



A Comparative Review of the Statutory Periodic Building Inspection Implementation in the Klang Valley Region, Malaysia and Hong Kong, China

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Abstract: Government response to building calamities using certain approaches depends on the types of building failures. Such approaches are the Periodic Building Inspection (PBI) in Malaysia and the Mandatory Building Inspection Scheme (MBIS) in Hong Kong. Both statutory requirements are meant to maintain the safety and structural integrity of buildings, and MBIS is selected for comparison with PBI because of the many parallelisms between the applications of both laws. Since it was made a statutory requirement in 1994, studies have found that PBI implementation by various local authorities in the Klang Valley region, Malaysia was insufficient. Comparing both statutory requirements offer insight and understanding into the compliance issues and solutions, therefore, benefiting the PBI from the proposed improvements. To achieve the aforementioned goal, the following objectives are proposed: a) To compare both statutory periodic building inspections; b) To identify gaps and best practices in both statutory periodic building inspections; and c) To propose improvements for PBI implementation. This research involves data gathering and comparative reviews of prior studies on PBI and MBIS. The study's outcomes suggest significant similarities in the challenges faced during the implementation of both statutory periodic inspections. These challenges encompass unclear legal procedures, insufficient government participation, and weak enforcement. Building owners in both localities also encounter hurdles related to financial limitations, gaining consensus from residents, and selecting suitable engineers. Hong Kong's targeted inspection using a risk-based approach priority can be emulated by local authorities in Malaysia. Hong Kong's approach of allowing other qualified professionals like registered architects and building surveyors to perform initial visual inspections could also be applied in Malaysia. KPKT should consider providing financial support to low cost building owners, similar to the initiatives of the Hong Kong Housing Society (HKHS) and Urban Renewal Authority (URA). Local authorities and KPKT need to refine their service delivery through improved inter-departmental collaboration and heightened engagement with building owners. Revisions to Act 133, mirroring enforcement methods in Hong Kong, would be beneficial. Additionally, efforts should be made to raise public awareness about the significance of conducting PBI.

Keywords: Building maintenance, building structural integrity, periodic building inspection, mandatory building inspection scheme

1. Introduction

Building decay is unpreventable and structural defects of a building normally develop over a certain period of time (Faisal, 2021). Effective building maintenance is vital to ensure the building functions as intended and to ascertain the safety and structural integrity within the building life cycle (Rashidul et al., 2021). In Malaysia, the Fire and Rescue Department and the Department of Safety and Health are responsible for conducting regular inspections to ensure fire safety and mechanical equipment compliance in buildings. However, no structural inspection was required prior to the year 1994 and conducting voluntary structural investigations for multi-storey buildings is often impractical, as residents are primarily focused on routine maintenance tasks (Chan et al., 2014). In Malaysia, the importance of a building's structural integrity was highlighted consequent to the Highland Tower Condominium collapse in 1993, which prompted the government to introduce mandatory periodic building inspections for certain types of buildings across the country.

Different countries have implemented statutory building inspection requirements based on the specific concerns and priorities of their residents. In Hong Kong, for instance, all buildings that are 30 years or older, except residential buildings not exceeding three storeys, are subject to statutory building inspections to address issues of building neglect. (Buildings Department, HK). Singapore mandates periodic inspections every five years for non-residential buildings and every 10 years for residential buildings to ensure their structural integrity (Ho, 2016). In San Francisco, the focus is primarily on periodic inspections of the building façades of heritage buildings, aiming to ensure public safety and preserve their historical significance (Searls, 2017). In New York and Chicago, periodic inspection is mandatory for exterior walls and appurtenances of buildings (Chan et al., 2014)

Periodic Building Inspection (PBI) is a mandatory requirement for buildings over five storeys high and 10 years or older, every 10 years cycle in Malaysia (Act 133). However, since it becomes a statutory requirement in 1994, studies have found that its implementation in various local authorities in Malaysia was insufficient. Many of the local authorities in the Klang Valley region do not implement the Act in the entity, as they stop short of taking the enforcement steps and many building owners do not adhere to the notices issued by the local authorities while citing various reasons (Yazid et al., 2019). Another study revealed that while the significance of building inspection in Malaysia is recognized, its actual implementation is still lacking. Section 85A of Act 133 explicitly addresses this matter but the current status of its implementation remains uncertain (Che-Ani et al., 2014). A report by the Board of Engineers Malaysia (BEM) on the responsibility and accountability of stakeholders in the construction industry concluded that the responsibility falls on local authorities to issue notices to building owners pursuant to Section 85A of Act 133 but many of them fail to do so. This situation has been exploited by owners who perceive the inspections as an additional financial burden, resulting in very few of them actually carrying out the required inspections (Chin, 2020).

