

Environment, Social, and Governance Compliance Challenges Affecting Sustainable Urbanisation in Malaysian Real Estate Development

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ABSTRACT

In the era of Malaysia's urbanisation agenda, the real estate sector is being put to the test to provide a balance between economic development and sustainability. Developers in the field of sustainable urbanisation can face opportunities and challenges related to Environmental, Social and Governance (ESG) compliance. This study will explore the challenges related to the ESG compliance of sustainable urbanisation in Malaysia's real estate development. Firstly, it pinpoint issues relating to ESG through a series of pilot surveys and content analysis which is then broken down into eight sections: Environmental Impact (EI), Workplace Dynamics (WD), Infrastructure Development (ID), Urban Development (UD), Housing Finance (HF), Regulatory Compliance (RC), Tenure Legalities (TL) and Administrative Hurdles (AH). The second goal is to apply descriptive statistics and the Relative Importance Index (RII) method to assess and rank the ESG compliance challenges based on the perception of the respondents. The results show that the most important constraints on sustainable urbanisation are unrelenting bureaucracies and vague procedures (AH1), building plan approvals and permits (UD3), flooding (EI6), onerous regulatory frameworks (RC2) and worker shortages (WD7). Based on the study, several sub-challenges were found. However, the sub-challenges which are workplace democracy (WD1), equal employment opportunity (WD4), inadequate mortgage market (HF1), etc are not influential in the Malaysian context. The study also contributes to ESG and sustainable urbanisation literatures by proposing an integrated conceptual framework of how the environmental, social, governance, institutional and urban development barriers can be aligned in the real estate industry in Malaysia. The results offer practical guidance for developers, urban planners and policy makers in designing a more effective implementation of ESG and a more environmentally sustainable, socially inclusive and economically viable development in urban areas in Malaysia.

Keywords: ESG compliance, sustainable urbanisation, real estate development, urban governance, Malaysia

INTRODUCTION

In the context of sustainable urbanisation, the importance of Environmental, Social and Governance (ESG) compliance has increased, as the real estate sector has experienced significant growth and is facing numerous challenges, such as environmental degradation, social inequality and governance issues (Athallah & Fitri, 2025). Furthermore, Malaysia is becoming more and more urbanised, with an urban population accounting for 78.2% of the total population (Xu et al., 2025). As a result, the infrastructure, environment and social welfare is under further strain in this situation (Ali et al., 2025). Consequently, the attention of policy makers has been drawn to the real estate sector, which is expected to deliver economic goals, as well as sustainable development (Nelen, 2025). Despite its contribution to the Malaysian economy being one of the major

contributors, there are challenges in achieving the ESG criteria in the real estate sector. Some of these challenges are: lowering carbon emissions generated by construction work, accessibility of housing, and enhancing sustainable urban planning and governance (Okoroba et al., 2025).

As Malaysia is transforming into an urban nation with high-speed urbanization, several issues need to be tackled in the context of implementing ESG in the real estate sector, including the awareness on the critical issues needed to be increased among scholars (Ho et al., 2024). The construction sector accounts for 23% of the national emissions (Huang et al., 2018) and at the same time faces the challenge of delivering 7.3 million new affordable housing units (Burnes, 2025), which results in a fundamental conflict between the development requirements and the requirement for sustainability (Lyytimaki et al., 2019). In addition to these challenges, the governance system adds more layers of inefficiency, particularly with respect to the time required in the planning process for the approval process, which can be lengthy and can make it more difficult to achieve environmental objectives (Huang, 2025). The research on the state of the art is still highly fragmented and focus has been on the environmental dimension, at the expense of the social and governance dimension (Van der Walddt, 2024). Western systems of governance and urban context are also not applicable and do not consider Malaysia's federal-state governance system and the tropical nature of cities, rendering stakeholders unable to handle the trade-offs.

This study looks in-depth at the ESG barriers identified in eight categories from the pilot surveys: environmental barriers, social barriers and governance barriers. The research is carried out in a quantitative method, supported by content analysis and a pilot survey, and then a questionnaire survey of 150 experts in the industry to find out the relative importance of the ESG barriers. The overall findings provide theoretical knowledge of the sustainable urbanisation processes and policy and development recommendations for sustainable urbanisation transition in Malaysia, bridging the research to practice gap.

While the implementation of ESG and sustainable urbanisation are starting to gain momentum in the research community, the existing research is still fragmented and analysis of environmental or financial barriers is still pervasive, while the integration of governance, institutional and urban development barriers is lacking effectively in an integrated ESG framework. Furthermore, many of the existing ESG frameworks are geared towards the institutional market in the west, and may not capture the governance challenges, regulatory landscape, and urban development landscape in emerging markets such as Malaysia. Hence, the interdependency between multi-faceted issues of sustainable urbanisation and ESG compliance challenges to the real estate industry in Malaysia has not been adequately investigated. This study thus aims to fill this gap by creating a specific real estate development context-oriented integrated ESG compliance framework.

LITERATURE REVIEW

Environmental Impact (EI)

Both natural and anthropogenic causes, such as air and noise pollution, polluted water, disrupted ecosystems from flooding and urbanisation, waste disposal and industrial activities, have long-lasting effects on the environment from real estate development (Denchak 2018; Blaettler 2019). Some developers are now looking at an environmental approach for both profit maximisation and competitiveness, but this could clash with the environmental concerns that are now a public expectation (Barnes, 1988). The heavy machinery and dust noise is not a permanent situation on the highway, yet can still take a toll on residents near the job site (Basu et al., 2008). The construction site without dust and emissions control has impacts on the health of workers and on residents (The London Councils, 2006). How urban smog influences property values (Zheng et al., 2014), how the construction dust disturbs the lungs (Zhang et al., 2008), and how pollution is the result of shortcuts in managing the materials and site (Chen et al., 2002) are among the issues that have been researched. Meanwhile, poor building design can result in toxic build-up inside buildings (Yip, 2000), and the amount of energy used in the construction of buildings can contribute to the issue (Scheuer et al., 2003). The environmental impacts associated with real estate development continue to be high, ranging from the material content of buildings, to the consumption of energy in buildings on a day-to-day basis, and to the long-term impacts of real estate development on the environment (Malmqvist et al. 2009; Assefa et al. 2010).

