

## Transitional Living Spaces to Improve the Quality of Life of Marine Fishermen in Kuantan

Aminath Mazyoona<sup>1</sup>, Mohd Zairul<sup>1</sup>

<sup>1</sup>Department of Architecture, Faculty of Design and Architecture, Universiti Putra Malaysia

<sup>2</sup>Institute for Social Sciences Studies, Universiti Putra Malaysia, Serdang Selangor, Malaysia

Email: m\_zairul@upm.edu.my

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### Abstract

Transitional living spaces are considered short-term accommodation arrangements designed to help individuals or families experiencing a period of transition or instability. They are expected to lead them towards a more stable setting of living conditions. However, the current architectural approach towards transitional living spaces or accommodations for fishermen in Malaysia does not address the needs of fishermen properly and is usually designed universally. Therefore, due to the improper spatial quality of such living spaces, instead of improving the living quality of the fishermen, it has become a bigger challenge to overcome. This research aims to explore the living conditions of fishing communities in Malaysia and produce a design framework for them to design transitional living spaces. This research is based on ethnography of qualitative methodology and will use literature review, interview, and observation as data collection methods. Furthermore, the expected outcome is to produce a design framework for suitable transitional living spaces for fishermen in Kuantan. Producing such a framework will help increase awareness of the importance of transitional living spaces for fishermen, improving the quality of fishermen's livelihood. This research will only focus on producing a framework for transit living spaces for middle-aged fishermen.

**Keywords:** Transitional Living Spaces, Quality of Life, Design Framework, Awareness, Fishermen

### Introduction

The Malaysian government plays a vital role in helping Malaysia's communities improve their standard of living. In particular, they have introduced schemes for fishing communities to subsidize petrol needed for fishing boats, housing of fishing communities, and even monetary allowances to fishermen (Ali et al., 2017). Yet, fishing communities in Malaysia are considered to have a low social life compared to typical Malaysian communities, leading to poverty and poor living conditions (Rhoumah, 2016). With the rapid urbanization, the financial gap between these communities and the rest is getting more significant. Regardless of incentives

given to the fishing communities in building new homes or renovating the existing ones, there is no effort to understand the type of living spaces fishermen and their communities need, especially while transiting at the jetty between fishing rounds.

According to (Ghani et al., 2017), correlation analysis showed that indicators of income, savings, housing, family surroundings, and fishing equipment enhanced the quality of life among fishermen. The layout of a fishing village is influenced by the culture of community living (Ofori et al., 2020). Besides that, the fishermen's limited knowledge makes them not motivated to improve the quality of their settlement environment (Widyo, 2019). Hence, improving the living standards of fishing communities has become a challenge and an issue that might need to be addressed quickly. The daily activities of fishermen vary from day to day. However, fishermen generally spend most of their time on the seas, and the housing arrangements made on land are considered more as a transiting point between fishing rounds. According to the current situation in a typical fishing village in Malaysia, there are few demographic types of fishermen and their families when it comes to housing. Housing for fishermen is built in the coastal areas and close to their jetties through government incentives. Lembaga Kemajuan Ikan Malaysia (LKIM) introduced the Fisherman Housing Special Project and Fisherman's Subsistence Allowance. The housing project is an aid given to low-income fishermen to repair houses and build new ones. Consequently, this project will develop the re-settlement of fishermen for the well-being of the fishermen's families. Fisherman's Subsistence Allowance is a monthly assistance given to individual owners of fishing vessels and citizen workers working on licensed vessels. The assistance rate for the year 2021 was as much as RM 300.00 (Lembaga Kemajuan Ikan Malaysia). However, these houses are usually provided for fishermen with families. As a result, single fishermen and fishermen from different states other than their hometowns do not have proper arrangements for the transitional period. The spaces they utilize are mostly temporary shelters made in coastal areas, commonly right next to their jetties. Moreover, some of the basic necessities are done improperly and in bad condition.

The main challenge the fishermen face is that most cannot afford to rent a place nearby due to their financial status. It is also not feasible to rent monthly from a typical apartment as they spend more than half of the month out at sea. Secondly, as they do not have means of traveling such as cars or motorcycles, and the coastal areas are usually not covered by public transportation, the only option for them is to be provided proper basic needs in close walking distance. These housings are also designed and managed in consideration of their fishing schedule.

A partial solution for this issue is to understand their activities while on land. The government must also include these housing types in its subsidy list. However, since this type of housing will not be a permanent solution for the housing issue, it can only be considered as a transitional living space. Transitional living spaces are considered to be short-term accommodation arrangements that are designed to help individuals who are experiencing a period of transition or instability. Hence, the expectation would be that they will be able to find a more stable income eventually. As a result, they could manage their living expenses themselves, just like the rest of the communities.

