be anticipated and addressed before harming the project's outcome. On the other hand, this project addresses issues of controllability directly related to Malaysian landscape architecture projects that have received little attention in the literature.

Thus, this study aims to examine project issues and the level of controllability in Malaysian landscape architecture projects. The objectives to accomplish are as follows: 1) to document project issues that occurred, 2) to evaluate the ability to predict project issues that occurred, 3) to determine the action taken to address predicted project issues, and 4) to investigate potential strategies that could be used to prevent project issues from occurring again.

## 2.0 Literature Review

### 2.1 Definition of Project Issues

The definition of project issues varies according to the project's scope and industry. Previously, PMI defined an issue as "A point or matter that is in question or in dispute, or a point or matter that is not settled or under discussion or over which there are opposing views or disagreements" (PMI, 2004, p. 363). Baker (2007, p. 3) defines an issue as "a gap between your actions and stakeholder expectations". Meanwhile, the Office Of Government Commerce (OGC) defines an issue as "a relevant event that has happened, was not planned, and requires action" (OGC, 2009, p. 98).

Consequently, PMI defines a project issue as "A current condition or situation that may have an impact on the project objectives" (PMI, 2017, p. 709). PMI's definition is similar, in substance, to that used within Projects In Controlled Environments (PRINCE2), which defines an issue as "A relevant event that has happened, was not planned, and requires management action. It can be any concern, query, request for change, suggestion or off-specification raised during a project. Project issues can be about anything to do with the project" (PRINCE2, 2017, p. 376). Meanwhile, the UK's APM takes a slightly different view, citing an issue as "A threat to the project objectives that the project manager cannot resolve. Issues should be differentiated from problems, which are concerns that the project manager has to deal with on a day-to-day basis." (APM, 2006, p. 48).

In summary, this research defines a project issue as to any situation or event that has harmed the project's ability to accomplish its objectives. It consists of a disconnect between the project's output and stakeholder expectations. Stakeholders include all project parties impacted by the project's outcome, including the serving professional landscape organisation.

### 2.2 Project Issues and Risk

The terms "issues" and "risk" should not be used interchangeably. According to the Project Management Body of Knowledge (PMBOK), an issue is a past event or condition that has impacted or is currently affecting the project's objectives. Meanwhile, risk can be defined as an uncertain event or condition that affects the project's objectives, either positively or negatively (PMI, 2017). Issues are certain because they have occurred, whereas risks are uncertain. After all, an event may not occur (APM, 2006). An issue is an occurrence, impediment, or difficulty. A risk is a possibility of suffering a loss (Spacey, 2016).

The distinction is that issues are typically managed in a "present-focused" manner, whereas risks are managed in a "future-focused" manner. Issues are unavoidable because they have already occurred, whereas risk involves an element of uncertainty. Nonetheless, both issues and risks affect a project, which is why they must be managed.

### 2.3 Controllability of Project Issues

According to PMI (2004, p. 238), "a risk may have one or more causes and, if it occurs, one or more impacts". One cause results in a single risk, which may have only one effect, though the reality is far more complex (Bugayenko, 2019; Hillson, 2018). As illustrated in Figure 1, risk meta-language effectively distances risk from its cause and effect (PMI, 2009, p. 29).

A cause is defined as an observable fact about the project's difficulties or surrounding environment. At the same time, the risk is an unknown that, if it occurs, could harm a project's objective (Hillson, 2018). The result of risk is referred to as project issues. Issues are relevant in the context of risk because "a project risk that has occurred can also be considered an issue" (PMI, 2009, p. 275). The comparison of risk and issues demonstrates that project issues can be mitigated by proactively managing risk (Baker, 2007).

As a result, project issues are controllable in order to avoid them. Issues can be managed more effectively if they are addressed sooner. Identifying and documenting issues will be a future lesson learned for the project (PMI, 2017). A project manager can take effective action if they anticipate the issues that are certain to arise due to a lesson learned effective strategy.