Recommendations for improved compliance with PBI have led the authors to make comparisons among the Klang Valley region, Hong Kong and Singapore since these areas share similarities in terms of the intensity of tall building development. However, it should be noted that Singapore's housing sector is largely managed by the government through the Housing Development Board (HDB), which may render certain issues faced in Malaysia irrelevant for comparison with Singapore. In Malaysia and Hong Kong, apart from government buildings, all buildings are privately managed by the owners. To gain a better understanding of the implementation of building inspection regulations, the study conducts a comparative review of published articles on the subject in Malaysia and Hong Kong. To achieve the aforementioned goal, the following objectives are proposed: a) To compare both statutory periodic building inspections; b) To identify gaps and best practices in both statutory periodic building inspections; and c) To propose improvements for PBI implementation in Malaysia.

2. Analysis of The Regulations

The fundamental components of both building inspection statutory requirements in Malaysia and Hong Kong are broken down into 13 items, as shown in Table 1. Items No. 1, 2, and 3 of the table are self-explanatory. For Item No. 4, the development of laws involving building inspection in both countries was influenced by different activating events. In Malaysia, it was the collapse of the 12-storey Highland Tower Condominium in Hulu Kelang on 11 December 1993 which took the lives of 48 occupants (Yazid et al., 2019). It was considered the most catastrophic tragedy and the biggest in scale involving building collapse in Malaysia to date. The incident has urged the government to revise and amend the Road, Drainage and Building Act 1974 (Act 133) by including a new section known as Section 85A to the existing law. An excerpt of the law is shown in Figure 1, which elaborates on the clauses relevant to the ensuing discussion.

On the other hand, in Hong Kong, insufficient regulations of maintenance management of dilapidated old buildings that are still being occupied have caused numerous incidents of building failures that resulted in many casualties. In fact, between the years 1990 and 2001, there were 143 cases of building failures that caused 435 people injured and 101 deaths. Within the year 2002 to 2012, the number of old building failures increased substantially to 4,859 cases, which caused 602 injuries and 63 deaths. The Development Bureau of the Hong Kong Government conducted a survey in the years 2008 and 2010 on buildings that are 30 years and older and discovered that 20% of the buildings were in dilapidated conditions. The Government of Hong Kong then realized the importance of initiating an organized mandatory building inspection system (Daniel et al., 2015). The implementation of these measures has increased public awareness among private flat owners regarding the proper management and maintenance of their buildings (Daniel, 2019).

- (1) ...
- (2) This section shall apply only to a building exceeding five storeys and any storey of a building which is or at a level lower than the ground storey shall be deemed to be a storey.
- (3) The local authority may, without prejudice to its powers under Section 83, by a notice in writing served on the owner of a building, require the building to be inspected—
 - (a) after the tenth year commencing from the date the certificate of completion and compliance in respect of the building was issued; and
 - (b) thereafter at intervals of not more than ten years from the date of the completion of the last inspection of the building under this section.
- (4) The owner of a building shall, upon receipt of a notice under subsection (3), cause the building to be inspected within the time specified in the notice by an engineer to be appointed by him.
- (5) If the notice under subsection (3) is not complied with, the local authority may inspect the building or cause the building to be inspected by an engineer appointed by it and recover all expenses reasonably incurred by it in doing so from the owner of the building.
- (6) An engineer carrying out an inspection under this section shall inspect the building in the manner prescribed in the by-laws which shall take into consideration the following:
 - (a) A visual inspection of the building, including a visual survey of the condition of the building and its structural elements and any addition or alteration to the building and its structural elements;
 - (b) The preparation and submission to the local authority of a report of the result of the visual inspection;
 - (c) If, after having considered the results of the visual inspection, the engineer reasonably suspects or is of the opinion that there is a defect, deformation or deterioration in the building or its structural elements as will or will likely endanger or reduce the structural stability or integrity of any part of the building he shall request for permission from the local authority to carry out a full structural investigation on the building including investigation in respect of its structural elements;
 - (d) If the local authority allows the request made under paragraph (c), the engineer shall carry out a full structural investigation, which shall include the following:
 - (i) taking all reasonable steps in obtaining information relating to the design,....;
 - (ii) checking with reasonable diligence the structural plans of the building,....;
 - (iii) carrying out tests on the structural elements,....;
 - (iv) carrying out tests on the building materials; and
 - (v) carrying out load testing of such parts of the building as the engineer considers necessary; and
 - (e) The engineer shall thereafter prepare and submit to the local authority a report.....
- (7) An engineer carrying out an inspection or a full structural investigation on a building shall be entitled at all reasonable times to full and free access to the building and any part thereof he is required to inspect or investigate and any person who hinders obstructs or delays him in the performance of his duty shall be guilty of an offence.
- (8) Without prejudice to the right of the local authority to exercise its powers and recover expenses under this section, any owner of a building who contravenes or fails to comply with a notice under subsection (3) shall be guilty of an offence.
- (9)
- (10)
- (11) The local authority may thereafter—
 - (a) issue an order to the owner of the building to take the necessary measures to rectify or remedy any defect, deformation or deterioration as recommended by the engineer within such period as the local authority may specify; or
 - (b) in place of an inquiry under Section 83, issue an order to the owner of the building for closure and demolition of the building.
- (12)
- (13) Any person who fails to comply with an order given under subsection (11) shall be liable on conviction to a fine not exceeding one hundred thousand ringgit or to imprisonment for a term not exceeding five years or to both and shall also be liable to a further fine not exceeding five hundred ringgit for every day during which the offence is continued after conviction.

