

Building Byelaws Compliance Challenges in Nepal: Evidence from Urban Municipalities

Shreema Rana^{1,*}, Sadichchha Shrestha²

¹Faculty of Environment and Resource Studies, Mahidol University, Thailand

²Himalaya College of Engineering, Tribhuvan University, Nepal

*Corresponding Author: rana.shr@mahidol.ac.th

Abstract

Rapid urbanization in Nepal has made it more difficult to enforce building bylaws, which has led to unchecked growth and deteriorated urban quality. The challenges in implementing the building bye laws and its impact on urban development and their efficacy are assessed in this study. By employing a qualitative approach that includes a literature review, comparative analysis, and interviews with twelve professionals, the study points important gaps in enforcement, low public awareness, and institutional inefficiencies. The results emphasize the necessity of better coordination between communities, technical experts, and local authorities. The study gives practical recommendations to strengthen regulatory frameworks and promote more sustainable urban practices. By situating Nepal's byelaws within regional realities and international norms, the study contributes to ongoing discussions on resilient urban planning. Strengthening implementation remains essential to ensuring safety, sustainability, and inclusive growth in Nepal's evolving urban landscape.

Keywords: Building Bye Laws; Regulatory Effectiveness; Enforcement Challenges; Compliance Data

1. Introduction

Building bye laws are local regulations designed to govern the construction, design, and use of buildings within a specific area, ensuring that these structures meet established standards for safety, structural integrity, fire prevention, and accessibility [1]. These laws are crafted and enforced by local authorities to regulate the urban environment effectively, especially amid rapid urbanization. They serve as critical tools for controlling and guiding urban growth, contributing significantly to sustainable development and the creation of resilient cities [2], [3]. In Nepal, the Kathmandu Metropolitan City introduced its first bye laws in 2034 BS (1976 AD) to regulate construction and prevent haphazard development. Since then it has been revised and updated many times. The byelaws of 2072, "Basic Guidelines for Settlement Development, Urban Planning and Building Construction-2015 are the most recent of the byelaws published after the devastating earthquake on 25 April 2015, Saturday (Baishakh 12, 2072).

The importance of building bye laws extends beyond mere regulatory compliance. They are instrumental in addressing the unique needs of different communities, tailoring regulations to local conditions and challenges. However, the effectiveness of building bye laws hinges on their implementation. Despite the presence of well-formulated guidelines, their impact is often compromised by inadequate enforcement and monitoring. Architects, engineers, and town planners are expected to follow these regulations diligently during the design and construction phases. At the same time, local authorities must oversee compliance and address any violations to ensure that the bye laws achieve their intended objectives. In case of Nepal, the compliance of the bye

laws are checked by the local government by monitoring the building permit process compelling the architects, engineers and planners are hold accountable.

1.1 Research Problem

As cities expand, effective building bye laws are crucial for ensuring safety, sustainability, and orderly development. Implementing building bye laws extends beyond merely enforcing regulations; it necessitates a comprehensive approach involving education and stakeholder engagement. Effective implementation should address the challenges of planning, design, and enforcement while promoting climate-responsive building designs, retrofitting, and the adoption of energy-efficient technologies.

Although building bye laws in Nepal are developed to ensure greater compliance with the building, planning/zoning and structural requirements, there are several pitfalls associated with their design, practice and implementation at local level. Hence, its application remains inadequate and does not address the haphazard urban expansion of the Kathmandu city.

1.2 Research Objective

- To evaluate the understanding and application of building bye laws among key urban planning and development stakeholders, including architects, engineers, and local government officials.
- To identify and analyze gaps and challenges in the implementation of building bye laws, focusing on enforcement practices, compliance issues, and the practical impact on urban development.

These objectives are designed to provide a nuanced under-

standing of the current state of building bye law implementation in Nepal. By addressing these aims, the paper seeks to uncover specific challenges, gather diverse perspectives, and offer actionable recommendations to enhance the effectiveness of these regulations.

