International Journal of Innovation and Industrial Revolution
EISSN: 2637-0972
IJIREV
Volume 5 Issue 15 (December 2023) PP. 33-44
DOI 10.35631/IJIREV.515004

INTERNATIONAL JOURNAL OF INNOVATION AND INDUSTRIAL REVOLUTION (IJIREV)
www.ijirev.com

PROMOTING A SUSTAINABLE LOW-CARBON COMMUNITY THROUGH THE UNIVERSITY'S KNOWLEDGE ENDOWMENT PROJECT FOR MOSQUE

Nur Hanim Ilias[1*], Azran Mansor[2], Siti Syamimi Omar[3], Nur Huzeima Mohd Hussain[4], Atikah Fukaihah Amir[5]

[1] Department of Built Environment Studies and Technology, College of Built Environment, Universiti Teknologi MARA, Perak Branch, 32610 Seri Iskandar, Perak, Malaysia
Email: nurha048@uitm.edu.my
[2] Department of Built Environment Studies and Technology, College of Built Environment, Universiti Teknologi MARA, Perak Branch, 32610 Seri Iskandar, Perak, Malaysia
Department of Landscape Architecture, Faculty of Design and Architecture, Universiti Putra Malaysia, 43400 UPM Serdang, Selangor, Malaysia
Email: azran973@uitm.edu.my, gs59013@student.upm.edu.my
[3] Department of Built Environment Studies and Technology, College of Built Environment, Universiti Teknologi MARA, Perak Branch, 32610 Seri Iskandar, Perak, Malaysia
Email: sitisyamimi@uitm.edu.my
[4] Department of Built Environment Studies and Technology, College of Built Environment, Universiti Teknologi MARA, Perak Branch, 32610 Seri Iskandar, Perak, Malaysia
Email: nurhu154@uitm.edu.my
[5] Department of Built Environment Studies and Technology, College of Built Environment, Universiti Teknologi MARA, Perak Branch, 32610 Seri Iskandar, Perak, Malaysia
Email: atika250@uitm.edu.my
[*] Corresponding Author

Article Info:

Article history:
Received date: 20.10.2023
Revised date: 15.11.2023
Accepted date: 14.12.2023
Published date: 24.12.2023

To cite this document:

Ilias, N. H., Mansor, A., Omar, S. S., Hussain, N. H. M., & Amir, A. F. (2023). Promoting A Sustainable Low-Carbon Community Through

Abstract:

Climate change has emerged as a critical global concern, adversely affecting energy consumption and community living environments. Carbon dioxide (CO2) emissions primarily contribute to global warming and climate change, necessitating increased awareness and adoption of low-carbon lifestyles among communities at a micro-scale. While addressing this growing concern, a collaborative effort involving ten university researchers, incorporating faculty members from the built environment department, professional landscape architects, the Masjid As-Siddiq congregation, and related agencies, culminated in the development of the Recycle Edible Garden (REG) as a knowledge endowment project for communities. This paper delves into the methodologies and challenges of knowledge transfer in developing REG as a community low-carbon landscape project. It encompasses low carbon living

International Journal of Innovation and Industrial Revolution
EISSN: 2637-0972 IJIREV
Volume 5 Issue 15 (December 2023) PP. 33-44
DOI 10.35631/IJIREV.515004

The University's Knowledge Endowment Project For Mosque. *International Journal of Innovation and Industrial Revolution, 5* (15), 33-44.

DOI: 10.35631/ IJIREV.515004

initiatives, including a recycling and reusing workshop, tree planting with the community, and landscape maintenance sharing sessions with experts. The project was accomplished within a 12-month timeline, yielding favourable results regarding community well-being, mosque landscape enhancement, and heightened awareness regarding carbon mitigation. In summary, the knowledge endowment project, aimed at fostering sustainable low-carbon community awareness, met its objectives within the REG initiative at the community mosque. However, there is a need for continued follow-up and sustainability efforts for the ongoing programs.

Keywords:

Knowledge Endowment Project, Climate Change, Low Carbon Landscape, Low Carbon Community, Neighbourhood Mosque

Introduction

Climate change is a global issue caused by the accumulation of greenhouse gases (GHGs) in the Earth's atmosphere. GHGs include water vapour, carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), and ozone. The demand and use of goods and services increase GHG emissions (Shadman et al., 2022), leading to climate change (Fan et al., 2023; Padilla-Rivera et al., 2018). Like most other countries, Malaysia has experienced a significant rise in CO2 emissions. According to the World Bank report of 2022, Malaysia's per capita CO2 emissions increased from 5.4 metric tons in 2000 to 7.9 in 2019.