Fig. 1 - Excerpt of Section 85A, Act 133

In January 2019, the Malaysian government further amended Section 85A of Act 133 to include an additional mandatory requirement for landowners with a slope gradient of more than 25 degrees and a vertical height of more than 10 metres and to submit a periodic slope stability report at every five-year interval. For this comparative review, the

scope will be limited to PBI and not the periodic slope inspection, as the latest amendment of Section 85A is still relatively new and involves a different type of comparison, i.e., slope.

Table 1 - Elements of statutory periodic building inspections in Malaysia and Hong Kong

No.	Item	Malaysia	Hong Kong
1	Title	Periodic Building Inspection (PBI)	Mandatory Building Inspection Scheme (MBIS)
2	Date in effect	The year 1994 (Selangor), and subject to adoption by each state of Malaysia	30 June 2012.
3	The Act/Ordinance	Section 85A, Street, Drainage and Building Act (Act133)	Section 30A-F, PART IIA, Inspection and Repair of Building, Building Ordinance (Ord. No. 16 of 2011)
4	Triggering events	Highland Tower Condominium collapsed in December 1993 causing 48 deaths	Many dilapidated buildings and incidents involving old buildings causing many injuries and casualties.
5	Scope of buildings	1. Over five storeys high 2. All types of buildings (residential, commercial, public, and private buildings)	1. Over three storeys high. 2. Private buildings only- government buildings excluded
6	Buildings to be inspected	Over 10 years old (after a Certificate of Occupation or CCC is issued)	30 years or older
7	Periods	Every 10 years	Every 10 years
8	Elements inspected and the type of inspection	Focused on structural elements. A visual inspection of the building, including a visual survey of the condition of the building and its structural elements and any addition or alteration to the building and its structural elements.	All building elements essential to public safety. External elements and other physical elements; structural elements; fire safety elements; drainage systems; unauthorized building works in the common parts and on the exterior of the building.
9	Responsible inspector	A full structural investigation if a structural defect is found. Registered Engineer	Registered Inspectors (RI), consisted of selected engineers, architects, or surveyors
10	The regulatory body	Board of Engineers Malaysia	Inspectors Registration Committees of the Building Authority
11	Departments in custody	1. Federal Government through KPKT 2. State Governments 3. Local authorities of each state in Malaysia	Buildings Department of Hong Kong 1. Home affair department 2. Hong Kong housing society 3. Urban Renewal Authority
12	The initiation of the procedure	The Local Authority serves a notice to the building owner requiring to conduct a prescribed building inspection	The Buildings Department serves a notice to the building owner requiring to conduct a prescribed building inspection
13	Enforcement	1. Subsection (5): If the notice from the LA is not complied with, the local authority may inspect the building or cause the building to be inspected by an engineer appointed by it and recover all expenses reasonably incurred by it in doing so from the owner of the building. 2. Subsection (13): After the building inspection is done and if the owner fails to rectify structural defects upon advice by the appointed engineer, pursuant to subsection (11), the owner shall be liable on conviction to a fine not exceeding RM100,000.00 or to imprisonment for a term not exceeding five years or to both and shall also be liable to a further fine not exceeding RM 500.00 for	If the notice from the BD is not complied with, the owner is liable upon conviction— (a) a fine at level five and imprisonment for one year; and (b) a fine of \$5,000 for each day during which it is proved to the satisfaction of the court that the offence has continued.

every day during which the offence is continued after conviction.

Referring to Items No. 5, 6, and 7; the height, type, and age of the building required to be inspected under PBI and MBIS are different, but the periodical inspection is the same every 10 years. As reflected in Item No. 8, the type of inspection in Malaysia only focuses on structural aspects and renovations that may affect the structural integrity of the building. If a structural defect is discovered during the visual inspection, then the inspector will suggest in the report that a detailed structural investigation must be done by a structural engineer, as mentioned in subsection 6 (c), Section 85A. Meanwhile, in Hong Kong, the inspection would cover a larger aspect of the building, including building externals, structural, drainage, fire safety, and illegal renovations. This is attributable to previous cases of failures involving old buildings in Hong Kong that were caused by these factors. As the real estate boom took place in Hong Kong in the 1960s and 1970s, the construction of many private buildings was hurried and completed in a relatively short time, causing concerns for the Hong Kong government regarding the quality of these buildings. By the year 2011, most of these buildings were over 30 years old and since there is a great number of old buildings, the Hong Kong government focuses on the older buildings so that the mandatory inspection report of the newer buildings can be processed in stages without worrying about the backlog (Daniel, 2014).

