The Spatial & Architectural Typology of Food Production in the Fishing Villages of Kuching, Malaysia

Tipología espacial y arquitectónica de la producción alimentaria en las aldeas pesqueras de Kuching (Malasia)

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Abstract
This paper explores the spatial relationship between structural archetypes, the environment and people, and examines how they revolve around the collection and consumption of food in the fishing villages of Kuching, Malaysia. Fishing villages are located outside the urban periphery with access to water bodies such as rivers, estuaries and the sea. These villages are often visited by people from the city centre who want to buy local fresh fish and seafood. However, the way of life in these villages is slowly disappearing due to changes in land use, urbanization and environmental degradation. Although these villages in Kuching have existed for centuries and have been mentioned in British and Chinese historical sources, there has been no systematic research on the typology of structures and fishing traditions. Thus, through the concept of the commons, this paper aims to fill this gap and contribute a wealth of knowledge on sustainable food futures.

Este artículo explora la relación entre el espacio, el medio ambiente y las personas en las aldeas pesqueras de Kuching (Malasia), centradas en la recolección y el consumo de alimentos. Estas aldeas, ubicadas en la periferia urbana, proveen pescado y marisco fresco a la ciudad. Sin embargo, su modo de vida tradicional está en declive debido a la urbanización y la degradación ambiental. A pesar de su importancia histórica, estas aldeas han sido poco estudiadas. A través del concepto de "procomún", este trabajo busca documentar sus estructuras y tradiciones pesqueras, contribuyendo al conocimiento sobre futuros alimentarios sostenibles.

Keywords
fishing villages, the commons, indigenous heritage, urbanization, Malaysia
aldeas pesqueras, patrimonio indígena, urbanización, Malasia

Introduction

In almost every city in Borneo, riverine communities exist on the outskirts of urban areas along the riverbanks or the coastlines. In Kuching, their existence forms a dialectic relationship with the city, embodying the tension between centrality and peripherality. Historically, these villages have been substantial providers of fresh food, resources and vital labour to the city. These settlements have undergone drastic changes within the last four decades, in the wake of modern urban planning.

As the urban sprawl of Kuching relentlessly encroaches the peripheries and the hinterlands, a process determined by the complex articulation of capitalist and social reproduction, there is a noticeable trend towards the glamorization of technocratic rational planning methods. These methods, which emphasize efficiency and formal standardized approaches, often taking after the template of developed countries, unfortunately blind us to the existing heritage of social spatial relations that have long shaped the region. It is imperative to remember that heritage is not only in tangible forms, such as buildings and artifacts, but also intangible, encompassing traditions, knowledge, and practices, and the outcomes of which are manifested in the structures presently found in the fishing villages. These

structures, far from being mere relics of the past, contribute directly to the production of food, sustaining communities and linking them to the wider urban food system.

Although previous research has examined the quality of life and economic activities in these villages,[1] a significant void remains in documenting how their cultural landscapes, building designs, and social structures are shaped by food production. Specifically, the physical layout and architectural styles of these settlements were developed not only in response to climate and environment, but also to support the necessary infrastructure for harvesting, trading, and consuming fish and seafood. Moreover, road networks linking these previously isolated villages to Kuching has created a growing market, allowing fishermen to distribute their catch to urban distribution centres and other rural settlements.

Research on food, conducted by scholars like Marat-Mendes[2] and their work on urban food mapping, displays a growing trend in academic and policy circles, highlighting the pressing issue of sustainability. This involves a critical examination of how to utilize resources responsibly and, importantly, how to protect the communities who rely on the natural coastlines and, indeed, make up part of the eco-system. The emphasis on sustainable measures extends to the specific techniques employed by these communities, such as how they catch and preserve fish, ensuring the long-term viability of their livelihoods. We must also consider the way they react to the provision of road infrastructures, which significantly impacts their ability to distribute their catch and sell to retail and wholesale markets in the city, thus integrating their rural economies with urban networks. Furthermore, their spatial practices, expressed through their idiosyncratic building typologies, deserve to be read and understood in detail. This understanding is crucial, as there are also ways in which the Global North can learn valuable lessons from the Global South rural coastal settlements in terms of sustainable urban design by the coast. Specifically, the architectural typology employed in these settlements, which inherently preserves these sustainable social and spatial practices, offers a model for more environmentally and socially responsible urban development.

