



A Review of Disputes in Claims for Loss and Expense Related to the PWD Form of Contract Based on Malaysian Legal Cases

Nurul Asyiqin Abdul Razak¹, Zulhabri Ismail^{1,2*}, Juliana Brahim¹

¹College of Built Environment,
 Universiti Teknologi MARA, Shah Alam, 40450, MALAYSIA

²Institute for Biodiversity and Sustainable Development,
 Universiti Teknologi MARA, Shah Alam, 40450, MALAYSIA

DOI: <https://doi.org/10.30880/jtmb.2023.10.02.002>

Received 5 July 2023; Accepted 7 September 2023; Available online 11 December 2023

Abstract: Construction disputes arising from claims have become common in this unique and complex industry. Resolving disputes leads to extra costs and is time-consuming. Most of the disputed claims in construction occur due to project delays. A claim for loss and expense is one of the claims incurred due to certain events that usually arise from the delay. Therefore, this paper aimed to identify disputes in claims for loss and expense related to the PWD form of contract based on Malaysian legal cases. Understanding why disputes occur in construction contracts can reduce the chances of their occurrence, and parties can establish a quick, cost-effective resolution process that will not jeopardise their potential in future business relationships when disputes arise. The research adopted a review related to construction law cases from 'Malayan Law Journal Report/Unreported'. Findings indicate that disputes in claims for loss and expenses related to the Public Works Department (PWD) form of contract can be categorised into contractual, documentation, and procedure. Understanding the contract provisions is a must for every construction party to obtain successful claims. This paper suggests identifying disputes related to PAM forms of contracts in the Malaysian construction industry, so that the contracting parties can understand the impact of the disputes.

Keywords: claim, loss and expense, disputes, PWD, high court

1. Introduction

The construction industry is renowned for its numerous claims that regularly arise due to its unique features (Abdel-Khalek et al., 2019). Construction projects are considered successful when they are finished on schedule, under budget, meet quality standards, and have a high degree of customer satisfaction (Elhag et al., 2020). Many parties are involved in this field, which is classified as complex and high-risk (Abdel-Khalek et al., 2019). Due to the fact that it governs extremely complicated multi-party relationships, construction contracts are prone to conflicts (Kebede, 2022). The growing number of construction claims and disputes has become a strain on the sector (Hayati et al., 2019). According to a report by Arcadis (2019), a construction dispute takes an average of 17 months to resolve and costs an estimated USD33 million on a global level. Based on Asadi et al. (2021), disputes and claims can result from improperly handling contracts between clients and contractors. Thus, conflict management or avoidance is essential for the construction sector to operate effectively because it will lead to better communication between the many construction parties, fostering a mutually beneficial and long-lasting commercial partnership (Assaf et al., 2019).

A demand for reimbursement for losses suffered by any contracting party is known as a claim (Mishmish & El-Sayegh, 2018). Mukilan et al. (2021) mentioned that construction claims fall into one of the key categories that include two goals: additional money added to the contract and additional time to complete the contract. Abdel-Khalek et al. (2019) provide that contract claims are inevitable in the construction industry because of the wide range of contract types and requirements. Typically, contractual claims are made to compensate for losses and expenses, liquidated damages, or time extensions (Hwang & Yang, 2014; Hansen et al., 2020; Kim & Skibniewski, 2020; Asadi et al., 2021). Construction projects frequently experience delays, which might result in potential losses for all stakeholders (Abdel-Khalek et al., 2019). As claims occur over various projects, claims associated with delays are the most well-known, prominent, and popular (Assaf et al., 2017). Loss and expense claims are one of the most popular claims associated with delays. They are defined as contractors' right to make claims for direct losses or expenses they incur due to certain events or situations, even if these claims are not permitted under any contract provisions (Yahya, 2017). This study focused on the Public Works Department (PWD) form of contract that is produced for public projects in both buildings and civil engineering contracts. This form of contract, known as PWD 203, is based on drawings and specifications, and 203A is based on a bill of quantities. The five PWD Form 203A clauses that frequently contribute to contract disputes are as follows, according to a study by Haron et al. (2020):

- Clause 43; Delay and Extension of Time,
- Clause 24; Variations,
- Clause 28; Payment to Contractor and Interim Certificate,
- Clause 44; Claims for Loss and Expenses,
- Clauses 5 & 31: S.O. Instruction & Final Account, and Payment Certificate

The writers added that the most disputed clauses are those related to time and money. This shows that the claim for losses and expenses is part of the disputed issues related to money in the construction contract that need attention from the contracting party.

