Available online at https://journals.sjp.ac.lk

JOURNAL OF REAL ESTATE STUDIES

ISSN 3051-4878 [PRINT] | E-ISSN 3051-4886 [ONLINE]

Causes of Building Permit Delays: A Case Study of a Sri Lankan Local Government Authority

WMRT Wijesuriya[a*], NB Sugathadasa[b]

[a*]*Department of Industrial Quality Management, General Sir John Kotelawala Defence University, Sri Lanka*
[b]*Department of Estate Management and Valuation, University of Sri Jayewardenepura, Sri Lanka*

ABSTRACT

Although the construction sector plays a crucial role in driving economic growth and ensuring societal well-being, construction delays within the sector remain a significant challenge in both developed and developing countries. In Sri Lanka, the construction industry is particularly affected by delays in building permit issuance. Yet, recent research addressing this issue within the Sri Lankan context remains limited. Therefore, this study aims to investigate the causes of delays in building permit issuance in a selected local government authority in Sri Lanka, focusing on both administrative and architect perspectives. A qualitative approach was adopted, including focus group interviews with administrative officers, individual interviews with architects, and descriptive analysis of secondary data on building applications from 2018-2023. The findings reveal significant challenges in the permit process, with 65% of applications during 2018-2023 exceeding the stipulated 14-day processing period. Through thematic analysis, the study identified 11 administrative reasons and 9 architect-related reasons for the delay. These insights offer critical insights into inefficiencies within the current permit process and highlight the need for reform. The study recommends enhancing administrative procedures, addressing client related issues, and improving architect practices to streamline the overall building permit process and support timely project delivery.

ARTICLE INFO

Article History:

Received:21st April 2025
Revised: 25th May 2025
Accepted: 15th June 2025

Keywords:

Administrative Constraints, Building Applications, Building Permits, Client Issues, Delay

1. INTRODUCTION

The quality of life within an economy is closely tied to economic development, which is driven by factors such as job creation, industry diversification, business retention and expansion, increased tax revenue, and the integration of technology (Roche, 2024). In this context, the construction sector plays a vital role in facilitating economic development. As a foundational industry, construction significantly contributes to economic

* Corresponding author. Tel: +9471 666 9738; Email: wmrtwijesuriya@kdu.ac.lk ; https://orcid.org/0009-0007-7460-2425
Institution: Department of Industrial Quality Management, General Sir John Kotelawala Defence University, Sri Lanka
Co-authors: [b]https://orcid.org/0000-0002-8929-7028
Doi: **10.31357/jres.v22i2.8270**

activity due to its scale, adaptability, and strong interconnections with other sectors (Durdyev & Ismail, 2012; Puci et al., 2023).

Moreover, to enhance community development and well-being, local governments must support sustainable economic growth by fostering a business-friendly environment and creating new employment opportunities (GovOS Team, 2024). The real estate market, influenced by economic and social mechanisms, operates in close interaction with sectors such as construction, trade, tourism, banking, and local public administration. These interconnections enable the implementation of various investment projects (Stan, 2022). As such, the role of real estate development, particularly construction, is essential for economic advancement. In Sri Lanka, infrastructure development in the real estate sector is considered a cornerstone of the country's economic growth and social progress (Fernando, 2024).

Despite the numerous benefits associated with growth in the construction industry, one of the critical challenges it faces is project delays. Previous studies have identified several contributing factors to construction delays in Sri Lanka, including inadequate planning and scheduling, delays in obtaining permits and approvals, poor site management, inefficient designs, work suspensions by clients, and financial constraints (Risath *et al.,* 2016). This highlights the importance of investigating the root causes of these delays within the sector. Among these, this study specifically investigates delays related to the building permit approval process.

In Sri Lanka, building permits are issued through a formal application process overseen by local government authorities (PS, 2024). A key component of this process is the involvement of professional architects, whose expertise is essential in navigating complex regulatory procedures and ensuring that applications are complete and compliant with relevant laws (Churghulia, 2019).

While several studies have examined general causes of construction delays in Sri Lanka (Abeysinghe & Jayathilaka, 2022; Gunawardena et al., 2022; Risath et al., 2016), limited attention has been given specifically to delays in building permit issuance. Therefore, this study aims to provide a comprehensive analysis of the factors contributing to these delays from both administrative and architectural perspectives. Understanding these factors is crucial for identifying bottlenecks in the approval process and challenges faced by architects during application submission. Accordingly, the following research objectives have been formulated.

PURPOSE OF THE STUDY

General Objective:

To explore the causes contributing to delays in building permit issuance within a selected Local Government Authority in Sri Lanka, considering both administrative and architectural perspectives.

Specific Objectives:

I. To identify the administrative challenges faced by the Local Government Authority in processing building permit applications.

II. To examine the administrative reasons attributed to delays caused by professional architects during the submission of building applications.

III. To explore the challenges experienced by professional architects in the process of submitting building applications.