Fig. 1. Cause, risk, and effect  
(Source: PMI, 2009, p. 29)

### 3.0 Methodology

The research methodology employed exploratory case analysis. The study follows a four-stage procedure, as illustrated in Figure 2: a preliminary study, data collection, data analysis, and reporting. First, a preliminary study is conducted to ascertain the study’s context, the need, the gap, and the study’s objectives. Second, data were gathered through a semi-structured interview with twenty-four professional landscape architects in the Klang Valley. Open-ended interview questions were pre-tested and asked in the form of an ‘aide-memoire’ to give respondents leeway and freedom to respond (McNamara, 2017), keeping with the exploratory study. Audio recordings and project documents were logged, the transcribed text, and documented and organised research software, ATLAS.ti version 8.4.25. Thirdly, content analysis establishes and defines codes, categories, and themes (Mayring, 2014). Additionally, a thematic analysis was used to interpret and map the themes. The analysis entails delving into the relationship between the categories and the theme, identifying patterns, and mapping out an interpretation (Maguire & Delahun, 2017). Finally, the findings and interpretations are discussed concerning occurred project issues and forecasted project risk. The conclusion is derived from the research’s objectives.

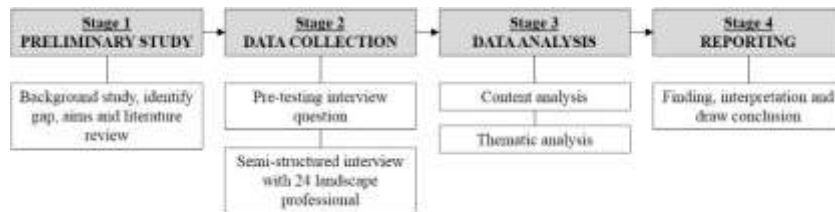


Fig. 2: Study procedures

Twenty-four interviewees were selected using predetermined sampling criteria from the landscape architecture organisation. They worked for landscape architecture firms and were licenced landscape architects. They held managerial and decision-making positions in their current organisation, indicating that they influenced policy and practice on the ground. All interviewees possessed a minimum of ten years of industry experience. They had worked on a range of project sizes, locations, and scopes as part of a full cycle of landscape projects in an urban area in Malaysia’s Klang Valley. Each interviewee was assigned an alphanumeric code (L01–L24) to facilitate identification, and the information about each interviewee is listed in Table 2.

Table 1. Interviewees information

Interviewee	Interviewee’s Position	Interviewee’s Background		Interviewee’s Organisation Background		
		Education	<sup>a</sup> Years of Experience	<sup>b</sup> Years Established	<sup>c</sup> Headcount Size	<sup>d</sup> Total Ongoing Project
L01	Director	Abroad	Expert	Established	Small	Medium
L02	Project Director	Local	Intermediate	Established	Small	Medium
L03	Director	Abroad	Expert	Established	Small	High
L04	Director	Local	Expert	Established	Small	Medium
L05	Principal	Local	Intermediate	New	Small	Low
L06	Director	Local	Expert	Established	Small	Low
L07	Director	Local	Intermediate	New	Micro	Medium
L08	Director	Local	Intermediate	New	Micro	Low
L09	Director	Abroad	Expert	New	Small	Low
L10	Director	Abroad	Expert	Intermediate	Small	Medium
L11	Associates	Local	Intermediate	Established	Small	Medium
L12	Head of Contract	Local	Intermediate	New	Small	Medium
L13	Director	Abroad	Expert	Intermediate	Small	Low
L14	Director	Local	Intermediate	New	Small	Medium
L15	Director	Local	Expert	Established	Small	Medium
L16	Director	Local	Intermediate	Intermediate	Micro	Medium

L17	Principal	Local	Intermediate	Intermediate	Small	Medium
L18	Director	Local	Intermediate	New	Micro	Low
L19	Principal Director	Abroad	Expert	Established	Small	Medium
L20	Director	Local	Intermediate	New	Small	Medium
L21	Director	Abroad	Expert	Established	Small	Medium
L22	Managing Director	Local	Expert	Established	Small	Medium
L23	Director	Local	Intermediate	New	Micro	Low
L24	Director	Local	Intermediate	Intermediate	Small	Medium

Notes :  
<sup>a</sup> Beginner (< 10 years) / Intermediate (10 < 20 years) / Expert (> 20 years)  
<sup>b</sup> New (< 10 years) / Intermediate (10 < 20 years) / Established (> 20 years)  
<sup>c</sup> Micro (< 5) / Small (5 < 30) / Medium (30 < 75): Malaysia's Small and Medium Enterprises (SME) classification  
<sup>d</sup> Low (< 20) / Medium (20 < 40) / High (> 40)