Referring to Items No. 9 and 10, Section 85A spelt out that the building inspection must be carried out only by a registered engineer as sanctioned by the Board of Engineers Malaysia; while in Hong Kong, it must be done by a registered inspector (RI), which is defined in Sections 3B and 3C of the Ordinance as:

“The Building Authority must keep a register (the “inspectors’ register”) of all persons who are qualified to perform the duties and functions of inspectors in accordance with this Ordinance. The inspectors’ register contains; (a) a list of architects; (b) a list of engineers; and (c) a list of surveyors.”

To this effect, the regulatory body of building inspectors in Hong Kong consists of nominated members of their respective professional affiliations, which are architects, engineers, and surveyors.

Meanwhile, the Buildings Department of Hong Kong City Hall is responsible for the implementation of the MBIS; referring to Item No. 11, the bodies responsible for PBI in Malaysia are the building departments of 149 local authorities, consisting of 12 city councils, 39 town councils, and 98 district councils (Local Government Department, 2023). The Buildings Department of Hong Kong is the sole authority observing the application of the statutory requirement; this makes monitoring simpler and more direct compared to that in Malaysia. The complex statutory requirement of PBI was enacted in the Malaysian Parliament through the federal government, then adopted by the states in Malaysia and later applied by the local authorities of each state. Unlike Hong Kong which has a central body to monitor the compliance of the Act, the effectiveness of such monitoring in Malaysia relies on the discrete efforts of each local authority.

Referring to Item No. 12, the building inspection process of PBI and MBIS is initiated with a notice by the local authorities to the building owners to submit a report. According to Item No. 13, both Acts have some form of punishment for non-compliance with the notice issued. In Malaysia, enforcement is carried out in two stages. The first stage is after the owner is issued with a notice to submit the report, which is relevant to subsection (5) of Section 85A, “If the notice under subsection (3) is not complied with, the local authority may inspect the building or cause the building to be inspected by an engineer appointed by it and recover all expenses reasonably incurred by it in doing so from the owner of the building.” However, many of the local authorities are reluctant to proceed with this action, as the process to recover the expenses is very lengthy. Some local authorities will resort to the general practice of Section 109 of the Local Government Act 1976, which makes the defaulters upon conviction liable to a fine not exceeding five hundred ringgit or to a term of imprisonment not exceeding six months or both. However, some local authorities prefer to give subsequent warning letters, as they believe that the fine is not an effective measure because most of the defaulters are already having difficulties in collecting the fund to appoint the engineer (Yazid et al., 2019). The second stage of enforcement in Malaysia is after the submission of the PBI report. If the owner fails to rectify the building defects as recommended by the engineer, then the punishment upon conviction could be served as stated in subsection (13). However, in Hong Kong, the punishment for not complying with the MBIS notice is straightforward and clearly stated in the form of fines and imprisonment. The Buildings Department does not have to appoint an RI if the building owner fails to comply with the notice.

3. Analysis of Compliance Issues

3.1 Problems of Compliance in the Klang Valley Region, Malaysia

There is very limited available published literature on compliance issues in Malaysia that is relevant to the scope of this review. Therefore, this comparative review made major reference to Yazid et al. (2019) and Nurul et al. (2021) due to the great relevancy and parallelism of compliance issues in Malaysia and Hong Kong.

In a previous study conducted by Yazid et al. in 2019, the implementation of the mandatory building inspection (PBI) was examined in several local authorities within the Klang Valley region, including the City Hall of Kuala Lumpur (DBKL), Petaling Jaya Municipal Council (MBPJ), Kajang Town Council (MPKj), Selangor Town Council (MPS), and Ampang Town Council (MPAJ). The study employed a qualitative approach, utilizing open-ended questionnaires and interviews with officers responsible for the building control departments in each local authority. The questionnaire focused on the implementation methods used by the local authorities, the level of compliance among building owners, the challenges faced during the implementation process, and the proposed improvements for implementation. The study revealed that overall, the compliance of building owners with the statutory requirements was unsatisfactory. Moreover, while DBKL, MBPJ, and MPKj had successfully carried out the procedures, other local authorities lacked efficiency and need to improve their management practices. Table 2 presents the issues encountered, identifies the stakeholders responsible for these issues, and recommends potential solutions for each problem. In Table 2, the problems listed can be categorized into three sectors based on the associated stakeholders: i) building owners, as reflected in Problems No. 4, 5, and 8; ii) the Institute of Engineers Malaysia, as indicated in Problems No. 6 and 7; and iii) government agencies, due to the inefficiency of the system, as mentioned in Problems No. 1, 2, 3, 4, 5, 6, 7, and 8. Based on the identified problem sectors, it is evident that government agencies need to implement substantial revisions and improvements to the existing frameworks, as many of the problems are concentrated within this sector.