Workplace Dynamics (WD)

In recent years, workplace research has gained insight into the changing socio-spatial configuration of workplace (Crang, 1994; McDowell, 1997; Luffyne, 2018). However, the organization of the labor process in workplaces (for example, that which emerges from socio-technical systems) has been scarcely examined. Traditional economic geography is interested in spatial aspects of production at a grand scale, Labour geography is interested in the small scale aspects of the agency of the labourer and their relations to work (Wills et al., 2000; Strauss, 2018). In recent years, scholarship has focused on the precarity of platform labour, by revealing and problematising how algorithmic systems limit work autonomy in determining tasks and work hours (Veen et al., 2020; Arubayi, 2021; Gregory, 2021; van Doorn & Vijay, 2021). There are parallel discourses in the anthropology of work, in the sociology of work, and in interdisciplinary studies of work (Luff et al., 2000).

Infrastructure Development (ID)

There is clear evidence in the development literature of the linkage between infrastructure and socioeconomic development. Economic growth is directly affected by good infrastructure networks (PIDA, 2010) and good infrastructure networks are a precondition to meet global development goals (United Nations Office for Project Services, 2019). UN-Habitat (2009) has identified infrastructure as having influences in multiple scales in settlement patterns. Providing transportation networks and utility systems is an important aspect of infrastructure construction. The efficient road system, reliable power grid, and modern telecommunication all help to reduce business costs (Wong & Tang, 2018), and aid in the expansion of property markets. But, when infrastructure is not well maintained, it is quite expensive (Ihuah, 2015). Transportation investments have been proved to be able to both diminish and enhance spatial inequalities (Calderon & Serven, 2008). Developmental effects span beyond simply economic aspects. Quality infrastructure is able to create jobs, reduce poverty (through the provision of good market access), and increase property values at the less developed area, thus improving the welfare of people (Resosudarmo & Vidyattama, 2006). The multi-dimensional benefits further reinforce the critical importance and role of infrastructure in helping to create productive economic systems and sustainable communities (Bajar & Rajeev, 2015).

Urban Development (UD)

Developers, planners, and community values and needs are all in play with competing priorities, and this has become a collaborative effort of the community, developers, planners, and policymakers (Pollalis, 2016; Zakhour & Metzger, 2018). In today's construction industry, projects exist in multi-project "ecologies" (Grabher, 2004) and as in the example of the sustainable project works managed by stakeholders in the Royal Seaport in Stockholm, projects exist in simultaneous projects (Hedborg & Karrbom Gustavsson, 2020; Gustavsson et al., 2023). As the development is large-scale, it is often seen as a megaproject (Flyvbjerg, 2014) or complex venture (Miller & Hobbs, 2005) but there are inherent tensions. Municipalities are interested in general sustainability goals, whereas developers are interested in schedules and budgets of a particular project (Candel et al., 2021). Also, there are several stakeholders that work within the context of regulations that affect the development decisions indirectly, for example the structure of land-use policies (Hallin et al., 2021; Jacobsson et al., 2015; Candel et al., 2021). This phenomenon is similar to what has been found in the media industries, where professional work gets adapted to the institutional context (Windeler & Sydow, 2001).

Housing Finance (HF)

The real estate development business is always evolving and progressing, and it is also a business where construction, technology, money and market strategies continually intersect (Mike et al., 2000). In addition to supporting more sustainable economic growth, a sound financial system is necessary to help mobilize financial resources, manage risk and alleviate poverty (Lean, 2001; Jalilian & Kirkpatrick, 2005; Asteriou & Spanos, 2019). Many financial institutions, however, have a problem in funding large projects in time, leaving developers in a difficult situation (Buckley et al., 2009). This is a problem in housing market in Malaysia. Investment in uncompleted development projects, which is also often clogged up in the projects is also exacerbated by the slow project completion and high cost of project construction that contributes to the

difficulty in funding new projects (Afrane & Asamoah, 2011). For some developers, it is better to develop their own project than to take out a bank loan – on which another 15-20% of their total costs may be added (Ehwi, 2020; Habitat for Humanity, 2011; Karley, 2008). There are other challenges for the mortgage market, such as economic instability, low wages, and repayment risks (Opoku-Boateng, 2011). This is an issue that has been reported by developers (Ayitey et al., 2010; Addaney et al., 2015; Donkor-Hyiaman & Owusu-Manu, 2016) and is a funding constraint.

Regulatory Compliance (RC)

Housing developers are working in a complex regulatory environment which has a significant impact on them (Maruani & Amit-Cohen, 2011). The land-use policies are constantly changing requiring flexibility in developers (Abdul Aziz et al., 2006) and building codes as well as environmental regulations can restrict development (Mukhjia, 2004). It is important to engage with policy frameworks effectively, since developers will typically react to economic incentives, in particular tax changes (White & Allmendinger, 2003). The effect of the policy is also different in various regions because of variations in market conditions and governance systems (Cacciatori & Jacobides, 2005; Hamzah, 2013). Not only land value (Kok et al., 2011), but also development patterns (Karadimitriou, 2013) is affected by regulations. Moreover, there are some factors such as interest rates, demographic and economic conditions that have a big influence on the market (Nguyen, 2015). Balancing the local and the overall economic situation is crucial in creating a successful housing policy (Angguto & Marcuse, 2011; Hakkinen & Belloni, 2011).

Tenure Legalities (TL)

Informal settlements, where 20–90% of the population reside in cities and towns in Africa, do not have legally recognized land ownership (UN-Habitat, 2020). Kama et al. (2013) have found that in certain areas, acquiring official land rights may take years, even when the sole process of land title registration takes three years. Informal settlements have been a product of complex social dynamics and irregular regulations (Wigle, 2010), and as community dynamics change so do land uses (Durand-Lassesse & Selod, 2007). The land tenure status may vary from informal occupation to total ownership (Marx & Rubin, 2008; Opoko et al., 2020). In reality, these categories can overlap with each other (Payne, 2002; Olapade & Aluko, 2021). However, tenure security is ultimately subjective and is dependent on community perceptions (Van Gelder, 2010; Payne & Durand-Lassasse, 2012), as recognition and protection of land rights (Swallow, 2021). The evidence for poverty reduction, economic development and good environmental management in relation to secure tenure is strong (Maxwell & Wiebe, 1998; Valkonen, 2021).