2. Literature Review

Successful projects are those that handle claims the best rather than those that achieve the fewest claims (El-Adaway, 2017). Hence, it is important to have expertise in handling claims to ensure the submitted claims are successful and free from disputes. Disputed claims tend to lead to extra costs and are time-consuming. Based on Parchami Jalal et al. (2020), submitting claims requires procedures that must be followed, including specific facts, substantiation of the claim with proof, and filing the claim within a given time limit. It shows that understanding and following the procedures stated in the contracts are crucial. At an early point in the claim procedure, it could also be useful to search for assistance from expert consultants (Bakhary et al., 2017). Besides that, claim consciousness and substantiation are important to making successful claims. People with "claims consciousness," familiarity with prospective claim circumstances, and awareness are necessary for a successful claim procedure (Bakhary et al., 2017). Meanwhile, lack of substantiation refers to situations where the records and papers kept on-site are insufficient to support a claim in a way that makes sense during the notice of the claim, and the gathering of additional data is needed to complete the substantiation (Seo & Kang, 2020). Furthermore, prompt notification is crucial to prevent the risk of breaching contract policy terms by providing late notice. Contractors must also adhere to the contract's criteria for notice and the deadlines for delivering any supporting paperwork (Bakhary et al., 2017). All necessary data must be gathered in order to properly prepare, present, examine, and respond to the claims and be used to make accurate predictions for future issues and conflicts (Parchami Jalal et al., 2020).

According to Haron et al. (2020), a standard form of contract (SFC) is a component of a document project that lays out the general terms and guidelines that the contracting parties must abide by. A claim for loss and expense is also stated in the standard form of contract issued by the public sector which is known as PWD203/203A and PWD DB. PWD203/203A is a standard form used for traditional general contracts; meanwhile, PWD DB is being used for Design and Build contracts. It is important to understand the content of the clause in order to identify the disputes arising in relation to this claim. Table 1 below shows the summary of the clause for loss and expense claims according to PWD203/203A and PWD DB.

Table 1 - Summary of the clause for loss and expense according to PWD203/203A and PWD DB

PWD 203/203A (Rev 1/2010)		PWD DB (Rev 1/2010)
Clause	Clause 44	Clauses 49.2 & 50
Notice of intent	Within 30 days of the occurrence of events	Within 60 days of the occurrence events
Relevant events	<ul style="list-style-type: none"> • Suspension of works • Directions given by the SO, consequential upon disputes with neighbouring owners • S.O. instructions 	<ul style="list-style-type: none"> • Directions given by the SO, consequential upon disputes with neighbouring owners • P.D. instructions • Not received necessary instructions in due

	<ul style="list-style-type: none"> • Not received instructions in regard to the nomination of sub-contractors and/or suppliers • Delay on the part of nominated sub-contractors and/or suppliers 	<ul style="list-style-type: none"> • time • Delay on the part of artists, tradesmen • Suspension of works
Submission	Not later than 90 days after practical completion	Not later than 90 days after practical completion

According to Clause 44.3 of the PWD 203/203A (Rev. 1/2010) contract terms, the contractor's failure to submit such evidence will result in them being ineligible to make any claims, and the government will be released from all liabilities related to the claim. The same provision is stated under Clause 50.2 of the PWD DB (Rev. 1/2010) contract terms. Based on Bakhary et al. (2017), the contractor cannot wait too long to take action in order to avoid losing all of their rights to make claims. Besides, Bakhary et al. (2017) added that the notice provision must be clear and unequivocal about what is required, and the contractors must adhere to its requirements.