2. LITERATURE REVIEW

The construction industry is a significant

driver of social and economic development, acting as a catalyst across various sectors through its contributions to economic activity, capital formation, employment generation, and societal progress (Mallick & Mahalik, 2010; Borku and Yenialem, 2022; Serogina *et al.,* 2022). However, the industry frequently encounters challenges in managing the "triple constraints" of cost, time, and quality, particularly in the form of cost overruns, time delays, and quality deficiencies (Haslinda *et al.*, 2018). Among these challenges, delays in the building permit issuance process are especially critical, as they hinder construction progress and adversely affect interconnected industries (Holmqvist & Papp, 2015; Abera, 2021).

Delays in permit issuance significantly impact project timelines, often resulting in increased costs, loss of profitability, and jeopardized project success. These delays typically stem from various issues, including organizational complexities involving multiple stakeholders and approval stages, lack of inter-agency coordination, outdated technological systems, and poor communication between authorities and applicants. Such inefficiencies prolong review processes and complicate corrections and resubmissions processes (Holmqvist & Papp, 2015; Maideen, 2018; Abera, 2021).

The development permit system is a critical regulatory mechanism ensuring that proposed developments align with planning policies, zoning regulations, and environmental standards. It also plays a vital role in preserving land resources and supporting sustainable urban development (Vardanyan, 2021; Bansal and Pandey, 2024). However, in regions such as Stockholm, municipalities have faced criticism for excessive processing times in residential development projects, highlighting the need to optimize permitting procedures to enhance stakeholder satisfaction (Alizadeh & Gustavsson, 2012). Research has shown that permit delays not only increase construction costs but also extend project schedules (Hwang *et al.,* 2013).

Globally, timely approval of building permits is essential for legal commencement of housing construction. In Ghana, for example, prolonged permit processing is considered a major contributor to the country's housing shortage (Hammah & Ibrahim, 2014). Fauth *et al.* (2014) argue that digitalizing the permit process significantly reduces such delays, as demonstrated by countries that have implemented successful e-governance initiatives.

In Sri Lanka, the construction sector is notorious for project delays, with one of the leading causes being the late issuance of building permits by municipal authorities (Risath, et at., 2016). Despite their importance in ensuring public safety and regulatory compliance (Liebing, 2011; Kotey *et al.*, 2019), the permit process often acts as a bottleneck to efficient project delivery. Permits are a cornerstone of organized urban development, serving as confirmation that developments comply with land-use policies. However, delays in their issuance remain a persistent challenge (Tasantab, 2016).

Before initiating construction or renovation, obtaining a building permit is mandatory. It reflects the accountability of urban development authorities and ensures that all regulatory requirements for land use, design, and safety are met (Naturale and Rucker, 2017). Furthermore, delays in the approval process can lead to environmental and economic repercussions, including resource wastage and construction disruptions (Ajayi & Oyedele, 2017).

A building permit is a legal authorization issued by local authorities that permits activities such as construction,

reconstruction, alteration, expansion, or demolition of structures. It is typically requested by landowners or legal holders of development rights (Herea and Ungureanu, 2018). Failure to obtain a permit on time can have wide-ranging consequences, including project delays, increased costs, legal disputes, or complete abandonment (Kotey *et al.,* 2019). Regulatory complexity, poor inter-agency coordination, and limited administrative resources further hinder the efficiency of the permitting process (Ullah et al., 2022). In Sri Lanka, the process remains largely manual, time-consuming, and labour-intensive (Fauth et al., 2023).

To address these issues, recent studies have explored the integration of technological innovations into the permitting process. Proposed solutions include online application portals, digital tracking systems, AI-driven compliance checks, electronic document management systems, and centralized platforms to facilitate inter-agency collaboration (Ataide *et al.,* 2023; Molfetas & Wille, 2018). Additionally, the use of Building Information Modelling (BIM) has been recommended to improve transparency and process efficiency (Urban *et al.,* 2024). Despite the promise of such innovations, challenges like incompatible IT infrastructure, data integration issues, and institutional resistance have hindered their widespread adoption.

The existing literature strongly underscores the importance of addressing delays in building permit issuance to improve project performance and support the broader goals of sustainable development. However, there remains a need for further research, particularly in the Sri Lankan context to gain deeper insights into the administrative and procedural factors contributing to these delays. This study aims to bridge that gap by offering a focused analysis of building permit delays from both administrative and architectural viewpoints.

3. RESEARCH METHODS

3.1 Data Collection

The selected Local Government Authority, located in the Colombo District of Sri Lanka's Western Province, is recognized as one of the key institutions responsible for issuing building permits. This study adopts a dual-perspective approach, administrative and client (architectural) to comprehensively examine the factors influencing delays in the building permit issuance process.

To address Objectives I and II, a focus group interview was conducted with ten administrative officers directly involved in the permit process, from application submission to final approval. These discussions aimed to uncover the challenges faced by the Local Government Authority and to understand administrative perceptions of delays caused by professional architects during application submission.

For Objective III, individual interviews were held with twenty professional architects to explore the challenges they encounter when submitting building applications. In addition to primary data collection, secondary data comprising building application records from the selected Local Government Authority were analysed to observe patterns and trends in permit processing. Relevant journal articles and conference papers were also reviewed to strengthen the literature base and provide broader context to the findings.