Administrative Hurdles (AH)

Scholars have considerable disagreements about the role of the government in the development of housing. Some have highlighted its importance to support the developers (Abdullahi & Wan Abdul Aziz, 2011; Yusof et al., 2012) while the others have mentioned the improvement of the existing systems (Agus, 2002; Abdul et al., 2006). However, in reality, there are many housing projects that face significant administrative challenges due to inefficiency and complexity of Government processes in the world. An instance of this was in Nigeria, where the delay in approval of the Design and Build (D&B) contracts was cited as a cause of the delay in construction, particularly. Other experts, Olusola and Oluwaseyi, (2011) also highlight the financial hazards for contractors as a result of bureaucracy. Examples of such restrictions include too many approvals, too many slow payments, and duplicate regulations. The drawback side, however, is that projects are delayed, the costs are increased, and some developers might skimp on quality (Bowen et al., 2007; Afridi, 2016). While regulation is still relevant (Yaakup et al., 2003), the existing regulatory process can actually have the reverse effect and promote unscrupulous practices (Doling, 1999). For the Governments it is a big challenge. They may be employed to guarantee quality (Agus, 2002) but they can also create a bottleneck. Therefore, it is recommended that the government needs to focus on three aspects to accelerate the development of housing, which are the acceleration of the approval system (Tan, 2010), provide the appropriate incentives (Abdullahi & Wan Abdul Aziz, 2011; Yusof et al., 2012) and timely support (Yusof & Shafiei, 2011). These changes may assist governments to be more of a partner to the housing sector than an inhibitor or barrier to creating housing.

Overall, the available literature suggests that the issues related to ESG compliance in real estate development are complex and multi-faceted. Existing studies have mostly examined the environmental dimension (e.g. pollution, land use etc.) and relatively recent studies have examined governance dimensions (e.g. governance efficiency, institutional coordination etc.), financial constraints, labour issues and sustainable urban planning. Yet, notwithstanding this, the literature is still quite fragmented, and few attempts have been made to include the environmental, social, governance, institutional, and urban development aspects in one analytical approach. Moreover, a handful of empirical studies specifically on the Malaysian real estate industry are still scarce, especially on the impact of the entire barriers on the sustainable urbanisation outputs.

THEORETICAL FRAMEWORK

The theory of Stakeholder Theory, Institutional Theory and Sustainable Urbanisation Theory was used in this study to gain an understanding of the challenges for compliance of ESG in real estate industry in Malaysia.

The responsibility of the organisation is not just for the shareholders; it is also for other stakeholders including regulators, the environment, the local community, investors and employees. The “rules of profit, sustainable development, social responsibility and good governance” have been fiercely felt by the developers in the real estate industry. ESG compliance is translated into a business strategy and an important requirement that developers have to satisfy their stakeholders and to be considered valid and competitive in the long-term.

The Institutional Theory can also be applied to the impact on organisations in terms of the institutional systems, governance, and institutional pressures. For real estate developers in Malaysia, the rules and regulations both at federal and state level could be complicated, and need to be approved with several planning and sustainability requirements. Developers are subject to coercive, normative and mimetic pressures from government regulations, professional standards and industry competition, which restrict the implementation practices of developers.

In addition, the Sustainable Urbanisation Theory is suggested as the general concept of this research, as it is a theory that incorporates three pillars of Sustainable Urbanisation (environment, economy and society) in the urbanisation process. Sustainable urbanisation is only possible if the city is developed sustainably, which means that it has low environmental impact, strengthens the social dimension, and strengthens governance. Implementing compliance with ESG thus becomes an important tool to bring real estate development processes into the process of sustainable urbanisation. Stakeholder Theory and Sustainable Urbanisation Theory are a cross-disciplinary theories, extending the scope of the ESG compliance issue evolution as they see the interaction of the stakeholders' expectations, institutional pressures, governance, and urbanisation sustainability.

Stakeholder Theory and Sustainable Urbanisation Theory are a cross-disciplinary theories, extending the scope of the ESG compliance issue evolution as they see the interaction of the stakeholders' expectations, institutional pressures, governance, and urbanisation sustainability. This is a theory that underpins the argument of this study, that the ESG barriers are also part of their broader governance and urban development processes, which impact sustainable urbanisation outcomes, as well as an operational barrier.

Theoretical Integration

This combination of three theories—Stakeholder Theory, Institutional Theory and Sustainable Urbanisation Theory—gives a multi-dimensional explanation of the nature of the challenges in ensuring compliance of ESG in Malaysian real estate development. Stakeholder Theory describes the growing influence regulators, investors, communities and environmental groups have on developers to make them more responsible towards ESG. The institutional theory also provides an understanding of the influence of regulatory pressures, normative pressures from professional codes and mimetic pressures from industry competition on organisational ESG behaviour. The development theory of Sustainable Urbanisation, on the other hand, helps to provide the wider developmental context by highlighting the need to strike a balance among environmental sustainability, economic growth and social inclusion in the process of urban expansion. Together, these theoretical approaches provide an account of the reasons that the ESG compliance challenges are not only

operational constraints, but institutional, governance and sustainability constraints that together affect long-term urban development outcomes.

CONCEPTUAL FRAMEWORK

This study suggests a conceptual framework that describes the linkage between ESG compliance issues and the sustainable outcomes of urbanisation in Malaysia's real estate industry. The framework calls out eight broad ESG compliance barriers: Environmental Impact (EI), Workplace Dynamics (WD), Infrastructure Development (ID), Urban Development (UD), Housing Finance (HF), Regulatory Compliance (RC), Tenure Legalties (TL), and Administrative Hurdles (AH).