Table 2 - Problems in the implementation of PBI in the Klang Valley region

No.	Problem/Challenge	Stakeholder	Recommendation
1	Troublesome end process, (LA must appoint the engineer instead if the owners fail to comply with notices)	LA/KPKT/MC/JMB	Review Section 85A and the related Act
2	Lack of awareness of LA's management	LA/KPKT	Compliances monitoring by KPKT
3	No enforcement by LA (compassionate reasons and troublesome process)	LA/KPKT	Public awareness campaign (from law enforcement to law encouragement)
4	Difficult to get approval from the MC's resident board	MC/JMB/KPKT	Public awareness campaign
5	Owners prioritize more on routine maintenance, not the PBI report	LA/MC/JMB	Public awareness campaign
6	Difficulties in selecting the engineers	IEM/KPKT	Setup panel engineers and the standard prescribed fee
7	No clear methods or work process	KPKT/IEM	Create clearer flowcharts and guidelines
8	Low-cost flat owners lack of funds to appoint engineers	State/KPKT	Government to consider subsidizing low-cost flat owners

LA: Local Authorities; KPKT: Ministry of Local Government Development of Malaysia; MC: Management Corporation; JMB: Joint Management Body; IEM: Institute of Engineers Malaysia

Source: Yazid et al. (2019)

Nurul et al. (2021) conducted research on the feedback from apartment owners in Klang regarding their challenges in complying with the mandatory building inspection (PBI) requirement. The study utilized a qualitative approach, open-ended structured interviews with residents from three different apartments. The interviews focused on the owners' awareness of the requirements stated in Section 85A of Act 133, the implementation problems they encountered, and their recommendations for improving compliance levels. The selected buildings are all over five stories high and have been occupied for more than ten years. The Aman Perdana Apartment is a 25-storey building which had been occupied since 2009, whereas the Perdana Villa Apartment is a nine-story building which had been occupied since 2004; and Bukit Kuda Apartment is an eleven-story building which had been occupied since 1997. Despite the owners' awareness of the PBI requirements through notices issued by the local authority, none of them had submitted the required reports. Table 3 provides a summary of the identified issues and recommendations from the study.

Table 3 - Issues of compliance with PBI

Issues	
1	Owners facing difficulties in raising the fund to appoint engineers.
2	JMBs or MCs have problems with their committees in endorsing the allocation for PBI.
3	Difficulties in searching for suitable engineers.
Recommendations	
1	Local Authorities should offer financial help and technical assistance.
2	Housing developers should be involved in the PBI process.

Source: Nurul et al. (2021)

Nurul's research confirms some of the findings of Yazid et al. (2019) that the problem faced by the building owners is raising the fund to appoint engineers for the inspection works. The building owners also suggested that the authorities should put together a system that can lessen the cost of fulfilling the requirements of submitting the report, especially considering the financial condition of most low-cost flat owners. Some owners complained about the difficulties in appointing suitable engineers for the task due to the nature of professional bodies where self-advertisement is strictly controlled and the lack of owners' familiarity with registered engineers.

According to Strata Management Act 2013 (Act 757), the owners of a multi-storey building in Malaysia must form a management body to represent all of the owners. When a building is issued with a Certificate of Completion and Compliance (CCC), it can be legally occupied. If the building is issued with a CCC but occupied prior to the issuance of strata titles, the management body is called a Joint Management Body (JMB) which consists of representatives from the owner and the property developer. After the building has obtained the strata title, then the developer is relieved of its responsibility and the management is held by the owners themselves and the body is called a Management Corporation (MC). The JMB or MC must conduct an annual general meeting (AGM) or extraordinary general meeting (EGM) to obtain consensus from all the residents for certain important decisions. This is an issue that must be overcome by the JMB or MC in order to be able to appoint an engineer.

Nurul's findings demonstrated that local authorities should offer more help and technical assistance to the owners instead of just issuing notices and warning letters. Her finding suggested that the local authorities should be more thoroughly involved in guiding the owners or their respective management agencies in raising the fund and appointing engineers, especially in the case of low-income flat owners. Nurul's finding also suggests that housing developers should be more involved in the PBI process. This is true and should be regarded seriously as Act 757 states that the developer of a stratified building will still be jointly responsible to manage the building until the issuance of a Strata title to the building. In some cases, it takes more than 10 years for the strata title to be obtained, particularly for old buildings occupied prior to the enactment of Act 757 in the year 2013.