1.3 Significance

The significance of this study lies in its comprehensive examination of Nepal's building bye laws amid rapid urbanization, where 30% of the country is classified as urban or peri-urban areas [2]. Current research on the implementation of building bye laws in diverse geographic and socio-cultural contexts in Nepal is limited. A "one-size-fits-all" approach may not be effective across different regions. As well as there are limited research on the perspectives of concerned stakeholders toward the implementation of building byelaw.

2. Literature Review

2.1 Development of Building Bye Law in Nepal

Building bye laws are local regulations that govern the construction, design, and use of buildings. They are formulated and enforced by local authorities to ensure compliance with established standards, which promotes safety, sustainability, and the overall well-being of the community [2]. The building byelaws have been in place since 1976, since then several amendments and revisions have been made which are mentioned in Table 1.

The building bye laws developed throughout the years have evolved and adapted to the needs of changing society and their lifestyle. Apart from the major changes in the building bye laws there are many additional amendments made in the building bye law in central and local level which requires the architects, engineers, authorities and the citizens to stay updated.

Table 1. History of Building Bye Laws in Nepal with their Contents [4]

Year (AD/BS)	Key Update and Significance
1976 (2034 BS)	First Building Bye Law introduced for Kathmandu.
1993 (2050 BS)	Major update introducing FAR (Floor Area Ratio) and GCR (Ground Coverage Ratio).
2007 (2064 BS)	Updates on land use and setbacks, including heritage zones.
2015 (2072 BS)	Post-Gorkha earthquake revisions for disaster resilience.
2018 (2075 BS)	Revised FAR and building height regulations.
2023 (2080 BS)	Latest amendments integrating with the National Building Code.

2.2 Implementation of Building Bye Laws

Implementing building bye laws extends beyond merely enforcing regulations; it necessitates a comprehensive approach involving education and stakeholder engagement. The effectiveness of building by laws can be undermined by weak implementation mechanisms. A robust implementation framework is essential, providing resources, mechanisms, and enforcement powers. According to the FEMA Building Codes Enforcement Playbook [5], effective administration and enforcement of building by law rely on establishing

clear lines of authority, empowering officials, strengthening inter agency coordination, ensuring public outreach and conducting timely evaluation. Officials must receive training and certification in order to be authorized to use enforcement powers such as imposing mandates or fines [5].

Digital tools, such as electronic permitting systems and mobile inspection apps, can ease permit applications and AI-supported plan reviews can streamline permitting, improve inspection efficiency, and increase compliance [5]. Likewise, public outreach is essential to inform homeowners, builders, designers, and developers about the by-laws and the advantages of compliance. FEMA highlights the importance of educational materials, such as informative brochures, infographics, and frequently asked questions (FAQs), to simplify complex building code language [5]. Public comprehension and compliance are further supported by accessible online resources that provide building code information, how-to guides, and video explanations. Fostering compliance requires making building by laws readily available to the general public through websites. Additionally, operational metrics, compliance metrics, outcome metrics, and cost-effectiveness metrics are key performance indicators (KPI) that can be used for evaluating enforcement effectiveness across states. Timely evaluation will further help focus on the weakest performing state to improve compliance and overall resilience.

2.3 Implementation of Building Bye Laws in Nepal

According to the Constitution of Nepal 2072 BS (2015 AD), the country has a three-tiered government structure: federal, provincial, and local. The local government level includes municipalities, village institutions, and district assemblies. In Nepal, the Town Development Act 2045 (BS) and the Local Governance Operation Act 2074 (BS) empower local authorities to enforce these regulations effectively, aiming to ensure grassroots-level implementation. Combining these legal frameworks enhance the effectiveness of building by laws by creating a more comprehensive system. Hence, the local governments i.e. municipalities are responsible for formulating and implementing building by-laws, issuing building permits, inspecting buildings, enforcing building by law, providing technical assistance to developers and builders, providing training to building inspectors and providing public education on building regulations [2].

