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FROM POLICY TO COMMUNITY ACTION IN LOW CARBON DEVELOPMENT IN KUALA LUMPUR: A NARRATIVE REVIEW

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Abstract:

Cities are now at the center of climate in a nation like Malaysia as it moves towards achieving carbon neutrality by 2050. Kuala Lumpur, being both the national capital and the main economic center, plays an essential role in illustrating the way in which international and national climate commitments are interpreted and practiced on the local level. Even with properly laid-down low-carbon policies and planning tools,

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it is challenging to maintain significant community engagement due to the design of governance, institutional assumptions, as well as the real world that urban communities face on a day-to-day basis. This narrative review analyzes the translation of low-carbon development strategies into community-level action in Kuala Lumpur, with special reference made to the issue of positioning participation into formal policy frameworks. Additionally, this narrative review summarizes peer-reviewed literature and essential policy papers on low-carbon development and community involvement in Malaysia. The database used to identify all academic papers published within the last 10 years (2015-2025) was Scopus, and a background search was conducted with regard to the information on the aspects of the policy evolution. Following this, the documents of the national and city governments were examined to seek the entrenchment of participation in the systems of low-carbon governance in Kuala Lumpur. Findings reveal that Malaysia has developed a policy architecture relating global climate pledges to life in the city with the help of such tools as the National Policy on Climate Change 2.0 (NCCP 2.0), the National Low Carbon Cities Masterplan (NLCCM), the Kuala Lumpur Low Carbon Society Blueprint 2030 (KL LCSBP 2030), and the Kuala Lumpur Climate Action Plan 2050. Accordingly, the role of community participation is planned in these models as an urban change driving force that is supported by institutional platforms and specific financing systems, such as the Geran Masyarakat MADANI Rendah Karbon (GMMRK). The effectiveness of implementation, however, varies relatively in practice. The review observes that advanced policy models cannot guarantee sustainable community involvement. The future of enhancing low-carbon urban governance involves participation pathways that extend beyond awareness-based approaches and acknowledge communities as active participants with various capacities and lived experiences.

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Keyword:

Low Carbon Development, Community Participation, Urban Governance, Climate Policy, Kuala Lumpur



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Introduction

The emergence of cities has become a definitive location in the global response to climate change. Urban areas contribute to nearly three-quarters of the global carbon dioxide emissions, and at the same time, can provide opportunities for coordinated and scalable mitigation efforts due to their centers of population concentration, economic activity, and resource consumption (Mi et al., 2019; Salvia et al., 2021; UN-Habitat, 2024; UNDP, 2024). Meanwhile, cities present great opportunities in terms of climate solutions by means of planning, regulation, technological innovation, and community-based programs (C40 Cities, 2022). In this regard,

the measure of the success of climate action is increasingly based not on technological solutions or ambitions. Instead, it stems from how urban governance systems mediate those ambitions into practices that define everyday life (Schmidt et al., 2024; Shtjefni et al., 2024).

Furthermore, the involvement of low-carbon development in Malaysia is an expression of this larger issue of urban challenge. Over the last 20 years, the country has gradually adjusted its national development agenda to the international climate commitments, which finally resulted in the desire to become carbon neutral by 2050 (Economic Planning Unit, 2021; Weber et al., 2024). In addition, there has been the development of national policies, planning directions, and sectoral plans aimed at guiding economic growth towards a lower carbon pathway (Fu & Zhang, 2024; Jamaluddin et al., 2023). Although similar to most developing and emerging economies, the translation of policy intent into practice remains uneven, especially at the community level, where policy frameworks are ultimately met and implemented (Abdullah et al., 2022; Ho et al., 2013; Zen et al., 2019). Consequently, this lack of uniformity raises the question of whether policy frameworks disseminated in isolation can achieve the behavioral and social change necessary to observe significant emissions reduction.

Kuala Lumpur has a unique role in the low-carbon transition in Malaysia within its national context. Being the capital of the country and the main economic center, the city can be regarded as a testing ground for innovative policy, as well as a benchmark for other urban centers. Notably, the low-carbon agenda of Kuala Lumpur is stated with a set of planning tools, the main one of which is the Kuala Lumpur Low Carbon Society Blueprint 2030 (KL LCSBP 2030), of reducing carbon emission intensity by 70% by 2030 relative to 2010 levels (Kuala Lumpur City Hall, 2018). In essence, this vision extends beyond merely depicting the environment. It also encompasses economic and governance estimations regarding the competitiveness of urban spaces, their liveliness, and sustainability over the long term.