Furthermore, according to Hayati et al. (2019), project staff needed to be more knowledgeable and skilled in managing claims, have strong communication between stakeholders during project implementation, and, most significantly, document completion and record keeping with presenting evidence when submitting the claim. According to Parchami Jalal et al. (2020), the absence of a legally binding document management system, the inability to find qualified individuals to oversee the entire process, and the departure of key employees—particularly those with the most in-depth knowledge of the claims—make claim management procedures even more challenging. Documenting details about claimable occurrences is essential for proving the cause and impact of claims (Seo & Kang, 2020). One of the reasons that contracting parties tend to lose their rights to claims and get involved in disputes is improper documentation. Bakhary et al. (2017) mentioned that a thorough and persuasive claim document is crucial to establishing a claim and settling disputes. Based on Hayati et al. (2019), project documentation must be created to construct arguments and textual evidence to support them, and the contractors should take the initiative to ask owners for correct written instructions if they do not provide them in writing.

Understanding the causes of disputes in construction contracts can lower the likelihood that they will arise, and once they do, parties must devise an appropriate process of resolution that is fast, economically feasible, and does not harm the parties' potential for future business relationships (Kebede, 2022). Based on Parchami Jalal et al. (2020), contractors can forfeit their rights to claim or have difficulties regaining them due to ignorance of claim management procedures or a lack of implementation skills. Besides, early claim settlements are usually preferred since they are less expensive and frequently result in win-win situations (Abdel-Khalek et al., 2019). Furthermore, clients frequently spend additional time and money to settle disputes and claims emerging from the project itself, outside the project, or in court since adopting claim management and its processes in projects is difficult (Parchami Jalal et al., 2020). Even if companies do their best to manage delays, they are nevertheless an unremitted issue that frequently arises (Abdel-Khalek et al., 2019). The same situation happens in Malaysia, where project delays become common amongst contracting parties, which could lead to a claim for loss and expenses. Therefore, this study focused on the disputes in a claim for loss and expense based on Malaysian legal cases, specifically the PWD standard form of contract.

3. Methodology

A review based on legal cases was being selected for this study to identify the disputes related to claims for loss and expense. The review adopted a document analysis approach using 'primary data' based on construction law cases from 'Malayan Law Journal Report/Unreported' stated in the electronic database within Lexis Advanced Malaysia. Document analysis is a qualitative research approach that describes the non-numerical data that researchers use to organise the resources and choose the right samples for the studies (Bowen, 2009; Krippendorff, 2018). Based on Hutchinson & Duncan (2012), legislation, delegated legislation, and case law were included as primary sources for doctrinal legal research.

In addition, this study employed the preferred reporting items for systematic review approach and meta-analysis (PRISMA). PRISMA is a set of guidelines and a checklist designed to enhance the reporting quality and transparency of research systematic reviews and meta-analyses (McInnes et al., 2018; Moher et al., 2010; O'Dea et al., 2021). Besides that, systematic review necessitates a clear description of the criteria for including and excluding publications; hence, it is essential for others to verify and replicate the review (Wohlin, 2014). The data selected for this study were based on the claim for loss and expense from 2018 until 2022, focusing on the PWD form of the contract based on the electronic database in Lexis Advanced Malaysia. The keywords for data extraction were 'claim for loss and expense', 'construction', and 'PWD'. Cases reported in the Court of Appeal and Adjudication cases were excluded from this study. Six cases were utilised to affirm the disputes related to claims for loss and expense. Figure 1 below shows the flowchart for a review of legal cases.