3.2 Data Analysis

Content analysis was employed to derive empirical findings from the interviews conducted with administrative officers and professional architects. The descriptive analysis was confined to data collected from 2018 onwards, as historical records prior to this period were not digitized and thus

unavailable for analysis. Additionally, data from the year 2024 were excluded due to incomplete digital records at the selected Local Government Authority. Descriptive statistical techniques, including the use of tables, charts, graphs, and measures of central tendency, were utilized to summarize and interpret the quantitative data.

4. RESULTS AND DISCUSSION

4.1 Descriptive Analysis for Behaviour of Building Applications

Types of Building Applications

Table 1: Total building application by application type 2018-2023 2023 in Colombo Metropolitan Area, Sri Lanka

Application Type	Total No. of Applications	As a Percentage
Building Permit	811	35%
Building Permit Addition and Alteration	65	3%
Building Permit Amendment and Appeal	430	19%
Building Permit Appeal	216	9%
Building Permit Renewal	277	12%
Certificate of Completion	524	23%

Source: The Selected Local Government Authority (2024)

As shown in the table above, the majority of construction-related submissions are building permit applications, accounting for 35% of the total. This reflects ongoing growth and activity within the construction sector, indicating a steady demand for new developments. The second-largest category is Certificate of Completion applications, comprising 23% (524 submissions), which signifies a substantial number of projects nearing or reaching completion and requiring formal acknowledgment. This suggests that a significant portion of initiated construction projects have progressed successfully to the final stage.

Applications related to building permit amendments and appeals make up 19% of the total (430 submissions). This category reflects the dynamic nature of construction projects, where modifications to approved plans or dispute resolutions are often necessary during the implementation phase. Building permit renewals constitute 12% (277 submissions), indicating that certain projects have faced delays or required extended timelines, necessitating formal extensions to complete the work.

Additionally, Building Permit Appeal petitions account for 9% (216 submissions), highlighting instances where applicants have contested decisions or sought reconsideration of previous outcomes. The smallest category is Building Permit Addition and Alteration applications, representing just 3% of the total.

Overall, the data indicate that new building permits and completion certificates dominate the application landscape, pointing to both a rise in new construction activities and a healthy rate of project completion within the selected Local Government Authority.

Processing Duration of Building Applications

The selected Local Government Authority has established a standard processing timeframe of 14 days for issuing building permits. However, actual processing times frequently exceed this benchmark.

According to Figure 1, in 2018, the majority of building applications were processed

within the expected 14-day period, although delays were still observed in both approved and rejected applications. In 2019, there was a significant increase in the number of applications processed beyond the 14-day limit, particularly among approvals. This upward trend in delays continued into 2020, with a notable rise in the number of both approvals and rejections taking longer than the standard timeframe. The issue persisted in 2021, with a substantial share of applications exceeding the prescribed duration.

Between 2022 and 2023, the pattern of delays remained consistent, with a considerable number of applications both accepted and rejected, being processed beyond the 14-day standard. Overall, 65% of building applications (comprising 1,167 approvals and 640 rejections) were processed after the expected timeframe, clearly indicating a systemic issue in meeting the standard processing duration. Though the selected Local Government Authority keeps 14 days as their standard for time taking to issue the building permits, the issue is building permit issuance time exceeds the expected time.

Figure 2 illustrates the average processing time (in days) for building applications categorized as "Approved" and "Rejected" between 2018 and 2023. The data reveal significant fluctuations in processing durations over the years, with a pronounced peak in 2021 for both categories. This spike is likely attributable to the external shocks and severe economic downturn experienced by the country during that period.

For approved applications, the average processing time steadily increased from 12 days in 2018 to a peak of 69 days in 2021. This was followed by a notable decline to 40 days in 2022 and further to 16 days in 2023. A similar trend was observed for rejected applications, which generally required more time to process compared to approved ones. Rejection durations rose from 29 days in 2018 to a high of 91 days in 2021, before decreasing significantly to 37 days in 2022 and 19 days in 2023. The reduction in processing time for both categories may reflect procedural improvements and greater administrative efficiency.

Although both approved and rejected applications experienced increasing delays until 2021, the subsequent downward trend in processing times suggests systemic improvements across the permit issuance process. These findings provide a valuable basis for evaluating current inefficiencies and tracking progress. However, further review and enhancement of the permitting process remain necessary to consistently meet the standard 14-day timeframe.