Achieving these targets, however, would not be through a mere investment in the infrastructure or regulation. Thus, the primary understanding of the low-carbon strategy in Kuala Lumpur is that community engagement is an important component of meaningful and permanent emission reduction. For example, individual communities are expected to embrace energy-saving habits, promote sustainable movement, waste minimization habits, and other locally initiated environmental initiatives. As such, involvement is becoming a matter of policy rather than an addition or auxiliary aspect to implementation. Still, the expectation that participation will automatically become evident once the policies and programs are established is one that deserves more scrutiny.

This issue is supported by the fact that Malaysia has low-carbon development research that is currently underway, and it is based on technical evaluation, counting of carbon, or responsibility for particular mitigation activities. Such contributions are useful, yet they tend to underestimate the processes of government whereby participation is facilitated, constrained, or transformed through time. Nonetheless, less focus is given towards the ways communities experience the low-carbon policy in reality and how governance structures influence the continuation of participation, symbolic or disproportionate, in urban locations. Hence, this narrative review addresses this gap by studying the multi-scale policy framework for low-carbon development in Kuala Lumpur. This is particularly true with regard to the concept and institutionalization of community participation within formal policy frameworks.

Instead of assessing the effects of emissions or technological performance, the study follows the evolution of low-carbon governance, from international commitments to national frameworks and implementation at the city level. Additionally, it attempts to highlight the intersection between policy assumptions and community realities, as well as the gaps between policy development and lived experiences. Therefore, by prioritizing governance and participation, this review contributes to the discussion in the areas of environmental economy, planning, and management of the conditions under which low-carbon transitions can be socially integrated and institutionally sustainable. Essentially, this discussion provides a basis for future research, incorporating phenomenological perspectives to explore how low-carbon policies are interpreted, negotiated, and implemented in everyday urban life.

Literature Review

International Climate Governance and Urban Implementation

The international response to climate change has evolved through a process of consecutive international agreements, which have continuously improved national and local action mechanisms. Nationally Determined Contributions (NDCs) are the framework that was set by the United Nations (2015), which implies that nations make certain promises regarding their emission reduction targets. In the case of Malaysia, this framework has led to the formulation of national policies linking international obligations to local ones (Fernandez et al., 2024). Following this, the correspondence between international structures and local action is an essential aspect of climate governance efficiency, and it preconditions the analysis of how these promises are transferred into urban policy (Fernandez et al., 2024).

National Policy Architecture for Low-Carbon Development

The Malaysian low-carbon policy architecture has emerged in the country at the national level in a series of waves of policymaking. The National Policy on Climate Change 2.0 (NCCP 2.0) offers the general strategic framework, providing five strategic thrusts: increasing institutional and implementation capacity, enhancing climate resilience by adaptation, supporting low-carbon growth by mitigation, mobilizing financing, and leveraging technology and innovation (Ministry of Natural Resources and Environmental Sustainability, 2024). Such thrusts directly respond to the necessity of community involvement in terms of institutional capacity building and climate action awareness.

These strategic directions are implemented at the city level via the National Low Carbon Cities Masterplan (NLCCM). The masterplan takes into consideration the fact that urban centers can serve as a concentration of both sources of emissions and mitigation opportunities, providing a place where national climate targets can be reached. Notably, the NLCCM acknowledges that community engagement is among the key factors in the successful implementation. Yet, it also acknowledges that issues regarding public appreciation and engagement will always be present (Kementerian Pembangunan Kerajaan Tempatan, 2021). Moreover, this acknowledgment indicates a systematic crisis of policy will and ground-levelities, which can be explained by the literature on the subject of community participation.

Community Participation in Environmental Governance

Participatory studies in environmental governance of communities have demonstrated that active participation cannot be realized through mere provision of information or the creation

of awareness of the issue. In particular, effective engagement involves communities in the decision-making process and opens avenues for sustained engagement in implementation (Basri et al., 2024). Research within the Malaysian setting has also established the factors that affect participation, such as awareness of the environment, perceived self-efficacy, and institutional support structures (Yusliza et al., 2020).