Even though the fishermen's housing, especially while transiting, contributes to a good quality of life among fishermen (Ghani et al., 2017). However, not much research has been done to identify the transitional living space needed for them, and the design of such spaces is not being addressed architecturally. Since fishermen do different preparations/activities on land between fishing rounds, it should be considered while designing a transitional living space to function more efficiently. Therefore, this research will contribute to formulating a design framework for designing suitable transitional living spaces for fishermen in Malaysia. Producing such a framework will help increase awareness of the importance of transitional living spaces for fishermen, improving the quality of fishermen's livelihood.

### **Literature Review**

The literature review aims to explore and understand the typology of transit living spaces fishermen need in terms of spatial organization, characteristics, fishermen's demography, and how transitional living spaces influence their livelihoods. This literature review uses Google Scholar, Scopus, Science Direct, and Research Gate. Since there is very little to no research done on transitional living spaces for fishermen, this literature review will try to summarize similar research findings through 1) Understanding transit and unsettledness, 2) Discussing transitional spaces, 3) Transitional living spaces, 4) Difference between transitional living spaces and transit living spaces, 5) Understanding the connection between transitional living spaces and youth in the fishing industry.

### **Transitional Living Spaces**

Transitional living spaces, also known as transitional housing or halfway houses, are temporary accommodations designed to support individuals or families transitioning from one living situation to another due to instability. These spaces are typically intended for people experiencing homelessness, leaving correctional facilities, overcoming substance abuse or addiction, or exiting foster care; they aim to provide a safe, stable, and supportive environment (Wikipedia, 2020).

The purpose of transitional living spaces is to provide a stable and supportive environment where individuals can gain the necessary skills, support, and resources to reintegrate into society and achieve long-term stability successfully. These spaces often offer various services, including counseling, case management, life skills training, job placement assistance, and access to education or vocational programs

### **Fishermen and Transitional Living Space**

Fishermen on land could be considered as if they are in a transitional state or need a transitional living space for a short period from time to time. Fishermen's housing is subsidized and given to fisherman's families (LKIM). Aimi (2016) in the paper, "The Effectiveness of the Government Program to Young Fishermen in Malaysia," stated that fishermen's housing allowance has three categories: building a new house, home renovation, and re-settlements. There are specific budgets allocated to each of these categories. Nevertheless, all these housing allowances are very much standard or universal. Most of the housing is under the 'townhouse' category and is given for 'rent to own' schemes (Menteri Besar Datuk Seri Ahmad Razif Abdul Rahman). Razif further explained that the housing project in Terengganu will benefit 2,000 fishermen in Terengganu, including their families. According to LKIM, the Malaysian government aims to create fishermen's settlements and support infrastructure such as futsal courts, playgrounds, kindergartens, shops, etc. This is the

standard scenario in the housing of Malaysian fishermen. Considering that there are stay-alone fishermen who are either away from family or are single, these schemes might not be suitable.

#### Youth in the Fishing Industry

Ahmad. et al. (2020) stated that despite the fishing industry's contribution to Malaysia's economy, the number of youths in this industry is significantly low. He further stated that even though several incentive schemes have been introduced and implemented for the past 10 years, the effectiveness of these schemes is questionable. This research mentioned that a majority of 59.4% are fishermen aged between 41-46 years. The age group, considered as youth 15-40 years, contributed only 30% of Malaysia's fishing industry. Hence, this supports the argument that current housing schemes are unsuitable for youth, as many are single and might prefer living alone. Furthermore, young individuals have shifted their interests elsewhere due to regulatory measures, modernization efforts, rationalization attempts, professionalization initiatives, and the sector's reputation in the local economy. The declining trend in youth involvement can be attributed to challenges such as limited accessibility due to expensive fishing boats and quotas, the profession's diminished status, and extremely labor-intensive and long working hours. Consequently, youth recruitment has significantly declined over the past two to three decades (Even et al., 2014). These findings present various negative factors towards the fishing industry, and as a result, youths are saying 'no' to being part of it. Providing a proper typology of living space for fishermen will not only ease their basic needs but could also positively contribute to youth's interest towards becoming a fisherman.

#### Influence of Transitional Spaces

Transitional spaces have a significant yet subconscious influence on users. It could be as simple as a window placement, how light penetrates, and materials or colors that can determine the overall mood of a transitional space. Hallways, alleyways, or even empty spaces are considered transitional spaces of a building. As mentioned by Brown and Lippincott (2003), many learning processes at schools are recently done out of the classroom. For this reason, (Amit Kumar, 2015, Dole et al., 2016, Wilson & Cotgrave, 2016) mentioned that it is important to create informal learning spaces, which could also be transitional. Monsur (2013) also examined particular elements of architecture that motivate play/learning behavior among children in a childcare/preschool setting.

