

Understanding Low Ecovillage Adoption in Southeast Asia: Insights from Malaysia Using Diffusion of Innovation Theory

Imran Rautan^{a*} , Sivakumari Supramaniam^b , Hossein Nezakati^c , & Stephen Thomas Homer^d 

^aLitvill Lessons Association, India

^bHigher College of Technology, United Arab Emirates

^cNortheastern State University, United States

^dSunway University, Malaysia

*corresponding author: imranrautan@gmail.com

Received: 24 March 2025 / Accepted: 13 September 2025 / Published: 27 October 2025

Rautan, I., Supramaniam, S., Nezakati, H., & Homer, S. T. (2025). Understanding Low Ecovillage Adoption in Southeast Asia: Insights from Malaysia Using Diffusion of Innovation Theory. *Advances in Southeast Asian Studies*, 18(2), D1-D19.

The world is facing multiple intertwined crises, like environmental degradation and socioeconomic inequalities. The impacts of these crises are disproportionately severe in emerging nations, such as those in Southeast Asia. Ecovillages are emerging as a potential solution to the challenges caused by multiple crises; however, their adoption remains relatively low in Southeast Asia, unlike in developed nations. This research aims to understand the barriers that contributed to the low adoption of ecovillages, using the diffusion of innovation theory as a foundation. Data was drawn from a PhD project that carried out 18 semi-structured interviews with emerging ecovillage members, sustainable community developers, eco-farm founders/ members, and ecovillage researchers, taking Malaysia as a case study. Data was analyzed using NVivo software through an inductive thematic analysis. Findings revealed five critical barriers: one) lack of sense of urgency, two) money-oriented economy, three) governmental policy and urbanization, four) lack of awareness and knowledge, and five) socio-economic dynamics that contributed to the low adoption of ecovillages. The theoretical implications add new perspectives to the diffusion of innovation theory by reinforcing that factors such as perceived benefits, alignment with existing values, and visible success remain relevant in the adoption of ecovillages. However, their impact is shaped by external factors, such as governance systems, economic priorities, legal systems, and societal norms, which may support or hinder the adoption of ecovillages. The practical implication is to empower ecovillage practitioners about the barriers that contribute to low ecovillage adoption in Southeast Asia, enabling them to adapt and tailor their ecovillage models to fit the local context.

Keywords: Ecovillage Adoption; Ecovillages; Human Settlements; Intentional Communities; Polycrisis



INTRODUCTION

The world is facing multiple crises, including socioeconomic inequalities, extreme weather patterns, and natural resource depletion, which pose a severe threat to human communities and the natural environment (Rahman et al., 2025). These crises have a disproportionate impact on emerging nations, such as those in Southeast Asia. The region is one of the world's fastest-

growing economic regions, contributing nearly 4% to the global gross domestic product (Park, 2024). In addition, it is home to one of the world's prominent biodiversity hotspots, also viewed as a carbon sink, making it a critical region to study (Nair et al., 2023). Unsustainable human practices have been largely linked with environmental, social, and economic challenges that humanity is facing (Zhai et al., 2025). In this regard, ecovillages are emerging as one possible way to transition to more sustainable human practices globally, including in Southeast Asia (Shaw et al., 2009; Weng, 2010). Ecovillages are intentionally designed human communities that aim to balance human and environmental needs (Pickerill et al., 2024). The members of the communities practice resource sharing, regenerative agriculture, participatory governance, and a community-based economy. The concept of ecovillages is well-developed in America, Europe, and Australia, and it has shown considerable ecological, social, and economic benefits. These benefits have also been noted by ecovillage researchers in Southeast Asia (Hashim et al., 2014; Othman & Yusof, 2020). Although ecovillages remain marginal in terms of their population and spatial footprint, they still hold ecological, social, and economic significance (Pinto, 2024), serving as laboratories for sustainable living and inspiring broader society. In a highly dense urbanized Southeast Asian context, ecovillages hold greater importance, as these models have the potential to be adapted to and tested in multi-level residential apartments. This is because some of the core practices of ecovillages, like shared facilities, common spaces, and community practices, already exist in multi-level residential apartments.

Despite consistent advocacy, the adoption of ecovillages has been relatively low in Southeast Asia compared to developed nations. The low adoption of ecovillages in Southeast Asia can primarily be understood by the total number of ecovillages. For instance, there are more than 1200 ecovillage models globally, predominantly in the Western world, while very few well-established ecovillages exist in countries like Malaysia and Indonesia, according to the Global Ecovillage Network (2025). This argument can be further supported by the existing literature on ecovillages, which is concentrated mainly in developed nations, and very few studies exist in emerging nations (Daly, 2017; Pinto, 2024). This indicates that ecovillages have not gained substantial traction in developing nations. The argument is based on the observed trend in the developed nations, where a higher number of ecovillages is correlated with extensive academic literature. Given the trend, this research suggests that it is less likely that well-established ecovillages exist, which remain unnoticed by ecovillage researchers in the region. This underscores that, despite the early recognition of ecovillage potential in Southeast Asia, the concept of ecovillage remained in a nascent stage. There exist few studies on ecovillages in Southeast Asian countries, such as Malaysia (Shaw et al., 2009; Hashim et al., 2014), Thailand (Roongtawanreongsri & Boonkaew, 2021), and Indonesia (Wiradimadja et al., 2019). However, they provided insufficient insights into the barriers that contributed to the low adoption of ecovillages in Southeast Asia, indicating a critical literature gap. Thus, the current research aims to understand the barriers to the low adoption of the ecovillage concept in Southeast Asia, with Malaysia serving as the research context. The rationale behind using Malaysia as the context for the research is that the nation shares similarities with most countries in Southeast Asia in terms of ethnicities, similar climatic conditions, and environmental and economic challenges.

By identifying those barriers, the current research offers valuable insights to aspiring ecovillages in Southeast Asia, enabling them to navigate the challenges that may potentially hinder their success in becoming ideal models for sustainable human settlements. The rest of the paper is structured as follows. Section two discusses the review of literature, while section three discusses the research methodology and analysis. Section four exhibits the results and

discussion, followed by section five, which includes the conclusion, limitations, and future directions.

LITERATURE REVIEW

Ecovillages are urban or rural communities that strive for holistic sustainability (Xhexhi, 2023). They achieve this by living an alternative life, such as developing community-based economies, self-governing systems, and shared ownership (Kunze, 2020). The contemporary ecovillage term emerged around the 1990s, when small-scale intentional communities were recognized as ecovillages (Roysen et al., 2024). Following the formal recognition of ecovillages, the Global Ecovillage Network was established in 1995 to support ecovillage-like communities by bringing them together on a single platform. The Global Ecovillage Network is now composed of regional networks: Europe, America, Oceania & Asia, and Africa (Global Ecovillage Network, 2025), comprising more than 1,200 ecovillages. Of the ecovillages, approximately 900 are located in developed nations (e.g., Europe and North America), while 50 ecovillages are situated in Southeast Asia, including two in Malaysia (Table 1 and Figure 1). In Southeast Asia, a significant proportion of these ecovillages are in emerging or planning stages, which reflects growing interest and a nascent stage (Global Ecovillage Network, 2025). The concept of living sustainably, such as in ecovillages, is as old as the Western world. In Malaysia, the first sustainable settlement was established in 1899, known as Kampong Bahru (New Village) (Shaw et al., 2009). This settlement was established even before Gilman and Gilman (1991) defined the term ecovillage. Initially, it was merely formed to educate Malaysian children. However, later, they adopted eco-community practices to lead a better and more sustainable lifestyle (Shaw et al., 2009).