2.4 Common Challenges for implementation of building by-law

Some of the common challenges for the implementation of building by-law are staffing shortages and workforce development, resource and budget constraints, public resistance and lack of awareness, constant updates of codes and regulations, limited collaboration and coordination among concerned departments and agencies.

Research from Maharashtra, India, [6] highlights major issues leading to violations of building codes, including high land costs, administrative negligence, and insufficient public

awareness [7]. Challenges such as a shortage of technical personnel, inadequate monitoring, and political influences further complicate enforcement (ibid). In Nepal, the majority of buildings (over 98%) are constructed by owner-builders guided by local craftsmen, often lacking proper knowledge of building bye laws [1]. Common violations include inadequate setbacks for emergency access and improper zoning of residential properties for commercial use. In Kathmandu, land use planning frequently prioritizes private interests over broader community needs, resulting in unauthorized high-rise buildings that fail to meet legal and technical standards [8].

Globally, involving both public and private sectors has been shown to improve building code implementation. For instance, the Model Town Cooperative Society in Lahore successfully implemented building bye laws through community involvement despite governance challenges [9]. This suggests that combining private sector accountability with government oversight can enhance enforcement practices [3].

2.5 Climate responsive, Risk-sensitive and Energy Efficient Building by-law

Effective implementation should address the challenges of planning, design, and enforcement while promoting risk-sensitive, climate-responsive building designs, retrofitting, and the adoption of energy-efficient technologies. For example, in Nepal, efforts led by Building Energy Efficiency in Nepal (BEEN) project funded by European Union under the SWITCH-Asia Programme led by the University of Innsbruck (UIBK) in partnership with MinErgy Pvt Ltd Nepal, have introduced integration of Energy Efficient Building (EEB) guidelines into local bye laws. This integration includes developing checklists with assessment criteria for monitoring, with 40 municipalities including Dhulikhel Municipality, Kathmandu Metropolitan City, Lalitpur Metropolitan City, Pokhara Metropolitan City, Tansen Municipality have successfully adopted energy efficiency provisions in their building by laws.

Building by laws in developed countries, such as the UK and Canada, are advanced and include detailed regulations on various aspects like building materials, ventilation, accessibility, and architectural design [10], [11].

3. Methodology

To provide a comprehensive analysis, this study employed a mixed-methods approach as shown briefly in figure 1, utilizing both primary and secondary data sources. Semi-structured interviews were conducted with key informants as explained in Table 2, including senior officials from Nepal's urban planning offices, independent experts with experience in various municipalities, and residents. These interviews aimed to capture a wide range of perspectives, including opinions, perceptions, and firsthand experiences related to building bye law implementation.

Secondary data was gathered from existing literature, including policy documents, previous research, and case studies, to provide a contextual background and support the findings from the interviews. This approach ensured a robust analysis of the current state of building bye laws in Nepal, their implementation challenges, and potential areas for improvement.

By combining qualitative insights with secondary data, this study aims to offer a nuanced understanding of the effectiveness of building bye laws and their impact on urban development. The findings are intended to inform policy recommendations and improve the implementation of building regulations, addressing both theoretical and practical aspects of urban management.

Table 2. Key Informants Interviewed

No. of Experts Interviewed	Sectors	Years of Experience
3	Government: Ministry of Urban Development (MoUD)	Over 20 years
2	Kathmandu Metropolitan City (KMC)	Over 20 years
1	Ward No. 5, Tokha Municipality	Over 20 years
2	Tribhuvan University	Over 25 years
4	Local leaders from different political parties	–

The final sample included a diverse group of 3 government employees (2 from the Ministry of Urban Development (MoUD), 2 from Kathmandu Metropolitan City (KMC), and 1 from Ward-5 of KMC), 2 academic experts from Tribhuvan University (TU), and 4 local political leaders (PL) shown in Table 2. All participants provided written informed consent. These key informants were purposefully selected based on their expertise, experience, and understanding of urban planning in Nepal. The in-depth interviews with these key informants focused on several critical themes: the causes of inadequate enforcement of building regulations, the policies and plans guiding urbanization, and the roles of various actors in managing the implementation of building bye laws.