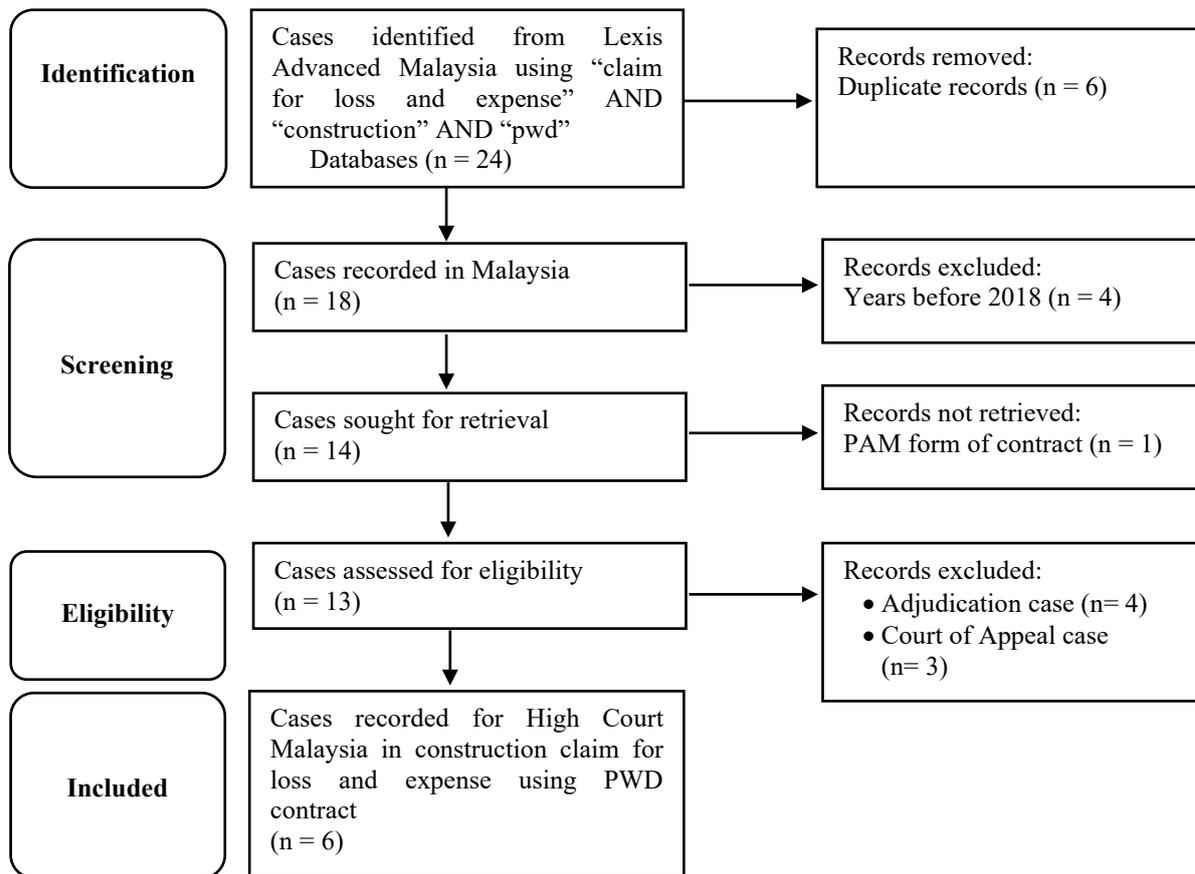


Fig. 1 - Flowchart on a review of legal cases in Lexis Advanced Malaysia

4. Findings

Based on a review through the Lexis Advanced Malaysia database, a total of 24 cases were identified using the keywords ‘claim for loss and expense’, ‘construction’, and ‘pwd’. Three (3) duplicate cases had been excluded from the 24 cases. Since this study only focused on a 5-year duration which is from 2018 until 2022, 14 cases were selected out of 21. Next, one (1) case was manually excluded because it used the Pertubuhan Akitek Malaysia (PAM) form of contract. This study only focused on the PWD form of contract. Then, four (4) cases related to adjudication cases were also manually excluded from this study. Another three (3) cases were manually excluded as they were related to the Court of Appeal cases. Even though Court of Appeal cases also go through the High Court, this study only focused on selecting cases until the High Court level. Hence, a total of six (6) cases related to claims for loss and expense focusing on the PWD form of contracts had been selected for this study of claims for loss and expense from the perspective of Malaysian legal cases. Table 2 shows the legal cases and disputes concerning claims for loss and expense in the Malaysian construction industry from 2018 until 2022.

Table 2 - List of legal cases reported in the Malayan Law Journal concerning claims for losses and expenses from 2018-2022

No.	List of cases	Form of Contract	Details
1.	Budaya Restu Sdn Bhd v Kerajaan Malaysia [2022] MLJU 939	PWD203A (Rev. 1/2010)	No evidence that the plaintiff has complied with the mandatory written notification requirement within 30 days or that the claim has been submitted with full