<i>Regions</i>	<i>Total Ecovillages</i>
Europe	438
America	453
Africa	127
Oceania & Asia	213
Southeast Asia within Oceania & Asia	54
Malaysia within Southeast Asia (Oceania & Asia)	2

Table 1. Geographical distribution of ecovillages. (Global Ecovillage Network, 2025)

Since their early recognition, and up until recently, little has been done to develop ecovillages, as there are merely two prospective ecovillages in Malaysia, along with a few studies on ecovillages. However, a commitment to sustainable living is emerging in Malaysia, as people are expressing their interest in sustainable living through ecovillages. For instance, Noble Gateway Ecovillage is striving to become a well-established ecovillage in Malaysia (Global Ecovillage Network, 2025). Another similar project is *Felda Taib Andak*, among the earliest Felda Schemes to create a low-carbon society of around 600 settlers in Johor State, and Low Carbon Society for Iskander Malaysia 2025, Malaysia (Bong et al., 2017), and Green Valley ecovillage, with 50 members (Global Ecovillage Network, 2015). While these numbers of ecovillages illustrate that they are a niche phenomenon, their significance as laboratories of sustainable living is well acknowledged (Fonseca et al., 2022). This means that ecovillages may not yet provide a mass solution; nevertheless, they can serve as ideal models of sustainable living for mainstream society.

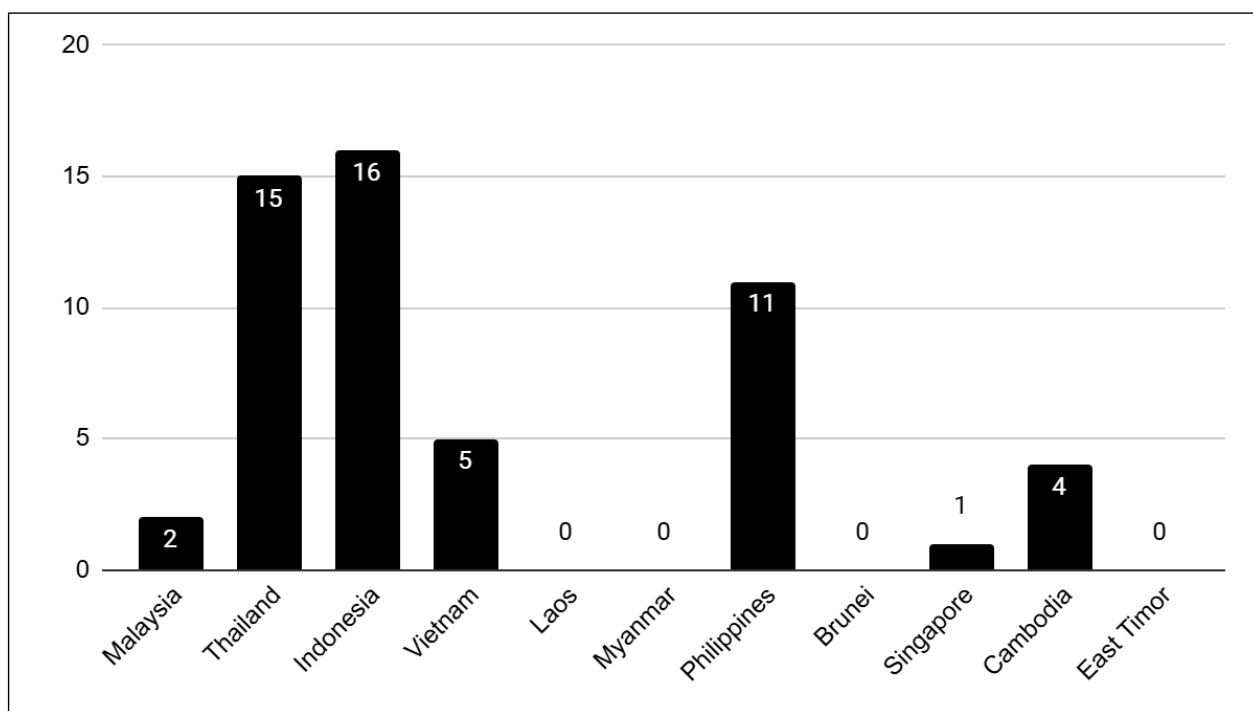


Figure 1. Ecovillages in Southeast Asia. (Global Ecovillage Network, 2025)

Few studies have been conducted in Malaysia on implementing ecovillage practices within existing communities. This can be substantiated by the work of Hashim et al. (2014), who investigated the potential of local renewable energy in ecovillage development, giving little attention to the low adoption of ecovillages. Similarly, Ho et al. (2014) researched a solar town that can potentially serve as an ideal model for ecovillages. Recently, Othman and Yusof (2020) proposed an ecovillage framework specifically focused on sustainable waste management. This further confirms the limited attention toward understanding the low adoption of ecovillages. Investigating the barriers to the low adoption of ecovillages is essential, as it can provide valuable lessons to prospective ecovillages and emerging ecovillage researchers to further develop the ecovillage concept.

Theoretical Foundation: Diffusion of Innovation Theory

The diffusion of innovation theory (DOI) explains how innovations spread within a social system over time. The DOI was introduced by Rogers (1962), who stated that diffusion is a process by which innovations are either accepted or rejected by society. This theory has been extensively applied to explain a wide range of innovations over the past six decades in various industries (Xu et al., 2024). There are five factors: one) relative advantage, two) complexity, three) compatibility, fourth) trialability, and fifth) observability, which plays a vital role in determining whether individuals will adopt certain innovations. The relative advantage can be understood as the perceived benefits (i.e., economic, social, and environmental) that are more promising than the existing innovations (Assidi et al., 2025). The complexity explains that if innovations are complex, it is less likely that they will be adopted by a large number of people (Fakhrullah et al., 2025). The compatibility factor refers to the degree to which an innovation aligns with existing values, needs, norms, and experiences (Zhang, 2015); hence, the higher the

alignment with existing values, the greater the likelihood of innovation adoption. Trialability refers to the degree to which innovations can be experienced and tested before being adopted by a wider audience, thereby reducing uncertainty among individuals (Mamun, 2018). Finally, observability explains that innovations can be adopted when the benefits are visible and can be understood by the people (Mbatha, 2024). This suggests that when innovations are presented as beneficial, they are more likely to be adopted by a wider audience.

This research utilizes the DOI to investigate the reasons behind the low adoption of ecovillages in Malaysia. Ecovillage researchers have stated that ecovillage communities are social innovations and the diffusion of technological innovations is intimately linked (Roysen et al., 2024). The DOI has been sufficiently incorporated in various fields, such as e-consumer health innovation (Zhang et al., 2015) and the adoption of AI-powered tools (Uzumcu & Acilmis, 2023) to explore and understand the adoption or rejection of innovations; nevertheless, its usage remains limited in the context of ecovillages. The current research expands the scope of DOI by integrating it to explore the low adoption of ecovillages on a collective level rather than on an individual level.

METHOD

The current research builds upon a PhD project aimed at developing a holistic ecovillage framework for Southeast Asia. A subset of the entire qualitative dataset was extracted, explicitly focusing on the factors that contributed to the low adoption of ecovillages. The data was collected through one-to-one semi-structured interviews, as they are employed in social science to gain deep perspectives. The semi-structured interviews are structured but also allow for a responsive exploration for new ideas to emerge, hence selected (Junnier, 2024). The participants of the semi-structured interviews were emerging ecovillage members, sustainable community developers, ecovillage researchers, and eco-farm founders/members in Malaysia. The rationale behind involving these participants is their direct involvement in ecovillages and sustainability-related specializations, making them ideal respondents to provide valuable insights. A purposive sampling technique was employed, and a list of 45 potential interviewees was prepared. The participants were officially invited by sending an email invitation, along with a participant information sheet, consent form, and interview protocol. Upon the consent of the interested participants, a Zoom link was shared, as scheduled for the proposed date and time.