## 4.0 Findings

### 4.1 Occurred Project Issues

Interviewees were asked for their perspectives on issues arising from the project challenges they faced. The research obtained 79 coded project issues from the interview feedback and classified them into six affected project objectives depicted in Figure 2



Fig. 2. Summary of affected project issues

The study determined that the most critical issues are those affecting the business objective. Constant design changes, a damaged business reputation, disruptions in internal operations, and demotivated project teams are the most common issues impeding the achievement of business objectives. Meanwhile, substandard contractor work, planting damage, and material misspecification all impact the most objective quality. For the cost objective, the most significant causes are unpaid fees to the landscape architect for additional work and design changes. Finally, the scope objective is impacted by extensive Variation Orders (VO) and clients' constant design and planning changes.

### 4.2 Predictability of Occurred Project Issues

Interviewees were questioned about their ability to predict the 79 issues that occurred during the project. The results are classified into two categories; predicted and unpredicted, as illustrated in Figure 3.

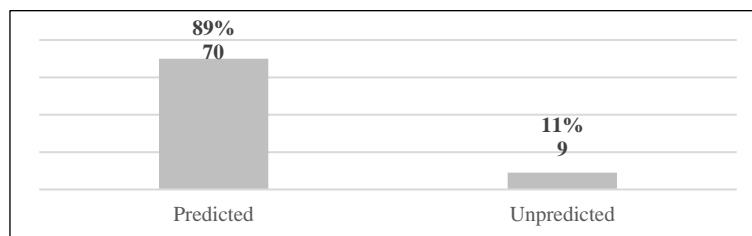


Fig. 3. Predictability of the occurred project issues

The findings indicated that of the 79 project issues, interviewees indicated that 70 (89%) could be predicted in advance. L03, L13, L15, and L23 stated that project issues could be anticipated based on extensive research and the experience of project team members. Surprisingly, certain technical issues were quickly predicted, such as budget, technology, workmanship, and scope changes. The issues predicted based on feedback from contractors (L03, L20), team members' experiences (L04, L05, L15, L19), a competent project team (L02, L05), team project meetings and discussions (L05, L06), and forecasting (L06, L19). According to L13, most project issues can be predicted as early as the project's inception stage. L05, L10, L11, L21, and L24 agreed that project issues should be anticipated early in the project's lifecycle to resolve them before they negatively impact the project's outcome. L11 emphasised the importance of devoting time to the initial stage of the project lifecycle because additional project information is required to forecast project issues.

Only 9 (11%) of the 79 issues that occurred were unexpected and unanticipated. L04, L07, L09, L11, L13, L14, L16, L17, and L21 asserted that environmental impact, site conditions, new product application, team member turnover, economic instability, design market trend, price fluctuation, social-political climate, project members' personalities, and payment delay were hardly predictable. According to L08, issues involving subjective matter, such as human, socio-cultural, and environmental ramifications, are difficult to forecast. L17 stated that the landscape scope, which requires design input and interaction with the environment, is more subjective than engineering projects, which are objective, resulting in a high level of uncertainty and unexpected incidents.

The majority of project issues were anticipated based on the project managers' experience and ability to forecast. Technical issues that are objective, requiring technology, engineering input, and a predictable scope. On the other hand, intangible issues involving the environment, design, and human personality are more difficult to predict, potentially satisfying stakeholders.

### 4.3 Treatment Action for the Predicted Project Issues

Interviewees were questioned about their approach to treating the 70 predicted issues. The research discovered three distinct behaviour patterns among interviewees regarding the predicted issues, as depicted in Figure 4.

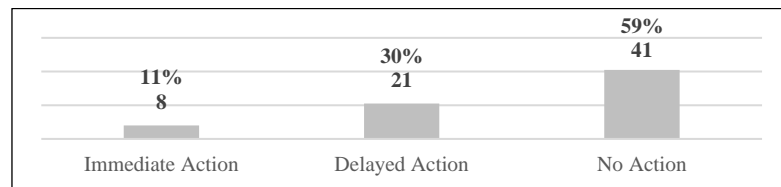


Fig. 3. Treatment action taken over the predicted issues

Only eight (11%) predicted that issues would be addressed immediately. The actions taken were primarily directed at avoiding the occurrence of the predicted issues, such as by reducing the scope and simplifying the design (L09, L15), reducing the servicing effort (L04, L12), and revising the service agreement (L09, L12). L11 acted by establishing a contingency fund, whereas L15 altered the project's operation. L22 circumvented the issues by redistributing the scope.