Note that well-designed transitional spaces can positively influence the workplace, staff, and customers. Such spaces could assure commitment and satisfaction of staff by providing an environment of informal socializing beneficial for team building and staff bonding. However, the outcome of breaking barriers between employees and creating social interaction has been a conflicting argument. Some studies favor the argument, while others show that a socially oriented workspace reduces privacy, a feeling of ownership and control, reducing performance (Bankins et al., 2020). Additionally, creating a connection between staff-to-staff and staff-to-patients is considered critical in ensuring patients' smooth and fast healing in a clinical context. For example, hospital corridors, also known as transitional spaces within hospitals, are important in strengthening the connection mentioned above. In a recent analysis of architectural characteristics that impact communication and teamwork in various hospital and healthcare environments, it was observed that layout design, visibility, and

accessibility emerged as the prevailing factors affecting staff communication (Morgan et al., 2021).

Research done by Widyo (2019) identifies and analyzes the cultural characteristics of the community in the fishing village as a basis for efforts to arrange open-space settlements. He mentioned that opening spaces in fishermen's settlements helps improve their environment quality and overall standard of life. Even though this research paper did not specifically demonstrate transitional living spaces for fishermen, it indicates that open spaces that could extend landscaping and other natural elements enhance the environmental factors and improve fishing villages' quality of life. Back then, traditional villages were known for their close relationship with their neighbors and for maintaining a strong cultural belief. The villagers' homogenous culture and reliance on subsistence economic activities such as traditional paddy farming and fishing foster strong interdependent relationships (Ahmad et al., 2010). Furthermore, he explains that the layout of such villages is highly influenced by the culture and religion. They preferred unfenced house boundaries and openly planned surroundings. Often, private and public open areas were interconnected. The reason behind this was that the villagers preferred community intimacy. Even if the open spaces in these settlements were not considered transitional spaces back then, they could now be classified as transitional spaces since they carry similar utilization, such as providing opportunities for socialization and building connections, and have characteristics that fall under those categories.

Any major activities in the building do not directly occupy transitional space. However, it has a large implication for occupants' experience and building energy consumption (Prihatmanti & Taib, 2017). Transitional spaces could be utilized for various activities that do not require indoor space, such as small vending businesses, artworks, street parks, etc. Lately, there has been a surge of interest and significant research on outdoor thermal comfort. Within the realm of architectural place-making, it is crucial to acknowledge and appreciate spaces inside and outside of buildings for their visual appeal and energy-saving potential (Chun et al., 2004). Furthermore, as the interest in symbiotic building continues to grow, there is a corresponding rise in the demand for spaces that allow occupants to connect with and experience nature. Hostels, homeless shelters, other temporary shelters, and accommodations are considered transitional living spaces. Temporary shelters can have various psychological influences on their users. A sense of security ensured in such shelters or living spaces can help reduce provoking anxiety and make users calm and fearless. Ultimately, they could help relieve stress through self-support, social engagement, and other facilities. In contrast, a facility designed without taking elements of psychological impact could make the matter worse by putting users in a psychologically unsettling state. Some research presents that hostel students could be exposed to extreme stress due to different design factors and are adopting new strategies to cope with it (McMordie, 2021). He explores theories of how student hostels have a psychological effect of stress on decision-making, the building of social support, and coping behaviors. Later, he demonstrates that abandonment of hostels or similar accommodations is due to unmanageable stress and threats.

Additionally, research on hostels within universities mentions that stress and other factors negatively impact student's academic performance (Hasan & Fatima, 2018). Designed without considering mental health, transitional living spaces or accommodations could have a more negative influence than improving user experience. Other than transitional living spaces, transitional spaces within buildings could benefit or deteriorate the users' mental health. With the growing complexity of modern city living, people are experiencing heightened stress



levels, making the need for stress relief measures in constructed environments more crucial than ever. Previous studies have shown that both linear and nonlinear designs in the surroundings can influence human stress recovery. However, most research has concentrated on indoor and outdoor spaces, leaving transitional spaces relatively unexplored (Cardinali et al., 2023). He further explores the matter by hypothesizing that curved and linear environments have different effects on users of the transitional space in terms of stress relief. A well-designed transitional space, which is often frequented in modern urban settings, has the potential to transform into a revitalizing urban shelter, providing relief from the negative effects of growing overcrowding.

#### Transitional Living Space Design

A living space must have the means of basic necessities such as resting areas, toilets, cooking facilities, storage, living areas, etc. However, when it comes to transitional living spaces, the function of the space might defer depending on the target user and their needs. As a result, the components of such spaces will differ accordingly. For instance, youth drug rehabilitation centers include therapy rooms, communal spaces, and clinics (Goyena & Fallis, 2019). A drug rehabilitation center is an establishment or structure dedicated to drug rehabilitation. It can be described as a place where individuals receive both therapeutic and social care. A drug rehab center may include healthcare and psychiatric services, which are typically integrated as departments within a psychiatric hospital, with their administrative and support functions centrally managed by the host (Goyena & Fallis, 2019).