3.2 Problems of Compliance in Hong Kong

To identify the main challenges associated with implementing MBIS, a study by Daniel and Tracy (2015) was selected due to its thorough and extensive empirical questionnaire survey conducted. It gathered the perspectives and opinions of key stakeholders involved in construction and property management in Hong Kong including those who are working for the relevant government works departments, related non-government organizations, private property developers, project consultants, contractors, and property management companies. The questionnaire survey was developed based on a thorough literature review, which identified 16 potential difficulties related to MBIS implementation. These difficulties were then used as the foundation for the questionnaire survey. To ensure the questionnaire's effectiveness, a pilot survey was conducted with experienced experts in new building construction or building repair and maintenance. The survey form also included an invitation for respondents to suggest and evaluate any additional challenges that were not mentioned, based on their own judgment and real-life experiences. However, no new difficulties were suggested by the respondents. In this research, several statistical methods were utilized to assess the reliability and consistency of the data, as well as to compare the perceptions of different groups of survey respondents regarding the challenges of MBIS. These methods include Cronbach's alpha reliability test, descriptive statistics, Kendall's concordance analysis, Spearman's rank correlation test, and factor analysis. These tools were employed to examine the agreement and variations in the perceptions of difficulties among different groups of respondents within the survey and the finding was then ranked from 1 as the most difficult issue expressed by the respondents to 16 as the least difficult, as shown in Table 4.

Table 4 - List of problems associated with MBIS compliance

Rank	Problems associated with MBIS compliance
1	Difficulty in coordinating the individual flat owners for carrying out a building inspection and necessary repair and maintenance works (e.g., without owners' corporation).
2	Disagreements or disputes amongst individual flat owners, owners' corporations or property management companies will hinder the implementation process.
3	Lack of property owners' initiative or owners' co-operation.
4	Difficult for the property owners to afford the building repair and maintenance costs.
5	Difficult for the property owners to afford the building inspection costs.
6	Insufficient guidelines towards the property owners on the implementation of any necessary Repair and maintenance of buildings after inspection (e.g., without "Guidelines for Property Owners").
7	Insufficient government financial and technical assistance.
8	Insufficient promotion of MBIS within the community.
9	Difficulty in carrying out prosecution by the Buildings Department may hinder the implementation process of MBIS.

- 10 Corruption may hinder the implementation process of MBIS from the inspection stage to the completion of maintenance works.
- 11 Insufficient control over the professional competence and quality of works of contractors.
- 12 Inadequate professionals as the potential registered inspectors (RIs) in the market for executing building inspections.
- 13 Difficult for the Buildings Department to select the pool of suitable target buildings for carrying out the mandatory inspection.
- 14 Inadequate contractors as the potential registered contractors (RCs) in the market for executing necessary building repair and maintenance work after inspection.
- 15 Professionals are not willing to participate as registered inspectors (RIs) in executing building inspections.
- 16 Contractors are not willing to participate as registered contractors (RCs) in executing necessary building repair and maintenance works after inspections.

In this work’s analysis, the list of problems in Table 4 can be divided into three sectors based on the related stakeholders: i) building owners, due to residents’ behavior as stated in items ranked from 1 to 5; ii) RI and contractors’ ineffectiveness as stated in items ranked in 10, 12, 14, 15, and 16; and iii) government (BD) due to deficiencies of the system as stated in items ranked in 6, 7, 8, 9, 11, and 13.

Another source of information gathered is from the Hong Kong Audit Commission report on the Buildings Department’s (BD) performance in the administration of MBIS. On December 2019, the Audit Commission found that BD had targeted 18,066 buildings to submit the MBIS. In April 2020, 5,308 buildings had been issued statutory notices involving 82,177 owners. The Audit Commission highlighted the volume of work that the MBIS would bring about and the importance of reassigning the targeted building using a risk-based approach as a priority to make the earmarked performance of BD more achievable while minimizing the number of dilapidated buildings. The report revealed that improvements should be done by BD in the areas of concern below:

- 1) The selection and exclusion of buildings to be issued with statutory notices should be made more systematic and transparent.
- 2) BD should be more proactive in keeping track of all the notices issued as many outstanding notices are yet to be settled due to the non-compliance by the owners and difficulties in prosecution actions.
- 3) The submitted RI reports should be monitored more closely than and as soon as practicable, including the building rectification works recommended by the RI (The Audit, 2022).