The identified factors behind this increase are radiation absorption, vegetation deficiency, and human activities that produce heat (Guo et al., 2020; He et al., 2020). Therefore, raising awareness and developing proper strategies to address the overheating problem caused by climate change is essential. Awareness and trust among the community are vital factors in determining their willingness to participate in combating global warming (Koirala et al., 2018). This paper will share the method implementation of a knowledge endowment project by the university to develop a low-carbon community for mitigating carbon and increasing the community's quality of life.

Literature Review

Climate change has various impacts, and one of the most significant is the frequent and severe extreme weather (Y. Wang et al., 2019; Wei et al., 2022). These impacts have far-reaching consequences on global communities, economies, and ecosystems (A. Wang et al., 2022; T. Wang et al., 2021; Yarnvudhi et al., 2021). To address these challenges, the Sustainable Development Goals (SDGs) were set up in 2015 to provide a shared blueprint for peace and prosperity for people and the planet both now and in the future. The aim to take urgent action for combating climate change and its effects is under SDG 13 - Climate Action.

In pursuit of the objectives outlined in SDG 13, numerous cities have embraced the Low Carbon City (LCC) model. These places are crucial in reducing carbon emissions (Cheng et al., 2021; Drummond, 2021; Zhang, 2021) and forging a path toward a low carbon future (Liang et al., 2023; Tan et al., 2015). The integration of green spaces, such as tree planting in land use development (Li et al., 2022), can help reduce CO2 levels (Chen, 2020; Fan et al., 2023; Teng et al., 2021) given the carbon sequestration capabilities of trees through photosynthesis (Park et al., 2021; A. Wang et al., 2022). Furthermore, green areas like parks and gardens have significantly improved people's quality of life (Shuib et al., 2015) and

International Journal of Innovation and Industrial Revolution
IJIREV
EISSN: 2637-0972
Volume 5 Issue 15 (December 2023) PP. 33-44
DOI 10.35631/IJIREV.515004

promote a healthy environment (Alabi, 2020). Consequently, strategically planting trees and effective management and maintenance (Machar, 2020) is an optimal course of action.

To elevate awareness of carbon reduction, an engaged community comprising the public, industry groups, non-governmental organisations, and governments must collaborate to bolster participation (Schanes et al., 2016) and share responsibilities (Gopalakrishnan & Chong, 2020) in achieving a low carbon community. As highlighted by Sino et al., 2020, a low carbon society conscientiously utilizes carbon-based energy sources at consistently low rates. This necessitates reducing dependence on fossil fuels and adopting the 3R principles; reduce, reuse, and recycle, as part of daily life. Given these considerations, universities can play a central role as agents of change by distributing knowledge within communities, encouraging awareness, and catalysing behavioural shifts concerning energy consumption.

Nowadays, universities play multiple societal roles, including providing education and skill development, engaging in research and innovation, promoting cultural diversity, academic exchange, and community outreach through partnership programs and public lectures. As a Muslim educator at a university, sharing knowledge with others is considered a good deed. It becomes even more valuable when it is an endowment of knowledge consultation that is free of charge for community development.

The concept of endowment, known as *waqf* in Arabic, is dedicating certain assets or resources, including knowledge, to benefit the community and future generations. It is in line with the following hadith guide:

Abu Hurairah RA explains that the Prophet SAW said, which means:

> "When the son of Adam (man) dies, then all (rewards) of his deeds are cut off except for three forms of deeds, namely charity, useful knowledge, and pious children who pray for him."
>
> (Hadith Riwayat Muslim)

The above hadith is a model for knowledge endowment in educational institutions (Zainuddin et al., 2022). Thus, educators with expertise in built environment development are eligible to share their knowledge in developing a low carbon community for reducing global warming issues.