Hostels are usually larger than normal residential dwellings, whereas homeless shelters normally are in residential dwellings shared by few people. However, these two typologies of transitional living settings have similarities in terms of social and legal restrictions (Busch-Geertsema & Sahlin, 2007). Hostels are set apart from other forms of temporary lodging primarily due to their restricted private areas. Hostels are primarily characterized by their communal atmosphere, which focuses on shared spaces such as dormitories. Unlike hotels, the primary unit for sale in hostels is not the room but the individual beds within the dormitories (Veríssimo & Costa, 2018). Moreover, multiple individuals often share sleeping quarters in the same room, particularly in overnight shelters. Residents typically share cooking and dining facilities, and common areas may also incorporate communal sanitary facilities such as bathrooms and toilets (Busch-Geertsema & Sahlin, 2007). On the other hand, according to McLane (2022), homeless shelters offer various services depending on the target user. These include medical triage care, counseling, computer and internet access, vocational training, and assistance with finding employment. The typology of living space fishermen need can be a combination of both of these two types of accommodations. It can consist of common spaces along with special spaces such as shaded working areas to mend net, do small repairs of tools and so on according to their unique lifestyle and work.

Marpaung & Winny Silaban (2018) identified the settlement structure and the relationship between the space structures and the spatial pattern in their Belawan Medan Fishermen Village research. They mentioned a similar spatial pattern between one unplanned settlement and another. Furthermore, a more interactive transitional space can be achieved by creating a more linear connecting space rather than choosing clustered spaces. In other words, all spaces connecting with a linear corridor will perhaps help create straight visual and simple physical connectivity. In clustered arrangements, layers of spaces create an indirect barrier between spaces and human connectivity (Morgan et al., 2021).

Public spaces are generally known for their gathering, interaction, and socializing characteristics. For that reason, such spaces are being incorporated into villages to enhance the space quality. Galampa, a public space, has been a longstanding and essential component of the historical and social fabric of the Holimombo Jaya Village community. Situated east of the mosque, Galampa serves as a symbolic representation of a constantly connected world. Furthermore, it functions as a communal gathering place, providing a platform for discussions on various topics about the community's social, economic, and cultural aspects (Ahmadin & Amiruddin, 2020).

Chun et al. (2004) explained that thermal comfort plays an important role in the quality of space and that it can vary depending on the amount and duration of users. They also theorized that since the typical behavior is more casual in transitional spaces compared to offices, schools, etc., the activity in transitional spaces significantly influences thermal comfort.

Much research is looking into incorporating vertical greeneries in transitional spaces to prevent heat gain, especially in an urban setting where the island heat effect is prone and has limited space. According to (Prihatmanti & Taib, 2017), there has been a growing trend in incorporating vegetation into buildings for the past decade. Numerous newly constructed low and high-rise buildings have begun recognizing the significance of integrating green spaces within their structures. This can take the form of rooftop gardens or both vertical and horizontal greenery. They further explain that greenery on buildings, particularly in Singapore, Malaysia, and Thailand, where the climate is hot and humid, has prompted numerous scholars to delve into the advantages it offers.

To explain further, Li et al. (2022), in 'Effects of the Visual Character of Transitional Spaces on Human Stress Recovery in a Virtual Reality Environment,' developed a theory that with the increasing stress rate due to urbanization, it is important to address this issue in buildings. They also hypothesized that curved and linear environments affect human stress recovery differently in transitional spaces. To understand further, it has been concluded that residing on campus plays a crucial role in shaping various aspects of the university experience, encompassing learning, cognition, attitudes, psychosocial development, and educational achievements (McCartney & Rosenvasser, 2022). Unfortunately, architectural design could play a role in why students are not keen to stay in hostels or on campus. One of the major factors might be having to share personal spaces such as toilets, especially in traditional hostels. More modern layouts of student accommodations are being researched and implemented worldwide to improve students' quality of life. Furthermore, some research has shown that students prefer staying on the upper floors due to the privacy it provides to them (Hasan & Fatima, 2018).

Maliki et al. (2015) mentioned one of the most important characteristics in their research, 'Recalling the Transitional Space: City Home and Kampung Home.' They mentioned the importance of privacy in transitional spaces in housing. Issues regarding privacy appeared frequently in the participants' narratives. In city apartments, strangers could walk right up to one's door and windows, reducing the dwellers' privacy. On the other hand, the need for greater security and privacy has led to the creation of modern house designs that give adequate privacy while giving the sense of 'caging' the indoor dwellers and blocking any informal interaction with neighbors. Therefore, according to Maliki et al. (2015), there should be a balance between privacy and openness as it also plays a role in socializing between dwellers.

The topic of "North Taiwan: Fishing Village Housing Redevelopment" by Tiene (1980) talked about the Taiwanese fishing village settlements back in the day. She mentioned that gathering

individuals holds great significance in a fishing village in Taiwan, as humans are inherently social beings and constantly struggle against nature. Typically, in most fishing villages, people convene at the spacious section of the main street, with a small grocery store often serving as the central hub for these gatherings. With the same concept, houses of fishing villages consist of three main quarters where an ancestral hall links all the quarters of the house. This hall is also known as the social gathering point of the house.