Table 5 - Parallelism of Issues

No.	Topics	Parallelism of Issues	
		Klang Valley	Hong Kong
1	Unclear statutory procedures.	1 and 7-Study 1	6#
2	Insufficient government involvement.	2-Study 2	7#, 8#
3	Lack of enforcement.	3-Study 1	9 and 10#, 2*
4	Financial constraints.	8-Study 1, 1-Study 2	4, 5 and 7#
5	Difficulties faced by the management to get consent from residents.	4 and 5-Study 1, 3-Study 2	1, 2 and 3#
6	Difficulties in searching for suitable engineers.	6-Study 1, 5-Study 2	12#
7	Difficulties faced by the Buildings Department to select targeted buildings for mandatory inspection.	Not mentioned	13#, 1*
8	Lack of participation by professionals to register as registered inspectors (RIs).	Not mentioned	15#
9	Issues with the contractors’ reluctance to participate and their work quality.	Not mentioned	11, 14 and 16#, 3*
10	Lack of awareness of some local authorities.	2-Study 1	Not mentioned
11	Involvement of housing developers.	4-Study 2	Not mentioned

Study 1-(Yazid et al., 2019), Study 2-(Nurul et al., 2021), # Table 4-List of problems associated with MBIS,

* The Hong Kong Audit Commission report.

3.3 Parallelism of the Compliance Problems

From the problems highlighted on both sides of the case studies, there are many comparable issues, and the parallelism of compliance problems can be grouped together based on **Table 5**. Subsequently, this study categorizes the similarities and differences between the problems and subsequently provides suggestions for improvements of PBI.

3.3.1 Similarities

This study suggests that both the Klang Valley region and Hong Kong have several similar problems with the implementation of existing regulations. There are six areas in common, as stated in Items No. 1 to 6 in **Table 5** above. The problems concern the regulations themselves and the relevant stakeholders, i.e., the government, building owners, and consultants. Issues that concern the governments are regarding the implementation of statutory procedure, which is insufficient and debatable, causing local authorities and building owners difficulties in their compliance with it (i.e., statutory procedure). Furthermore, both governments received complaints of insufficient involvement in guiding and monitoring the owners in complying with the regulations. Finally, both governments encounter issues with the enforcement system. In Malaysia, if an owner fails to appoint an engineer, according to Act 133, it would be the responsibility of the local authority to appoint one. However, the next course of action leading to punishment could not proceed because most local authorities are reluctant to make the advanced payment for the appointment of engineers. In Hong Kong, even though the procedure is straightforward, the difficulty lies in the prosecution process by the BD.

Issues concerning the building owners are mainly about their financial constraints and management. The building owners pointed out that the cost of appointing an engineer or RI is a problem, particularly when involving low-cost flat residents. Moreover, in the Klang Valley region, JMB or MC revealed difficulties in convincing building owners to agree on spending the management account's budget for building inspection duties. Similarly, in Hong Kong, it is the disputes or conflicts among individual flat owners and owners' corporations or property management companies.

Furthermore, consultants in the Klang Valley region and Hong Kong contribute to the implementation problem, as building owners in both regions find it difficult to search for suitable engineers. The problem in the Klang Valley region is sorting out a suitable consulting engineer; whereas in Hong Kong, the problem lies in an inadequate number of professionals willing to execute the building inspections.

3.3.2 Differences

Issues revealed in the Klang Valley region but not found in Hong Kong are stated in Items No. 7 to 9 in **Table 5**. The BD in Hong Kong faces difficulties in selecting targeted buildings for mandatory inspection. Due to the vast number of buildings already identified to be issued with notices, the BD need to prioritize certain criteria of buildings to be noticed within a certain time frame. However, the local authorities in the Klang Valley region have not set specific targeted buildings and the current practice revolves around finding buildings that are due to be noticed without a specific time frame. Other issues are regarding the RI and contractors in Hong Kong. They are reluctant to offer their services since they are more interested in new or big projects rather than building inspections or repair works of existing buildings (Daniel and Tracy, 2015).

On the other hand, issues revealed in the Klang Valley region but not found in Hong Kong are Items No. 10 and 11 in **Table 5**. Some local authorities in the Klang Valley region show a lack of awareness of the importance of building inspections. Unlike in Hong Kong, the local authorities in the Klang Valley region have a varying depth of understanding and implementation of Act 133 due to the differences in their establishments, including size and location. The next issue regarding the involvement of housing developers in the Klang Valley region is highlighted due to the problems of the old system of strata title issuance for buildings occupied prior to the year 2013. After the enactment of Act 757 in 2013, the strata title can be issued within a year after the building is occupied. However, for buildings completed prior to the year 2013, there is no time limit for the developers to fulfil the requirements for the strata title to be issued by the state governments (Law of Malaysia, Act 757).