			particulars and substantiation within 90 days of practical completion, as prescribed in Clauses 44.1 and 44.2
			Plaintiff has not shown that it has not been in concurrent delay at all material times
			Plaintiff's claim for preliminaries is a mere estimate and thus not proved to reasonable certainty
2.	Fateh Construction & Services Sdn Bhd v Maharani Specialist Hospital Sdn Bhd & Anor [2022] MLJU 771	PWD Form DB (Rev. 1/2010)	Plaintiff failed to submit its notice of intention to claim within the contractually prescribed period
			The claim is not proved to reasonable certainty where there is no complete evidence
3.	Syarikat Pembinaan Anggerik Sdn Bhd v Malaysia Airports Holdings Bhd [2022] 9 MLJ	PWD203A (Rev. 10/83)	Failed to meet the mandatory pre-conditions set out in the contract under Clauses 43 and/or 44 of the main contract in order to claim such costs
			The plaintiff failed to prove its claim by establishing a causal link between the extra loss it had incurred and the breach of contract by the SO
4.	IC&E Group Sdn Bhd v Jabatan Kerja Raya Malaysia & Anor [2021] MLJU 2801	PWD203A (Rev. 1/2010)	Plaintiff did not comply with the mandatory written notification requirement within 30 days as well as the plaintiff's estimates of the direct loss and expense beyond the parties' reasonable contemplation
5.	PBLT Sdn Bhd v Prestasi Reka Sdn Bhd & Ors [2020] MLJU 2056	PWD203A (Rev. 10/83)	Failed to prove that the first defendant already submitted notice of intention to claim
			Failed to produce documentary evidence
6.	Hartajaya-Benteng Timur-Amr Jeli JV Sdn Bhd v Kerajaan Malaysia and another appeal [2018] MLJU 331	PWD DB/T (2002)	Plaintiff is entitled to any loss that arises from the Employer's breach in giving possession of the complete Site to the Contractor

Table 2 illustrates that each case could factor out more than one factor that can lead to disputes in a single case of a claim for loss and expense. Disputes happen when the plaintiff or defendant cannot treat the cause of the dispute accordingly. Mishandling disputes in a claim for loss and expense could result in a claim rejection, which wastes time and cost.

5. Discussion

This section explains the disputes in claims for loss and expense in detail based on the selected six (6) cases. A review examined and analysed relevant contents before summarising them into conclusive findings. Based on the details of each case, the events of each dispute can be categorised into different factors. Failing to submit or prove the

submission of a notice of intention to claim and full particulars of claim submission within the stipulated time is categorised under contractual disputes whereby the contractor is unable to fulfil the contract requirements. This event can be referred to in the case between *Budaya Restu Sdn Bhd v. Kerajaan Malaysia* [2022] MLJU 939, *Fateh Construction & Services Sdn Bhd v. Maharani Specialist Hospital Sdn Bhd & Anor* [2022] MLJU 771, *Syarikat Pembinaan Anggerik Sdn Bhd v. Malaysia Airports Holdings Bhd* [2022] 9 MLJ, *IC&E Group Sdn Bhd v. Jabatan Kerja Raya Malaysia & Anor* [2021] MLJU 2801, and *PBLT Sdn Bhd v. Prestasi Reka Sdn Bhd & Ors* [2020] MLJU 2056. The same goes for the event whereby there is an employer’s breach based on the relevant events stated in the contract, which entitled the contractor to claim for loss and expense, as happened in the case between *Hartajaya-Benteng Timur-Amr Jeli JV Sdn Bhd v Kerajaan Malaysia* and another appeal [2018] MLJU 331. It shows that each party needs to understand the contract that becomes the gist of the legally binding contract among the parties. The contractor should follow the deadline stated in the contract to ensure there is no chance for disputes to arise in the future.

The next events of disputes based on the above cases can be categorised under documentation disputes, whereby the contractor failed to provide complete documentation as evidence to prove its loss. Complete documentation, together with the supporting details, is really important to prove that the contractor is entitled to that claim. This event can be referred to in the case between *Budaya Restu Sdn Bhd v. Kerajaan Malaysia* [2022] MLJU 939, *Fateh Construction & Services Sdn Bhd v. Maharani Specialist Hospital Sdn Bhd & Anor* [2022] MLJU 771, and *PBLT Sdn Bhd v. Prestasi Reka Sdn Bhd & Ors* [2020] MLJU 2056. The contractor should have a systematic document system starting from project commencement until the project is completed in order to make sure every document is recorded accordingly. This could help the contractor when there is an argument in the future that requires those documents to be presented as evidence to prove its loss. As a clear example, it can be referred to the case of *Budaya Restu Sdn Bhd v. Kerajaan Malaysia* [2022] MLJU 939, where the plaintiff failed to claim under preliminaries due to mere estimates. Otherwise, the contractor could provide real estimates based on the recorded expenses throughout the projects, even though they were already years ago.