According to the literature, individual factors and structural conditions influence community involvement in low-carbon initiatives. Personal aspects encompass environmental knowledge, value orientation, and perceived benefits of participation. Meanwhile, the policy design, institutional access, and financial and technical support of community initiatives are the structural factors (Gbadegesin et al., 2021). The interaction of these factors can be critical in devising successful engagement policies and offers a theoretical base of how Kuala Lumpur governance structures either facilitate or inhibit community participation in low-carbon programs.

Methods

A literature narrative review was conducted to answer the research questions. A narrative review seeks to offer a general view of a topic, and it could incorporate any evidence with minimal reporting of search methods, research selection, and quality review (Ferrari, 2015; Green et al., 2006; Snyder, 2019).

In order to increase the clarity of the analysis, the studies were thematically categorized into five domains. This includes policy architecture, urban governance and city-level implementation, community participation mechanisms, behavioral adoption and social practices, and implementation challenges, indicating policy-practice gaps.

Sources of Information

The search of the literature was conducted on 8 January 2026 using Scopus, a multidisciplinary database extensively used in systematic and narrative reviews across the environmental sciences and social sciences. In particular, Scopus was selected due to its comprehensive search of peer-reviewed journals on topics related to low-carbon development, urban sustainability, and community participation studies. The government portals, such as the Ministry of Natural Resources, Environment and Climate Change (NRES), Malaysian Green Technology and Climate Change Corporation (MGTC), PLANMalaysia, and Kuala Lumpur City Hall (KLCH), were accessed, and official policy documents were directly obtained. At the same time, a manual search of the reference lists of retrieved articles was also conducted to identify additional sources of relevance using the backward snowballing method.

Search Terms and Delimiting

A search strategy utilizing Boolean operators was employed to integrate pertinent keywords. The primary search string established was: TITLE-ABS-KEY ("low carbon" AND community AND Malaysia) AND PUBYEAR > 2014 AND PUBYEAR < 2026 AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (PUBSTAGE , "final")) AND (LIMIT-TO (LANGUAGE , "English")).

Selection Criteria

Table 1 summarizes the inclusion and exclusion criteria that would drive the selection of studies. Previous foundational literature prior to 2020 was selectively maintained to provide conceptual background where required, especially where it was used in defining policy development or institutional structures applicable in Kuala Lumpur.

Table 1: Inclusion and Exclusion Criteria

Category	Inclusion Criteria	Exclusion Criteria
Publication type	Peer-reviewed journal articles and official government policy documents	Opinion pieces, editorials, blogs, non-peer-reviewed reports
Time frame	Published 2015-2025	Publications before 2015 without foundational relevance
Language	English	Non-English publications
Geographic focus	Malaysia, with emphasis on Kuala Lumpur	Studies without a Malaysian context
Thematic relevance	Low-carbon development, community participation, urban climate governance	Purely technical studies without a governance dimension

Source: Author's compilation

Results

A preliminary search in Scopus resulted in 32 documents. The titles and abstracts were screened to select only the relevant results, and a total of 18 articles were included following the inclusion criteria. These have been complemented by eight policy documents and planning instruments that were accessed through government sources. Figure 1 (PRISMA flow diagram) demonstrates the process of selecting the studies.