Therefore, the aim of this paper is to highlight these spaces of food production in the fishing villages of Kuching and to examine how they have evolved to meet the needs of their people and the customers who frequent these villages to purchase fresh catch directly. Here, "food production" refers specifically to the act of fishing, catching seafood, processing and subsequent distribution. Drawing from case studies of the villages of Bako, Buntal, Telaga Air, and Goebilt (fig. 1), this paper reviews the archetypes of food production that comprise the vernacular landscape of these villages, from the *togok*, jetties, boardwalks, to the markets and seafood restaurants. Firstly, it is essential to acknowledge the social and cultural interactions among the residents that led to the formation of these villages, through the concept of the social 'commoning.'

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[1] Rezahan Mohd Zain, Mohd Khairul Amri Kamarudin, and Muhammad Hafiz MD Saad. "Assessment of Quality of Life on Fishermen Community in Kuala Terengganu, Malaysia: A Review." *International Journal of Academic Research in Business and Social Sciences* (2018), 640 - 650; Lili Maisara Zainudin, Alfian Zein, Mohd Hanafi Idris, and Wan Luqman. "Socio-economic Profile Comparison of Fishermen Community in Kuala Marang and Seberang Takir, Terengganu, Malaysia." *Journal of Sustainability Science and Management*, 6. December (2019), 130-142.

[2] Teresa Marat-Mendes, Inês Isidoro, Joana Catela, Mafalda Pereira, João Borges, Sara Silva Lopes and Carolina Henriques, "Drivers of change: how the food system of the Lisbon Metropolitan Area is being shaped by activities, initiatives and citizens needs towards a sustainable transition." *CIDADES, Comunidades e Territórios*, [Online], Sp21 | 2021, Online since 15 April 2021. URL: http://journals.openedition.org/cidades/3343

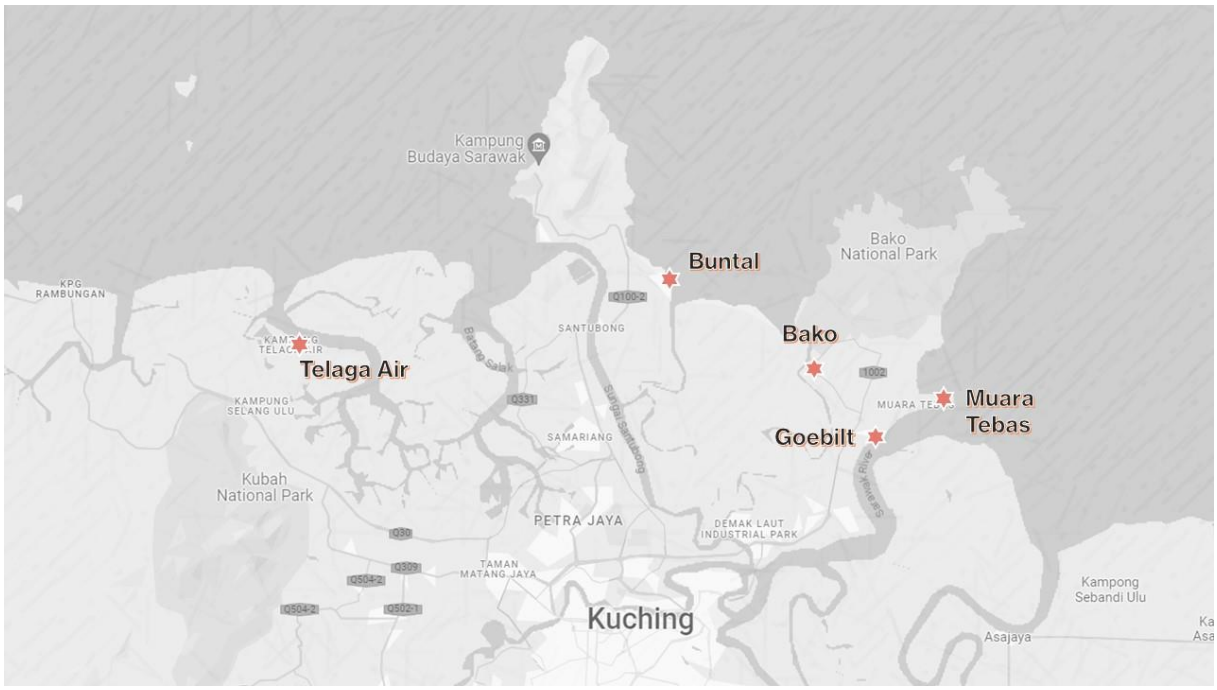

Figure 1. A map of the fishing villages under study in Kuching, Malaysia. Source: Google Map, edited by Arzmi, 2025