Data Collection

An interview protocol was prepared, consisting of three main questions: "What is an ecovillage for you?", "According to you, why is there a lack of ecovillages in Malaysia?", and "What practices are important to build an ecovillage?". Nevertheless, this research focuses on the data collected from the interview question two. This question was further explored by using prompts like: "Are there any other factors that may have potentially contributed?" "Are there any other reasons?" "You mentioned several times, people who are financially challenged, would you talk more about it?" "You talked about different ethnicities, would you elaborate?". This enabled the interviewer to have a neutral stance during the data collection process, allowing themes to emerge organically. All the interviews were conducted in English, with the majority lasting over an hour. The interviews were video-recorded through Zoom and transcribed verbatim to capture an accurate representation of the participants' insights. The interviewee began to encounter repeated information after 15 interviews, prompting the decision to stop the interviews at that point and proceed with data analysis. After analysis and code generation, a series of

subsequent interviews were conducted to confirm the findings. However, the subsequent interviews did not generate any new codes that could lead to new themes, indicating data saturation. Hence, the decision was made to discontinue 18 interviews. This method, known as comparative analysis, is recommended by Hennink and Kaiser (2022) for determining data saturation. The data was collected between March 2024 and June 2024.

Data Analysis

A reflexive thematic analysis approach (Braun & Clarke, 2019) was adopted by the researchers to analyze the interview data. Transcripts were analyzed using NVivo, a data analysis software designed to analyze unstructured data, such as interview transcripts. There are several reasons to use NVivo, as reported by Alam (2020), and one of the main reasons is that it offers more flexibility in categorizing rich-text data. Another reason is that NVivo is very simple and easy to use, helping researchers to save time and effort. The names of the aspiring ecovillage members, eco-farm founders/members, sustainable community developers, and individuals were replaced with transcript numbers. The process of coding and theme generation follows Hanh’s (2011) recommendation of three levels of coding. First-level coding in which participants’ important information was coded. The second level of coding involved merging similar first-level codes into a single code. Finally, the second-level codes were used to create a broader theme that captured the essence of the participants’ insights. The research team later reviewed themes to ensure objectivity and analytical integrity. Table 2 demonstrates the coding process in this research.

<i>First-level coding</i>	<i>Second-level coding</i>	<i>Theme</i>
Privatization of land	Privatization of land	Money-oriented economy
Monopoly by private entities		
Land rights issues		
Land is expensive		
Money-oriented economy	Money-oriented economy	
Focus on economic growth		
Ecovillages not profitable		
Profit mentality		
Materialism and consumerism		

Table 2. Coding and theme generation process.

<i>Participants</i>	<i>Number</i>
Eco-farm founders/members	7
Community developers	7
Ecovillage researcher	1
Emerging ecovillages	3
Total	18

Table 3. Malaysian participants’ profile.

RESULTS & DISCUSSION

A total of 18 participants were interviewed, comprising approximately 40% eco-farm founders/members, 40% sustainable community developers, 15% emerging ecovillage members, and 5% ecovillage researchers in Malaysia (Table 3). This shows that involving diverse participants offered more comprehensive insights into the barriers that contributed to the low adoption of ecovillages. Meaning that, the data collected through diverse participants ensures that a wide range of insights and experiences have been captured.

Barriers to Low Ecovillage Adoption

The results revealed five major barriers: (1) lack of sense of urgency, (2) money-oriented economy, (3) government policy and urbanization, (4) awareness and knowledge, and (5) socio-cultural dynamics that contributed to the low adoption of ecovillages in Malaysia.

Lack of Sense of Urgency

A sense of urgency can be described as recognizing the significance of timely action in critical situations (Kotter, 2008). The lack of a sense of urgency emerged as one of the key themes that contributed to the low adoption of ecovillages in Malaysia. This stemmed from two main reasons: first, the findings revealed that wealthy individuals do not express a significant interest in ecovillages due to their strong financial position. Second, individuals with limited resources tend to focus on addressing their immediate challenges. The sentiments are expressed in the following way: One participant said:

I think people, wealthy people, have another extreme end of mindset. Uh when, when you have enough resources; you tend do not worry about whether you're gonna have the resources in the future because the mindset is ii have money to buy.

Another respondent said: "A lot of people are content and comfortable with their current way of life, which they think is so-called sustainable for the future." In terms of focusing on immediate challenges, the other participant stated:

It is a long-term approach. It is more challenging, and you know, if you want to adopt, if you want to see quick results, people tend not to focus on that, yeah. So today is not enough uh building our capacity, and that is why so many Malaysians do not show any interest in sustainable communités, so yeah. The lack of interest. Um people tend to focus on the basic needs. And one of the most basic needs is, how do I put food on the table and have food for my family? When the focus is this uh survival and putting food on the table, they would not be interested or give efforts of uh coming together.

These findings align with the relative advantage construct of the Diffusion of Innovation Theory (DOI). According to the relative advantage construct, people adopt innovation when they see tangible benefits (Assidi et al., 2025). However, the findings from this research add new insights by revealing that the timing of those benefits is equally important. Ecovillages offer long-term ecological, social, and economic benefits that outweigh the short-term and immediate benefits. This potentially weakens their perceived relative advantage, leading to low adoption rates of ecovillages. Past studies (Abidin et al., 2013; Kasim, 2007) have also indicated a lack of sense of urgency in adopting sustainable behavior. It is further supported by Hasnat et al. (2025), who noted that modern economic structures prioritize short-term financial gains over long-term sustainability. This implies that social innovations, such as ecovillages, struggle to gain

widespread adoption, as they do not offer immediate benefits. In doing so, the findings expand the understanding of relative advantage by demonstrating that the immediate realization of perceived benefits is essential in determining adoption. Hence, ecovillages also need to highlight the immediate benefits to gain more traction alongside long-term benefits and sustainability. The lack of sense of urgency further stretches its impact on the overall economy, which is heavily dependent on financial growth and consumerism; thereby, a money-oriented economy emerged as another critical barrier, as discussed in the following paragraph.

Money-Oriented Economy

The money-oriented economy can be understood as an economic system that prioritizes continuous financial growth (Kreinin & Aigner, 2022). It emerged as one of the significant barriers, causing low adoption of ecovillages. Findings indicate that this is due to a greater focus on the privatization of land for industrial farming, ecovillages not being perceived as profitable business models, and sustainability initiatives being more influenced by profit rather than community-driven values. It suggests that in the current economic system, resource-sharing, collective ownership, and minimal consumerism struggle to gain legitimacy. About the privatization of land, one participant expressed:

At the same time, we have made a few, for me, big policy decisions that over the last 40, 50 years that have resulted in this sort of lack of sensitivity to sustainability. And one of them is palm oil, a major privatization of land in the last 40 years. So a lot of few companies and a few very wealthy people hold rights to a lot of land. And this land was acquired very, very cheap. And now it's just filled with palm oil and just waiting to build houses.

Other participants stated that there are similar projects; however, their main intention is to generate maximum profit in the name of sustainability. Two participants stated: "These are actually more of the communities, etc., but they are not looking into the aspect of ecovillages from the true perspective. So, I don't think it's I think it's just it's not profitable." The other participant mentioned:

So, everything they think is about planting the heaviest produce, getting the maximum profit, even though it's organic farming, and, you know, secure their crop to with their crops. So, this is the profit mentality. After a while. I feel like it's very hard to communicate.

