Role of Community Participation in Achieving Low Carbon Lifestyles in Kuala Lumpur

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Abstract

This paper examines community engagement in Kuala Lumpur's Low Carbon Lifestyle (LCL) programs, led by Local Agenda 21 Kuala Lumpur (LA21KL). It investigates how community participation can drive the city's goal to achieve zero carbon emissions by 2050. The study identifies three key themes based on qualitative research and in-depth interviews: empowering community participation, strengthening engagement in low programs, and green urban governance. This study emphasises the importance of raising awareness about the benefits of LCL programs to boost community involvement. Strategies like fostering local champions are essential for successfully implementing these initiatives.

Keywords: community empowerment; community participation; green urban governance; low carbon lifestyle

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1.0 Introduction

The Malaysian government has urged organisations and individuals to combat global warming by raising awareness and supporting efforts to address this global crisis. To achieve its net-zero target, the government aims to reduce carbon intensity by 45% by 2030, relative to 2005 gross domestic product levels. The goal is supported by a climate change blueprint designed to ensure climate-resilient development and promote sustainability (Climate Governance Malaysia, 2021).

Kuala Lumpur has taken steps to comply with the climate obligations by releasing the Kuala Lumpur Low Carbon Society Blueprint 2030 (KL LCSBP 2030), which includes 10 Actions and 245 Programs to guarantee climate-resilient development (UTM-Low Carbon Asia Research Centre, 2018). To become a low carbon city, Kuala Lumpur City Hall (KLCH), in collaboration with Local Agenda 21 Kuala Lumpur (LA21KL), has planned to engage and educate the community on how the city can reach the target by introducing community participation in Low Carbon Lifestyle (LCL) programs. PLANMalaysia introduced the Green Neighbourhood Guideline in 2012. The guideline includes LCL community programs such as urban farming, rainwater harvesting, composting, recycling, and the 3Rs (recycle, reuse, and reduce). Kozhikov et al. (2024) noted that these programs are regularly practised within the community, fostering community engagement with minimal time commitment. Cheng et al. (2020) discovered that LCL modifications frequently manifest as individual, practical government efforts. This is because policy target populations and policymakers are often divided.

However, a challenge arises from insufficient participation in LCL programs, as individuals can only be compelled to engage with community empowerment. Learning capacity and environmental culture significantly impact low carbon behaviours, shaping individuals' ability to adopt sustainable practices. Empowerment involves systemic changes and institutional support to facilitate sustainable transitions (Cheng et al., 2022). Based on Clarabut (2020), it enables people to connect on a personal level and promote one another's continuous growth. This research aims to identify barriers to green behaviour and promote a green and low carbon society by increasing community participation in LCL programs.

This paper investigates community participation in adopting LCL programs in daily life. It addresses the research question: How does the community experience the low carbon lifestyle? The research objective (RO) is to understand the process of adopting a low carbon lifestyle. The study will examine how communities share knowledge, influence others, offer support, connect, learn, and address their strengths, weaknesses, and challenges in achieving this. Additionally, it will examine collaboration with agencies and subject matter experts (SMEs) to enhance LCL programs, establish benchmarks for initiating similar programs in other communities, and evaluate the government's role in facilitating successful community-led implementation.

2.0 Literature Review

2.1 Community Participation

Community participation encompasses both practical and theoretical aspects of direct citizen involvement in decision-making processes. It engages those impacted by decisions and empowers them through education and climate change awareness (Chitsa et al., 2022). Disciplines such as public policy, administration, political science, and sociology play a key role in promoting this participation. According to the Paris Agreement, community engagement is critical in addressing climate change, encouraging grassroots initiatives to limit global temperature rise to below 2°C above pre-industrial levels, with the goal of staying under 1.5°C. Restrepo-Mieth et al. (2023) highlight that widespread awareness and individual responsibility, enabled by participatory approaches, are essential for effective mitigation and adaptation strategies.