Other events of dispute based on the above cases can be categorised under procedure disputes. Failing to understand the procedure and process of submitting a claim according to the guidelines stated in the contract will affect the contractor’s claim. This event can be referred to in the case between *Budaya Restu Sdn Bhd v. Kerajaan Malaysia* [2022] MLJU 939 and *Syarikat Pembinaan Anggerik Sdn Bhd v. Malaysia Airports Holdings Bhd* [2022] 9 MLJ. Both stated cases failed to claim because they failed to prove that the contractor was affected by the concurrent delay and prove the causal link between the extra cost and the breach of the SO. The contractor should know the flow and process of obtaining a successful claim before dragging the issues to court. This shows that it is critical to verify that each party respects the procedures and obligations outlined in the contract before involving themselves in disputes. The summary of the category of the dispute is tabulated in Table 3 below.

Table 3 - Summary of the category of disputes based on the legal cases

No	Category of disputes	Details	Cases
1.	Contractual	Failed to submit notice of intention to claim and full particulars of claims within stipulated time	<ul style="list-style-type: none"> • <i>Budaya Restu Sdn Bhd v Kerajaan Malaysia</i> [2022] MLJU 939, • <i>Fateh Construction & Services Sdn Bhd v Maharani Specialist Hospital Sdn Bhd & Anor</i> [2022] MLJU 771, • <i>Syarikat Pembinaan Anggerik Sdn Bhd v Malaysia Airports Holdings Bhd</i> [2022] 9 MLJ, • <i>IC&E Group Sdn Bhd v Jabatan Kerja Raya Malaysia & Anor</i> [2021] MLJU 2801, • <i>PBLT Sdn Bhd v Prestasi Reka Sdn Bhd & Ors</i> [2020] MLJU 2056, • <i>Hartajaya-Benteng Timur-Amr Jeli JV Sdn Bhd v Kerajaan Malaysia</i> and another appeal [2018] MLJU 331
2.	Documentation	No complete document as evidence	<ul style="list-style-type: none"> • <i>Budaya Restu Sdn Bhd v Kerajaan Malaysia</i> [2022] MLJU 939, • <i>Fateh Construction & Services Sdn Bhd v Maharani Specialist Hospital Sdn Bhd & Anor</i> [2022] MLJU 771, • <i>PBLT Sdn Bhd v Prestasi Reka Sdn Bhd & Ors</i> [2020] MLJU 2056.

3.	Procedure	Failed to understand procedure and process	<ul style="list-style-type: none"> • Budaya Restu Sdn Bhd v Kerajaan Malaysia [2022] MLJU 939, • Syarikat Pembinaan Anggerik Sdn Bhd v Malaysia Airports Holdings Bhd [2022] 9 MLJ.
----	-----------	--	---

6. Recommendations

Since it is proven that a claim for loss and expense is one of the disputable claims in Malaysian legal cases, a few recommendations can be taken to minimise the issues based on the stated findings. It is crucial to identify the conditions precedent outlined in a contract and grasp the responsibilities associated with them. Condition precedent refers to a clause stated in the contract that acts as a prerequisite that requires the contractor to fulfil it for access to other contractual benefits. Failure to comply with the contract requirement could result in a forfeiture of the contractual entitlements. Clause 44.1 PWD 203/203A (Rev.1/2010) shows a condition precedent whereby the claimant needs to submit a notice of intent within a prescribed period from the occurrence of the delay events, and failing to do so will lead to claim failure. Hence, it is pertinent to understand the clause stated in the contract and follow the stated requirements. Haron et al. (2020) provide that the contractors be proficient in deciphering the contract terms to avoid confusion and disrupt the claim process.

Next, it is important to have a contemporaneous document management system to keep all the recorded evidence. It is supported by Li (2022) that the normative and uniformity of claim documents may be enhanced by a standardised document management system. As construction projects typically involve an extended duration, depending on their scale, there is a notable risk of document loss, which can potentially pose challenges for contractors in the future. The contractors should have complete records of documents such as site diaries, site progress reports, and invoices. The effectiveness of a loss and expense claim significantly relies on the clarity of the information and how it is presented in order to facilitate the ease of assessment for the claim evaluator. Since the burden of proof is on the contractor, it is crucial for the contractor to maintain well-documented records of actual costs and their connection to delay events.