Some of the participants also indicated that the money-oriented economy influenced the mindset of many people; hence, they are not motivated to do sustainable things:

We've been like a money-oriented economy, everything we use, money to buy, buy a pencil, ecovillages, not necessary." So certain thing you produce your own food, things like that, but you not necessarily need to use money to buy it. So for certain people, it cuts that so it's actually easier for me to make more money and get those things why I they do, burden myself and do all the how to get this, right? It sounds like this this change of mindset is, I think this is the main challenge.

Others pointed out that ecovillages will become a prominent concept in Malaysia if they can produce substantial profit for the people:

We are following the trends of ecotourism and stuff like that, I think in the future, the concept of ecovillage will come to Malaysia, however. I think that how fast it gains popularity, it solely depends on how much money people can make from it, because most of these initiative, whatever eco kind of initiative, whether it may be renewable energy or you know, ecotourism, it's all about making money.

The findings of this research support the compatibility construct of DOI, which explains that innovations have a high probability of acceptance when they align with the existing economic and social structures. This means that financial return on investment is a critical driver of innovation adoption, which contradicts social innovations like ecovillages, creating a considerable misalignment and barrier to the adoption of ecovillages. In the context of Malaysia, the predominant focus on a money-oriented economy can be linked to the aspiration to become a highly industrialized nation (Gomez et al., 2021) and a high-income country (Jayasingam et al., 2023). This means that sustainability-focused initiatives, such as ecovillage communities, struggle to gain sufficient institutional and financial support. The findings suggest that sustainability may not thrive in isolation, and ecovillages are more likely to gain traction when positioned as part of national development strategies.

Government Policy and Urbanization

Government policy and urbanization in Malaysia were identified as major barriers to the low adoption of ecovillages. The findings suggest that government policies are more focused on achieving industrialization rather than promoting ecologically sustainable development, resulting in economic growth and urbanization (Awan et al., 2022). For instance, participants stated that policies are more favorable for industrial farming rather than making Malaysia an ecological nation. At the same time, others stated that there are no strong policies for building ecovillages in Malaysia. One participant stated: "I think it's the government policies, so Malaysia is not known to be an ecological country, per se, it's more like industrial farming." Another participant explained: "In terms of policies from government, there isn't a strong policy in terms of for ecovillages. I don't think there's any strong policy even for rural communities." In terms of rapid urbanization, respondents expressed that people are leaving rural areas to move to cities in the hope of more economic opportunities:

Because the younger generation, right, they're all leaving their families in their villages. They're going off to cities". The other participant said that the increasing development of rural areas into urban areas was another critical factor in the development of ecovillages in Malaysia. "In terms of our mode of urban development, it is like trying to urbanize the rural communities when traditionally they have been living in a sustainable manner.

The insights regarding governmental policies for industrialized nations (Ngu et al., 2020) and rapid urbanization (Junsheng et al., 2024; Kuok et al., 2024) can be linked with the existing literature, where similar perspectives have been documented. This can be further validated by Rongen et al. (2024), who stated that policies such as Malaysia's New Economic Policy, introduced as early as 1971, had two primary objectives: to reduce poverty and improve the economic stability of financially challenged Malaysians, aiming to become a high-income nation. This indicates that favorable policies toward more industrialization and rapid urbanization, as a ripple effect (Bekhet & Othman, 2017), shifted attention away from creating more sustainable and prosperous communities toward achieving greater economic stability. This signifies a gap

in recognizing the potential of ecovillages, as a lack of favorable policies may be hindering the development of the ecovillage concept.

The barrier between government policy and urbanization closely aligns with the compatibility and trialability constructs of DOI. The findings showed that the current governmental policies are more favorable for economic growth, urban expansion, and industrialization. This implies that ecovillages are less compatible with Malaysia's national development strategies, which potentially creates significant challenges to the adoption of ecovillages. Moreover, ecovillages require a full commitment from a group of people, along with intensive capital, legal permission, and expertise to build communities unlike any other innovation. This complicates the easy trialability of ecovillages, influencing their adoption. It also indicates that individuals' ability to experiment with ecovillages is insufficient to try out ecovillages without the support of structural conditions, including economic and legal structures. Moreover, the current research also argues that due to a lack of strong policies for ecovillages or sustainable living, predominant attention has been given to economic growth and urbanization; consequently, there is little impetus for sustainable living awareness and education. This may have potentially resulted in significant gaps, like a lack of awareness and knowledge about ecovillages. This was voiced by the participants, which emerged into the following theme.

Awareness and Knowledge

Awareness and knowledge can be explained as being aware of situations or facts, as well as possessing the knowledge and practical skills for a given topic (Khang et al., 2024). Lack of awareness and knowledge emerged as another important barrier that caused the low adoption of ecovillages in Malaysia. This means that people not only lack awareness about ecovillages, but also those who have heard of them often misunderstand their true essence and purpose. As one of the participants stressed: "I think for a combination of lack of awareness most people are not well aware of eco-village as the ideal." The other participant said: "And then of course it lifts up awareness I don't think people will actually sufficiently aware to actually move into something like Eco Village itself."

Regarding their knowledge of ecovillages, respondents highlighted a common misconception about ecovillages, often associating them with eco-farms, eco-hotels, and traditional villages. Two direct quotes from the participants reflect these sentiments:

You don't know that you don't know. That is also why when you google, eco village, Malaysia, you have eco farms or eco farms would try to be eco village, but the meaning is so diluted. It is not the same as what eco villagers actually are around the world like in the UK in China, in Europe.

Actually, when we think about Malaysia, I think maybe the fact that there is not an eco-village is that because people think that it's part of the culture, and it's a more communitarian, and it's more that families are staying together and supporting each other.

The limited understanding of ecovillages or zero-grid living is further compounded by the lack of education on sustainable practices like ecovillages. This was stressed by one of the respondents in the following way: "I found one is because of lack of knowledge, these Kampong people or villages, they have a lack of knowledge of how to become a green operator or to conduct green practices in their needs."

These findings align with the observability and complexity constructs of DOI. In terms of observability, the scarcity of well-established ecovillages in Malaysia limits the general public's ability to see working models of ecovillages, thereby reducing the visibility of their potential benefits. Moreover, existing limited initiatives are often misunderstood or mispositioned, which further contributes to the low observability of true ecovillage models. This potentially creates a perceived complexity about ecovillages, where individuals view adopting ecovillages as requiring extreme changes in their lifestyle or extensive resources, which further deters their adoption.

Previous researchers (Abas et al., 2020; Rassiah et al., 2022) have also found that there remains limited awareness about sustainable living in Malaysia, aligning with the insights offered by the participants in the current research. Moreover, researchers such as Abidin et al. (2013) have supported the notion that a lack of information is one of the challenges in Malaysia when it comes to sustainability. However, Malaysia has made significant efforts to promote sustainability through various programs, such as the Sustainable Development Goals (Trupp & Dolezal, 2020), the Twelfth Malaysia Plan (Lai et al., 2023), and the Green Technology Plan (Isa et al., 2021). Nevertheless, such initiatives are focused on large-scale development rather than creating awareness of alternative lifestyle models, such as ecovillages, which supports the current findings.

Socio-Cultural Dynamics

Malaysia's socio-cultural diversity in ecovillage adoption remains contested, as only one participant highlighted the challenge of adopting ecovillages due to socio-cultural dynamics, while others perceived it might not be a major barrier. The participant said:

I am just going to highlight the main reasons. I think there are many reasons, but for me, one that really sticks out and compared to many other countries is just due to our multiracial makeup and the fact that there is a lot of sensitivity around our diversity.