Previous studies have shown successful community engagement in Iskandar Malaysia through strong commitment and collaboration among various stakeholders (Wu et al., 2022; Ramli, 2020). The research underscores the importance of stakeholder engagement in low carbon initiatives, with transparency, inclusive decision-making, and systemic participation identified as key factors for successful transitions (Glanz & Schönauer, 2021; Yang et al., 2023). In Putrajaya, Azalia (2017) identified predictors of adopting a low carbon lifestyle, such as personal attitudes towards resource use and energy consumption. Similarly, Abas (2017) advocated for a framework to build low carbon behavioural capacity, suggesting that local authorities, as key players, should lead these initiatives to raise public awareness and improve existing programs.

While existing studies offer valuable insights into the Low Carbon Society (LCS) concept in Iskandar Malaysia, Putrajaya, and Kuala Lumpur, there is a notable gap in research specifically focusing on Kuala Lumpur. This study is crucial for deepening our understanding of LCS implementation within Kuala Lumpur's communities, especially those involved in LA21KL and KL LCSBP 2030 programs. Despite the challenges in connecting personal behaviour to broader environmental issues, the existing ecosystem provides tools to enhance quality of life and promote sustainable living (Ottaviano et al., 2019). The need for more research on the LCS concept in Kuala Lumpur is evident, and this study seeks to address that gap. Community participation is essential for achieving low carbon cities (Wu et al., 2022), but fostering engagement remains difficult, especially in low to middle-income countries (Leknoi et al., 2022).

As Kuala Lumpur aims for a low carbon future by 2030, proactive steps are needed to boost community participation through targeted initiatives and programs. Evidence suggests that environmental regulations can drive green innovation and spur economic growth (Yang & Zhao, 2023). Effective community participation is influenced by stakeholder cooperation, intergovernmental relationships, and access to information (Zanudin et al., 2022). However, the government's role is pivotal in fostering community partnerships, as outlined in the KL LCSBP 2030, to ensure a coordinated and impactful approach. This underscores the practical implications of the research and its potential influence on policy and practice.

2.2 Theory of Community of Practice (CoP)

CoP theory is a valuable tool for understanding how people learn within social environments (Bandura, 1977). The study connects community participation to CoP theory, highlighting its potential to foster interaction in low carbon programs. It emphasises the sharing of best practices and the creation of new knowledge, showcasing how CoP theory can foster collaboration and knowledge exchange in low carbon initiatives. Lave and Wenger (1991) define a CoP as a group of individuals with shared interests and are committed to learning and sharing diverse experiences. Communities involved in low carbon initiatives frequently share interests and values, including tacit knowledge, which is knowledge gained from personal experience rather than formal education. To establish CoPs in Kuala Lumpur, individuals with similar interests or expertise can form communities to promote collaboration. However, inconsistent definitions and frameworks for CoPs have led to variations in their function and structure, making it challenging to evaluate their effectiveness and impact on community development and sustainability (Yu, 2022).

Wenger (1998) suggests that learning occurs 'in situ,' or in real-life contexts, through active social engagement within CoPs. This process connects existing knowledge with new insights from real-world experiences. It involves collaborating with local authorities, creating communities based on shared interests or expertise, and ensuring that community leaders regularly monitor LCL programs (Irusta, 2023). Ultimately, CoP theory provides a framework for community participation strategies managed by local authorities, aimed at developing and supporting communities with similar interests or expertise to ensure continuous monitoring and support for LCL programs.

3.0 Methodology

This study used phenomenological research methodology to capture the lived experiences of participants and the essence of the phenomenon under investigation (Husserl, 2017). It focused on exploring the community's and stakeholders' daily lives concerning LCL experiences that can potentially reduce carbon dioxide emissions. By adopting a qualitative approach, transcendental phenomenology provided a comprehensive understanding of human experiences. Informants conveyed their experiences through in-depth interviews, and the data was transcribed and analysed using a constructive approach.