Methodology

The creation of the Recycle Edible Garden (REG) as a knowledge enrichment initiative involved the application of qualitative research methods, including observations and interviews. Observations were conducted both during the project site selection and upon its completion. Masjid As-Siddiq was selected as a case study for this project. Interviews were also carried out with the mosque's management and the local community to obtain their feedback and secure their permission before commencing the project. The following outlines the methodology process for this initiative:

Project Site: Masjid As-Siddiq, Seri Iskandar, Perak, Malaysia

The target demographic for the knowledge endowment project comprises the residents of Taman Seri Iskandar Perdana, situated in Seri Iskandar, Perak, Malaysia. It encompasses a mix

International Journal of Innovation and Industrial Revolution
EISSN: 2637-0972
IJIREV
Volume 5 Issue 15 (December 2023) PP. 33-44
DOI 10.35631/IJIREV.515004

of low-cost and middle-cost residences, with an estimated 5,000 individuals. Approximately half of the residents fall within the B40 income group, with an income threshold of less than RM2500. The selection of Masjid As-Siddiq as the project site is strategic, primarily due to its convenient accessibility to both the community and the researchers from Universiti Teknologi MARA (UiTM), Seri Iskandar Campus, who will collaborate closely with the community (refer to Figure 1). It was initially known as Surau As-Siddiq before it was converted into a mosque by Jawatankuasa Fatwa Negeri Perak in 2010 due to the community's increasing population. An abandoned section within the mosque premises has been transformed into a garden featuring edible plants encompassing fruits, vegetables, and herbs, a future resource for the community (refer to Figure 2).

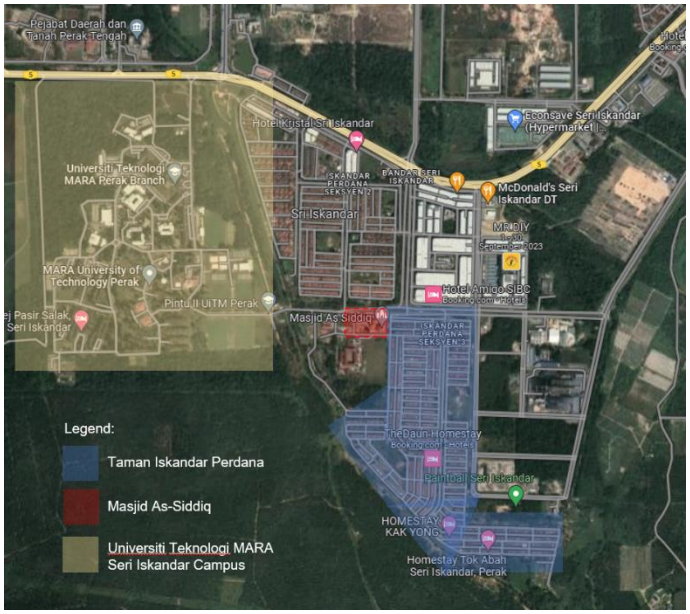

Figure 1: Location Map of Taman Seri Iskandar Perdana, Masjid As-Siddiq and Universiti Teknologi MARA, Seri Iskandar Campus at Seri Iskandar, Perak, Malaysia
Source: Google Map

Figure 2: View of The Project Site (Before)
Source: Author, 2017

As the main goal is to establish a low-carbon lifestyle community, the researchers have created a Recycle Edible Garden (REG). This garden not only serves to mitigate the impact of climate change but also contributes to lowering the cost of living. Spanning an area of approximately 180 square meters, REG is an edible plant initiative seamlessly integrated into the mosque's grounds. The project adheres to the principles of a low-carbon landscape and was successfully executed within a 12-month, from November 2016 to October 2017 (refer to Figure 3). It

International Journal of Innovation and Industrial Revolution
IJIREV
EISSN: 2637-0972
Volume 5 Issue 15 (December 2023) PP. 33-44
DOI 10.35631/IJIREV.515004

underwent multiple phases of development, characterized by extensive community participation and collaboration with various external agencies.

Figure 3: View of Recycle Edible Garden (After)

Source: Author, 2017(Left) and 2023 (Right)

Process of Knowledge Transfer

The REG project underwent several progressive phases, encompassing site inventory and analysis, planning and design, construction, planting, and ongoing maintenance. The knowledge transfer associated with this project is explained through the following process:

Stage 1: Expert Group

A dedicated team of ten experts from UiTM Seri Iskandar Campus in Perak has collaborated on this project, each contributing their distinct skills and valuable experiences to benefit the community. All team members are academic staff from the university's landscape architecture department, including three professional Landscape Architects actively involved in the landscape industry. The expert team met monthly for discussions and to provide updates on project advancements. To ensure the project's success, each team member was allocated specific tasks and responsibilities (refer to Table 1).