Progress of Building Applications

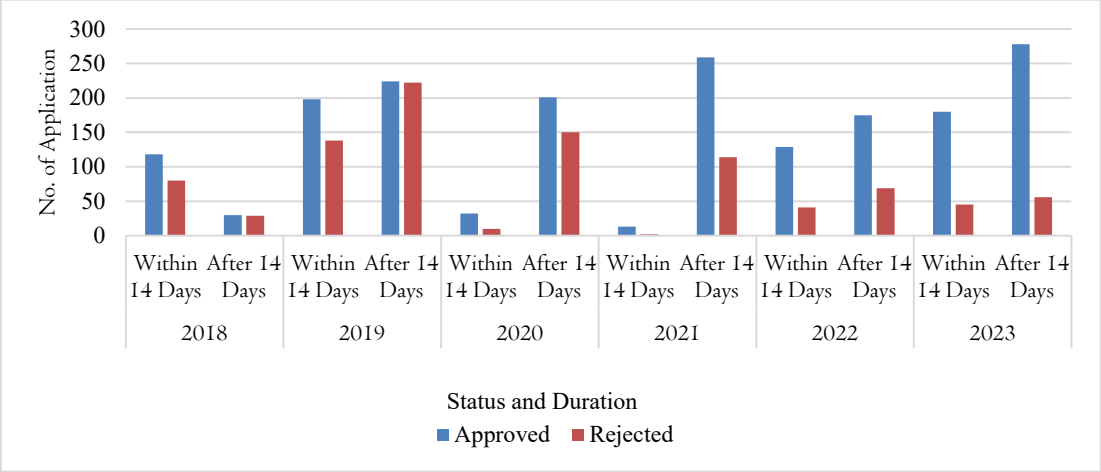
An analysis of building permit applications from 2018 to 2023 (Figure 3) reveals notable trends in construction activity and administrative processing. The year 2019 witnessed a significant surge in applications, reaching a peak of 800 submissions—of which 422 were approved, 360 rejected, and 18 remained pending. This represented a sharp increase compared to the 257 applications received in 2018. However, the spike in 2019 proved to be short-lived, as the number of applications dropped sharply to 410 in 2020.

From 2020 to 2023, application volumes remained relatively stable, fluctuating between 410 and 484 annually. Approved applications consistently represented the majority, reflecting a high acceptance rate throughout the period. For instance, in 2023, 278 out of 412 applications were approved, indicating a favourable approval rate of approximately 67.5%. Meanwhile, rejections showed a downward trend, declining from a high of 360 in 2019 to 101 in 2023.

Pending applications, which were initially

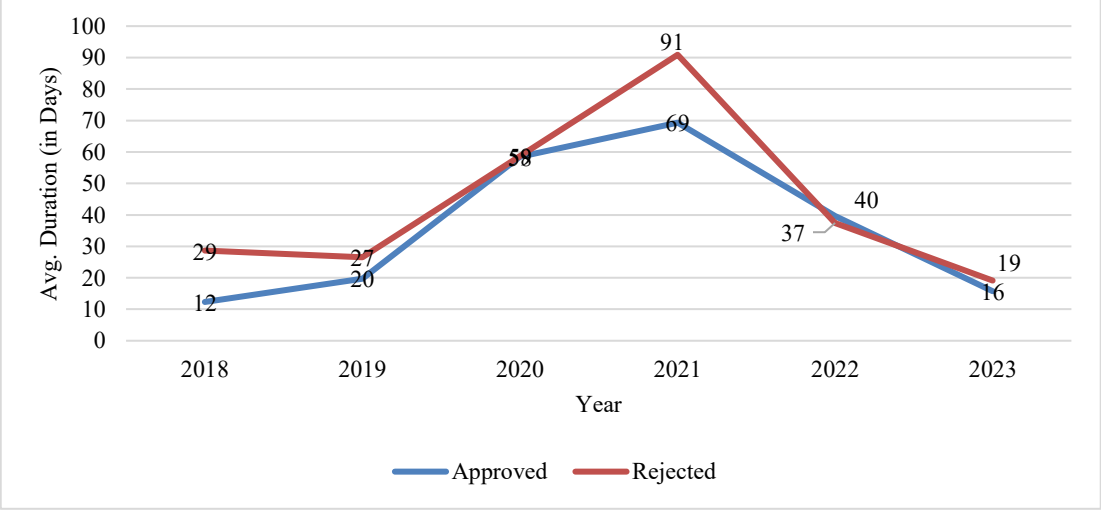
minimal with only one case reported in 2018, gradually increased to 70 by 2022 before declining to 33 in 2023. The sharp decline in total applications in 2020 aligns with the disruptions caused by the COVID-19 pandemic, while the economic downturn experienced in 2021 likely contributed to the continued reduction in construction activity during that time.