Data collection occurred from April to October 2021. Interviews were conducted online via Zoom and in-person until data saturation was achieved. Simultaneously, a fieldwork study was performed to observe the informants' activities. Seven informants who met the selection criteria were chosen as study participants. These informants included community members actively involved in LA21KL programs promoting a low carbon lifestyle, such as the chairman and committee members. Selection criteria included regular participation in LA21KL programs, representation of the community in low carbon initiatives in Kuala Lumpur, and willingness to discuss their adoption of LCL programs and personal experiences.

The interview method is one of the most frequently used approaches for data collection in qualitative research (Merriam, 1998).Interviews provide researchers with valuable insights into participants' experiences and perceptions. Taylor and Bogdan (2016) concur that phenomenologists should examine human behaviours and communications as reflections of how individuals interpret their world. Therefore, the meaning derived from these experiences contains realities shaped by social interactions. To grasp the essence of the phenomenon, the researcher must consider the philosophical, sociological, and psychological aspects of life experiences (Othman, 2017).

Table 1: Overview of the informants' demographics.

Informant	Age (year)	Involvement in Community	Position	Notes
Informant 1	52	More than 10 years	Former Chairman	Community
Informant 2	55	5-10 years	Former Chairman	Community
Informant 3	32	Less than 5 years	Town Planning Officer	LA21KL Coordinator
Informant 4	47	11- 20 years	Founder and President	NGO
Informant 5	48	5-10 years	Senior Deputy Director	Government Officer
Informant 6	50	More than 10 years	Director	Government Officer
Informant 7	42	Less than 5 years	Town Planning Officer	Government Officer

4.0 Results

The data were analysed using the constant comparative technique, as described by Merriam (1998). This method was employed to examine interview data throughout the data collection phase. Initially, the first interview was analysed to develop categories and identify emerging themes. This process was subsequently applied to additional interviews until data saturation was reached. Through this technique, patterns, recurring issues, and relevant themes were identified. Categories and themes were continuously refined throughout the research process to ensure a comprehensive analysis.

Figure 1: List of themes and categories based on research questions.
(Source: The researcher's data, 2021)

The findings address the following research question (RQ): *How does the community experience the low carbon lifestyle?* and aim to achieve the research objective (RO): *To*

explore the experience of adopting a low carbon lifestyle. The analysis revealed three core themes and twelve categories derived from participant observations during interview sessions and document analysis. The identified themes are Empowering Community Participation**,** Strengthening Engagement in Low Carbon Programs**,** and Green Urban Governance. These themes have been further elaborated to provide detailed insights into community experiences with low carbon initiatives. Figure 1 presents the identified themes and categories in relation to the research questions.

4.1 Empowering Community Participation in Low Carbon Programs

This theme encompasses five categories: encouraging community participation, raising awareness, strengthening family inclusion, fostering community creativity, and successfully implementing programs. Initially, the LA21KL team provided an overview of the LCL programs to encourage community participation. Informant 1 noted that these programs are particularly effective in raising awareness among younger generations. However, Informant 5 highlighted that LA21KL should address specific challenges when introducing programs, as different strategies are needed for low-income (B40), middle-income (M40), and high-income (T20) groups. Tailored approaches to raising awareness and understanding diverse community mindsets are essential. The LA21KL team also advises the community on programs relevant to their current issues. For example, while some people dispose of waste for hygiene, recycling can offer economic benefits. Such programmes can stimulate green innovation and economic growth, potentially generating revenue. Additionally, strengthening family inclusion can enhance community engagement.

> "We had a recycling program every week. Not only did it help recycle their belongings, but it also served as bonding time. In terms of the social aspect, the three main races cooperated and got along well." (Informant 2)

The community has generated remarkable and innovative ideas in community creativity, such as Eco Brick initiative, which turns plastic bottles into handicrafts and teaches people how to make them. This serves as an excellent example of a green lifestyle that could be promoted in other communities. Additionally, the community has partnered with the corporate sector, such as Maybank, which funded the Eco Bricks workshop. This community has also been involved in composting and organic farming activities, allowing them to grow their food and generate income from successfully implemented programs. Lastly, the community has become more knowledgeable and capable of spreading awareness.