Table 1: Expertise, Experience, and Project Task of Expert Group Members

No.	Expert	Expertise	Experience	Project task
1.	A	• Professional landscape architect in Malaysia • Tourism development • Landscape management	• Conducted landscape consultation at Taman Tasik Selama for Selama District Council, Perak • Committee of landscape development at UiTM Perak Campus • Involved in social community service (CSR) in landscape design. • Involved in creative and design innovation competition	• Project manager - Take charge of all tasks and ensure they are completed successfully
2.	B	• Professional landscape architect in Malaysia • Social Space Design & Integration		• Detail drawings and construction
3.	C	• Professional landscape architect in Malaysia • Project management		• Construction (Irrigation system design)
4.	D	• Urban development & management	• Managed landscape projects at Kuala Lumpur and Johor Bharu	• Maintenance

International Journal of Innovation and Industrial Revolution
EISSN: 2637-0972
IJIREV
Volume 5 Issue 15 (December 2023) PP. 33-44
DOI 10.35631/IJIREV.515004

			• Involved in S2A-Green School Project at School	
5.	E	• PhD in Architecture • Sustainable Cultural Landscape	• Involved in urban and rural landscape research grant	• Planting design
6.	F	• PhD in Landscape Technology • Landscape Technology, Green Wall	• Involved in S2A-Green School Project at School	• Planting design
7.	G	• Landscape Planning & Public Art	• Involve in S2A-Green School Project at School • Conducted landscape consultation for 3D Installation Public Art at People Park Ipoh, Perak	• Maintenance
8.	H	• Landscape Planning	• Conducted landscape consultation at Persimpangan Utama for Ipoh City Council, Perak • Conducted landscape consultation for Perak Tengah District Council, Perak	• Supportive drawings and illustrations
9.	I	• Landscape Character & Structure in Landscape Planning	• Committee of landscape development at UiTM Perak Campus	• Maintenance
10.	J	• Landscape Preferences & landscape planting	• Conducted landscape consultation for 3D Installation Public Art at People Park Ipoh, Perak	• Planting design

Source: Expert's Curriculum Vitae, 2014 to 2015

Stage 2: Community Engagement

After finalizing all the required project documentation within the initial month, representatives from the expert group scheduled a meeting with the chairman of Masjid As-Siddiq. The purpose of this meeting was to inform him about the knowledge endowment project and request permission for its implementation. Additionally, the group conducted two presentations for the mosque's management team to provide an overview of the project and introduce the REG concept (refer to Figure 4). To further engage the community, posters detailing the knowledge endowment project's activities were disseminated through various channels, including WhatsApp, Facebook, email, and the mosque's information board.

International Journal of Innovation and Industrial Revolution
EISSN: 2637-0972
IJIREV
Volume 5 Issue 15 (December 2023) PP. 33-44
DOI 10.35631/IJIREV.515004

Figure 4: Presentation to The Management Team of The Mosque Congregation
Source: Author

Stage 3: Implementation

Throughout the development of REG, there has been a continuous exchange of knowledge regarding low carbon lifestyle programs with the community (refer to Figures 5 and 6). The activities are:

a) Recycle and Reuse Program

This initiative aims to enhance community awareness of the importance of daily practising reduction, reuse, and recycling. As part of this program, the community is invited to collaborate in cleaning the mosque and its surroundings as a kickstart to the REG project. Furthermore, community members are encouraged to bring unused and recyclable items from their households to the mosque, where a team of experts will undertake the sorting process. These items are later utilized in the construction work for the REG development.

b) Tree Planting Activities

Following the end of the construction phase of REG's hard landscape, the experts orchestrated tree-planting events that engaged nearby residents, school students, universities, colleges, and various organizations as partners in this collaborative effort. These partners, including MARDI, Perak Tengah District Council, and Pejabat Pertanian Perak Tengah, shared their knowledge and gardening expertise with the community. Additionally, the community had the opportunity to learn about rainwater harvesting systems for irrigation and the use of recycled plastic bottles as planting containers. This event was a significant occasion to foster community participation and raise environmental awareness.

c) Maintenance Workshop

After the completion of the planting activities, the focus shifted to landscape maintenance to ensure the health and growth of the plants. Landscape maintenance encompasses essential tasks such as watering, weeding, soil cultivation, mulching, fertilization, and pest control. Despite the REG project being completed within a year and handed over to the mosque management, the experts remained actively involved in the garden's care. Twice a year, lecturers and students specializing in Landscape Architecture from UiTM, Seri Iskandar Campus, organize maintenance workshops as part of their curriculum at REG. These workshops are open to the nearby community, encouraging participation. These workshops provide valuable hands-on learning experiences for lecturers and students while promoting eco-friendliness by reducing carbon emissions. An additional benefit is the convenience of these workshops being within walking distance, eliminating the need for transportation.