The overall effect of these dimensions has an impact on the success of ESG compliance implementation by real estate developers. The study assumes that the persistent barriers in these dimensions have a negative impact on the capacity of developers to reach the goals of sustainable urbanisation, such as environmental sustainability, governance efficiency, economic feasibility, social inclusiveness and long-term urban resilience.

The conceptual framework also shows that better ESG compliance system can have positive engagement with sustainable urbanisation by mitigating environmental risks, promoting transparency and good governance in urban plans, improving planning efficiency and improving sustainable development results in Malaysian cities.

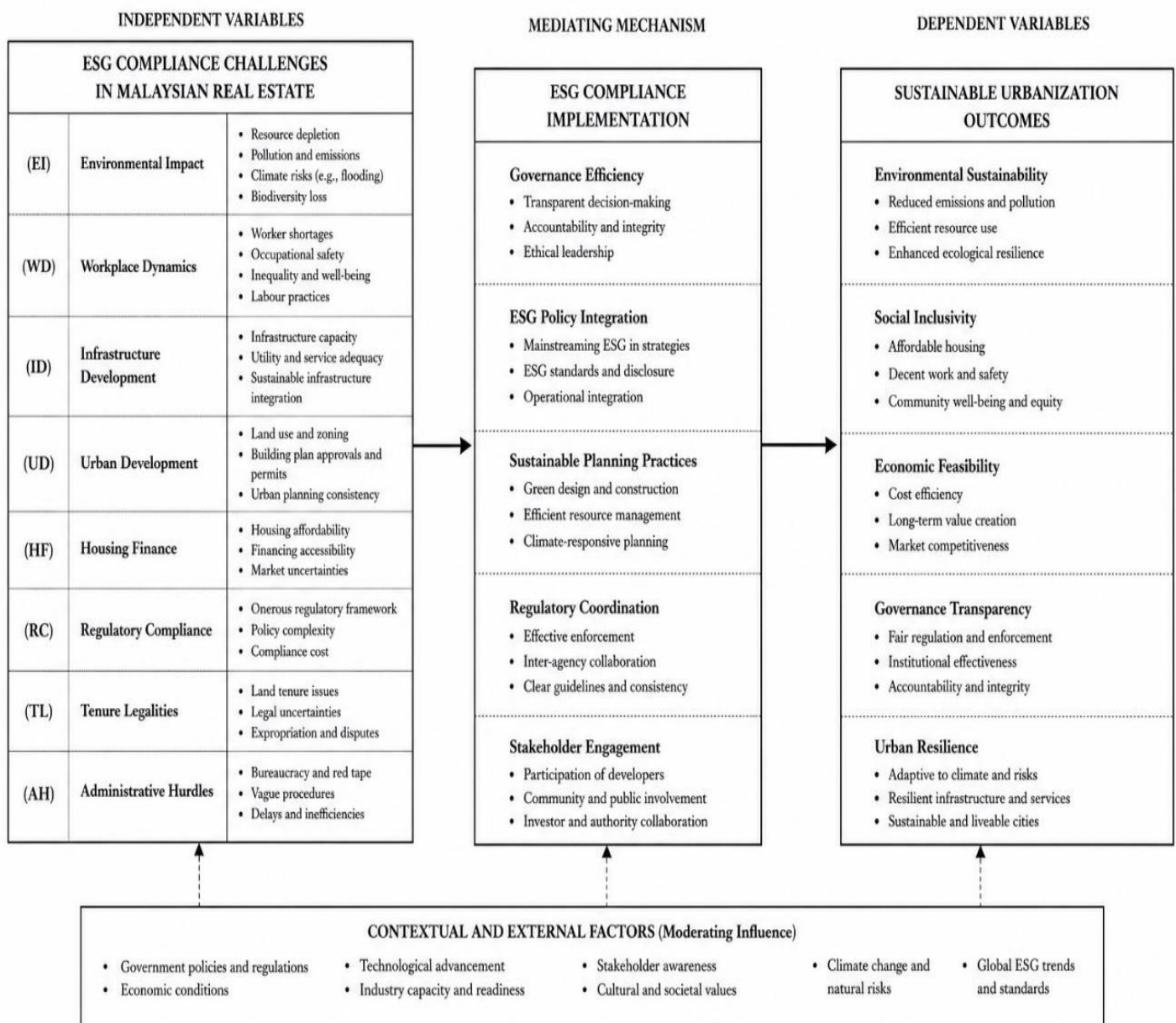


Figure 1: Conceptual framework of ESG compliance challenges and sustainable urbanisation outcomes in Malaysian real estate

RESEARCH METHODOLOGY

This study used a quantitative cross sectional research design to explore the challenges of the ESG compliance in the context of sustainable urbanisation in the real estate industry in Malaysia. The quantitative cross-sectional design was seen to be suitable because the study was designed to give a systematic evaluation of perceived importance of ESG compliance challenges among the industry stakeholders during a particular time frame. The research methodology was comprised of a pilot study, content analysis, questionnaire distribution and Relative Importance Index (RII) analysis to identify and prioritize the ESG-related barriers faced by industry stakeholders. Using descriptive statistics and the Relative Importance Index (RII) method, ESG barriers were prioritised and compared in terms of respondents' perception. In construction management, urban development, and sustainability-related research, this method is commonly used to prioritize factors that can affect the successful implementation of projects and the effectiveness of policies.

The pilot study was carried out with initial three experts in the real estate sector who have experience in ESG compliance in Malaysia. The objective of the pilot was to enhance the clarity, validity and relevance of the questionnaire design. The feedback from the experts helped to fine-tune the wording of the survey questions, improve the design of the questionnaire and ensure it was relevant to the practical challenges in implementing ESG in the real world that developers and policymakers are encountering.

The study used the PESTEL analytical framework comprising Political, Economic, Social, Technological, Environmental, and Legal factors to systematically gather external factors that affect the ESG compliance of real estate development in Malaysia. The framework helped to classify the problems around ESG into more general themes related to sustainable urbanisation. Selected literature, policy documents and publications relating to sustainable urbanisation and real estate development in Malaysia were analysed. The analysis helped establish a set of recurring challenges related to ESG compliance, and facilitated the creation of constructs of questions and thematic categorization for the study.