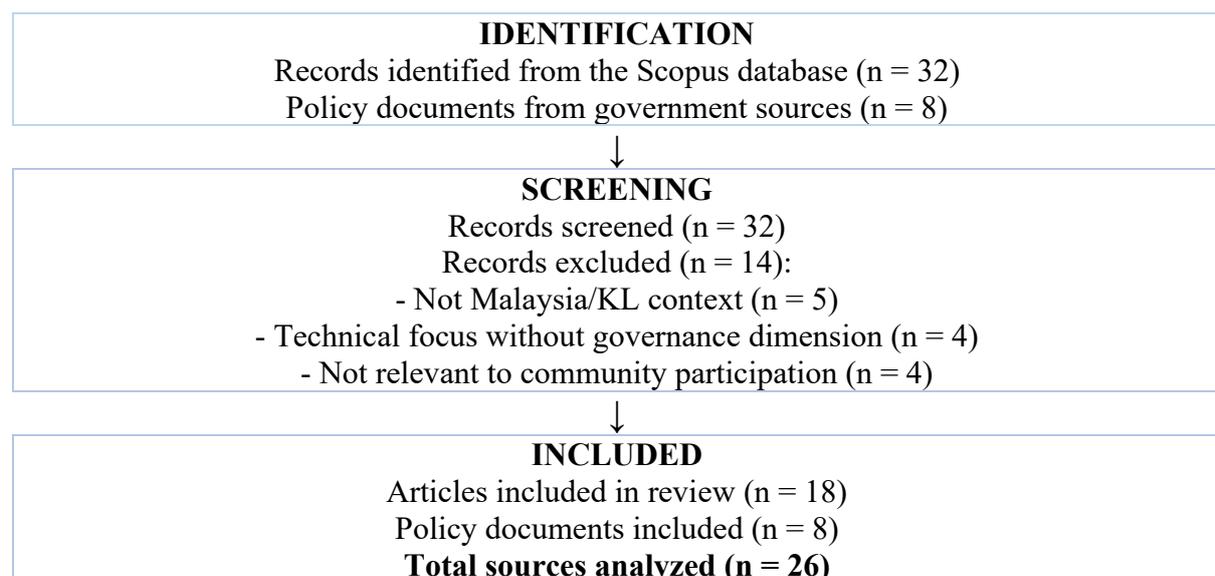


Figure 1: PRISMA Flow Diagram of Study Selection

Source: Author's compilation

National Policy Framework

The low-carbon development in the country is based on an integrated policy framework that links international commitments to local implementation in Malaysia. The strategic umbrella through which the sectoral policies work is the NCCP 2.0, which was launched in 2024. In line with this, the policy outlines the Malaysian determination towards carbon neutrality by 2050 and outlines intermediate targets such as a 45% reduction in carbon emission intensity by 2030 compared to 2005 levels.

Kuala Lumpur Low Carbon Implementation

One of the significant instruments of low-carbon urban development is the KL LCSBP 2030. Notably, Kuala Lumpur has higher carbon reduction goals (70% by 2030) than country policies (45%), making communities transformational drivers rather than enablers. This locally determined strategy, based on direct involvement programs in consultation with stakeholders, can accelerate climate action.

Table 2: Comparative Framework of National and KL-Level Policy Instruments

Dimension	National Level	Kuala Lumpur
Primary Instrument	NCCP 2.0, NLCCM, RMK12	KL LCSBP 2030, KLCAP 2050, PSKL 2040
Carbon Intensity Target	45% reduction by 2030 (vs 2005)	70% reduction by 2030 (vs 2010)
Community Role	Enabler of implementation	Driver of urban transformation
Engagement Platform	Stakeholder consultations	LA21KL program

Source: (Economic Planning Unit, 2021; Kuala Lumpur City Hall, 2018, 2021, 2023; Ministry of Natural Resources and Environmental Sustainability, 2024)

Community Engagement Mechanisms and Funding Support

The primary medium of communication with the community is Local Action 21 Kuala Lumpur (LA21KL), an organization that was created by the City Planning Department of KLCH. Under LA21KL, communities also participate in activities such as composting and recycling, urban agriculture, household energy-saving, water conservation, and promotion of sustainable movement (Kuala Lumpur City Hall, 2023).

Realizing that the community program requires funding, KLCH erected Geran Masyarakat MADANI Rendah Karbon Kuala Lumpur 2030 (GMMRK). This grant funds the qualified community projects between RM5,000 and RM20,000. Accordingly, the grant has four priority areas: environmental preservation and conservation (pemeliharaan dan pemuliharaan alam sekitar), sustainable energy systems (sistem tenaga mampan), sustainable waste management (pengurusan sisa mampan), and community participation with green lifestyle (penyertaan komuniti dan gaya hidup hijau).

Table 3: Funding Mechanisms for Community Low-Carbon Initiatives

Grant	Administrator	Amount	Recipients
GMMRK KL 2030	KLCH	RM5,000-20,000	RA/KRT, IPTA/IPTS, NGO
GeRAK	NRES/MGTC	Up to RM250,000	Local Authorities

Source: (Kuala Lumpur City Hall, 2024; MGTC, 2021)

Figure 1: Promotional Material for Geran Masyarakat Madani Rendah Karbon Kuala Lumpur 2030

Source: (Kuala Lumpur City Hall, 2024)