International Journal of Innovation and Industrial Revolution
EISSN: 2637-0972
IJIREV
Volume 5 Issue 15 (December 2023) PP. 33-44
DOI 10.35631/IJIREV.515004

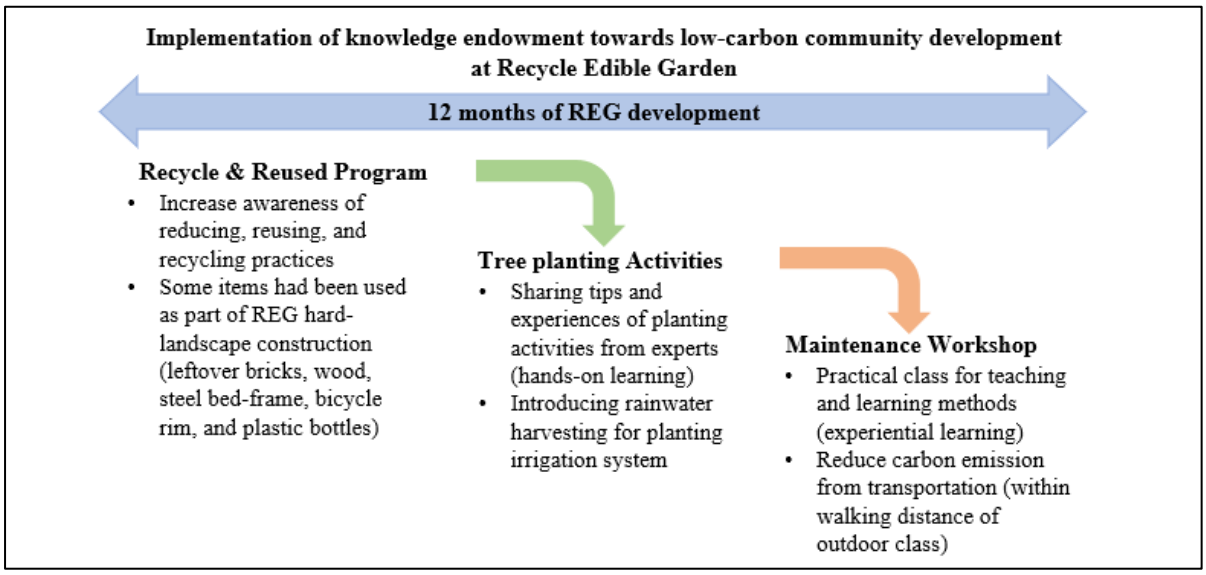

Figure 5: Implementation of Knowledge Endowment Towards Low Carbon Community Development at Recycle Edible Garden

Figure 6: Activities of Knowledge Endowment Project Through Recycle Edible Garden Development.

Source: Author

Findings And Discussion

Within 12 months of development, a UiTM Seri Iskandar Campus expert group successfully managed the REG. This knowledge endowment project served to bridge the gap between the university and the community, providing knowledge to university students and expertise to the community for a better quality of life. The diversity of skill and experience among the team members ensured that the project planning ran smoothly, was well-organized, and generated great ideas and solutions for problem-solving during the development of the REG.

This project also offers an excellent opportunity for collaboration with other agencies to gain extensive experience and knowledge to share with the community. As a result, the district has

International Journal of Innovation and Industrial Revolution
EISSN: 2637-0972
IJIREV
Volume 5 Issue 15 (December 2023) PP. 33-44
DOI 10.35631/IJIREV.515004

heightened its awareness of eco-friendly lifestyles by adopting the 3R practice; reduce, reuse, and recycle and implementing a rainwater harvesting system for irrigation in planting. These methodologies align seamlessly with the findings of a prior study conducted by Padilla-Rivera et al. (2018), which delineates an alternative approach for mitigating the carbon footprint associated with construction. The community has also provided valuable insights on cultivating robust plants that actively contribute to enhanced atmospheric carbon sequestration. Moreover, the hands-on educational techniques employed during tree planting and maintenance workshops have empowered the community, equipping them with the knowledge and skills necessary to establish and oversee their edible gardens within their homes.