Figure 1: Building Application processing time 2018-2023



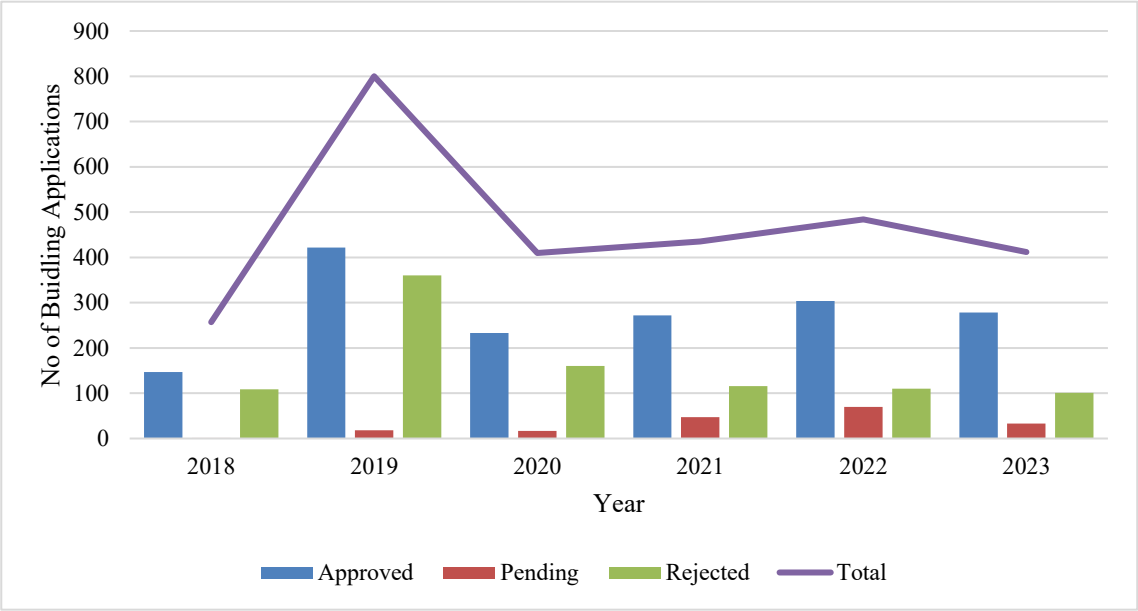
Source: The selected Local Government Authority (2024)

Figure 2: Average duration of processing of building applications (2018-2023)



Source: The selected Local Government Authority (2024)

Figure 3: Progress of building applications by year



Source: The Selected Local Government Authority (2024)

4.2 Challenges Face by the Local Government Authority Administrative Perspective

i. Complexity of required documents to submit

Building applications are generally categorized into three types: (1) new building applications for proposed constructions, (2) amendment applications for modifications to existing buildings without a Certificate of Conformity (COC), and (3) addition and alteration applications for changes to buildings that already possess a COC. Depending on factors such as the purpose of the application, the site's current usage, lot size, zoning regulations, number of perches, location, and proposed building height, the required supporting documents vary significantly. This results in a comprehensive and often time-consuming documentation process that applicants must fulfil prior to submission.

ii. Inability to upload CAD drawing plans online and necessitating physical submission

The building permit process begins with the submission of the application form and associated documents, including CAD drawings, to the planning division of the Local Government Authority for an initial "temporary check." A checklist is used to verify compliance with regulatory requirements. Feedback is then provided either through the system or manually, requiring the client or architect to make corrections and resubmit physical documents for review. After necessary revisions, the application undergoes "permanent checking" in the computerized system, and the processing fee is paid. The application then proceeds through inspections, committee approvals, and final permit preparation. However, CAD drawings cannot currently be uploaded through the system and must be submitted physically, which delays the process and highlights the absence of digital

integration.

iii. Internet interruptions and outdated software

Permanent checking is conducted using an online system. However, the process is frequently hindered by internet interruptions, power outages, and the use of outdated software systems. These technical limitations result in prolonged processing times and reduced efficiency.

iv. Availability of technical officers, transportation, bad weather conditions and client unavailability during inspections

Administrative delays are often caused by the unavailability of TOs, limited access to transport for site inspections, and adverse weather conditions. Additionally, site visits are sometimes postponed due to the unavailability of clients, further prolonging the inspection and approval process.

v. Use of old or malfunctioning equipment, exacerbated by conditions like high sunlight requiring alternative methods

During inspections, the use of old or malfunctioning tools often hinders efficiency. Certain modern instruments cannot function properly in bright sunlight, requiring officers to revert to traditional tools such as measuring tapes. This adds time to the inspection process and contributes to delays.

vi. Handling multiple duties within the Local Government Authority affects TOs' ability to timely conduct inspections and checks

Due to limited staffing within the Local Government Authority, TOs are often required to handle multiple duties outside the building permit process. These competing responsibilities reduce the time available for inspections and application reviews, further impacting overall efficiency.

vii. High time consumption for extensive training of staff to navigate complex processes and regulations

Given the complexity of building regulations and administrative procedures, newly recruited TOs require extensive training before they can effectively perform their roles. This extended training period slows down operations and affects the overall performance of the permit issuance process.

viii. Irregular planning committee meetings, cancellations, early closers early due to multiple duties of committee members

Planning committee meetings, which are essential for the approval of building permits, are often irregular due to the multiple responsibilities of senior staff members. Meetings are sometimes cancelled or adjourned early, leading to the postponement of pending application reviews and contributing to delays in permit approvals.

4.3. *Reasons for the delays by Architects when Submitting Building Applications Administrative Perspective*

i. Lack of awareness of building regulations

Although members of the public typically engage professional Architects to prepare building plans, administrative officers have observed that many Architects themselves lack sufficient familiarity with the updated Building Regulations (2022–2031). As a result, submitted plans often fail to comply with current standards, necessitating corrections. This leads to additional workload for Technical Officers (TOs) in the planning division, who must conduct detailed temporary checks to identify and rectify these errors. These avoidable mistakes by Architects significantly delay the overall permit review process.

ii. License expiration of professional Architects

Chartered Architects are responsible for ensuring their professional credentials, including licensing, are valid at the time of submission. However, the Local Government Authority has reported instances where drawings are submitted by Architects with expired licences. In such cases, the Authority must notify the Architect and request license renewal before proceeding, which introduces further delays during the temporary checking phase.

iii. Lack of knowledge about required documents to submit

The documentation required for building applications varies depending on factors such as the type of project, land use, zoning category, and location. Despite these complexities, some Architects fail to adequately familiarize themselves with the specific documentation requirements. This oversight results in incomplete submissions, which prevents the planning division from initiating the review process promptly and contributes to unnecessary delays.