The same participant further mentioned: "Also, we have our main three cultures and all the different religions, and, in most places, it is not relatively possible for people of different races and different religions to live together." Contrastingly, other participants said that socio-cultural differences become less influential when a prominent focus is placed on shared sustainable living:

I don't think ethnicity plays a role, but the culture of each group plays a role. Though you may say that, different races. But within these races they may have their own culture, even like, for example, the Chinese. Okay, the Chinese may have a different group kind of Chinese where they have a different culture, a different background, and different religious beliefs. Things like that which may contribute to how they work on waste management themselves right so, but like it or not, but if there's no choice. And then they have to compose their own waste, right?

The current findings add new insights by stating that the complexity construct of DOI explains that perceived complexity in implementing or understanding the innovation reduces the likelihood of adoption. The new insights are added by stating that complexity may not be confined to the technology and logistics of the innovation, but is also extended to the diversity in the society, including religious, social status, and ethnic diversity, when it comes to social innovations. In social innovations like ecovillages, collective living in a harmonious way becomes more complex in highly diverse communities, as their unique religious practices, ethnic groups, and

social status add an extra layer of complexity. In other words, in highly diverse communities (i.e., religion and ethnicity), shared governance, equal economic participation, and cultural equality of ecovillages require a greater level of negotiation and adaptation, making ecovillages a complex phenomenon to adopt. However, it is worth noting that races and religions are not widely recognized as significant barriers to the adoption of ecovillages. Nevertheless, it indicates complexities within Malaysia's diversity in the existing social structure that may have served as an influencing factor.

Relationships Among the Identified Themes

The current research argues that the identified reasons – lack of a sense of urgency, money-oriented economy, government policy, urbanization, and awareness and knowledge - are more likely to be interconnected and collectively contribute to the low adoption of ecovillages in Malaysia (Figure 2). The socio-cultural dynamics are not included in Figure 2, as it was only highlighted by one participant. These intertwined relationships can be linked to the existing literature (Huff, 2024; Liang et al., 2024; Ridwan et al., 2024), which indicates that Malaysia's predominant focus has been on industrialization and economic growth, leading to rapid urbanization. The broader arrow on the left-hand side of Figure 2 indicates that more attention is given to industrialization. In contrast, limited attention is given to agriculture, as exhibited by the narrower arrow on the right-hand side. It has a significant impact on diverting attention away from sustainable living, which is represented by dotted lines, whereas more attention is given to consumerism and material success, as shown by solid lines.

The insufficient attention to sustainable living resulted in the low adoption of ecovillages, while a greater focus on consumerism and materialist success led to a lack of a sense of urgency. This can be further supported by the work of Hasan et al. (2024), who noted that the contribution to GDP will be more from manufacturing and other industrialized practices, and less from agriculture. Industrialization and economic growth further influenced governmental policies, which became increasingly focused on promoting industrialization and economic growth. This argument can be supported by Ke (2024), who mentioned that Malaysia has had more supportive policies for industrialization and economic growth.

It is then further argued that prioritizing industrialization and economic growth has potentially contributed to a limited sense of urgency. This is because individuals may have only observed the economic benefits of prosperity, rather than considering the environmental and societal consequences of industrialization and economic growth. The argument aligns with Malaysia's status as an upper-middle-income nation, fostering economic stability among individuals (Goh et al., 2024; Puteh et al., 2024), which in turn leads to a strong emphasis on consumerism, material success, and continued growth.

The importance of sustainable living, such as in ecovillages, is often overshadowed by the pursuit of greater economic prosperity, leading to a lack of sense of urgency to adopt more sustainable practices and limited awareness and knowledge of sustainability. This underscores that prevailing attention on the above-mentioned factors led to little effort toward creating awareness and educating people about sustainable living, like ecovillages. This is supported by an argument substantiated by Ogiemwonyi (2024), who emphasized that there is limited knowledge about environmental activities. Others, such as Abas et al. (2020) and Rassiah et al. (2022), have also noted a lack of awareness about sustainable living in Malaysia. Hence, it is evident that barriers such as a lack of sense of urgency, a money-oriented economy, limited awareness and knowledge, government policies, and urbanization have collectively led to a lack of attention toward sustainable living, including ecovillages. This may have contributed to the

low adoption of ecovillages in Malaysia, despite the ecovillage concept being as old as in the Western world (Shaw et al., 2009).

THEORETICAL IMPLICATIONS

The theoretical implications lie in refining the Diffusion of Innovation Theory (DOI) (Rogers, 1962) by contextualizing its application to social innovations in the context of ecovillages. The findings of the current research suggest that the five classical factors—relative advantage, compatibility, complexity, trialability, and observability—remain relevant to the adoption of ecovillages. However, the influence of these classical constructs is significantly shaped by structural factors, such as governance systems, economic constraints, legal frameworks, and social dynamics. These findings are in contrast to the existing studies (Aamir et al., 2023; Shaikh & Amin, 2024) on mainstream innovation adoption that incorporated DOI, as they predominantly emphasized the individual-level decision-making or organizational readiness, overlooking the influence of structural factors. This means that even if ecovillages offer several advantages and become compatible with the current mainstream society, they may still face low adoption if institutional and structural conditions are not conducive.

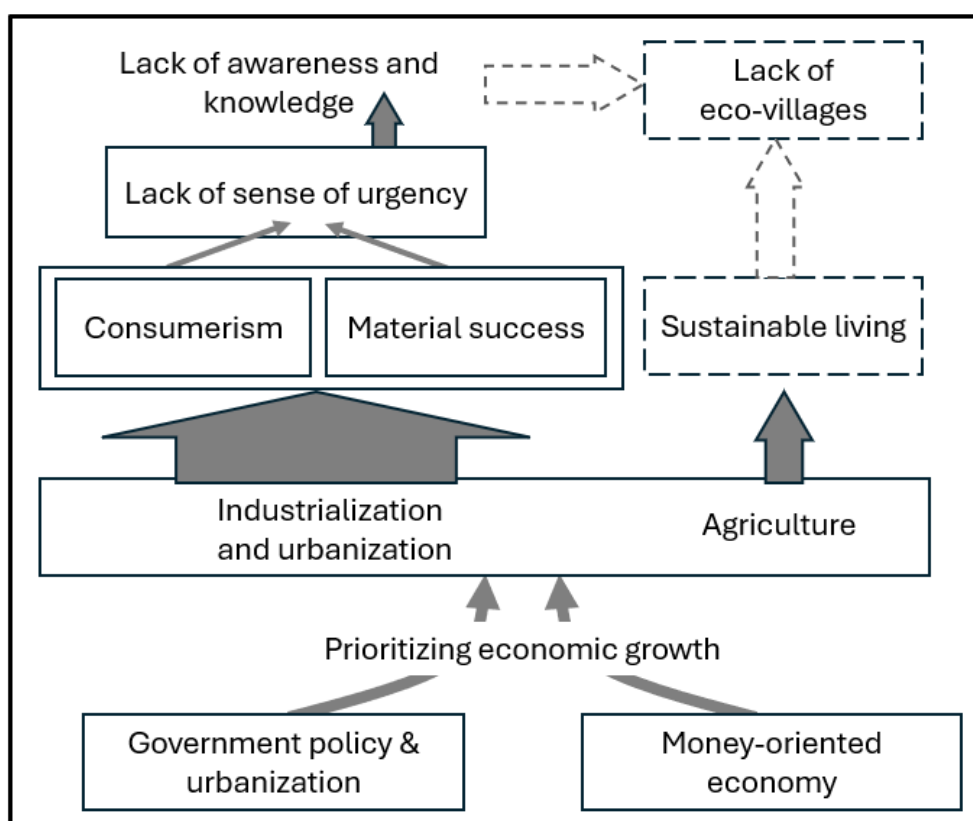


Figure 2. Interconnectedness among themes. (authors' compilation)

In doing so, this research refines the DOI by stating that the adoption of social innovation like ecovillages is not contingent only on the classical factors of DOI but also on structural factors, including governance systems, socio-economic priorities, and legal frameworks. These insights align with prior studies (Bányai, 2018; Magnusson, 2018), which also acknowledge the structural constraints in the development of ecovillages. Ercoşkun and Humer (2025) also

highlighted the significance of contextual adaptability in implementing Austrian ecovillage practices to Türkiye's unique context. These insights reinforce the findings of the current research, which suggest that in social innovations, the characteristics of the innovation itself are not sufficient; the conducive institutional and structural conditions are equally important.