Challenges

Nevertheless, the REG encountered several challenges during its development phase. It struggled to thrive due to unpredictable weather patterns, including scorching heat and heavy rainfall in Seri Iskandar, and it affected the plant's health and growth. Additionally, from the observation, the maintenance phase faced most difficulties of community participation, primarily due to a lack of a strong sense of belonging to the project. However, the mosque management successfully oversaw the project. The area is well-maintained, and the trees have continued to thrive, even in the post-Covid-19 pandemic period. The mosque's congregation has actively utilized the edible plants, incorporating them into feasts. Moreover, the expert team members have remained engaged, providing guidance and support, even after transferring the project's management to the mosque. Additionally, the garden exerted a beautifying influence on the mosque, aligning with Buotte et al. (2019) findings that emphasise how parks can enhance environmental quality.

In pursuit of establishing a thriving low carbon community through university initiatives, the authors have interpreted a strategic framework illustrated in Figure 7. University experts and industry as collaborative partners can transfer their expertise through robust community engagement implementation of significant programs focusing on carbon reduction and sequestration to elevate carbon neutrality, like developing REG as a low carbon landscape project. Hands-on learning is the best practice to ingrained lifestyle and induces behavioural changes.

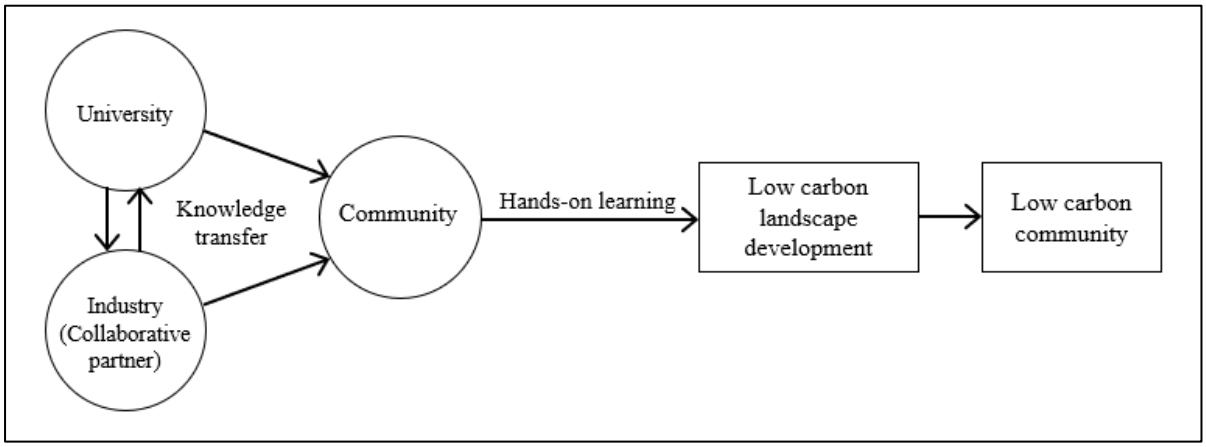

Figure 7: The Collaborative Framework Model of The Knowledge Endowment Project at Masjid As-Siddiq for Low-Carbon Community Development (REG)

International Journal of Innovation and Industrial Revolution
EISSN: 2637-0972
IJIREV
Volume 5 Issue 15 (December 2023) PP. 33-44
DOI 10.35631/IJIREV.515004

Conclusion

The knowledge endowment project at Masjid As-Siddiq was a successful green initiative by university experts to develop the Recycle Edible Garden (REG) for the local community. The community showed great interest and participation in the various programs and activities as part of the project. The REG not only promotes a low-carbon society but also helps individuals reduce their cost of living, improve their quality of life through gardening, and enhance the aesthetic value of the mosque. The project has gained significant attention from outsiders, with coverage from television news and local newspapers, and has even inspired similar initiatives in other institutions. As a result, the knowledge gained from this project has reached new heights of achievement.

Acknowledgements

This project was specially funded by the UCTC grant (KPT.600-5/9/1(57)) from the Minister of Higher Education and collaboration from various agencies, namely Perak Tengah District Council, MARDI Negeri Perak, Pejabat Pertanian Daerah Perak Tengah, Jabatan Perhutanan Negeri Perak, Kolej Vokasional Seri Iskandar, and Taman Teknologi Agro-MARDI, Cameron Highland, Pahang.