4. Suggestions for Improvements

According to the analysis of the regulations and the implementation issues, this study addresses the following suggestions for improvements based on the three groups of stakeholders:

i) The Building Owners

- a) In Australia, Singapore, and the United States, a reserve fund is created to finance expenses other than the regular operational costs (Yau, 2008). Likewise, in Malaysia, this practice is explicitly stated in Section 23(3)(d) of Act 757, which lists the activities that can be supported by the maintenance account. Therefore, it is important for Joint Management Bodies (JMBs) or Management Corporations (MCs) facing challenges in obtaining agreement from residents to emphasize this fact.

ii) The Authorities

- a) Inefficient local authorities should learn from others that have successfully implemented building inspection practices such as DBKL. DBKL has a dedicated unit in the building department to handle the PBI tasks. For smaller local authorities with a limited number of staff, the unit may be done on a temporary basis until all the backlogs are cleared.
- b) The Buildings Department of Hong Kong has established groups of targeted buildings to be inspected based on certain criteria. Local authorities in the Klang Valley region should follow such practices and could prioritize certain types of buildings for closer monitoring such as buildings on slopes or much older buildings.
- c) Local authorities in the Klang Valley region should encourage more collaborative efforts within their organizations, especially between the Buildings Department and the Commissioner of Building (COB) since the management of JMBs or MCs are under the custody of COB.
- d) Nurul et al. (2021) discovered that housing developers should be involved in the PBI submission process. According to the Strata Management Act (Act 757), the COB plays a role in approving the issuance of strata titles for buildings. Consequently, it would be advisable for the COB to carefully assess the responsibilities of housing developers prior to granting strata titles, thus potentially relieving them of the duty of managing the buildings.
- e) Nurul et al. (2021) further found that local authorities should increase their involvement in guiding and overseeing compliance progress by building owners, rather than solely relying on issuing notices and warning letters. Therefore, they could consider participating in the AGM or EGM of the JMB or MC to assist the management team in persuading the building owners. Additionally, to address JMB or MC concerns about difficulties in selecting a suitable consultant, the local authorities should maintain a list of board-endorsed panel consultants specializing in conducting the PBI within the local area.
- f) In response to the request for financial assistance from owners of low-cost flats, it is suggested that authorities should consider providing financial support, which is similar to the initiatives of the Hong Kong Housing Society (HKHS) and Urban Renewal Authority (URA) that provide the Mandatory Building Inspection Subsidy Scheme (MBISS) that offers financial aid to eligible owners (Building Rehabilitation Platform, n.d.). Alternatively, to ease the financial burden of building owners, local authorities may make a proposition of yearly instalments payment from building owners to the local authority specifically for PBI expenditure from the day the building is occupied.
- g) KPKT and the state governments of Malaysia should play a more important role in monitoring the local authorities to ensure they actively carry out their duties (Chin, T.Y., 2020). It can also be done by requiring the local authorities to submit monthly reports on the status of the notices issued and PBI report submissions.
- h) KPKT should improve the laws; Section 85A, Act 133 in terms of the enforcement system. The current system that requires the local authorities to appoint an engineer if the owners failed to do so should be revised by exerting more responsibility to the building owners. Imagine if a building was issued a notice but the owner failed to comply and suddenly the building collapsed, who should be responsible for it? Should the local authority be prima facie liable to the case, since they should have appointed an engineer to conduct the PBI in accordance with Act 133?
- i) Similar to the suggestion in Hong Kong, KPKT should create more awareness campaigns for the public at a national level as it may give a more effective impact; leaving local authorities individually to do awareness programs may not be sufficient.
- j) In line with the United Nations sustainable development goal number eleven (SDG11) for inclusive, safe, resilient, and sustainable cities, KPKT should conduct public inquiries into the feedback from the community on the PBI implementation and perform follow-ups on suitable measures for improvements.

iii) The Consultants

- a) The practice of having various technical consultant backgrounds should also be considered in Malaysia, as the type of initial inspection (i.e., visual inspection) can also be handled by other technical professionals, such as registered architects and building surveyors. The panels should be administered by a registration body comprising a combination of respective technical boards comparable to Hong Kong's regulatory body of building inspectors, which consists of nominated members of architects, engineers, and surveyors. If serious defects are found in the building, then the local authorities must insist on the appointment of a structural engineer to propose the remedial method and supervise the contractor's work.
- b) The consultant board should establish a standard fee specific to the PBI report and the board should also consider that the fee is only for a visual inspection of an existing building by a consultant engineer that was already

appointed earlier during the design and construction of the building. Moreover, the board should consider providing discounts for low-cost flat owners, as this could also become part of their corporate social responsibility (CSR) that would reflect their commitment to serving the community.

5. Conclusions

The findings of this comparative review provide valuable insights for enhancing the implementation of PBI in Malaysia. Malaysian authorities can gain knowledge from the experience and practices of their counterparts in the Klang Valley region and Hong Kong to enhance the system and execution of PBI, as demonstrated in Section 4.1 above. While the reviewed articles mainly concentrated on residential buildings, future research in Malaysia could investigate compliance challenges in commercial and other types of buildings as well.

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