To address the challenge of accessing local political leaders and institutional chiefs, a snowball sampling method was employed. This approach was effective in identifying additional knowledgeable informants who provided valuable insights into the subject matter. Observations were conducted on issues such as encroachment on peri-urban agricultural land [12], [13] and public land [14], [15]. These observations were complemented by interviews focusing on land fragmentation and the challenges related to open and built land coverage.

To ensure validity and reliability, the study employed multiple strategies. Variables and indicators were consistently addressed by different actors, which enhanced internal validity. The study aligned its measurements with relevant land-use Acts, ensuring that it accurately measured the intended variables. Reliability was further enhanced by using various measurement approaches at different stages of the study and conducting a thorough review of the process. Data validity was bolstered through triangulation [16] by briefing and debriefing

research findings with MoUD officials and urban experts from TU.

4. Results

The findings indicate that the effectiveness of building byelaws in Nepal depends largely on their enforceability rather than their formal scope alone. While existing byelaws address key aspects of construction such as safety, zoning, accessibility, and environmental considerations, commonly identified as essential elements of effective regulation [17], [18] interviews with urban planning professionals reveal significant challenges during implementation. Respondents highlighted unclear institutional responsibilities, limited monitoring mechanisms, and difficulties in adapting regulatory provisions to evolving construction practices as major constraints affecting enforcement.

Participants further emphasized that the actions and inactions of urban planning actors, combined with insufficient implementation checks, have contributed to widespread non-compliance with building byelaws. According to interviewees, weak accountability mechanisms and inconsistent oversight are commonly associated with unplanned development patterns, infrastructure strain, and compromised urban living conditions. Although these urban impacts are based on professional perceptions rather than direct empirical measurement, they align with broader concerns identified in governance and regulatory compliance literature [17]. Together, these findings point to the need for stronger institutional coordination and clearer enforcement responsibilities to improve regulatory outcomes.

4.1 Institutional Roles and Enforcement Capacity of Local Governments

According to the Constitution of Nepal 2072 BS (2015 AD), governance is structured across federal, provincial, and local levels, with local governments holding primary responsibility for building construction and road management under the Local Government Operation Act 2074 [19]. This legal framework promotes a bottom-up approach, empowering municipalities to enforce existing building byelaws and, where necessary, revise or formulate context-specific regulations. However, findings from this study indicate a significant gap between formal institutional responsibility and actual enforcement practice.

Interview evidence suggests that effective enforcement of building byelaws is largely concentrated within Kathmandu Valley municipalities, while many of the remaining local governments, particularly outside major urban or tourist centers, do not prioritize byelaw compliance during the building permit process. This uneven enforcement landscape reflects capacity constraints rather than regulatory absence, a pattern also observed in other South Asian contexts where local authorities lack adequate technical personnel and

monitoring systems [3], [7].

Respondents from the Ministry of Urban Development emphasized that building construction in Nepal is predominantly owner-driven, with limited public awareness of regulatory requirements. As a result, enforcement responsibility is often transferred informally to architects and engineers during the permit stage, rather than being actively monitored throughout construction. Similar compliance gaps have been documented in Kathmandu's residential neighborhoods and high-rise developments, where deviations from approved plans are common due to weak follow-up inspections [4], [8]

These findings indicate that while institutional mandates for enforcement exist, limited human resources, weak monitoring mechanisms, and fragmented accountability structures significantly constrain local governments' ability to implement building byelaws consistently.