> "Through the Local Agenda program, they gained knowledge and have now become experts or trainers. Some have even gone on to empower their community.'" (Informant 3)

4.2 Strengthening Engagement in Low Carbon Programs

Three categories have been identified to strengthen engagement in low carbon programs: corporate social responsibility (CSR), government engagement, and non-governmental organisations (NGOs). In terms of CSR, Informant 2 shared that SWCorp was impressed

to discover that PPR Kepong had successfully implemented a recycling program while also sharing gardening knowledge with the Wangsa Sari community. Inspired by this example, SWCorp launched the 'anak angkat' (adopted) program and made donations to the community leader. In return, the program helps generate income for the community.

Informant 4 highlighted a gap in government engagement during implementation. While the government prepares guidelines and related parties enforce them, LCL modifications frequently manifest as isolated, effective government efforts. However, there remains a disconnect between these efforts and their impact on the community. Informant 3 pointed out that differentiating between implementation and simply meeting requirements is subjective, as not all criteria are easily measurable or applicable. This prompted the idea of conducting a 'Strengths, Weaknesses, Opportunities, and Threats' (SWOT) analysis to better identify the community's strengths and weaknesses.

> "If you want to solve something, you have to find out the issue, right? So, it is helpful to look at the pros and cons of the situation. I think this approach works in every part of life." (Informant 3)

Some NGOs collaborate with LA21KL and SMEs, receiving funding for their initiatives. Nowadays, many NGOs support community green initiatives, offering opportunities for social learning and exploration.

4.3 Green Urban Governance

Kuala Lumpur must set an example for other local authorities by practicing green urban governance. This can be explained through four categories: acting as good governance, the role of government, smart systems, and effective energy use. Informant 6 identified three key communities involved in low carbon initiatives: the public, the industrial and commercial sectors, and city administrators. Good governance requires a thorough understanding and knowledge of the programs before educating the public on low carbon farming. This approach can significantly reduce costs by cutting out middlemen and easing the financial burden on farmers.

KLCH aims to rapidly shift mindsets, promoting collective action for a low carbon future. This is essential for Kuala Lumpur's goal of becoming a smart city, which requires developing and consistently monitoring systems such as systematic data management for recycling, overseen by the Socio-Economic and Environmental Association (PERSEAS). KLCH plans to introduce a rental reduction scheme for the PPR community, allowing tenants to exchange recyclable items for rent reductions or rebates. Effective energy management, energy efficiency, and renewable energy are also key priorities. Recently, the Global Covenant of Mayors for Climate Change and Energy (GCoM), Southeast Asia, recognised KLCH for its efforts to reduce carbon emissions.

"This program is pioneered by the government, it should start with the government, whether federal, state, or local authorities. They must lead by example (top-down), as the public and industry will look to them, especially with new initiatives." (Informant 6)

5.0 Discussion

The findings of this study identify three core themes essential for the effective implementation of low carbon programs: Empowering Community Participation, Strengthening Engagement in Low Carbon Programs, and Green Urban Governance. Each theme outlines key elements that encourage community involvement and support sustainable transitions. The first theme, Empowering Community Participation, involves encouraging local involvement, raising awareness, strengthening family participation, fostering community creativity, and successfully implementing community-led initiatives. The LA21KL program underscores the importance of understanding the benefits of low carbon initiatives to motivate participation. However, to ensure effective engagement, it is crucial to address the diverse needs of different socio-economic groups, including B40, M40, and T20 communities (Zanudin et al., 2022). This approach fosters empathy and inclusivity in the audience.

The study's findings align with existing research, which emphasises the role of community participation in achieving sustainable outcomes. Research by Chitsa et al. (2022) and Restrepo-Mieth et al. (2023) show that community involvement is crucial for empowering citizens and fostering responsibility for climate change mitigation and adaptation. However, promoting participation is challenging, particularly in diverse socio-economic and cultural contexts. Leknoi et al. (2022) highlight the importance of understanding cultural dynamics and community contexts when designing effective low carbon strategies, emphasising the need for tailored community-based approaches that address local needs and priorities.