Besides that, there should be a clear guideline and procedure to avoid confusion among the practitioners. The flow of submitting a claim for loss and expense should be stated accordingly, along with the required notice within the specified time as written in the form of the contract. The contractor should be aware that various forms of contracts necessitate different conditions that must be adhered to. A standard form of contract may serve as the foundation for establishing a clear procedure through which a contractor can submit claims for loss and expense. Plus, construction practitioners should comprehend the issues at hand and possess the skills to manage claims effectively, thereby preventing potential disputes that could escalate project costs and time constraints.

7. Conclusion

In conclusion, claims for loss and expense should be submitted accordingly to obtain successful claims and secure the money. Findings show that disputes that happened can be categorised into contractual, documentation, and procedure. Each party must understand the contract's provisions before agreeing and signing them. Meanwhile, complete documentation is important to support and prove the loss. Besides that, understanding and adhering to the procedures and requirements outlined in the contract is essential to ensuring that all work can be completed as planned and the clients can approve claims. The outcome of this study can be used to identify the best practices for obtaining a successful loss and expense claim application. It is critical to guarantee that they are not confused and do not cause any arguments in the middle of the projects, which could impede progress and automatically lead to a cost overrun. Therefore, future research may focus on identifying disputes related to PAM forms of contracts in the Malaysian construction industry. This can help the contractor to have an overview of the impact of the disputes and strive to avoid them so that each project can run smoothly without wasting money on court hearings when the problems arise later.

Author Contributions

N.A.A.R: Writing-original draft, Conceptualisation, Writing—review and editing, Data curation, Formal Analysis, Methodology, Validation. **Z.I:** Writing - review and editing, Conceptualisation, Supervision, Project administration, Visualisation, Validation. **J.B:** Writing - review and editing, Conceptualisation, Supervision, Data curation, Visualisation, Validation.

Acknowledgment

The authors want to express their profound appreciation to Universiti Teknologi MARA, Malaysia, for providing the necessary assistance for this study.

References

- Abdel-Khalek, H., Aziz, R., & Abdellatif, I. (2019). Prepare and analysis for claims in construction projects using Primavera Contract Management (PCM). *Alexandria Engineering Journal*, 58(2), 487-497.
- Arcadis (2019), Global Construction Dispute Report, s.l available at: <https://www.arcadis.com>.
- Asadi, R., Rotimi, J. O. B., & Wilkinson, S. (2022). Investigating the relationship between reworks and contractual claims: The salience of contract conditions. *Journal of Legal Affairs and Dispute Resolution in Engineering and Construction*, 14(1), 04521046.
- Assaf, S., Hassanain, M., & Abdallah, A. (2017). Assessment of deficiencies in design documents for large construction projects. *Journal of Performance of Constructed Facilities*, 31(5), 04017086.
- Assaf, S., Hassanain, M. A., Abdallah, A., Sayed, A. M., & Alshahrani, A. (2019). Significant causes of claims and disputes in construction projects in Saudi Arabia. *Built Environment Project and Asset Management*, 9(5), 597-615.
- Bakhary, N. A., Adnan, H., & Ibrahim, A. (2017). Improving construction claim management in Malaysian construction industry. In *MATEC Web of Conferences* (Vol. 138, p. 05003). EDP Sciences.
- Bowen, G. A. (2009). Document analysis as a qualitative research method. *Qualitative Research Journal*, 9(2), 27-40.
- Connell, A., & Mason, J. (2015). Isn't all loss consequential? A review of recent case law and its relevance to contractual practices within the built environment. *International Journal of Law in the Built Environment*, 7(3), 176-194.
- El-Adaway, I. (2017), Review of construction contract claims, changes, and dispute resolution. *Journal of Legal Affairs and Dispute Resolution in Engineering and Construction*, 9(4), 1-3.
- Elhag, T., Eapen, S., & Ballal, T. (2020). Moderating claims and disputes through collaborative procurement. *Construction Innovation*, 20(1), 79-95.
- Hansen, S., Rostiyanti, S., & Rifat, A. (2020). Causes, effects, and mitigations framework of contract change orders: Lessons learned from GBK aquatic stadium project. *Journal of Legal Affairs and Dispute Resolution in Engineering and Construction*, 12(1), 05019008.
- Haron, R. C., Masrom, M. A. N., & Kamal, K. (2020). Assessing causes of contractual disputes from different type of condition of contracts. *International Journal of Sustainable Construction Engineering and Technology*, 11(4), 45-59.
- Hayati, K., Latief, Y., & Rarasati, A. D. (2019). Causes and problem identification in construction claim management. In *IOP Conference Series: Materials Science and Engineering* (Vol. 469, No. 1, p. 012082). IOP Publishing.
- Hutchinson, T., & Duncan, N. (2012). Defining and describing what we do: doctrinal legal research. *Deakin Law Review*, 17(1), 83-119.
- Hwang, B.G., & Yang, S. (2014). Rework and schedule performance: A profile of incidence, impact, causes and solutions. *Engineering, Construction and Architectural Management*, 21(2), 190-205.
- Kim, Y., & Skibniewski, M. (2020). Cash and claim: data-based inverse relationships between liquidity and claims in the construction industry. *Journal of Legal Affairs and Dispute Resolution in Engineering and Construction*, 12(3), 04520021.
- Kebede, S. (2022). Assessment of causes and settlement mechanisms of construction disputes in public work contracts: an Ethiopian perspective. *Archives of Civil Engineering*, 68(1).
- Krippendorff, K. (2018). *Content analysis: An introduction to its methodology*. Sage publications.