Second, 21 (30%) predicted issues were delayed by treating them later when they were about to occur. The majority of the actions focused on mitigating the impact of the project's issues. These include negotiating with the client to obtain additional funds and time allowances (L02, L19); monitoring, documenting, and reporting to protect the consultant (L02, L03, L20, L21); improving communication (L11); and enhancing the client-consultant relationship (L10). When dealing with contractors, mitigation actions are taken to mitigate the impact of the issues by transferring liability to contractors and suppliers (L02, L03), monitoring the contractor (L06, L08, L09, L14, L17, L24), and revising the contract and operational procedure (L22).

Third, the majority, 41 (59%), predicted the issues but took no action. They delegated day-to-day operations to the project team. This action due to interviewees lacked alternative options, which was due to a variety of factors, including the need to survive in business, the need to maintain relationships with clients (L01, L06, L07), the local authority's instruction (L17), the client's instruction (L08, L10, L18, L19, L23), and a time constraint (L14, L16). Certain anticipated issues were left unresolved because the project manager believed they could be resolved through the existing process (L01, L06, L08, L24). L09, L17, L19, and L24 asserted that the issues were anticipated and will have little impact on the project's overall outcome. Meanwhile, L02, L05, L14, and L20 admitted that they were aware of the predicted issues but neglected to address them until too late.

The reviewed project issues are certain to occur due to the project's preference for inaction despite its ability to predict previous issues. Delayed action mitigates the consequences of the issues but does not eliminate them. The effective reaction of immediately addressing the predicted issues was determined not to be the preferred course of action. This scenario explains why project issues continue to occur.

### 4.4 Suggested Treatment Strategy for the Predicted Project Issues

The emerging finding indicated that interviewees could express a potential treatment strategy for the project's issues. Their responses are classified into four distinct risk management strategies (PMI, 2017): avoidance, mitigation, transfer, and acceptance of the issues depicted in Figure 5.

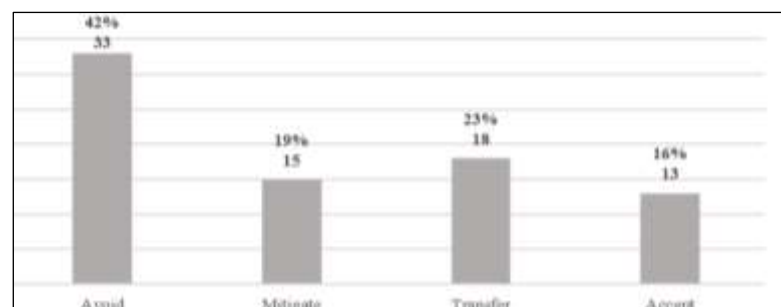


Fig. 4. Suggested treatment strategies for occurred project issues

Avoiding project issues is the preferred course of action, according to interviewees (42%). This strategy was chosen when confronted with project issues affecting the organisation’s cost, schedule, and scope. When it comes to project quality issues, the preferred strategy is to transfer (23%) the liabilities to other parties. This action is interpreted as the contractor’s and supplier’s quality of work. As a result, the interviewees shifted the blame to them.

Meanwhile, accepting (16%) project issues is the preferred course of action when the issues involve stakeholder dissatisfaction. The strategy was used when project issues were unavoidable; no options for mitigating the impact existed, and the issues were not transferable to others. This action is understandable, given how ambiguous and difficult it is to manage stakeholder dissatisfaction. As a result, the interviewees allowed for project issues while closely monitoring them and preparing for contingencies.

The interviewees may suggest effective treatment strategies for the issues by preventing them, mitigating their effects, or transferring them to minimise their consequences. It contradicts the initial action treatment discussed in subsection 4.3 that they chose to do nothing in the face of predicted problems. Further research is recommended to ascertain the reasons for this phenomenon of divergent actions.

### 5.0 Discussion

Generally, project issues can be avoided if the project can anticipate and treat them in advance. This conclusion was confirmed through in-depth interviews with landscape professionals. The prediction and treatment actions (refer to subsections 4.2 and 4.3) and suggested treatment strategies (refer to subsection 4.4) for the actual project issues are summarised in Figure 6.