Social and Cultural Practices of 'Commoning' in the Fishing Villages

Figure 2. Bako Village. Source: Author, 2024

'the village
follows us about
it's just hiding
behind the façade of the city
. . .
the village
more than memory
is a psychoanalysis
of our modernity.'[3]

[3] Jef Cornelis, director, *Ge kent de weg en de taal*, BRTN, broadcast January 6, 1976. Voice-over by Geert Bekaert

While the context of the poem refers to the lost Flemish villages of Belgium, its theme resonates with the significance of fishing villages for residents of Kuching. Social media platforms, from TikTok and Instagram to YouTube and Facebook, are replete with hashtags and groups dedicated to these villages. Users share drone footage, historical photos, and descriptions of past lifestyles, indicative of a nostalgia and longing for simplicity, connection to nature, and close-knit community bonds that persist in these villages. These online portrayals often romanticize the *kampungs* (villages) as embodiments of wholesome values and preservers of rural traditions that encourage communal practices (fig. 2). As younger residents, often more educated, migrate to suburban Petra Jaya or inner-city South Kuching, where they live amongst diverse ethnic groups, a pull remains, drawing them back to visit family and relatives. This return is perhaps fuelled by a reaction against the perceived negative aspects of modernity, such as alienation and the erosion of traditional values.

The people of these fishing villages are mostly homogeneous with a Malay majority along with some Chinese business-owners. They often demonstrate strong kinship, conviviality, and social networks that contribute to their economic growth. Social media has played a significant role in this growth, leveraging these networks where people can be considered "infrastructures."[4] Cultural and religious values, alongside social relationships, are integral to the formation of these settlements, which are largely constructed from the ground up.[5] Collaborative efforts between neighbours, the sharing of traditional building knowledge, and the planning and construction of spaces all contribute to the built environment, including those spaces dedicated to food production.

Fishing grounds, waterbodies, the fishing structures, jetties, boardwalks and markets can be regarded as the commons, which is defined by the shared assets, resources managed and sustained by the communities.[6] An aspect of the commons which deserves attention is the *praxis communis*—defined as social practices. These include acts of "mutual support, negotiation, collaboration and communication, and experimentation that are needed to create systems to manage common-pool resources and to engage with common codes and conventions."[7] These acts of 'conviviality,' as described by Ivan Illich (1983), enable groups of individuals to contribute effectively to a system of production to satisfy their needs, and which they can live from.[8] Furthermore, the villagers operate upon these practices by taking ownership and sovereignty over the resources that matter to them. In essence, the *praxis communis* provides the framework for collective action, where shared resources are managed not through individualistic approaches, but through a network of social interactions. The following sections describe the architectural and spatial typologies which exemplify these concepts.

[4] Simone AbdouMaliq. "People as Infrastructure: Intersecting Fragments in Johannesburg." *Public Culture*, 16(3), (2004), 407-429.

[5] Silvia Spolaor and Vitor Oliveira. "Urban Forms of Informality: Decoloniality as a Perspective for Morphological Studies." In *Formal Methods in Architecture*, (Lisbon: Springer, 2021), 197-205.

[6] Elinor Ostrom. *Governing the Commons: The Evolution of Institutions for Collective Action*. (Cambridge, MA: Cambridge University Press, 1990).

[7] Tom Avermaete. "Constructing the Commons: Towards Another Architectural Theory of the City?" In *The New Urban Condition: Criticism and Theory from Architecture and Urbanism*, Eds: Leandro Medrano, Luiz Recaman and Tom Avermaete, (New York: Routledge, 2021). 54-72.

[8] Ivan Illich. "Silence is a Commons." *The Co-Evolution Quarterly* (Winter 1983), 1-6.