Implementation Challenges

Despite sophisticated policy frameworks, systematic assessments have identified persistent challenges. As such, the NLCCM recognizes seven key challenge areas: inconsistent policy implementation across jurisdictions, gaps in transition from top-level policy to bottom-level execution, insufficient and unreliable funding, weak integration of low carbon strategies into development documents, shortage of capable personnel, weak data availability for greenhouse gas inventories, and critically, weak public appreciation of low carbon objectives with limited participation opportunities (Kementerian Pembangunan Kerajaan Tempatan, 2021). Thus, to bridge this gap, PLANMalaysia has prepared planning guidelines on low-carbon and climate-resilient cities. This ultimately provides a framework for local authorities to mainstream low-carbon strategies into their local plans (Department of Town and Country Planning, 2023).

Discussion

According to the results of this narrative review, the low-carbon agenda of Kuala Lumpur is supported by a coherent and further integrated policy framework. Correspondingly, the Kuala Lumpur Climate Action Plan 2050 provides a clear way towards carbon neutrality by the middle of the century (Kuala Lumpur City Hall, 2021). Malaysia is undertaking conscious attempts to make international climate undertakings in line with national development priorities and urban development models. From the perspectives of the economy and environmental

planning, the alignment is indicative of the acknowledgment that climate change should be integrated into larger governing and developmental endeavors. This is as opposed to a stand-alone environmental agenda. This is evidenced by the political arena in its aim to make low-carbon development the core of urban competitiveness and long-term sustainability.

However, the weaknesses of the way participation is operationalized in such structures are also the focus of the review. The interaction of the community is habitually covered in policy documents, though it is typically structured according to the already existing programs and institutional interests. Still, this model is less prone to deliberation and joint decision-making in favor of compliance and behavioral change. Therefore, the presence of communities as active partners in low-carbon governance is often not as significant as it might be since the administration is designed in a way that it would not necessitate or even desire community participation. Furthermore, the existence of the community as a program implementer even presents a threat to obscure the meaning of political and deliberative actors, whose priorities and realities are not necessarily congruent with the political assumptions. In addition, the implications of these findings are related to the perception of governance effectiveness. The interest will be effective, whereby efforts should be geared towards routine practices, societal norms, as well as perceived benefits on the local fronts. In cases where the involvement systems fail to capture these aspects of life, then chances of participation being brief or superficial are most probable. This suggests that the efficiency of governance does not simply lie in the clarity of policies; it also lies in the experience and meaning of these policies in daily life in the city. Notably, policy mismatch and inconsistency with the actualities of localities are not new issues with low-carbon governance in Kuala Lumpur and other cities.

Strengths and Limitations

As debated, this narrative review is a synthesis of the low-carbon policy framework in Malaysia. This is particularly true when employing an approach where special attention is paid to the community engagement strategy, and the lack of such information in the existing literature focuses on the technical or infrastructure aspect. Additionally, the analysis is reinforced by the incorporation of the academic literature and the primary policy documents. Conversely, the limitations of the review include the use of published documents, which may not fully capture the realities of implementation on the ground. For example, policy documents primarily reflect institutional perspectives and may undermine ordinary practices and informal forms of community participation. For instance, the English criteria may have excluded publications relevant to Bahasa Malaysia. While the narrative review methodology is appropriate for the synthesis of various evidence, it does not employ a systematic quality assessment of individual studies. Therefore, future research should include collecting primary data from community members to understand the actual experience of policy implementation.

Conclusion

This narrative review analyzed in depth the ways in which policies of low-carbon development and policy and governance innovations have been disseminated at the community level in Kuala Lumpur. The analysis suggests that Malaysia has created a highly organized system for supporting the development of low carbon, yet community participation cannot be spontaneously formed due to the design of the policies. Building on this, the continuity of the absence of policy practice can be attributed to the fact that urban transition planning is intricate in settings characterized by economic priorities, institutional capabilities, and social realities.

As a way of addressing these gaps, governance strategies must be crafted in a manner that ensures the communities are not considered passive consumers of policy endeavors. There should be inclusive and flexible participation channels that are based on the lived experience to incorporate the realization of the low-carbon practices into daily urban practices. Moreover, the study, analyzing the problem of community involvement in the context of environmental planning and management, states the importance of governance innovation, which helps to achieve the low-carbon transition. Ultimately, the success of urban climate action depends on both the ambitions of the policy and how it is experienced, negotiated, and maintained over time.

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