4.2 Governance, Political Influence, and Accountability Gaps

Beyond institutional capacity, governance practices and political influence emerged as critical factors shaping enforcement outcomes. Interviewees consistently highlighted that political actors, both elected representatives and informal power brokers, play influential roles in shaping how, when, and whether building byelaws are enforced. This aligns with governance literature suggesting that regulatory effectiveness depends not only on formal rules but also on accountability and oversight mechanisms [17], [9].

Respondents pointed to high approval rates for new building permits, particularly in rapidly urbanizing areas of Kathmandu, where more than 100 permits may be issued monthly. Under such pressure, enforcement tends to focus on procedural approval rather than post-approval compliance checks. As one local government respondent noted, the speed of urban expansion often exceeds the capacity of regulatory institutions to ensure consistent oversight, increasing the likelihood of regulatory violations.

Concerns were also raised regarding inconsistent application of byelaws by government-assigned architects and planning authorities themselves, undermining institutional credibility. These governance failures mirror findings from comparative studies in India and Pakistan, where political interference, administrative negligence, and selective enforcement contribute to widespread byelaw violations [7], [3].

Weak accountability mechanisms further exacerbates these challenges. Limited penalties for non-compliance, prolonged approval processes, and insufficient inspections reduce the deterrent effect of building regulations. As a result, enforcement becomes reactive rather than preventive, reinforcing patterns

of informal negotiation and regulatory avoidance.

4.3 Collaboration, Knowledge Gaps, and Urban Development Implications

The findings further indicate that weak collaboration among government agencies, technical professionals, academic institutions, and civil society organizations constrains effective implementation of building byelaws. Although Nepal's reference framework on building byelaws and permit systems provides procedural guidance [2], its focus remains largely on individual buildings rather than integrated urban development.

Interviewees emphasized that limited public awareness and insufficient technical support contribute to non-compliance, particularly in peri-urban areas experiencing rapid land conversion and real estate expansion. This observation is consistent with studies documenting unregulated peri-urban growth in Kathmandu Valley, where agricultural land fragmentation and speculative development outpace planning controls [12], [13], [15].

Respondents proposed stronger collaboration between local governments and academic institutions as a potential solution, suggesting that student engagement in planning studios and field-based monitoring could simultaneously enhance learning and support enforcement. Similar collaborative and community-based approaches have proven effective in international contexts by strengthening regulatory legitimacy and compliance [9], [20].

From an urban outcomes' perspective, participants associated weak enforcement with infrastructure strain, reduced public space quality, and increased safety risks—particularly where setbacks, access roads, and zoning provisions are ignored. While these impacts are based on professional assessments rather than direct quantitative measurement, they align with broader evidence linking regulatory non-compliance to declining urban livability and public space vitality [14], [11].

5. Discussion

5.1 Enforcement as a Governance Challenge Rather Than a Regulatory Deficit

The findings of this study suggest that the primary challenge facing building byelaw implementation in Nepal is not the absence of regulatory frameworks, but weaknesses in governance and enforcement capacity. Nepal's building byelaws broadly address safety, zoning, accessibility, and environmental considerations, aligning with international regulatory standards [10], [11]. However, as demonstrated by the results, their effectiveness is undermined by fragmented institutional responsibilities, limited monitoring, and inconsistent enforcement practices at the local level.

This pattern reflects broader governance challenges observed

in rapidly urbanizing cities in developing countries, where formal regulations exist but are unevenly applied due to political influence, administrative discretion, and capacity constraints [3], [7], [21], [17] emphasize that regulatory effectiveness depends not only on legal provisions but also on advance notice, accountability, and predictable enforcement, all of which remain weak in Nepal's urban governance landscape. The concentration of enforcement efforts within Kathmandu Valley further reinforces spatial inequalities in regulatory implementation, leaving rapidly urbanizing municipalities vulnerable to unregulated growth.