To select individuals who have relevant professional experience and expertise in both urban development and real estate planning, ESG compliance and policymaking in Malaysia, purposive sampling was used. The targeted respondents were the real estate developers, urban planners, consultants, and the policy makers who are associated with urban development projects and urban governance.

The sample size was calculated according to the Taro Yamane formula for ensuring the statistical adequacy and representativeness of the sample. The total number of respondents for the study to distribute or receive questionnaires was determined to be 150 based on the calculation. Internal consistency of the measurement items was tested by Cronbach's Alpha in order to see the reliability of the questionnaire.

Structured questionnaires were used to collect data based on a 5-point Likert scale which ranged from 1 (very low important) to 5 (very high important). Descriptive statistics were used to analyze the collected data, which were then evaluated and ranked based on the Relative Importance Index (RII) method to determine the challenges related to the ESG compliance.

A Relative Importance Index (RII) was used to quantify the relative importance of each ESG sub-challenge for sustainable urbanisation in the real estate industry in Malaysia. Microsoft Excel computer software was used to compute the RII values, using the following formula:

$$RII = \frac{\sum W}{(A \times N)}$$

where:

- W = weighting assigned by respondent
- A = highest weight (5)
- N = total number of respondents

The RII values range from 0 to 1, with higher values indicating greater importance and influence of the identified ESG challenge. The interpretation of RII values is presented in Table 1.

Table 1: Classification and Interpretation of Relative Importance Index (RII) Scores

RII Range	Interpretation
0.80 – 1.00	Very High Importance
0.60 – 0.79	High Importance
0.40 – 0.59	Moderate Importance
0.20 – 0.39	Low Importance

This methodological approach helped identify, evaluate and prioritise the challenges towards sustainable urbanization from the real estate sector related to ESG compliance.

FINDINGS AND DISCUSSIONS

Pilot Survey and Content Analysis

The findings from the pilot study indicate that ESG compliance challenges are hindrances to sustainable urbanisation in the real estate industry in Malaysia. But these challenges also offer strategic opportunities for those developers who can beat them. A deeper examination of the expert responses found that governance-related impediments, especially inefficiencies in the bureaucracy and the complexity of the rules and regulations, were identified as the top challenges to achieving ESG compliance in development projects (Mohamed, 2025). The content analysis was a systematic categorization of these challenges using PESTEL analytical framework. Table 2 shows the eight dimensions identified and assessed for their core, which are relevant to the present study: Environmental Impact (EI), Workplace Dynamics (WD), Infrastructure Development (ID), Urban Development (UD), Housing Finance (HF), Regulatory Compliance (RC), Tenure Legalties (TL), Administrative Hurdles (AH).

Table 2: ESG Compliance Challenges and Sub-challenges in Malaysian Real Estate Development

Environmental challenge	Sub-challenge	Author
Environmental Impact (EI)	Environmental pollution (EI ₁)	Bai et al. (2018); Hong et al. (2020); Ren et al. (2023)
	Material loss (EI ₂)	Albert et al. (2021); Gupta et al. (2022); Simpeh et al. (2022); Bamfo-Agyei et al. (2023)
	Fuel consumption (EI ₃)	Xiang et al. (2011); Wang & Rakha (2017); Wysocki et al. (2019)
	Waste water (EI ₄)	Massoud et al. (2009); Corcoran et al. (2010); Spiller et al. (2012)
	Land consumption (EI ₅)	Dong et al. (2019); Yilmaz & Terz (2021); Chakraborty et al. (2022)
	Flooding (EI ₆)	Dube et al. (2018); Ping et al. (2019); Sherov & Soliey (2020); Wechie & Kakulu (2020)
Social Challenge	Sub-challenge	Author
Workplace Dynamics (WD)	Workplace democracy (WD ₁)	Geckil et al. (2017); Boden (2020)
	Community opposition (WD ₂)	Dovey et al. (2009); Davison et al. (2013); Ruming (2014)
	Transparency (WD ₃)	Tezel et al. (2015); Bititci et al. (2016); Liu et al. (2023)

	Equal employment opportunity (WD ₄)	Konrad & Linnehan (1995); French & Maconachie (2004)
	Social qualities (WD ₅)	Abdel-Raheem & Ramsbottom (2016); Yu et al. (2017); United Nations (2017)
	Respect for working conditions (WD ₆)	International Labour Organisation (2001); Panas & Pantouvakis (2010); Danso (2012)
	Worker shortages (WD ₇)	Othman (2014); Becker & Smidt (2015); Healy et al. (2015); Windapo (2016)
	Worker safety (WD ₈)	Swuste et al. (2012); Khosravi et al. (2014); Zhou et al. (2015); Pena & Ragan (2017)
Infrastructure Development (ID)	Poor land administration (ID ₁)	Williamson (2010); Hendriks et al. (2019); Reydon (2019)
	Inadequate waste disposal system (ID ₂)	Gangolells et al. (2014); Albeeshi et al. (2017); Abdel-Shafy & Mansour (2018)
	Inadequacy of open spaces for other land uses (ID ₃)	Byrne & Sipe (2010); Kabisch et al. (2016); Kremer et al. (2016)
	Site selection (ID ₄)	Olaseni et al. (2013); Labib et al. (2013); Zhang (2016); Rahman & Kabir (2019)
Urban Development (UD)	Mounting construction expenditure (UD ₁)	Ashuri & Lu (2010); Gan & Koh (2021); Simpeh & Amoah (2021)
	Bad quality of construction (UD ₂)	Love & Smith (2003); Shokrani et al. (2012); Huang et al. (2013)
	Building plan approvals and permits (UD ₃)	Kalbro et al. (2015); Marzukhi et al. (2019); Nwanekezie & Nwanguma (2020)
	Lack of basic infrastructure (UD ₄)	Bajar & Rajeev (2015); Ihuah (2015); Akerejola et al. (2019)
	Neighborhood environment (UD ₅)	Li et al. (2019); Lv et al. (2020); Wang & Zhu (2021)
	Delay in construction projects (UD ₆)	Assaf & Heiji (2006); Dolo et al. (2021); Albtoush (2024)
	Transportation problems (UD ₇)	Jing et al. (2014); Feuillet et al. (2016); Munshi (2016)
	Improper flow of information (UD ₈)	Rahman & Gamil (2019); Yakubu et al. (2019); Brookins (2020)
Governance challenge	Sub-challenge	Author
Housing Finance (HF)	Insufficient mortgage market (HF ₁)	Jamil (2015); Mariadas et al. (2019); Ehwi (2020)
	Lack of adequate sources of finance (HF ₂)	Addaney et al. (2015); Amos et al. (2015); Owusu-Manu et al. (2015)
	Credit risks (HF ₃)	Pan et al. (2018); Eichholtz (2021); Manz et al. (2021)
	High interest rates (HF ₄)	Khan et al. (2017); Thanaraju et al. (2019)
	Misinterpretation of market trends (HF ₅)	Umeh & Adilieme (2020); Bednar & Kaderabkova (2022); Klevak et al. (2023)
Regulatory Compliance (RC)	Ever-changing rules and policies (RC ₁)	Ding et al. (2017); Beaubrun-Diant & Maury (2021); Jiang & Wang (2021)
	Onerous regulatory framework (RC ₂)	Abdul Aziz et al. (2006); Ball (2010); Maruani & Amit-Cohen (2011)
	Tightening of rules for lending to the real estate sector (RC ₃)	Crowe et al. (2013); Svensson (2017); Duca et al. (2019)
Tenure Legalities (TL)	Multiple tenure systems (TL ₁)	Todorovski et al. (2016); Ogbu & Iruobe (2018); Tang & Meng (2021)
	Lack of clear land titles (TL ₂)	Besley et al. (2009); Yoo & Steckel (2010)
	Real estate lawlessness (TL ₃)	Berg (2013); Unruh (2013); Shittu & Adeosun (2020)