PRACTICAL IMPLICATIONS

The practical implication of the current research is to empower emerging ecovillages and ecovillage developers by informing them about the barriers that have contributed to the low adoption of ecovillages in Southeast Asia. The key barriers are a lack of sense of urgency for sustainable living, more focus on a money-oriented economy, less favorable governmental policies, rapid urbanization, limited awareness and knowledge about ecovillages, and diversity in socio-economic factors. These findings are useful for emerging ecovillages and ecovillage developers to design ecovillages in ways that thrive within the existing barriers rather than challenging them. The current research offers recommendations for integrating ecovillage principles into existing systems, potentially enhancing their adoption and feasibility. One way to achieve this is to incorporate ecovillage principles into existing rural communities rather than creating entirely new ones. For instance, promoting self-sufficiency in food, energy, and village economies in traditional communities can be a good starting point for integrating the principles of ecovillages without challenging the underlying structural factors.

To address money-oriented economic challenges, ecovillages should align their models with more recognized sustainability sectors. This can include sustainable community-based tourism hubs, local green community business initiatives, or cooperative farming, which allow them not only to generate income but also create economic viability and environmental benefits. It may change the perception that ecovillages do not offer immediate economic benefits, but have the potential to provide long-term sustainability. Moreover, ecovillage developers should incorporate ecovillage communities under existing frameworks, such as cooperative housing initiatives or social enterprises, which enable ecovillages to gain institutional recognition. To increase awareness and knowledge, ecovillages should be more inclusive and partner with various organizations, including universities and non-profit organizations, rather than being isolated communities. These initial efforts may positively affect individuals' perceptions about ecovillages' long-term advantages, compatibility, feasibility, observability, and visibility.

CONCLUSION

This research aimed to understand the key barriers to the low adoption of ecovillages in Southeast Asia, with Malaysia serving as the study context. The data was collected through semi-structured interviews as part of a PhD research project. The results revealed five key barriers, namely a lack of sense of urgency, predominant focus on the money-oriented economy, governmental policies and urbanization, limited awareness and knowledge, and socio-cultural dynamics, which contributed to the low adoption of ecovillages. These practical, evidence-based findings are valuable for emerging ecovillage communities to navigate the real-world barriers that ecovillages face in Southeast Asia, thereby amplifying the adoption rate. While Malaysia serves as the context for the research, the findings from the current study also apply to other countries, such as Indonesia and Thailand, as the identified barriers are not unique to Malaysia. This is because similar challenges, such as focusing on economic growth and industrialization, have been observed in several other countries in Southeast Asia. Recognizing the potential of ecovillages can create a broader ecovillage framework for adoption by Southeast Asian countries,

enabling them to navigate the tensions between economic growth and sustainability goals. This, as a consequence, often takes precedence over social innovations.

The authors of the current research would like to express their views by stating that social innovations, such as ecovillages, hold the potential to make our human communities more sustainable and inclusive. However, their success highly depends on addressing the identified barriers, which require a stepwise approach that includes government-supported pilot projects, financial support, and creating an enabling environment for ecovillages. Hence, emerging ecovillages should be allowed and supported by providing institutional recognition (i.e., zoning policies that recognize ecovillages) and financial support (e.g., providing tax incentives) to experiment with alternative living models. This would enable emerging ecovillages to refine their design, governance, and viability without facing immediate regulatory and societal resistance, creating a proof-of-concept model for Southeast Asia. It is also recommended that emerging ecovillages enhance their viability and reduce institutional rejection by collaborating with academic institutions, non-profit organizations, and urban planners to demonstrate their benefits and viability. Collaboration with such institutions will allow ecovillages to become mainstream models of sustainable living rather than isolated communities.

LIMITATIONS & FUTURE RESEARCH

One of the limitations is the sample, as this research exclusively involves individuals who are building ecovillages, are involved in sustainable community development, and are doing research on ecovillages. Hence, the perception of the general public in Malaysia regarding why they have not adopted an ecovillage lifestyle warrants further investigation. Moreover, it is also necessary to explore the relationship between the socio-cultural dynamics and the adoption of ecovillages. This is because, in the current research, sociocultural dynamics emerged as a barrier; however, it was not predominantly emphasized, hence further research is required. This can be investigated by understanding the perceptions of the people toward diversity in races and religions, and creating more inclusive ecovillages in Southeast Asian regions. Nevertheless, the limitations do not have a significant impact on the overall aim of the current research.



REFERENCES

- Aamir, S., Atsan, N., & Khan, M. S. (2023). Going digital with multisided-platforms: Assessing the innovation adoption process from the perspectives of travel agents. *Tourism and Hospitality Research*, 25(1), 72-89.
- Abas, M. A., Yusoh, M. P., Sibly, S., Mohamed, S., & Ta Wee, S. (2020, September). Explore the rural community understanding and practices on sustainable lifestyle in Kelantan, Malaysia. Paper presented at IOP Conference Series: Earth and Environmental Science, Malaysia.
- Abidin, Z. N., Yusof, N., & Othman, A. A. (2013). Enablers and challenges of a sustainable housing industry in Malaysia. *Construction Innovation*, 13(1), 10-25.
- Alam, M. K. (2020). A systematic qualitative case study: Questions, data collection, NVivo analysis and saturation. *Qualitative Research in Organizations and Management: An International Journal*, 16(1), 1-31.
- Assidi, S., Omran, M., Rana, T., & Borgi, H. (2025). The role of AI adoption in transforming the accounting profession: A diffusion of innovations theory approach. *Journal of Accounting & Organizational Change*. <https://doi.org/10.1108/jaoc-04-2024-0124>