In general, the project issues were predictable regarding the encountered project challenges and identified stakeholder factors. The research discovered that 89% of project issues were predicted in advance by interviewees. Despite their ability to predict problems in advance, they took no action to resolve them. Only 11% of anticipated issues are addressed immediately, as suggested by the project manager. Over 59% of the predicted issues were not addressed but were allowed to occur and were left to the project operation team to resolve.

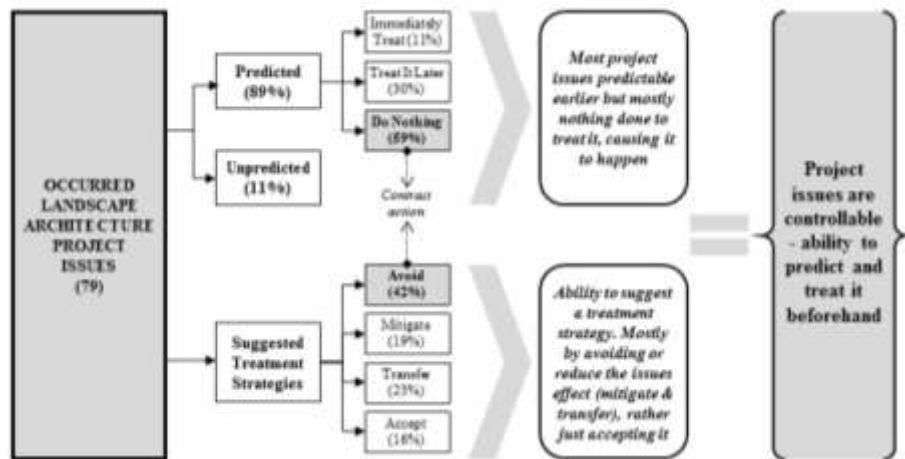


Fig. 5. Controllability of project issues

Additionally, the projects suggested a treatment strategy for each of the project’s issues, demonstrating their capacity to take immediate action rather than inaction. Effectively, 42% suggested avoiding the project’s issues in order to eliminate them. Another option is to mitigate the issues’ impact by either mitigating their consequences (19%) or transferring their liability (23%) to others. Only 16% suggested resolving project issues through contingency plans.

The findings demonstrate the projects’ ability to anticipate problems and suggest practical solutions. However, project issues continued to arise due to a lack of response to the predicted issues despite their treatment. The interviewees unanimously agreed that the project issues are controllable. Bugayenko (2019), Hillson (2018) and PMI (2017) all concurred, stating that project issues are manageable through proactive risk management. This phenomenon corroborated the preliminary study findings, indicating that landscape architecture projects are controllable by their ability to anticipate and resolve issues in advance.

### 6.0 Limitation Of Study

The following are the study’s limitations. First, the study limited the case study interviews to landscape architecture practitioners, but this was not intended to diminish the significance of other practitioners’ perceptions. Second, the case project issues centred on a preference for urban landscape architecture as a context; no other environment was chosen. Thirdly, the study focused on project management within the context of the landscape project lifecycle process, from inception to handover, but not on the entire project lifecycle.

## 7.0 Conclusion & Recommendations

The study examined the projects' ability to prevent and treat project issues in advance by examining their ability to predict and treat issues. Most project issues were anticipated by thoroughly reviewing the project's challenges and thoroughly understanding the stakeholder factor during the project's early stages. Despite the project's ability to recommend effective treatments, most of the anticipated project issues were not addressed due to certain roadblocks. The projects took no action to address the anticipated issues, and it was left to project operations to resolve them later. In summary, the project issues could have been controlled before their occurrence but were allowed to occur, thereby compromising the project's objectives due to inadequate or non-treatment before the occurrence of the issues.

This study strengthens lesson learned knowledge regarding the controllability of project issues and prepares project practitioners for future endeavours. Thus, the study recommended that issues be controlled earlier by establishing a systematic process for predicting potential project issues, assessing their consequences, and treating them systemically to achieve the project's objective. This systematic process is referred to as risk management. Risk management should improve control over project issues in advance by identifying, assessing, and treating them early. This application will resolve project issues more quickly and at a more manageable level. Controlling project issues enables the achievement of project objectives, thereby enhancing project performance.

It is recommended that additional research be conducted on risk management practises in landscape architecture projects. Landscape architecture project practitioners must manage risk to minimise project issues in the future effectively.

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