	Unfair land access (TL ₄)	Deininger et al. (2017); Dawson (2018); Ornert (2018); Marcelin & Cela (2020)
	Real estate insecurity and critical migration (TL ₅)	Crewett et al. (2008); Peters (2009)
Administrative Hurdles (AH)	Unrelenting bureaucracies and vague procedures (AH ₁)	Doling (1999); Yaakup et al. (2003); Foo & Wong (2014); Regonini (2016)
	Enabling strategies (AH ₂)	Hassan & McCarthy (2011); Yusof & Shefie (2011); Wu & Ramesh (2013)

Descriptive Analysis

Table 3 outlines the challenges and sub-challenges that impact real estate development from an ESG perspective. The analysis of the 150 respondents' responses indicates the extent of disagreement, neutrality, and agreement for each of the identified sub-challenges. The sub-challenges are classified into categories as per the description by respondents and distribution of responses in descriptive analysis.

Table 3: Survey Results on ESG Compliance Challenges in Malaysian Real Estate Development

Environmental challenge	Sub-challenge	Disagree	Neutral	Agree
Environmental Impact (EI)	Environmental pollution (EI ₁)	18	40	92
	Material loss (EI ₂)	53	52	45
	Fuel consumption (EI ₃)	25	54	71
	Waste water (EI ₄)	37	50	63
	Land consumption (EI ₅)	63	15	72
	Flooding (EI ₆)	14	16	120
	Sub-challenge	Disagree	Neutral	Agree
Social challenge	Workplace dynamics (WD)			
	Workplace democracy (WD ₁)	69	57	24
	Community opposition (WD ₂)	48	58	44
	Transparency (WD ₃)	72	37	41
	Equal employment opportunity (WD ₄)	42	66	42
	Social qualities (WD ₅)	58	70	22
	Respect for working conditions (WD ₆)	29	43	78
	Worker shortages (WD ₇)	22	22	106
Infrastructure Development (ID)	Worker safety (WD ₈)	19	33	98
	Poor land administration (ID ₁)	52	41	57
	Inadequate waste disposal system (ID ₂)	44	41	65
	Inadequacy of open spaces for other land uses (ID ₃)	65	13	72
	Site selection (ID ₄)	68	65	17
Urban Development (UD)	Mounting construction expenditure (UD ₁)	29	50	71
	Bad quality of construction (UD ₂)	3	74	73
	Building plan approvals and permits (UD ₃)	7	16	127
	Lack of basic infrastructure (UD ₄)	42	52	56
	Neighborhood environment (UD ₅)	31	52	67
	Delay in construction projects (UD ₆)	11	47	92
	Transportation problems (UD ₇)	22	52	76
	Improper flow of information (UD ₈)	40	50	60
Governance Challenge	Sub-challenge	Disagree	Neutral	Agree
Housing Finance (HF)	Insufficient mortgage market (HF ₁)	56	63	31
	Lack of adequate sources of finance (HF ₂)	24	47	79
	Credit risks (HF ₃)	33	94	23
	High interest rates (HF ₄)	10	35	105
	Misinterpretation of market trends (HF ₅)	65	58	27
Regulatory Compliance (RC)	Ever-changing rules and policies (RC ₁)	43	25	82

	Onerous regulatory framework (RC ₂)	3	28	119
	Tightening of rules for lending to the real estate sector (RC ₃)	20	60	70
Tenure Legalities (TL)	Multiple tenure systems (TL ₁)	40	50	60
	Lack of clear land titles (TL ₂)	12	38	100
	Real estate lawlessness (TL ₃)	60	50	40
	Unfair land access (TL ₄)	57	46	47
	Real estate insecurity and critical migration (TL ₅)	74	55	21
Administrative Hurdles (AH)	Unrelenting bureaucracies and vague procedures (AH ₁)	4	37	109
	Enabling strategies (AH ₂)	66	39	45

Flooding (EI6) was singled out as one of the worst environmental impacts (EI) variables, with 85% of respondents admitting that it has a considerable impact on sustainable urbanisation in the Malaysian real estate industry. Flooding is a highly ranked hazard and is a sign of increasing vulnerability related to climate change in Malaysia, especially in rapidly urbanizing areas where the high level of urbanisation has led to the conversion of land-use, deforestation and poor drainage systems, all of which have contributed to increased flood exposure. This result is in line with Samsuri et al. (2018) and Ab Razak et al. (2018) which showed that urbanization and climate change have worsened the flood hazard situation in major cities in Malaysia. The findings indicate that environmental resilience and climate adaptation measures should be part of the ESG implementation in urban development projects. The centrality of flooding in this situation calls for a focus on environmental resilience and climate adaptation as integral parts of urban planning and ESG governance from the viewpoint of Sustainable Urbanisation Theory. Sustainable urbanisation, then, has to see the need for developers to integrate long-term environmental risk mitigation into development planning processes.