Conceptual framework

As transitional spaces can influence the user to a great extent, it is also directly linked to how the space is designed. Considering the current housing situation of fishermen in Malaysia, it is understood that current designs are not considered in accommodating the demography of single fishermen or fishermen away from their families. It is important to have deep research and understanding of fishermen’s livelihood to produce a successful design framework.

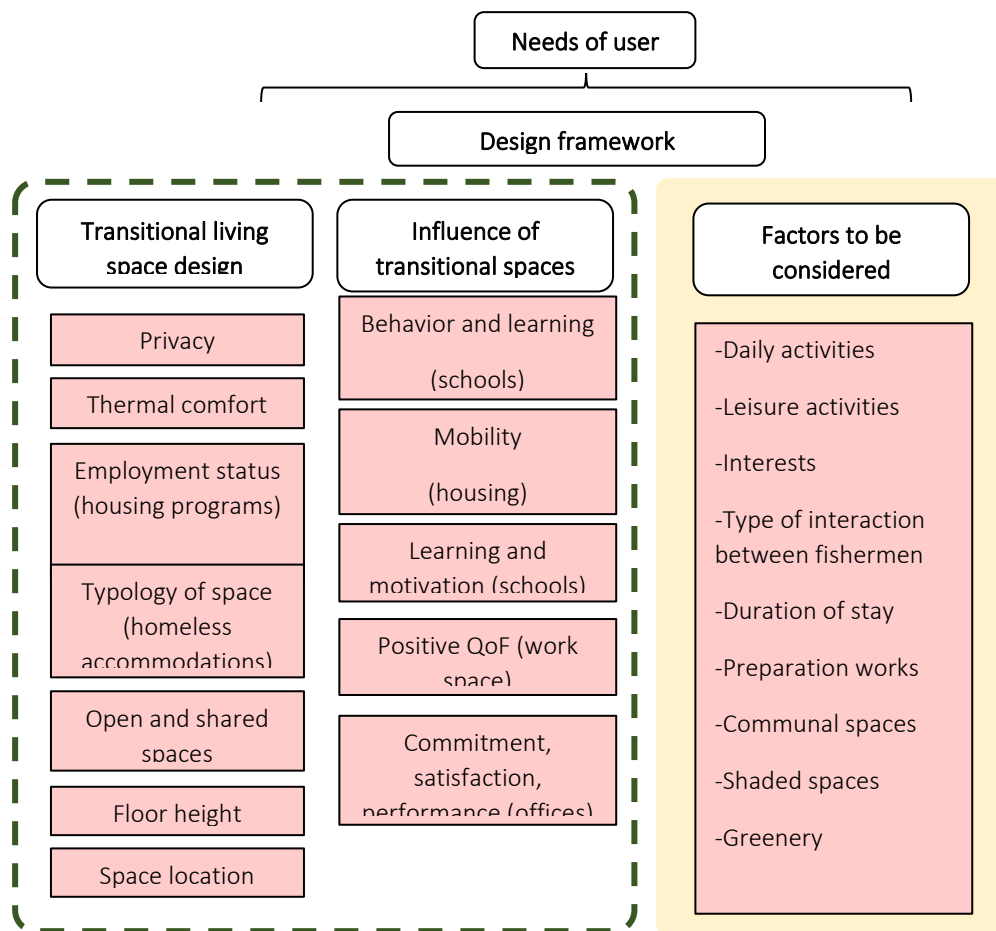


Figure 1 Conceptual framework. Source: Author



The design considerations of transitional living spaces for fishermen could be privacy, thermal comfort, employment type, typology of space, open spaces, height, and location. Other factors that might need to be considered are daily activities, leisure activities, interests, type of interaction within them, preparation works done for the next fishing round, duration of stay, etc.

**Method**

This research focuses on a specified study area and fishermen as the study group. Accurately understanding fishermen’s context requires direct conversation, observation, and being in their context. Qualitative research methodology is applied for its significant characteristics towards that methodology and finding it the most suitable for this research. Hence, interpretivism research consists of biased multiple realities of the writer’s experience and judgments.

To compare different types of research inquiry, crucial discoveries obtained from phenomenology involve grasping a phenomenon from the perspective of individuals who have directly encountered it (Worthington, 2009). At the same time, ethnography studies a community’s collective experience (Ho, 2017). Therefore, this will be an ethnographic study as it is a study of learning from the experience of fishermen as a community.

**Data Collection Methods**

Based on Sub-Research Question (RQ), various data collection methods were used for this research. Data collection methods are elaborated in Table 1.