4.4 Issues faced by Professional Architects when Submitting Building Applications: Architects' Perspective

i. Poor communication regarding immediate minor changes in regulations.

While significant regulatory updates are generally communicated effectively, minor amendments often go unnoticed by Architects until after submission. This lack of timely communication results in errors in the drawings, requiring revisions and resubmissions, ultimately delaying the approval process and increasing the time spent on corrections.

ii. Architects take on administrative tasks due to client knowledge gaps.

Although Architects are primarily responsible for the design aspect, they are frequently compelled to handle administrative duties such as submitting applications, plans, and supporting documents, due to clients' lack of knowledge or limited availability. These extra responsibilities, often offered as part of their consultancy services, add to the Architects' workload and contribute to delays in application submissions.

iii. Complex clearance processes for large-scale projects.

Large and complex construction projects often require approvals from multiple regulatory bodies, including the National Water Supply and Drainage Board (NWSDB), Urban Development Authority (UDA), and condominium management authorities. The need to prepare and submit multiple sets of documents and secure various clearances significantly slows down the overall process.

iv. Inconsistent and checklist-driven evaluations by Technical Officers (TOs)

Architects report that some TOs lack comprehensive knowledge of institutional regulations and rely heavily on standard checklists without understanding the underlying principles of structural safety, environmental sustainability, or public welfare. This results in unnecessary escalations to planning committees for approvals. Moreover, varying interpretations of requirements among different TOs lead to inconsistent requests for documentation, causing confusion and repeated delays.

v. Client pressure and ethical dilemmas

Architects often face pressure from clients to bypass certain regulations to meet personal preferences or expedite approvals. Despite advising clients on necessary changes to ensure compliance, some clients insist on proceeding without modifications. In such situations, Architects risk losing

business if they do not comply with client demands, leading to ethical compromises and potential violations of professional standards and legal requirements.

vi. Bribery and corruption to expedite approvals

Instances of bribery were reported, where clients attempt to fast-track the approval process by offering unofficial payments to administrative staff. In some cases, the fear of facing unfavourable inspection outcomes drives clients to engage in such practices, undermining the integrity and transparency of the system.

vii. Unpredictable and poorly communicated inspection schedules

Architects and clients often encounter delays due to unannounced, rescheduled, or missed inspection appointments. Inadequate communication from authorities results in clients being unprepared or absent during inspections, requiring rescheduling and further delaying the approval process.

viii. Favouritism toward in-house drawings

Architects have observed that drawings prepared internally by TOs receive preferential treatment and face fewer procedural obstacles. This perceived bias undermines confidence in the fairness and objectivity of the permit review process.

ix. Prolonged review and response times

Administrative inefficiencies frequently result in delayed reviews of submitted applications. The extended duration between submission and response adds another layer of frustration and prolongs the time required to obtain approvals.

5. CONCLUSION

This research highlights significant inefficiencies in the building permit approval process of a specific local government authority in Sri Lanka. From 2018 to 2023, the time taken to process applications consistently increased, with most surpassing the standard 14-day timeframe. In 2023, 65% of applications (1,167 approved, 640 rejected) experienced delays, highlighting ongoing administrative challenges despite active construction efforts.

Key obstacles include excessive paperwork, outdated digital systems (such as those for CAD submissions), and frequent internet or hardware issues. Limited staffing has exacerbated delays, as technical officers manage multiple responsibilities and planning committee meetings are held irregularly. Architects encounter difficulties due to unclear regulatory updates, often necessitating multiple revisions, and clients' limited understanding of procedural requirements. Large-scale projects are particularly affected by lengthy multi-agency clearances. Additionally, inconsistent evaluations—relying on checklists rather than a nuanced understanding of regulations—and external pressures like bribery and non-compliance demands further undermine the process's integrity.

To enhance efficiency, the authority should streamline documentation, upgrade digital systems, and ensure technical officers receive adequate training on regulatory applications. Improving transparency and communication with stakeholders can reduce delays and deter corruption. These reforms can create a more responsive and equitable permitting system, aligned with sustainable urban development goals.

The study, however, has some limitations. It focused on a single local government authority, which may limit the generalizability of the findings to other regions or municipalities. The reliance on qualitative data from interviews and focus groups, while providing rich insights, may be subject to individual biases or

perspectives. Future research could expand this study by conducting comparative analyses across multiple local authorities and incorporating perspectives from a broader range of stakeholders, including property owners and developers. Additionally, exploring the implementation of digital permit systems and e-governance solutions in other countries may offer guidance for enhancing Sri Lanka's permit approval process.