- Li, Y. (2022). Construction project claim management under the background of wireless communication and artificial intelligence. *Wireless Communications and Mobile Computing*, 2022.
- McInnes, M. D., Moher, D., Thombs, B. D., McGrath, T. A., Bossuyt, P. M., Clifford, T., Cohen, J. F., Deeks, J. J., Gatsonis, C., & Hooft, L. (2018). Preferred reporting items for a systematic review and meta-analysis of diagnostic test accuracy studies: the PRISMA-DTA statement. *Jama*, 319(4), 388-396.
- Mishmish, M., & El-Sayegh, S. M. (2018). Causes of claims in road construction projects in the UAE. *International Journal of Construction Management*(18(1)), 26-33.
- Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2010). Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *Annals of Internal Medicine*, 151(4), 264-269.
- Mukilan, K., Rameshbabu, C., & Velumani, P. (2021). A modified particle swarm optimization for risk assessment and claim management in engineering procurement construction projects. *Materials Today: Proceedings*, 42, 786-794.
- O'Dea, R. E., Lagisz, M., Jennions, M. D., Koricheva, J., Noble, D. W., Parker, T. H., Gurevitch, J., Page, M. J., Stewart, G., & Moher, D. (2021). Preferred reporting items for systematic reviews and meta-analyses in ecology and evolutionary biology: a PRISMA extension. *Biological Reviews*, 96(5), 1695-1722.
- Parchami Jalal, M., & Moharreri, H. (2020). Model for preparing optimal contracts to prevent or reduce claims in projects. *Journal of Legal Affairs and Dispute Resolution in Engineering and Construction*(12(2)), 04520004.
- Parchami Jalal, M., Yavari Roushan, T., Noorzai, E., & Alizadeh, M. (2021). A BIM-based construction claim management model for early identification and visualization of claims. *Smart and Sustainable Built Environment*, 10(2), 227-257.
- Pradeep, M. D. (2019). Legal research-descriptive analysis on doctrinal methodology. *International Journal of Management, Technology, and Social Sciences (IJMTS)*, 4(2), 95-103.
- Seo, W., & Kang, Y. (2020). Performance indicators for the claim management of general contractors. *Journal of Management in Engineering*, 36(6), 04020070.
- Wohlin, C. (2014). Guidelines for snowballing in systematic literature studies and a replication in software engineering. In *Proceedings of the 18th international conference on evaluation and assessment in software engineering*, 1-10.
- Yahya, N. H. (2017). Mitigating contractor's claim on loss and expense due to the extension of time in public projects: an exploratory survey. *Politeknik & Kolej Komuniti. Journal of Social Sciences and Humanities*, 2(1), 101-112.