Local Ingenuity: The *Togok*

Figure 3. The togok *near the village of Telaga Air. Source: Author, 2024*

The locations of the fishing villages arose from the abundance of aquatic resources as well as ample protection from the tropical monsoons and wave erosion. Fishing practices in these villages vary considerably, reflecting the specific marine life and terrain of each locale. The north of Kuching, which is officially gazetted as an environmental enclave, has vast mangrove swamps and home to a diversity of marine life and eco-systems, such as crocodiles, dolphins, otters, monkeys and turtles.

In the villages of Bako, Telaga Air and Buntal, the traditional fishing structure which the locals refer to as *togok* is still in use, although its usage has waned over the last few decades. These fishing structures represent a communal resource, or 'the commons,' as they are collectively used and maintained by the fishing community, requiring mutual agreement for their management. Functioning as an extension of their domestic spaces, these structures serve primarily for the subsistence of their households, rather than for large-scale commodity production.[9] Furthermore, the skilled practices involved in managing and constructing these structures, as noted by scholars, also form part of the intangible commons, encompassing shared knowledge and cultural expertise.[10]

As reported by the Telaga Air village chief, local fishermen have traditionally employed a range of standard fishing methods, including *pukat hanyut* (drift nets), *pukat selang* (seine nets), *jaring* (nets), *bubu* (traps), *pelat* (snares), and hand-lining. Due to boat limitations, their fishing activities are

[9] Ibid.

[10] Martin Parker, George Cheney, Valérie Fournier, and Chris Land. *The Routledge Companion to Alternative Organization.* (London, UK: Routledge, 2014).

generally confined to the river and immediate coastal areas, with river-only fishing during monsoon seasons. Notably, what is known as *'jermal'* in Indonesia[11] and *'gian'* elsewhere in Southeast Asia is locally referred to as *'togok'* in the local Kuching slang (fig. 3).

From the village of Bako, situated along the Tabo River, tourists traveling to Bako National Park would pass by numerous *togoks* lining the riverbanks, extending to the estuary. These boat-accessible structures are primarily used for catching small shrimp and the occasional fish. Similar *togoks* are also found off the coast of Buntal. Fisherman Hasan from Buntal, described his routine of waking at 4 am to reach these *togoks.* Each *togok* consists of a column structure formed by drilled wooden posts, supporting an inclined beam. This beam holds layered fishing nets, made from local *nibong* tree branches, with varying mesh sizes to prevent escapes. Fishermen often work in pairs or trios, pulling up the nets to collect their catch. Low tide is optimal for harvesting, though high tide is also utilized. The process, while seemingly simple, hinges on precise timing and tidal awareness. While *togoks* are predominantly river-based, a limited number are located in near-sea areas.

Figure 4. One of the togoks on the Tabo River, a few minutes by boat from Bako village. Source: Author, 2022

Traditional fishing structures, such as the *togok*, yield significantly less than modern techniques. Consequently, more fishermen are turning to trawlers and drift nets, drawn by the promise of increased catches. In Bako, the *togok* has become increasingly ineffective due to the Tabo River's

[11] Palti M. Sormin, Arthur Brown, and Pareng Rengi, "Studi Teknologi Alat Tangkap Jermal Di Desa Kota Pari Kecamatan Pantai Cermin Kabupaten Serdang Bedagai Provinsi Sumatera Utara," *Jurnal Online Mahasiswa Fakultas Perikanan dan Ilmu Kelautan Universitas Riau* (October 2014), accessed January 19, 2025, https://www.neliti.com/publications/202952/studi-teknologi-alat-tangkap-jermal-di-desa-kota-pari-kecamatan-pantai-cermin-ka.

shallowing, a result of industrial activities in Kuching impacting connected river systems. These structures require deeper waters to function properly. Recent interviews with fishermen revealed that 2024 has been an exceptionally poor year for fishing, to the point that they had to abandon these structures and fish in deeper waters in the sea. In Telaga Air, fishing has been largely abandoned as the primary economic activity, with villagers now predominantly engaged in the tourism industry. As a result, their *togok* is used less frequently now than before. They work as tour boat operators or small entrepreneurs. Telaga Air has become the main jetty for tourists visiting the turtle sanctuary in Satang Island or taking boat tours to visit the wildlife in Kuching Wetlands. While fishing has declined, the food culture remains vibrant, though the villagers now source their food and fish from other locations.