The second theme, Strengthening Engagement in Low Carbon Programs, emphasises the roles of CSR, government involvement, and NGOs in promoting community participation. The study identifies a gap between government initiatives and their actual impact on communities, which may undermine the effectiveness of these programs (Cheng et al., 2020). A more collaborative approach that involves all stakeholders is needed to close this gap. The concept of CoP, as proposed by Irusta (2023) and Wenger (1998), offers a valuable framework for fostering collaboration, sharing best practices, and promoting collective learning within communities. Additionally, integrating regulatory measures with community engagement strategies, as suggested by Yang and Zhao (2023), could stimulate green innovation and economic growth, thus amplifying the impact of low carbon programs.

The third theme, Green Urban Governance, highlights the role of local authorities, such as KLCH, in setting an example for sustainable urban governance. Effective governance practices, like smart data management systems and cost-reduction initiatives, are key to promoting a low carbon lifestyle (Irusta, 2023). KLCH's recognition by the GCoM

demonstrates the potential impact of these efforts in reducing carbon emissions. However, the study also emphasises the need for a coordinated approach that includes top-down leadership, consistent monitoring, and ongoing community engagement to ensure long-term sustainability. This focus on a unified strategy provides reassurance about the future success of low carbon programs.

In conclusion, achieving low carbon objectives requires a comprehensive approach that integrates community participation, stakeholder collaboration, and effective governance. While there is broad consensus on the importance of community involvement, opinions differ on the challenges and solutions for fostering this engagement. Addressing these challenges requires a multi-faceted strategy that takes local contexts into account, encourages collaboration among stakeholders, and incorporates regulatory measures. These strategies are vital for Kuala Lumpur and other cities to achieve their low carbon goals and secure a sustainable future for their communities by 2030.

6.0 Conclusion

This study highlights the critical importance of integrating educational efforts and leadership development within local contexts to boost community participation in sustainability initiatives. Empowering community members through targeted education and training in sustainable practices not only builds knowledge but also fosters a sense of ownership and commitment to environmental stewardship. To achieve long-term behavioural change and sustained engagement, programs should focus on developing local leaders who can effectively champion green initiatives. Academia plays a key role in this process by providing research-based insights into community engagement strategies and green leadership models. By facilitating community-based learning opportunities, such as workshops and educational programs, academic institutions can bridge the gap between theoretical knowledge and practical application. Collaborations between academia, industry, and local communities can further strengthen these efforts, creating a more cohesive approach to sustainability.

The findings highlight the need for academia to conduct comprehensive research on the effectiveness of various community engagement strategies, particularly in diverse socio-economic and cultural settings. Academic institutions should support research that encourages community-based learning and sustainable practices, helping translate theoretical knowledge into practical solutions. For communities, building local leadership capacities and creating inclusive platforms for participation is crucial, especially to address the unique needs of different socio-economic groups (B40, M40, and T20). Governance bodies must lead by example, ensuring policies are adaptive, transparent, and responsive to community feedback. In the industry, greater focus on CSR and partnerships with local communities is crucial to fostering innovation in low carbon initiatives.

Future research should investigate the effectiveness of digital tools and technologies in enhancing community participation and supporting sustainable behaviours. Assessing how digital platforms can improve stakeholder communication, disseminate information

efficiently, and track progress in real time is essential for developing strong green urban governance models. Additionally, examining the impact of regulatory measures and incentives on promoting green innovation and community engagement will provide valuable insights for achieving long-term sustainability goals. Focusing on these areas will help identify effective strategies and potential barriers, contributing to more inclusive and practical approaches for advancing low carbon objectives in diverse urban environments.

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Article Contribution to Related Field of Study

This paper explores the adoption of a Low Carbon Lifestyle in Kuala Lumpur, emphasising community collaboration through the Community of Practice. It highlights the importance of empowering local residents to help achieve zero emissions by 2050 and provides recommendations to enhance urban planning and environmental strategies.

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