5.2 Compliance, Informality, and the Role of Professional Intermediaries

The study also highlights the central role of informality and professional mediation in shaping compliance outcomes. With over 98% of buildings constructed through owner-driven processes, compliance with building byelaws is often negotiated rather than systematically enforced [1], [4]. Architects and engineers effectively become intermediaries between regulatory institutions and property owners, assuming responsibilities that ideally should be supported by robust municipal oversight.

This reliance on professional discretion reflects a hybrid governance model, where formal regulations coexist with informal practices and negotiated compliance. Similar dynamics have been documented in South Asian cities experiencing rapid urban expansion, where regulatory enforcement is shaped by social relationships, political pressures, and uneven institutional capacity rather than strict legal adherence [3], [9], [21]. While such arrangements may facilitate short-term flexibility, they also weaken regulatory credibility and normalize deviations from approved plans, particularly when post-approval inspections are limited.

The findings suggest that improving compliance requires not only stricter enforcement but also greater public awareness and clearer institutional responsibility. Strengthening collaboration between local governments, academic institutions, and professional bodies could help bridge knowledge gaps while reinforcing accountability across the construction process.

5.3 Interpreting Urban Implications: Risk Accumulation and Declining Livability

Rather than producing immediate and visible urban crises, weak implementation of building byelaws in Nepal appears to contribute to gradual risk accumulation and declining urban livability. Interviewees associated non-compliance with issues such as inadequate setbacks, limited emergency access, infrastructure overload, and the erosion of public space; patterns also documented in Kathmandu Valley's peri-urban expansion and comparable rapidly urbanizing regions [12], [13], [14], [21].

These impacts should be interpreted as cumulative and

systemic rather than directly causal. The study does not quantify urban outcomes but aligns with existing literature demonstrating that inconsistent enforcement of building regulations increases vulnerability to disasters, environmental degradation, and social inequities over time [8], [15]. International examples illustrate how coordinated building controls and contextualized planning regulations can enhance safety, light access, ventilation, and neighborhood cohesion [20], [10].

In this sense, Nepal's experience reflects a broader tension between rapid urban growth and institutional capacity. Without stronger coordination, monitoring, and public engagement, building byelaws risk functioning as procedural requirements rather than effective tools for shaping sustainable and inclusive urban development.

6. Conclusion

This study demonstrates that the key challenge facing the implementation of building byelaws in Nepal lies not in the absence of regulatory frameworks, but in limitations related to governance capacity, enforcement, and institutional coordination. While Nepal's building byelaws formally address critical aspects of urban development; including safety, zoning, accessibility, and environmental considerations, their effectiveness remains constrained by fragmented responsibilities, limited monitoring, and uneven application across municipalities. These findings align with broader evidence from South Asian cities, where rapid urbanization has outpaced local institutional capacity, resulting in negotiated compliance and regulatory inconsistencies [3].

The analysis further highlights the central role of local governments and professional intermediaries in shaping compliance outcomes. In a predominantly owner-driven construction environment, architects and engineers frequently function as mediators between regulatory institutions and property owners, often compensating for weak municipal oversight. While this hybrid governance arrangement offers short-term flexibility, it also risks normalizing informal practices and weakening regulatory credibility. Strengthening collaboration between local governments, academic institutions, and professional bodies can help improve technical capacity, enhance public awareness, and reinforce accountability throughout the building permit and construction process.

Finally, the study shows that weak enforcement of building byelaws contributes to cumulative urban risks rather than immediate crises. Over time, inconsistent implementation exacerbates infrastructure stress, reduces urban livability, and increases vulnerability to environmental and disaster-related hazards. Addressing these challenges requires context-sensitive regulatory frameworks, clearer institutional responsibilities, and sustained monitoring mechanisms. By refram-

ing building byelaws as governance instruments rather than procedural requirements, Nepal can better align regulatory practice with the goals of safe, inclusive, and sustainable urban development.