Jetties and Boardwalks

Figure 5. The jetty in Goebilt, on the Sarawak River. Source: Author, 2024

Another common characteristic of these fishing villages is the presence of jetties, a distinct feature along their shorelines. Houses, typically built on stilts and facing the water, are interconnected by boardwalks. Similar studies on informal settlements[12] demonstrate how the series of jetties are usually built perpendicular along the shoreline and are almost arranged in grid-like patterns, as with the case of Goebilt and Bako. Originally, houses were constructed using *nibong* wood and *nipah* thatch leaves for roofing. Over time, with population growth, houses expanded, or new ones were built, leading to adaptations incorporating more contemporary construction methods. These include concrete piles, the use of cement and bricks, and zinc roofing. While existing literature may tend to romanticize the

[12] Kim Dovey, Matthijs van Oostrum, Tanzil Shafique, Ishita Chatterjee, and Elek Pafka. *Atlas of Informal Settlement: Understanding Self-Organized Urban Design*. (London: Bloomsbury, 2023)

original structures, realistic depictions of the hybrid contemporary vernacular homes illustrate how these houses have adapted over time.[13]

Jetties in these fishing villages serve a dual purpose. Beyond their functional role in mooring boats and facilitating fishermen's disembarkation, they also function as vital social spaces and contribute significantly to the cultural identity of the villages. For it is here, that the jetty serves as a vital public space within the village. In Goebilt, for example, the jetty terminates with a sort of pavilion at the end, framing a view of the river. In this sheltered jetty is where fishermen gather to repair their nets, find coverage from the rain, observe the water to gauge weather conditions, and even provides a space for amateur anglers. Long bamboo poles, driven into the riverbed or tied to the pier, provide mooring points for boats, allowing fishermen to easily access the wooden platforms (fig. 5). Stacks of cooler boxes, barrels, bundles of fishing nets, a nearby shed, and other fishing gear are often found piled on the jetty, ready for use should fishermen require additional equipment before heading out to sea.

Figure 6. A typical house on stilts in Goebilt, with an open verandah facing the boardwalk. Source: Author, 2025

The boardwalks serve as more than just walkways; they are also spaces for social interaction. In Bako, this is readily apparent, with house verandas facing the boardwalks and often furnished with chairs and potted plants (fig. 6). The frontages of these houses almost always face the boardwalks, fostering a high degree of social exchange, particularly among neighbours, given the proximity of extended families. Cooperation extends beyond the fishermen; the wives also share a close relationship, often drying fish and cooking together. The spirit of *gotong-royong*[14], a Malay term meaning cooperation or mutual assistance, is deeply ingrained in the village community. This is evident in the gathering spaces used for social events, where community members are expected to contribute, especially with cooking, during weddings, births, or thanksgiving prayers.

[13] Marcel Vellinga. "Living Architecture: Re-imagining Vernacularity in Southeast Asia and Oceania." *Fabrications*, (2020) 11-24.

[14] Abidin Kusno, *Jakarta: The City of a Thousand Dimensions.* (Singapore: NUS Press, 2023).

From Catch to Table: Markets and Restaurants

Roads not only facilitate travel between the villages and the city, but also create more job, educational, and market opportunities. Villagers interviewed recalled journeys to central Kuching by "express boats," trips that could take anywhere from one to five days, depending on the season and tides. Now, these same villages, located on the city's periphery, are less than an hour from the city centre.

Thanks to road networks, Kuching residents now regularly visit to purchase fresh fish and seafood from the villages, creating a bustling trade. Middlemen and wholesale food suppliers arrive with trucks, eager to source fresh catches, while individual consumers seek not only quality seafood but also organic fruits and vegetables, often unavailable in the city. The villages also offer a respite from urban life, with visitors enjoying the scenic views of the rivers and sea. This increased traffic has led to the construction of large-span market structures, intended to centralize sales. However, these structures are sometimes ill-equipped, lacking adequate storage and drainage facilities, as in the case with the Buntal market. Consequently, villagers have adapted creatively, employing ad-hoc solutions to meet these needs. Cooler boxes are placed outside, and awnings extend from stalls, demonstrating the community's resourcefulness.