Figure 4: Causes of delays in Building Permit Issuance

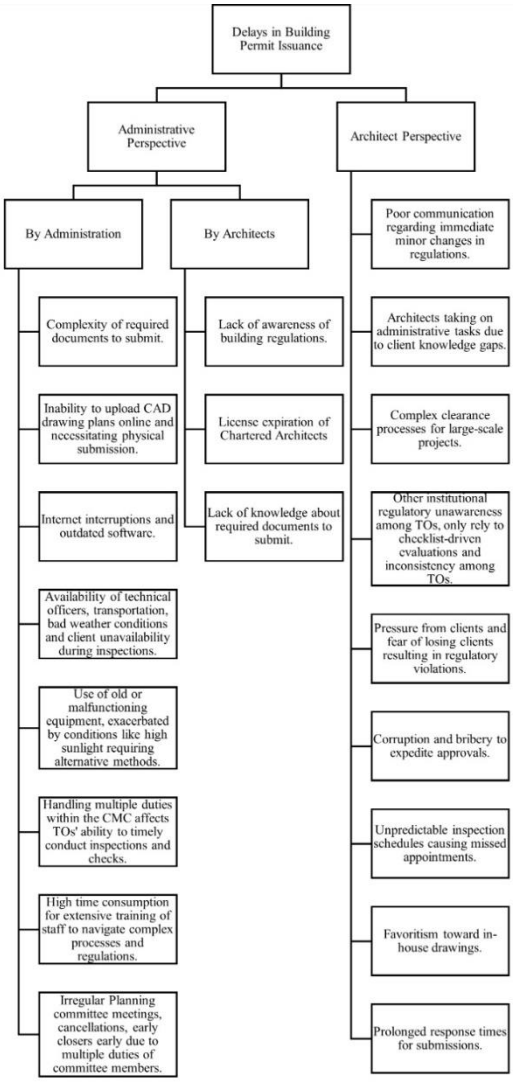


Figure 4: Causes of delays in Building Permit Issuance

Source: Compiled by the Author (2024)

6. ACKNOWLEDGEMENT

The authors would like to acknowledge the Faculty Research Cell (FRC) of the Faculty of Build Environment and Spatial Sciences (FBESS), General Sir John Kotelawala Defence University, Sri Lanka and Centre for Real Estate (CRES) of the Department of Estate Management and Valuation, University of Sri Jayewardenepura, Sri Lanka.

7. REFERENCE

Abera, Y. (2021). Challenges on successful completion and delivery of public building construction projects: The case of West Shoa Zone, Oromia, Ethiopia. *Indian Journal of Science and Technology, 14*(19), 1534–1544. https://doi.org/10.17485/IJST/v14i19.332

Abeysinghe, N., & Jayathilaka, R. (2022). Factors influencing the timely completion of construction projects in Sri Lanka. *PLOS ONE, 17*(12), e0278318. https://doi.org/10.1371/journal.pone.0278318

Ajayi, S. O., & Oyedele, L. O. (2017). Policy imperatives for diverting construction waste from landfill: Experts' recommendations for UK policy expansion. *Journal of Cleaner Production, 147*, 57–65. https://doi.org/10.1016/j.jclepro.2017.01.075

Alizadeh, S., & Gustavsson, T. K. (2012). *A study of optimizing the processing time for building permits*.

Amanda Roche. (2024). *Top 6 reasons that economic development is important to a region's economy* [Infographic]. Orlando Economic Partnership. https://news.orlando.org/blog/top-6-reasons-that-economic-development-is-important-to-a-regions-economy-infographic/

Ataide, M., Braholli, O., & Siegele, D. (2023). Digital transformation of building permits: Current status, maturity, and future prospects. *Buildings, 13*(10), 2554. https://doi.org/10.3390/buildings13102554

Bansal, S., & Pandey, S. (2024). Legal frameworks for sustainable urban development: Analysing the efficacy of zoning regulations in promoting environmental conservation. *E3S Web of Conferences, 527*, 01022. https://doi.org/10.1051/e3sconf/202452701022

Borku, W., & Yenialem, E. (2022). Assessing the impact of cost inflation on building construction material: A study in Wolaita Zone, Southern Ethiopia. *Journal of University of Shanghai for Science and Technology*. https://jusst.org/wp-content/uploads/2022/01/Assessing-The-Impact-Of-Cost-Inflation-On-Building-Construction-Material-A-Study-In-Wolaita-Zone-Southern-Ethiopia.pdf

Churghulia, D. (2019). The ways of solving the legislative and practical problems of construction permit in the light of new construction code. *Journal of Law*. https://jlaw.tsu.ge/index.php/JLaw/article/view/2644

Damika Fernando. (2024). *Real estate market in Sri Lanka*. LinkedIn. https://www.linkedin.com/pulse/real-estate-market-sri-lanka-damika-fernando-hpm8c/

Durdyev, S., & Ismail, S. (2012). Role of the construction industry in economic development of Turkmenistan. *Energy Education Science and Technology Part A: Energy Science and Research*. https://www.researchgate.net/publication/288750131

Fauth, J., Bloch, T., & Soibelman, L. (2023). Process model for international building permit benchmarking and a validation example using the Israeli building permit process. *Engineering, Construction and Architectural Management, 31*(13), 121–139. https://doi.org/10.1108/ECAM-06-2023-0593