References

Alabi, M. O. (2020). Sustainable Urban form and challenges of open space utilization, Akure, Nigeria as a case study. *International Journal of Urban Sustainable Development*, *12*(3), 328–339. https://doi.org/10.1080/19463138.2020.1728691

Buotte, P. C., Law, B. E., Ripple, W. J., & Berner, L. T. (2019). Carbon sequestration and biodiversity co-benefits of preserving forests in the western United States. *Ecological Applications*, *30*(2).

Chen, Y. C. (2020). Evaluation of greenhouse gas emissions and energy recovery from planting street trees. *Greenhouse Gases: Science and Technology*, *10*(3), 604–612. https://doi.org/10.1002/ghg.1981

Cheng, Y. Te, Liang, R. Q., Ho, M. C., & Wu, C. H. (2021). Sensory evaluation of low-carbon city tourism by gray relational analysis. In *E3S Web of Conferences* (Vol. 228, pp. 228). EDP Sciences. https://doi.org/10.1051/e3sconf/202122801003

Drummond, P. (2021). Assessing city governance for low-carbon mobility in London. *Sustainability (Switzerland)*, *13*(5), 1–24. https://doi.org/10.3390/su13052480

Fan, L., Wang, J., Han, D., Gao, J., & Yao, Y. (2023). Research on promoting carbon sequestration of urban green space distribution characteristics and planting design models in Xi'an. *Sustainability (Switzerland)*, *15*(1). https://doi.org/10.3390/su15010572

Gopalakrishnan, S., & Chong, K. H. (2020). The prospect of community-led place-keeping as urban commons in public residential estates in Singapore. *Built Environment*, *46*(1), 115–138. https://doi.org/10.2148/benv.46.1.115

Guo, A., Yang, J., Xiao, X., Xia (Cecilia), J., Jin, C., & Li, X. (2020). Influences of urban spatial form on urban heat island effects at the community level in China. *Sustainable Cities and Society*, *53*, 101972. https://doi.org/10.1016/j.scs.2019.101972

He, B. J., Ding, L., & Prasad, D. (2020). Relationships among local-scale urban morphology, urban ventilation, urban heat island and outdoor thermal comfort under sea breeze influence. *Sustainable Cities and Society*, *60*(May), 102289. https://doi.org/10.1016/j.scs.2020.102289

International Journal of Innovation and Industrial Revolution
IJIREV
EISSN: 2637-0972
Volume 5 Issue 15 (December 2023) PP. 33-44
DOI 10.35631/IJIREV.515004

Koirala, B. P., Araghi, Y., Kroesen, M., Ghorbani, A., Hakvoort, R. A., & Herder, P. M. (2018). Trust, awareness, and independence: Insights from a socio-psychological factor analysis of citizen knowledge and participation in community energy systems. *Energy Research and Social Science*, *38*(January), 33–40. https://doi.org/10.1016/j.erss.2018.01.009

Li, S., Cao, Y., Liu, J., Wang, S., & Zhou, W. (2022). Assessing spatiotemporal dynamics of land use and cover change and carbon storage in China's ecological conservation pilot zone: a case study in fujian province. *Remote Sensing*, *14*(16), 1–19. https://doi.org/10.3390/rs14164111

Liang, D., Lu, H., Guan, Y., Feng, L., Chen, Y., & He, L. (2023). Further mitigating carbon footprint pressure in urban agglomeration by enhancing the spatial clustering. *Journal of Environmental Management*, *326*(October 2022). https://doi.org/10.1016/j.jenvman.2022.116715

Machar, I. (2020). Sustainable landscape management and planning. *Sustainability (Switzerland)*, *12*(6), 10–13. https://doi.org/10.3390/su12062354

Padilla-Rivera, A., Amor, B., & Blanchet, P. (2018). Evaluating the link between low carbon reductions strategies and its performance in the context of climate Change: A carbon footprint of awood-frame residential building in Quebec, Canada. *Sustainability (Switzerland)*, *10*(8). https://doi.org/10.3390/su10082715

Park, H. M., Jo, H. K., & Kim, J. Y. (2021). Carbon footprint of landscape tree production in Korea. *Sustainability (Switzerland)*, *13*(11). https://doi.org/10.3390/su13115915

Schanes, K., Giljum, S., & Hertwich, E. (2016). Low carbon lifestyles: A framework to structure consumption strategies and options to reduce carbon footprints. *Journal of Cleaner Production*, *139*, 1033–1043. https://doi.org/10.1016/j.jclepro.2016.08.154