7. Recommendation

- **Promote Public Participation:** Engage communities actively in the decision-making process. This involvement helps build a sense of ownership and accountability, ensuring that bye laws are responsive to local needs and concerns. Public participation can lead to more effective regulation and greater community support.
- **Incorporate Flexibility in Building Design:** Allow for flexibility in design choices while maintaining strict adherence to minimum safety standards. This balance enables personal and cultural preferences to be accommodated within a framework that ensures safety and compliance. Clear operational procedures should be established to guide public understanding and implementation.
- **Strengthen Accountability and Governance:** Develop clear chains of command and enforce good governance practices to promote fair and efficient implementation of bye laws. This approach minimizes the risks of corruption and negligence and ensures that regulations are applied consistently and effectively.
- **Update Building Bye Laws Regularly:** Ensure that building bye laws are updated periodically to address evolving needs and incorporate technological advancements. Regular revisions will enhance transparency and accessibility, making compliance easier for stakeholders and keeping the regulations relevant and effective.
- **Provision for subsidies and incentives:** Need to introduce subsidy program that encourages homeowners and developers to comply the by law. For e.g., the Dutch government subsidy program that financially supports households, businesses, and institutions in adopting sustainable energy technologies and energy-saving measures.
- **Public Outreach:** Increase communication channels, including social media, local newspapers, and digital newsletters, in order to inform the public and foster community trust by showcasing success stories. Jurisdictions should host community meetings and stakeholder workshops prior to enacting new regulations in order to thoroughly explain significant changes and their implications.

Within the scope of this study, these recommendations indicate possible pathways for strengthening the governance and implementation of building byelaws, with

potential implications for urban safety and management.

Acknowledgements

The authors would like to sincerely thank all the people and organizations that helped them finish this study. The Ministry of Urban Development (MoUD), Kathmandu Metropolitan City (KMC), and Tribhuvan University (TU) are especially acknowledged for their insightful comments and assistance throughout the data collection process. We especially thank the political leaders, academics, and local government representatives who took part in the interviews and contributed their viewpoints and experiences. Lastly, we would like to express our gratitude to Himalaya College of Engineering and Mahidol University for their ongoing academic support and encouragement during the research process.