- Awan, A., Sadiq, M., Hassan, S. T., Khan, I., & Khan, N. H. (2022). Combined nonlinear effects of urbanization and economic growth on CO₂ emissions in Malaysia. An application of QARDL and KRLS. *Urban Climate*, 46, 101342.
- Bányai, O. (2018). Legal aspects of eco-villages. In M. Fonai, F. Penzes and J. K. Muradin, (Eds), *local environmental problems and answers in Hungary and Romania*, (pp. 15-27). Scientia Kiadó.
- Bekhet, H. A., & Othman, N. S. (2017). Impact of urbanization growth on Malaysia CO₂ emissions: Evidence from the dynamic relationship. *Journal of Cleaner Production*, 154, 374-388.
- Bong, C. P., Goh, R. K., Lim, J., Ho, W. S., Lee, C., Hashim, H., Abu Mansor, N. N., Ho, C. S., Ramli, A. R., & Takeshi, F. (2017). Towards low carbon society in Iskandar Malaysia: Implementation and feasibility of community organic waste composting. *Journal of Environmental Management*, 203, 679-687.
- Braun, V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. *Qualitative Research in Sport, Exercise and Health*, 11(4), 589-597.
- Daly, M. (2017). Quantifying the environmental impact of ecovillages and co-housing communities: a systematic literature review. *Local Environment*, 22(11), 1358-1377.
- Ercoşkun, Ö. Y., & Humer, A. (2025). From Austria to Türkiye: guidelines for sustainable communities. *Journal of Science Part B: Art Humanities Design and Planning*, 13(1), 123-136.
- Fakhrullah, F., Xiao, D., Suplata, M., Khan, S., & Pawera, R. (2025). Customer-centric value assessment of cryptocurrency adaptation. *Computational Economics*, 1-36. <https://doi.org/10.1007/s10614-025-10868-6>
- Fonseca, R. A., Irving, M. D., Nasri, Y. X., & Ferreira, G. F. (2022). Sustainability and social transformation: the role of ecovillages in confluence with the pluriverse of community-led alternatives. *Climate Action*, 1(1), 1-10.
- Gilman, R., & Gilman, D. (1991). Ecovillages and sustainable communities: A report for Gaia Trust. Context Institute.
- Global Ecovillage Network. (2015). Green valley ecovillage. <https://ecovillage.org/ecovillage/green-valley-ecovillage/>.
- Global Ecovillage Network. (2025). Ecovillages. https://ecovillage.org/ecovillages/?gen_country=malaysia.
- Goh, S. P., Ong, S. C., & Chan, J. E. (2024). Economic evaluation of germline genetic testing for breast cancer in low- and middle-income countries: A systematic review. *BMC Cancer*, 24(1), 316.
- Gomez, E. T., Cheong, K. C., & Wong, C. Y. (2021). Regime changes, state-business ties and remaining in the middle-income trap: the case of Malaysia. *Journal of Contemporary Asia*, 51(5), 782-802.
- Hahn, C. (2011). *Doing qualitative research using your computer: A practical guide*. SAGE.
- Hasan, M. K., Ahmed, M. M., Islam, S., Kabir, S. R., Shtayat, M., Ahmed, F. R. A., Mahmud, M., Nazri, M. Z. A., & Babiker, N. B. M. (2024). Malaysia energy outlook from 1990 to 2050 for sustainability: Business-as-usual and alternative-policy scenarios based economic projections with AI-based experiments. *Energy Strategy Reviews*, 53, 101360.
- Hashim, M. F. Shukery, L. J. Shinn, H. C. Siong and H. M. Yusof. (2014, March). Ecovillage concept for green economic development: Iskandar Malaysia as a case study. Paper presented at the International Conference and Utility Exhibition on Green Energy for Sustainable Development (ICUE), Pattaya, Thailand.
- Hasnat, M. A., Khandakar, H., Rahman, M. A., Islam, S. N., & Hasan, K. K. (2025). Capitalism in modern ignorance (jahilliyah): Exploring Islamic alternatives to reshape human behaviour and provide solutions for the 21st century. *International Journal of Islamic and Middle Eastern Finance and Management*, 18(4), 975-991.
- Hassan, M. A., Farid, M. A., Zakaria, M. R., Ariffin, H., Andou, Y., & Shirai, Y. (2024). Palm oil expansion in Malaysia and its countermeasures through policy window and biorefinery approach. *Environmental Science & Policy*, 153, 103671.
- Hennink, M., & Kaiser, B. N. (2022). Sample sizes for saturation in qualitative research: A systematic review of empirical tests. *Social Science & Medicine*, 292, 114523.

- Ho, W., Hashim, H., & Lim, J. (2014). Integrated biomass and solar town concept for a smart eco-village in Iskandar Malaysia (IM). *Renewable Energy*, 69, 190-201.
- Huff, G. (2024). Vent-for-surplus in Southeast Asian development since 1870. *World Development*, 181, 106656.
- Isa, N. M., Sivapathy, A., & Adjrina Kamarruddin, N. N. (2021). Malaysia on the way to sustainable development: circular economy and green technologies. *Modeling Economic Growth in Contemporary Malaysia*, 91-115.
- Jayasingam, S., Lee, S. T., & Mohd Zain, K. N. (2021). Demystifying the life domain in work-life balance: a Malaysian perspective. *Current Psychology*, 42(1), 1-12.
- Junnier, F. (2024). Action and understanding in the semi-structured research interview: using CA to analyse European research scientists' attitudes to linguistic (dis)advantage. *Journal of English for Academic Purposes*, 68, 101355.
- Junsheng, H., Mu, Y., Masud, M. M., Akhtar, R., Saif, A. N., Islam, K. M., & Hafiz, N. (2024). Navigating the nexus: unraveling technological innovation, economic growth, trade openness, ICT, and CO2 emissions through symmetric and asymmetric analysis. *Humanities and Social Sciences Communications*, 11(1), 1-13.
- Kasim, A. (2007). Corporate environmentalism in the hotel sector: evidence of drivers and barriers in Penang, Malaysia. *Journal of Sustainable Tourism*, 15(6), 680-699.
- Ke, Y. (2024). ASEAN four's middle income trap dilemma: evidence of the middle technology trap. *Asian Review of Political Economy*, 3(1), 14.
- Khang, A., Jadhav, B., & Birajdar, S. (2023). Industry revolution 4.0 workforce competency models and designs. In A. Khang, S. Rani, R. Gujrati, H. Uygun, S. Gupta (Eds.), *workforce management systems for industry 4.0* (1st ed., pp. 11-34). CRC Press.
- Kotter, J. P. (2008). *A sense of urgency*. Harvard Business Press.
- Kreinin, H., & Aigner, E. (2022). From decent work and economic growth to sustainable work and economic degrowth": A new framework for SDG 8. *Empirica*, 49(2), 281-311.
- Kunze, I. (2020). A new we: post-individualistic community-based initiatives as social innovations? Empirical observations in intentional communities. In J. Bettina (Eds.), *Rethinking community through transdisciplinary research* (1st eds., pp. 285-305). Palgrave Macmillan.
- Kuok, K. K., Chiu, P. C., Chin, M. Y., Rahman, R., & Bakri, M. K. (2024). Effectiveness of bioretention system and vegetated swale for reducing urban flood risk in equatorial region: A case study in Kuching, Malaysia. *Sustainable Water Resources Management*, 10(2), 76.
- Lai, W.H., Fong, A.Y.Y., Said, A. B. (2023). Proposal writing for grant application in Malaysia. In S. C. Parija, V. Kate (Eds.), *Grant writing for medical and healthcare professionals* (1st eds., pp. 223-238). Springer.
- Liang, H., & Lean, H. H. (2024). Fifty years of excellence and beyond. *Economic Growth and Development in the Tropics*, 30-48.
- Magnusson, D. (2018). Going back to the roots: The fourth generation of Swedish eco-villages. *Scottish Geographical Journal*, 134(3-4), 122-140.
- Mamun, A. A. (2018). Diffusion of innovation among Malaysian manufacturing SMEs. *European Journal of Innovation Management*, 21(1), 113-141.
- Mbatha, B. (2024). Diffusion of innovations: how adoption of new technology spreads in society. In D. Ocholla, O.B. Onyancha, A.O. Adesina (Eds.), *Information, knowledge, and technology for teaching and research in Africa* (1st ed., pp. 1-18). Springer, Cham.
- Nair, S., Mukherjee, I., Howlett, M., & Cashore, B. (2024). Environmental policy dynamics in South Asia: two steps forward, one step back. In H. Jorgens, C. Knill, Y. Steinebach (Eds), *Routledge Handbook of Environmental Policy* (1st ed., pp. 291-301). Taylor & Francis.
- Ngu, H. J., Lee, M. D., & Bin Osman, M. S. (2020). Review on current challenges and future opportunities in Malaysia sustainable manufacturing: Remanufacturing industries. *Journal of Cleaner Production*, 273, 123071.
- Ogiemwonyi, O. (2024). Determinants of green behavior (Revisited): A comparative study. *Resources, Conservation & Recycling Advances*, 22, 200214.