Shadman, S., Ahanaf Khalid, P., Hanafiah, M. M., Koyande, A. K., Islam, M. A., Bhuiyan, S. A., Kok, S. W., & Show, P. L. (2022). The carbon sequestration potential of urban public parks of densely populated cities to improve environmental sustainability. *Sustainable Energy Technologies and Assessments*, *52*(PA), 102064. https://doi.org/10.1016/j.seta.2022.102064

Shuib, K. B., Hashim, H., & Nasir, N. A. M. (2015). Community participation strategies in planning for urban parks. *Procedia - Social and Behavioral Sciences*, *168*, 311–320. https://doi.org/10.1016/j.sbspro.2014.10.236

Sino, H., Azahari, N. A., Zamani, N., Ishak, A. A., Baba, M. H., Ghani, A. A. A., & Mustapa, M. H. (2020). Kesediaan dan potensi masyarakat di malaysia ke arah negara rendah karbon. *Malim: Jurnal Pengajian Umum Asia Tenggara (Sea Journal of General Studies)*, *21*(1), 117–125. https://doi.org/10.17576/malim-2020-2101-09

Tan, S., Yang, J., & Yan, J. (2015). Development of the Low-Carbon City Indicator (LCCI) Framework. *Energy Procedia*, *75*(Lcci), 2516–2522. https://doi.org/10.1016/j.egypro.2015.07.253

Teng, X., Liu, F. peng, & Chiu, Y. ho. (2021). The change in energy and carbon emissions efficiency after afforestation in China by applying a modified dynamic SBM model. *Energy*, *216*, 119301. https://doi.org/10.1016/j.energy.2020.119301

Wang, A., Kafy, A. Al, Rahaman, Z. A., Rahman, M. T., Faisal, A. Al, & Afroz, F. (2022). Investigating drivers impacting vegetation carbon sequestration capacity on the terrestrial environment in 127 Chinese cities. *Environmental and Sustainability Indicators*, *16*(October), 100213. https://doi.org/10.1016/j.indic.2022.100213

Wang, T., Shen, B., Han Springer, C., & Hou, J. (2021). What prevents us from taking low-carbon actions? A comprehensive review of influencing factors affecting low-carbon

International Journal of Innovation and Industrial Revolution
EISSN: 2637-0972
IJIREV
Volume 5 Issue 15 (December 2023) PP. 33-44
DOI 10.35631/IJIREV.515004

behaviors. *Energy Research and Social Science*, *71*(November 2020), 101844. https://doi.org/10.1016/j.erss.2020.101844

Wang, Y., Wang, A., Zhai, J., Tao, H., Jiang, T., Su, B., Yang, J., Wang, G., Liu, Q., Gao, C., Kundzewicz, Z. W., Zhan, M., Feng, Z., & Fischer, T. (2019). Tens of thousands additional deaths annually in cities of China between 1.5 °C and 2.0 °C warming. *Nature Communications*, *10*(1), 1–7. https://doi.org/10.1038/s41467-019-11283-w

Wei, D., Yang, L., Bao, Z., Lu, Y., & Yang, H. (2022). Variations in outdoor thermal comfort in an urban park in the hot-summer and cold-winter region of China. *Sustainable Cities and Society*, *77*(September 2021). https://doi.org/10.1016/j.scs.2021.103535

Yarnvudhi, A., Leksungnoen, N., Tor-Ngern, P., Premashthira, A., Thinkampheang, S., & Hermhuk, S. (2021). Evaluation of regulating and provisioning services provided by a park designed to be resilient to climate change in Bangkok, Thailand. *Sustainability (Switzerland)*, *13*(24). https://doi.org/10.3390/su132413624

Zainuddin, N. A., Abd Mutalib, H., Abdul Rashid, R., Mohd Rodzi, N. K., & Hashim, N. (2022). Issues And Challenges of Dana Wakaf Ilmu UiTM Perlis (DWIPs). *International Journal of Law, Government and Communication*, *7*(28), 153–165. https://doi.org/10.35631/ijlgc.728012

Zhang, M. (2021). Research on Strategies of Low-Carbon City Planning and Construction. *E3S Web of Conferences*, *248*, 3–6. https://doi.org/10.1051/e3sconf/202124802037

Website:

Data.worldbank.org. (n.d.). *CO2 emissions (metric tons per capita) - Malaysia | Data.* https://data.worldbank.org/indicator/EN.ATM.CO2E.PC?locations=MY