Fauth, J., Malacarne, G., & Marcher, C. (2022, November). *Digitalisation of the building permit process: A case study in Italy*. IOP Conference Series: Earth and Environmental Science, 1101(5), 052008. https://doi.org/10.1088/1755-1315/1101/5/052008

GovOS Team. (2024). *Building a business-friendly local government*. GovOS. https://govos.com/blog/building-a-business-friendly-local-government/

Gunawardena, S., Hemachandra, D., & Kodithuwakkku, K. A. S. S. (2022). Perceived causes and effects of project delays: A study of government building construction projects in the Central Province of Sri Lanka. *Proceedings of International Conference on Business Management, 18*.

https://doi.org/10.31357/icbm.v18.5822

Hammah, N. K., & Ibrahim, R. (2014). Analyzing the effect of building permit issuance on the housing delivery system in Ghana. *University Putra Malaysia, 7*(1).

Haslinda, A. N., Ismail, M., Ismail, I. A., & Yusof, M. R. (2018). Investigation on the factors influencing construction time and cost overrun for high-rise building projects in Penang. *Journal of Physics: Conference Series, 995*, 012043. https://doi.org/10.1088/1742-6596/995/1/012043

Herea, V., & Ungureanu, E. (2018). Building permits: Definition and legal regulations.

Holmqvist, H., & Papp, S. (2015). *A critical analysis of the building permit process at the Urban Planning Department in Gothenburg* [Master's thesis, Chalmers University of Technology].

Hwang, B. G., Zhao, X., & Ng, S. Y. (2013). Identifying the critical factors affecting schedule performance of public housing projects. *Habitat International, 38*, 214–221. https://doi.org/10.1016/j.habitatint.2012.06.008

Karandeniya, P. S. (2024). *Approval of building plans*.https://karandeniyaps.lk/forpublic/approval-of-building-plans/

Kotey, S. *et al.* (2019) 'Delay in Acquisition of Building Permit and Its Consequenses', in Kotey Samuel, H. D. E. M. Z. A. C. and W. D. T. (ed.) *1st ARCOSH CONFERENCE*. Bloemfontein, South Africa: Published by: Department of Built Environment Central University of Technology, Free State, pp. 180–190.

Liebing, R. W. (2011) 'Building Codes and Standards', in *The Other Architecture*. Vienna: Springer Vienna, pp. 199–209. doi: 10.1007/978-3-7091-0263-3_19

Maideen, B. A. B. (2018). *Improvement of construction permit process approval at local government in Malaysia* [Master's thesis, Universiti Teknologi Malaysia]. https://eprints.utm.my/84002/1/BashirAhamedMaideenMFABU2018.pdf

Mallick, H., & Mahalik, M. K. (2010). Constructing the economy: The role of construction sector in India's growth. *The Journal of Real Estate Finance and Economics, 40*(3), 368–384. https://doi.org/10.1007/s11146-008-9137-z

Molfetas, A., & Wille, J. (2018). *Leveraging technology to support construction regulation and permitting reform*. World Bank. https://doi.org/10.1596/30159

Naturale, A. J., & Rucker, L. A. (2017). What can DBH actually do to make emergency managers jobs easier? In *Integrating Emergency Management and Disaster Behavioral Health* (pp. 155–189). Elsevier. https://doi.org/10.1016/B978-0-12-803638-9.00007-0

Puci, J., Demi, A., & Kadiu, A. (2023). Impact of macroeconomic variables on the construction sector. *Corporate and Business Strategy Review*, *4*(1), 22–30. https://doi.org/10.22495/cbsrv4i1art2

Risath, A. L. M., Rifas, K. M., & Thamboo, A. J. (2016). Construction project delays in Eastern Province of Sri Lanka: Perspectives of contractors and consultants. In *6th International Symposium, South Eastern University* (pp. 252–261).

Serogina, D., Pushkar, T., & Zhovtiak, H. (2022). The impact of the construction industry on the social and economic development of territories. *Scientific Bulletin of the National Academy of Statistics, Accounting and Audit, 1–2*, 59–65. https://doi.org/10.31767/nasoa.1-2-2021.08

Stan, M.-I. (2022). A new decade for social changes: The influence of the real estate market on the economic development of Constanța County. *Technium Social Science Journal, 38*, 805–817. https://www.techniumscience.com

Tasantab, J. (2016). Building permit as a tool for development control: Evidence from Sekondi-Takoradi. *Journal of Environment and Earth Science, 6*(11).

Ullah, K., Witt, E., & Lill, I. (2022). The BIM-based building permit process: Factors affecting adoption. *Buildings, 12*(1), 45. https://doi.org/10.3390/buildings12010045

Urban, H., Fischer, S., & Schranz, C. (2024). Adapting to an OpenBIM building permit process: A case study using the example of the City of Vienna. *Buildings, 14*(4), 1135. https://doi.org/10.3390/buildings14041135

Vardanyan, E. (2021). Sustainability in the process of development permit acquisition (Armenia). *Architecture and Engineering, 6*(3), 62–69. https://doi.org/10.23968/2500-0055-2021-6-3-62-69