Table 1

*Data Collection Methods*

	<b>Sub-RQ 1</b>	<b>Sub-RQ2</b>
	How are current transit living spaces utilized or functioned?	What are the required components to design transit living spaces for fishermen in Kuantan?
<b>Objective</b>	To identify the current situation of transit living spaces for fishermen in Kuantan	To formulate a design framework of transitional living spaces for fishermen in Kuantan
<b>Deductive</b>	Transit living space for fishermen Utilization of transit living space Function of transit living space	Influence of transitional spaces Transitional living space design
<b>Data collection method</b>	Interview and observation	Observation and desk review

Source: Author

**Data Analysis Techniques**

As data collected in this research focused on a small group of participants with semi-structured interviews, focus groups, and observation, the most appropriate data analyzing

method was through thematic analysis. As explained by (Addington et al., 2007), the thematic analysis approach is applied when the research has a small to medium sample size where data is collected through semi-structured interviews, focus groups, images, and written texts. Correspondingly, the code and themes of data are analyzed using Atlas.ti software as a guide.

### **Result and Discussion**

As this study aims to formulate a design framework for the transit living spaces of fishermen in Kuantan, the data collected is to understand the current condition of fishermen in the Kuantan coastal area. The findings of this research were used to formulate a Thematic Analysis Matrix (TAM), which identified major themes related to the issue and became the guideline to formulate the mentioned framework.

#### **Interview and Observation Results**

All the respondents of the interview are based in Kuantan. Five fishermen participants belonged to two fishing communities in the Kuantan riverfront area. Note that all of them worked in deep-sea fishing boats.

Most interview participants emphasized that they reside either in the coastal region or in government-provided housing near the coast. Originally, the reason for establishing traditional fishermen settlements in coastal areas was the convenience of having their homes close to their work, considering the transportation challenges they faced. This practice has continued until today, with current fishermen in Kuantan preferring to live near the coast for the same reasons. Their preference is also influenced by the lack of private transportation options and the unfriendly public transportation in Kuantan. Furthermore, based on the responses from most participants, the choice of settlement location is influenced by their fishing routine. Since their primary facility hub is the LKIM complex on the coast of the Kuantan River, it is convenient for them to reside close to it.

Respondents provided further insights into how they fulfill their basic needs, highlighting the challenges posed by the current arrangements. Many individuals mentioned that meeting these necessities often involves traveling deeper into the city and relying on public transportation or walking, as personal vehicles are scarce. Consequently, this leads to the unnecessary consumption of time and energy. Additionally, the fulfillment of basic needs is influenced by personal preferences and the availability of facilities. People's choices regarding meeting these needs, utilizing their free time, and deciding where to spend their days off depending on their needs and means. This aspect significantly influences the spatial spaces and the type of living environment that fishermen prefer. The researcher discovered that in Kuantan, the fishing community is comprised exclusively of men, and their secluded lifestyle allows for a relatively flexible perception of privacy. They can experience a sense of privacy even without proper shelter or accommodations. However, this depiction raises concerns about social stigma, and the situation is expected to change as developments encroach upon or adjoin fishermen's settlements over time.

A significant proportion of survey participants emphasized the impact of their employment type on their consideration of accommodation costs when selecting a place to live. In the fishing industry, employment types are classified based on the type of boat fishermen operate, with boats labeled as C1, C2, C3, and C4 progressively increasing in size. The larger the fishing boat they work on, the further out to sea they venture, resulting in longer fishing trips and comparatively higher earnings. Consequently, fishermen working on larger boats often have the means to explore alternative accommodation options. Nevertheless, the

fishermen who generate higher incomes dedicate more time to their work, rendering it impractical to allocate a substantial sum towards coastal accommodation. Additionally, the availability of government incentives, such as housing schemes that aim to subsidize fishermen’s expenses, further influences their accommodation choices. Yet, many fishermen, especially those who live alone, prefer residing in coastal shelters due to their minimal cost.

Desk review and observation results

The process of conducting a desk review aided in identifying both similarities and differences among various fishermen’s accommodations implemented across different countries. A comparative analysis is in Table 2 of the desk review.

Table 2  
*Comparative Analysis of Desk Review*

<b>Criteria</b>	<b>Review 1</b>	<b>Review 2</b>	<b>Review 3</b>
Typology	Cabin	Hut	
Location	Near the sea	Between mountains and sea	Coast
Usage	Temporary transit	Temporary or permanent	Permanent
Material	Wood	Wood	Concrete
Spatial arrangement	Two rooms and a storage and a living room with a bed	Two levels, the lower for boat shed, the upper level for living	Mixed and shared living arrangements are distributed to two levels
Open spaces	Living room	Allocated outside	Flexible spaces
Income	Supporting income generation space such as Airbnb	Potential eco-tourism	Convertible spaces to accommodate businesses
Adaptability	Considerate of extreme weather	Easily accommodate needs	Incorporated existing activities
Affordability	High	High	Medium
Potential typology	Studio units	Studio units	Shared housing/ hostel
Overview	Fishermen utilized these cabins to seek shelter from the weather and convenient stay while transiting between fishing rounds. Simple and modest cabins created a vivid environment.	Fishermen used these huts for short duration of stay. Eventually, these became traditional Japanese houses for their unique and highly functional design.	Shared housing units emphasizing common spaces and proper amenities will enhance the efficiency of fishermen and increase their productivity. Flexible and convertible spaces are important in allowing different activities as needed.