- Othman, A. H., & Yusof, Z. B. (2020). Upcycling ecovillage in Perhentian Kecil Island. *Design Ideals Journal*, 2(2).
- Park, C. (2024). ASEAN economic integration: Addressing challenges and embracing opportunities. *Asian Economic Policy Review*, 19(2), 172-193.
- Pickerill, J., Chitewere, T., Cornea, N., Lockyer, J., Macrorie, R., Blažek, J. M., & Nelson, A. (2024). Urban ecological futures: five eco-community strategies for more sustainable and equitable cities. *International Journal of Urban and Regional Research*, 48(1), 161-176.
- Pinto, T. (2024). Spiritual representations in rural ecovillages. *Journal for the Study of Religion, Nature and Culture*, 18(2), 278-303.
- Puteh, S. E., Razali, H., Ismail, A., & Zulkifli, M. (2024). Health status based on EQ-5D-5L for the cancer patient population in Malaysia. *Scientific Reports*, 14(1).
- Rahman, M. Awang, M., & Jagun, Z. T. (2025). Polycrisis: Factors, impacts, and responses in the housing market. *Renewable and Sustainable Energy Reviews*, 202, 114713.
- Rassiah, P., Mohd Nasir, N., Khan, G., & Munir, S. (2022). Stakeholder salience and environmental stewardship among hotels in Malaysia. *Sustainability Accounting, Management and Policy Journal*, 13(5), 1201-1228.
- Ridwan, M., Urbee, A. J., Voumik, L. C., Das, M. K., Rashid, M., & Esquivias, M. A. (2024). Investigating the environmental Kuznets curve hypothesis with urbanization, industrialization, and service sector for six South Asian countries: Fresh evidence from Driscoll Kraay standard error. *Research in Globalization*, 8, 100223.
- Rogers, E. M. (Eds.). (1962). *Diffusion of innovations*. Free Press.
- Rongen, G., Ali Ahmad, Z., Lanjouw, P., & Simler, K. (2024). The interplay of regional and ethnic inequalities in Malaysian poverty dynamics. *Policy Research Working Papers*, 22, 101-130.
- Roongtawanreongsri, S., & Boonkaew, R. (2021). Adopting the ecovillage concept to shape a traditional bureaucratic village into a more sustainable community in Thailand. *Community Development*, 53(5), 525-543.
- Royzen, R., Bruehwiler, N., Kos, L., Boyer, R., & Koehrsen, J. (2024). Rethinking the diffusion of grassroots innovations: an embedding framework. *Technological Forecasting and Social Change*, 200, 123156.
- Shaikh, I. M., & Amin, H. (2024). Influence of innovation diffusion factors on non-users' adoption of digital banking services in the banking 4.0 era. *Information Discovery and Delivery*, 53(1), 12-21.
- Shaw, R., Omar, S., Yoshizumi, M. and Mat So, N. (2009). Chapter 14 conceptualizing urban eco-village in Kampong Bahru. In R. Shaw, H. Srinivas, A. Sharma (Eds.), *Community, environment and disaster risk management* (1st ed., pp. 275-294). Emerald.
- Trupp, A., & Dolezal, C. (2020). Tourism and the sustainable development goals in Southeast Asia. *Austrian Journal of South-East Asian Studies*, 13(1), 1-16.
- Uzumcu, O., & Acilmis, H. (2023). Do innovative teachers use AI-powered tools more interactively? A study in the context of diffusion of innovation theory. *Technology, Knowledge and Learning*, 29(2), 1109-1128.
- Weng, C. N. (2010). Impacts of human habitat development on the environment—challenges and the way forward. *Malaysian Journal of Environmental Management*, 11(2), 3-20.
- Wiradimadja, R. D., Megantara, E. N., Husodo, T., Tokuda, H., & Lestari, R. M. (2019). Sustainable practices utilizing ecovillage's concepts in Bendungan Village, Bogor Regency, West Java, Indonesia. Paper presented at the IOP Conference Series: Earth and Environmental Science.
- Xhexhi, K. (2023). Bioclimatic eco-renovation. Case study Tirana, Albania. In K. Xhexhi (Eds.), *Ecovillages and ecocities. The urban book series* (1st ed., pp. 225-258). Springer.
- Xu, S., Kee, K. F., Li, W., Yamamoto, M., & Riggs, R. E. (2024). Examining the diffusion of innovations from a dynamic, differential-effects perspective: A longitudinal study on AI adoption among employees. *Communication Research*, 51(7), 843-866.
- Zhai, Y., Wang, Y., Hao, L., & Qi, W. (2025). Medium- and long-term independent contributions of climate change, management measures, and land conversion to vegetation dynamics and inspiration for ecological restoration in Inner Mongolia, China. *Ecological Engineering*, 212, 107504.

Zhang, X., Yu, P., Yan, J., & Ton Ail, I. (2015). Using diffusion of innovation theory to understand the factors impacting patient acceptance and use of consumer e-health innovations: A case study in a primary care clinic. *BMC Health Services Research*, 15(1), 71.

ABOUT THE AUTHORS

Dr. Imran Rautan holds a PhD in business. His research focuses on human geography, particularly ecovillages, eco-communities, and sustainable urbanization, intending to develop high-quality lifestyle models that use limited resources. He also leads Litvill Lessons Association, as the founder, one of India's youngest non-profit organizations dedicated to educating Indian youth about sustainable living. Motivated by his lived experience of growing up in an Indian slum, he is committed to making sustainable living accessible to marginalized, slum, and low-income communities.

Contact: imranrautan@gmail.com

Dr. Sivakumari Supramaniam is an Assistant Professor at Higher Colleges of Technology, Ras Al Khaimah, United Arab Emirates. She holds a PhD in Marketing (Waikato University, New Zealand) and a master's in Marketing (Northumbria University, UK). Her main research approach is qualitative, drawing on social constructionism and relationality. Applying her qualitative expertise, she leads a sustainable project for SMEs and works in collaboration with other universities in the areas of sentiment analysis, gender, and influencer roles in Marketing. Her work has been published in the Journal of Consumer Marketing, Journal of Hospitality and Tourism Management, and Journal of Convention and Event Tourism.

Contact: ssupramaniam@hct.ac.ae

Dr. Hossein Nezakati Alizadeh is an Associate Professor at Northeastern State University, in the Department of Business Administration, College of Business and Technology. He holds a PhD in Business Management (majoring in Marketing Management). Associate Professor Dr. Hossein brings 30 years of teaching experience in management and marketing. He is an expert in Strategic Management, Marketing Management, International Business, Supply Chain Management, Future Smart Cities, and Sustainable Development Goals. Proven track record in leadership, research, and teaching with a focus on practical solutions and academic rigor.

Contact: nezakati@nsuok.edu

Dr. Stephen Thomas Homer is an Associate Professor, a seasoned academic at Sunway University, specializing in business management, corporate social responsibility (CSR), and sustainable development. Associate Professor Homer directs the Yunus Social Business Centre, driving entrepreneurship and responsible management education. In this role, he oversees daily operations, devises strategic plans, and fosters partnerships with external stakeholders. His dedication to academia and leadership in CSR and sustainable business underscore his significant contributions to the field.

Contact: stephenhomer@sunway.edu.my

ACKNOWLEDGEMENTS

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors. It obtained ethics approval from the Sunway University Research Ethics Committee. Author 1 prepared the manuscript, while authors 2, 3, and 4 reviewed and approved the final manuscript.

DISCLOSURE

The authors declare no conflict of interest.