In terms of workplace dynamics (WD), 80% of respondents reported worker shortages (WD7). Labour shortages are a direct problem in the construction sector because the industry is labour intensive and directly affects the performance of the project in terms of cost, time and quality (Hajela, 2012; Mahamid, 2013). This discovery also resonates with Stakeholder Theory, wherein there is a focus on the need for organisations to be responsible in their employment practices and on the care of the workforce, alongside other organisational sustainability issues. Labour shortages could impact the quality of projects, efficiency, and the effectiveness of ESG compliance during real estate development projects.

Poor land administration (ID1) was found to be influential as 65% of respondents when considering infrastructure development (ID). This is because the Land Administration System (LAS) is ineffective and affects critical development objectives such as uncontrolled urban expansion, land grabbing, poor infrastructure planning, and lack of sustainable development principles (Adebisi, 2025). Urban development (UD) is also identified as the most critical sub-challenge, with 87% of respondents agreeing on the importance of building plan approvals and permits (UD3). In fact, conflicts regarding planning approval and permit processes are frequently caused by the misinterpretation of municipal planning documents, regulatory frameworks or implementation guidelines by the developer (Wong & Maric, 2016).

Housing Finance (HF) reveals that a lack of adequate sources of finance (HF2) significantly hinders ESG compliance for sustainable urbanisation in Malaysian real estate, with 45% of respondents affirming this view. The common denominator is that most of these developers are new organizations that lack the requirements of banks for financing, such as the ability to have a proven track record in the industry, three years of audited financial performance, management experience, project experience, etc. (Acquah, 2011). In addition, regulatory compliance (RC) underscores the critical importance of an onerous regulatory framework (RC2) in ensuring real estate industry sustainability within the Malaysian context of achieving sustainable urbanisation for the country. The results were similar to the findings of Mohd et al. (2009), with 84% of the respondents agreeing that Malaysian housing developers are required to adhere to the legislations put by the government and face the property development risks.

Concerning the legality of tenure (TL), 56% of respondents indicated that the absence of clear land titles (TL2) is a problem as it, along with costs associated with disputes, litigation, and real estate transactions, imposes basic market inefficiencies and blocks new projects that demand clear ownership and value (Planning Commission & Delhi, 2002; Sharma, 2024).

Administrative hurdles (AH) and vague procedures (AH1) were the top two ESG compliance challenges in terms of agreement, with 90% of respondents saying they agreed they were the biggest hurdles in administrative compliance. The bureaucratic inefficiencies that are observed in Malaysia might be explained by the multi-level federal-state planning system where overlapping federal and state jurisdictions cause various layers of approval and different procedures to often extend development time. The result is in line with Foo and Wong (2014) who concluded that regulatory fragmentation is one of the major challenges that hinder the efficiency of housing development in Malaysia. In the same way, Rashid Abdul Aziz et al. (2006) noted that the lengthy approval and ambiguous administrative processes tend to raise the uncertainty of projects, operational costs, and project implementation delays. As such, too much bureaucracy can not only lead to difficulties in implementing ESG standards but can also hinder the promotion of sustainable urban planning and investment. This discovery is highly consistent with Institutional Theory which states that institutional pressures including coercive, regulatory and fragmented governance have a significant impact on organisational behaviour and implementation effectiveness. Highly cumbersome administrative processes and lack of uniformity in approval mechanisms also prevent the effective embedding of ESG in sustainable urban development processes.

This analysis revealed that five sub-challenges had relatively low scores with regard to respondent agreement and low Relative Importance Index (RII) values during comparison with other variables. The sub-challenges are workplace democracy (WD1), Equal employment opportunity (WD4), Insufficient mortgage market (HF1), Misinterpretation of market trends (HF5) and Real estate insecurity and critical migration (TL5). The results show that these variables were relatively less significant in influencing sustainable urbanisation in Malaysia's real estate industry when it comes to ESG compliance.

Relative Importance Index (RII)

Table 4 shows the Relative Importance Index (RII) and rankings for 36 sub-challenges that impact ESG compliance in sustainable urbanisation in the real estate industry in Malaysia. The RII score for each sub-challenge was used to rank. The most successful sub-challenge (0.963 RII) was unrelenting bureaucracies and vague procedures, reinforcing its significant impact on ESG compliance barriers. These persistent delays in development approval processes (in the case of Foo & Wong, 2014, the delays were documented by the desk officers) and lack of effective technological implementation are in direct contrast to the standards set forth by Yaakup et al. (2003) for comprehensive planning assessments, and create conditions that, as shown by Doling (1999), encourage non-compliant developer behaviours through excessive approval timelines.

Second, building plan approvals and permits (UD3) with an RII of 0.934 were identified as a major impediment due to the fact that inconsistent evaluation timelines, unclear evaluation criteria and overlapping jurisdiction reviews cause systemic delays which disproportionately increase the cost of projects and discourage long-term investment in sustainable urban development (Marzukhi et al., 2019).

Thirdly, flooding (EI6) shows a high degree of concern with an RII of 0.902 when it comes to an environmental impact. Developers have been warned not to add to the risk of flash floods by building on floodplains, building in flood prone areas, or clearing the hillslopes of trees (Chan et al., 2019; Karki, 2020; Saad et al., 2024).

The onerous regulatory framework (RC2) was also ranked fourth overall with an RII of 0.881 as the planning processes are unclear and lengthy, compounded by state level variations and 'on the job' practice (Omar, 2002; Ball, 2010), creating inconsistent planning requirements and high costs for housing developers.