Source: Author

Comparison with LR

Table 3 compares the conceptual framework (Figure 1) and data analysis. It presents similarities between key terms highlighted in the conceptual framework, coding identified in the interview analysis, and criteria identified in the desk review analysis.

Table 3

*Comparative Analysis Between LR and Data Analysis*

<b>Key terms of conceptual framework</b>	<b>Coding identified in the analysis of the interview</b>	<b>Criteria identified in the analysis of the literature review</b>
Privacy	Privacy	-
Thermal comfort	-	Spatial arrangement
Employment status	Employment type Affordability Income	Income Affordability
Typology of space	Facilities Necessities	Typology
Open and shared spaces	Routine	Usage Open spaces
Floor height	-	Usage
Space location	Location	Location
Behavior and learning	Necessities	Adaptability
Mobility	Location	Location Potential typology
Learning and motivation	Routine Relationship status	Adaptability
Positive QoF	Quality of life	Adaptability
Commitment and satisfaction	Personal preferences Cost	-
		Material

Source: Author

The research on data analysis revealed that fishermen have difficulty understanding their requirements regarding transit living spaces. They are accustomed to and content with the current transit conditions. Nevertheless, enhancing the well-being of Malaysian fishermen has become crucial, especially as they are expected to participate in this era of development. Negative perceptions and potential future problems could undermine the fishing industry, which is already declining. Hence, it is crucial to cultivate awareness among fishermen so that they can comprehend and embrace a novel lifestyle, considering that adjusting to change can pose difficulties.

Key aspects that should be addressed include providing necessary amenities such as efficient waste management systems, sewerage systems, and security measures like adequate lighting and well-designed walkways. Additionally, it is important to prioritize cleanliness, hygiene, and the safe handling of hazardous materials. Ensuring public safety and facilitating easy and comfortable access, especially for People With Disabilities (PWD), should be emphasized.

Enhancing fishermen's settlements relies heavily on effective site management, with the primary focus being on optimizing spatial organization and quality. Individual fishermen may engage in different activities during transit and have varying preferences for how they spend their time on land. However, it is important to identify shared factors. Comprehending these common elements makes it feasible to create spaces that cater to all types of activities, even in a prototype design, ensuring suitability for all fishermen.

Fishermen are known for their uncomplicated and adaptable way of life. They prefer a simple and minimal way of living. This is not necessarily a negative aspect, as it serves its purpose. Their living spaces also appear to be suitable for do-it-yourself modifications. Similarly, their resting places are often outdoors, like hammocks tied between two trees. When it comes to

their working areas, they utilize their surroundings, such as the roof structure, to hang damaged sections of fishing nets. Essentially, they make the most out of their immediate surroundings, which is crucial when determining space requirements and furniture choices. When creating designs to accommodate these spaces, it is crucial to prioritize innovative approaches to compact living and minimize space inefficiency. Additionally, incorporating green building features is essential for achieving cost-effective building operations. It is important to carefully consider building orientation, placement of windows and doors, as well as the selection of materials. By focusing on low maintenance and functional costs, the affordability and durability of the building can be enhanced.

Even though fishermen generally have private and public spaces in their dwellings, introducing intermediate semi-private spaces could offer advantages, particularly by exploring the potential of combining fishermen’s transit living spaces as Airbnb accommodations and engaging in eco-tourism. Since the primary cause of the fishermen’s low quality of life is their income, the primary emphasis should be on finding ways to create affordable, durable, and income-generating spaces.