Beyond these formal market spaces, an informal economy has sprung up. In Buntal, villagers establish stalls in parking lots adjacent to the markets, selling a variety of food and local snacks. Many also sell products directly from their homes, creating a vibrant street-side market atmosphere. These home-based businesses offer a range of traditional products, including dried salted fish (*ikan masin*), dried shrimp paste (*belacan*), dried anchovies (*ikan bilis*), and pickled shrimp (*cencaluk*), all produced within the village. The drying process itself can also become a spectacle, with fish salted and laid out on tarpaulins spread across the parking lot grounds near the Buntal market, showcasing the traditional methods used.

The diversity of products extends beyond fish and seafood. Buntal villagers also sell homemade *nipah* palm sugar (*gula apong*), a local delicacy, alongside traditional desserts. Tropical fruits and vegetables, such as bananas, papayas, and rambutans, grown in home gardens, are also offered for sale, providing a direct link between local agriculture and the market. The rhythms of village life are embedded with this market activity. While fishermen typically head out to the river or sea before dawn, they often return to sell their catch in the market or help their wives manage food stalls later in the day, seamlessly blending their roles as producers and vendors. This convivial marketplace reflects the resourcefulness and entrepreneurial spirit of the villagers, demonstrating their ability to adapt and thrive in the face of changing economic landscapes.

The location of these stalls, concentrated along the main roads, increases the ‘visibility’ as the roads serve as ‘catchment areas’ for visitors whose intention is to visit the village to purchase food. Some stand-alone houses operate as restaurants. The awnings and front porches in front of the houses serve not just to receive guests, but also to accommodate their food stalls and restaurants. In Buntal, seafood restaurants are operated by Chinese families, who have been there since the end of World War II, seeking refuge from Japanese soldiers. Since the roads were completed in the 1980s, they set up the restaurant businesses and were able to gain profit from the seafood culinary enthusiasts who come not just to enjoy nature, buy fresh seafood but also to dine and experience the serenity of the local fishing village. The structures of street stalls and front porches facing the roads reveal spaces where informal social interactions flourish, generating economic activity. While the government provided road infrastructure, a mixed mode of informal and formal practices emerged, in which the villagers leveraged the roads to their advantage. These informal practices have, in some cases, become

formalized through village associations and agencies, reflecting what might be termed "transversal logics."[15]

Conclusion

Figure 7. The 'commons' of Telaga Air. Source: Author, 2024

Despite political decisions that have shaped the landscape and impacted residents both directly and indirectly, and notwithstanding the pervasive influence of the global capitalist market economy, which has spurred urban sprawl and induced changes in villages, socio-cultural and spatial practices still persist. Traditional habits, cultivated over generations, continue to exert a strong influence on daily life. Villagers actively exercise agency, through the formation of a Fishermen's Association. This association, in cooperation with the national Board of Fisheries, plays a vital role in securing a consistent supply of fishing vessels, storage facilities, construction of landing platforms, while ensuring the voices of local fishers are heard. Furthermore, the association undertakes crucial protective measures, including patrolling local waters in the South China Sea to deter foreign fishing vessels from Vietnam, China or Indonesia, as well as safeguarding the rights of its members. By actively shaping their environment – through the construction and maintenance of fishing structures, jetties, houses, and markets – villagers assert their presence and ensure the continuation of their heritage. These physical manifestations of their traditional way of life serve as tangible reminders of their cultural identity and connection to the sea.

[15] Teresa P. R. Caldeira, "Peripheral urbanization: Autoconstruction, transversal logics, and politics in cities of the global south." *Environment and Planning D: Society and Space* (2017), 3–20.

In conclusion, the traditional structures of Malaysia's coastal villages embody the concept of the commons, demonstrating a *praxis communis* rooted in shared resources and collaborative management. Their decline, driven by urbanization and environmental change, threatens not only livelihoods but also the intangible heritage of communal practices. These structures, beyond their economic function, represent a vital social-spatial relationship, sustained through mutual support and local knowledge (fig. 7). Preserving these commons, therefore, necessitates recognizing their inherent socio-cultural value and implementing strategies that support community sovereignty and sustainable resource management.

Acknowledgements

The author would like to thank the Cohort 6 of BSc Architecture students at UNIMAS for their assistance in this project. This work was supported by the University Malaysia Sarawak RIEC PILOT Research Grant Scheme under the research project *Analysing the Pan-Borneo Highway Infrastructure-led Development along the Kuching-Serian Road Network*, ID: UNI/F10/PILOT/85389/2023.