The fifth critical challenge, worker shortages (WD7), had a significant impact on the workplace environment as determined by its high RII Index (RII = 0.853). The shortage of labour in the construction industry is a

serious issue, affecting construction project productivity by having inadequate staff members and operational inefficiencies (Othman, 2014).

Table 4: Prioritisation of ESG Compliance Challenges in Malaysian Real Estate Development

Dimension	Sub-challenge	RII	Importance Level	Rank
Environmental Impact (EI)	Environmental pollution (EI ₁)	0.831	Very High	7
	Material loss (EI ₂)	0.649	High	25
	Fuel consumption (EI ₃)	0.768	High	13
	Waste water (EI ₄)	0.725	High	17
	Land consumption (EI ₅)	0.687	High	21
	Flooding (EI ₆)	0.902	Very High	3
Workplace Dynamics (WD)	Community opposition (WD ₂)	0.658	High	24
	Transparency (WD ₃)	0.597	Moderate	30
	Social qualities (WD ₅)	0.586	Moderate	31
	Respect for working conditions (WD ₆)	0.775	High	12
	Worker shortages (WD ₇)	0.853	Very High	5
	Worker safety (WD ₈)	0.842	Very High	6
Infrastructure Development (ID)	Poor land administration (ID ₁)	0.678	High	22
	Inadequate waste disposal system (ID ₂)	0.715	High	18
	Inadequacy of open spaces for other land uses (ID ₃)	0.619	High	28
	Site selection (ID ₄)	0.553	Moderate	34
	Mounting construction expenditure (UD ₁)	0.759	High	14
	Bad quality of construction (UD ₂)	0.786	High	11
Urban Development (UD)	Building plan approvals and permits (UD ₃)	0.934	Very High	2
	Lack of basic infrastructure (UD ₄)	0.637	High	26
	Neighborhood environment (UD ₅)	0.695	High	20
	Delay in construction projects (UD ₆)	0.817	Very High	8
	Transportation problems (UD ₇)	0.736	High	16
	Improper flow of information (UD ₈)	0.608	High	29
Housing Finance (HF)	Lack of adequate sources of finance (HF ₂)	0.747	High	15
	Credit risks (HF ₃)	0.573	Moderate	32
	High interest rates (HF ₄)	0.806	Very High	9
Regulatory Compliance (RC)	Ever-changing rules and policies (RC ₁)	0.704	High	19
	Onerous regulatory framework (RC ₂)	0.881	Very High	4
	Tightening of rules for lending to the real estate sector (RC ₃)	0.667	High	23
	Multiple tenure systems (TL ₁)	0.628	High	27
	Lack of clear land titles (TL ₂)	0.795	High	10
	Real estate lawlessness (TL ₃)	0.542	Moderate	35
Tenure Legalities (TL)	Unfair land access (TL ₄)	0.564	Moderate	33
	Unrelenting bureaucracies and vague procedures (AH ₁)	0.963	Very High	1
Administrative Hurdles (AH)	Enabling strategies (AH ₂)	0.531	Moderate	36

Limitation

In the future, inferential statistical techniques such as Structural Equation Modelling (SEM), Partial Least

Squares Structural Equation Modelling (PLS-SEM), or factor analysis can be used to more fully investigate causal relationships between ESG barriers and sustainable urbanisation outcomes, thereby further strengthening the analytical robustness of the ESG compliance research presented herein.

CONCLUSION

This study has identified and assessed some major Environmental, Social and Governance (ESG) compliance issues that hinder sustainable urbanisation in the real estate industry in Malaysia. The study used systematic classification through pilot surveys, content analysis, descriptive statistics and Relative Importance Index (RII) analysis to categorize ESG barriers into eight distinct dimensions; Environmental Impact (EI), Workplace Dynamics (WD), Infrastructure Development (ID), Urban Development (UD), Housing Finance (HF), Regulatory Compliance (RC), Tenure Legalities (TL), Administrative Hurdles (AH).

The results show that the most significant factors for ESG implementation among Malaysian real estate developers are administrative inefficiencies, regulatory complexity, urban planning constraints, environmental vulnerabilities, and labour shortages. The unrelenting bureaucracy and procedures, building plan approvals and permits, flooding, onerous regulatory frameworks and worker shortages were among the top ESG compliance challenges. These results highlight the need for better institutional coordination, improved governance systems and environmental resiliency strategies for sustainable urbanisation in Malaysia.

Theoretically, the study enhances the existing literature on environmental, social and governance barriers and sustainable urbanisation by combining the three barriers into a multidimensional model which is specifically adapted to the real estate market in Malaysia. The study continues the lines of enquiry on sustainable urbanisation, showing the interplay between governance inefficiencies, financial constraints and environmental challenges and what this means for the outcomes of ESG implementation in emerging economies.

The findings from a policy perspective indicate that development approval procedures need to be streamlined, institutional transparency needs to be enhanced in order to promote more transparent institutions, environmental protection systems need to be strengthened, and climate resilience and law-based urban planning practices need to be improved. There is also a need to work together in the future between government, developers, financial institutions and the local community in order to sustain urban development.

While this study offers valuable insights into ESG compliance issues, it is important to note that there are some shortcomings that need to be acknowledged. Descriptive analytical techniques were used and perceptual responses from the industry stakeholders in Malaysia were used as a primary tool for the study. Future studies can extend the scope with the longitudinal approach, inferential statistical methods, and/or structural equation modelling to explore causal relationships between ESG barriers and sustainable urbanisation outcomes. Future studies can also explore sector-specific implementation of ESG, and include the voices of communities to ensure a more holistic picture of the issues around sustainable urbanisation.

On a broader scale, the current study emphasizes the significance of implementing an integrated approach to ESG in promoting sustainable urbanisation in the fast-growing real estate industry in Malaysia. Meeting these ESG challenges is vital to a city's balanced economic growth, environmental sustainability, governance accountability, and long-term resilience. This study builds on existing literature on ESG and sustainable urbanisation, offering a systematic conceptual framework that connects various environmental, social, governance, institutional and urban development barriers in the context of Malaysian real estate. The framework offers a broader perspective on the interlinkages of the multidimensional challenges of sustainable ESG compliance and the impact on sustainable urbanisation in emerging economies.

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