References

- [1] A. K. Mishra, "Development of building bye-laws in nepal," *Journal of Advanced Research in Construction & Urban Architecture*, vol. 4, no. 3–4, pp. 17–29, 2019.
- [2] Ministry of Federal Affairs and General Administration (MoFAGA) and Provincial and Local Governance Support Programme (PLGSP), *Reference Book on Building By-laws and Building Permit System*. Kathmandu, Nepal: Ministry of Federal Affairs and General Administration (MoFAGA), Jun. 2023. [Online]. Available: https://plgsp.gov.np/sites/default/files/2023-09/Resource_Book_on_Building_Bylaws%20and%20Building%20Permit%20System%20in_Nepal.pdf
- [3] M. Asim, S. Gulzar, M. M. Arif, and R. K. Shirwani, "Study on impediments and success of building bye laws implementation in lahore, pakistan," *Journal of Research in Architecture and Planning*, vol. 22, no. 1, pp. 34–42, 2017.
- [4] R. Katwal, "Building bylaws compliance in residential buildings: A case of neighborhood in kathmandu metropolitan city," M.Sc. Thesis in Urban Design and Conservation, Khwopa Engineering College, Bhaktapur, Nepal, Sep. 2022. [Online]. Available: <https://elibrary.khec.edu.np/handle/123456789/515>
- [5] Federal Emergency Management Agency (FEMA), *Building Codes Enforcement Playbook*, ser. FEMA P-2422. Washington, DC, USA: Federal Emergency Management Agency, Jun. 2025. [Online]. Available: https://www.fema.gov/sites/default/files/documents/fema_hmd_p-2422-building-codes-enforcement-playbook_06202025.pdf
- [6] K. B. Vaghani, N. C. Shah, and K. A. Chauhan, "Impact of building byelaws on housing: A comparative study of development control rules of jaipur and pune," *Institute of Town Planners, India Journal*, vol. 7, no. 2, pp. 34–40, Apr. 2010.
- [7] T. N. Boob and Y. R. M. Rao, "Violation of building bye-laws and development control rules: A case study," *IOSR Journal of Mechanical and Civil Engineering*, vol. 2, no. 4, pp. 48–59, 2012.
- [8] A. K. Mishra, G. Karmacharya, and P. S. Aithal, "Compliance status of building bylaws and codes in high-rise apartment buildings of nepal," *International Journal of Applied Engineering and Management Letters (IJAEML)*, vol. 5, no. 1, pp. 66–79, May 2021.
- [9] J. van der Heijden, "Experimentation in policy design: Insights from the building sector," *Policy Sciences*, vol. 47, no. 3, pp. 249–266, Sep. 2014.
- [10] M. Key, "International regulations, codes and standards," in *Building Regulations, Codes and Standards: A Guide for Safe, Sustainable and Healthy Development*. London, UK: ICE Publishing, 2022, pp. 89–112.
- [11] C. Perry, "Implementing the national initiative for the advancement of building codes (niabc)," Office of Scientific and Technical Information (OSTI), Technical Report, Dec. 2023. [Online]. Available: <https://doi.org/10.2172/2229506>
- [12] S. Rana, R. Rijanta, and R. Rachmawati, "Exploring peri-urban agriculture and existing farmers in the kathmandu valley," *Romanian Review of Regional Studies*, vol. 13, no. 1, pp. 59–70, 2017.
- [13] S. Rana, "Agricultural land use changes and the remaining/emerging peri-urban farmers in kathmandu valley of nepal," *International Journal of Building, Urban, Interior and Landscape Technology (BUILT)*, vol. 21, no. 2, pp. 39–50, 2023. [Online]. Available: <https://doi.org/10.56261/built.v21.250619>
- [14] U. Paudel and K. P. Pant, "Understanding vitality of public space: A review with an example of capital city kathmandu in nepal," *Land Use Policy*, vol. 133, p. 106860, Oct. 2023.
- [15] T. Karki, "Unregulated neoliberalism, urban land grabbing, and environmental destruction in kathmandu valley," SSRN, SSRN Electronic Journal, Apr. 2023. [Online]. Available: <https://doi.org/10.2139/ssrn.4407241>
- [16] S. van Thiel, *Research Methods in Public Administration and Public Management: An Introduction*. London, UK: Routledge, 2014.
- [17] A. Anand and M. Dathan, "An empirical analysis of advance notice provisions in corporate bye laws: Evidence from canada," *International Review of Law and Economics*, vol. 49, pp. 41–56, Mar. 2017.
- [18] R. P. Singh and A. S. Raghubanshi, "Green building movement in india: Study on institutional support and regulatory support," in *Urban Ecology*, A. K. Singh *et al.*, Eds. Amsterdam, Netherlands: Elsevier, 2020, pp. 435–455.
- [19] Government of Nepal, "Local government regulation, 2074 (2017)," Regulation under the Local Government Operation Act, 2074, Kathmandu, Nepal, 2017, accessed: Aug. 5, 2026. [Online]. Available: <https://lawcommission.gov.np/content/12760/12760-local-government-regu-/>
- [20] M. Nakaoka, K. Sudo, M. Namba, H. Shibata, F. Nakamura, S. Ishikawa *et al.*, "Tsunagari: A new interdisciplinary and transdisciplinary study toward conservation and sustainable use of biodiversity and ecosystem services," *Ecological Research*, vol. 33, no. 1, pp. 35–49, Jan. 2018.
- [21] S. Rana and D. Marwasta, "Urbanisation trends in developing countries: Comparative study of yogyakarta city and kathmandu valley," *Journal of Natural Resources and Development*, vol. 5, pp. 29–36, 2015.