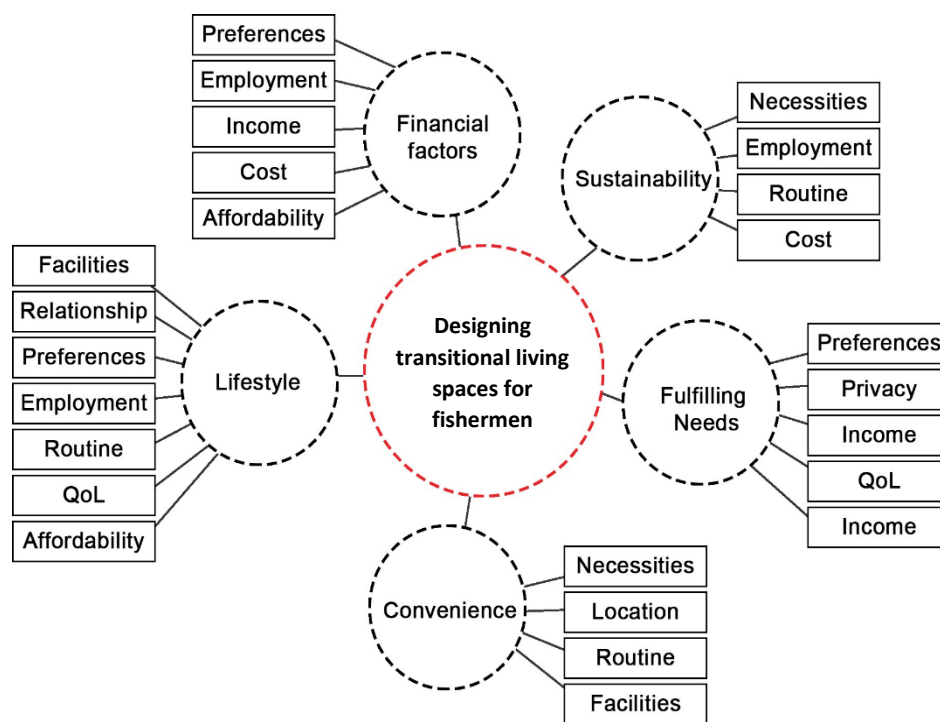


Figure 2 Framework to Design Transit Living Spaces for Fishermen in Kuantan

Source: Author

**Conclusion**

A framework for designing transitional living spaces specifically for fishermen in Kuantan has been introduced in this paper. Fishermen, who are often socially isolated, have been neglected in terms of architectural considerations for their well-being, lacking further exploration. With the advancements in architecture and architectural methodologies, there is a need to redefine the living spaces of fishermen's settlements to improve their quality of life. According to the Department of Fisheries Malaysia statistics, there has been a continuous decrease in fishing boats and fishermen over the past few years. However, there has been an increase in fish landings and seafood products. Considering this ethical perspective, it is an opportune time for architects to address this issue. The fishing industry in Malaysia is experiencing an overall decline, and fishermen themselves perceive it as lacking a future.

Consequently, they are not inclined to recommend or encourage their children to pursue a career in fishing. Other than that, human needs, interests, lifestyles, and livelihoods have changed since the beginning. Over the years, living spaces have transformed from simple shelters to various types, such as terrace houses, apartments, condominiums, and, more recently, shared living settings. However, in today's world, where human-centered design is highly valued in architecture, shifting fishermen's livelihoods from traditional methods to a more inclusive and flexible approach is crucial. This is especially significant for a vulnerable and marginalized population that has limited options available to them. Considering this, adding additional living spaces for fishermen, depending on the given framework, can offer them increased flexibility in making better choices. This could enhance their livelihoods both in their work environment and personal lives, providing them the satisfaction of returning to their own comfortable shelter.

The outcomes of this study have the potential to impact the policies formulated by the Malaysian government, particularly regarding the incentives granted to fishermen. A range of incentives are currently being offered to support the resilience and progress of fishermen, such as housing incentives that encompass the construction of new homes, house renovations, and the establishment of new settlements. However, the existing housing program for fishermen lacks transitional living spaces, as it solely focuses on a single housing typology that lacks the characteristics of a transitional living environment. Thus, to successfully apply this framework, it is imperative to revise the incentives provided by the government to fishermen in Malaysia. Additional research could explore alternative methodologies and investigate different research approaches to enhance the implementation. Furthermore, it would be beneficial to conduct more extensive studies in various fishing communities across Malaysia, encompassing fishermen with diverse demographics.



**Recommendation for Future Research**

To enhance the paper's relevance, it is crucial to demonstrate the broader application of the findings and deepen the theoretical underpinnings. Specific architectural features should align with the unique needs of fishermen based on their daily routines and social habits. Here, we clarify these specific architectural features and how they can be applied to improve the quality of life for marine fishermen in Kuantan.

Firstly, the proximity of transitional living spaces to the fishermen's work environment is essential. These accommodations should be situated near the coast to reduce travel time and energy consumption, allowing easy access to boats and equipment, which is critical given the unpredictable schedules and long hours fishermen spend at sea (Ahmad et al., 2020). Additionally, privacy is a fundamental aspect, particularly for single fishermen or those residing away from their families. Designing individual sleeping quarters while incorporating communal areas such as kitchens and dining spaces can foster social interaction and community support, balancing personal privacy and community engagement (Maliki, Abdullah, & Bahauddin, 2015). Moreover, the integration of thermal comfort features is vital. Transitional spaces must be designed to ensure adequate ventilation and insulation to provide a comfortable living environment, considering the hot and humid climate in coastal regions. The use of sustainable materials and green building technologies, such as vertical gardens, can enhance thermal comfort and environmental sustainability (Chun, Kwok, & Tamura, 2004; Prihatmanti & Taib, 2017).

Another critical architectural feature is the inclusion of adaptable spaces that cater to the unique lifestyle and work of fishermen. These spaces should include shaded working areas for activities such as net mending and equipment repair, which are integral to their daily routines (Marpaung & Silaban, 2018). Additionally, providing secure storage areas for their gear and catch can help streamline their workflow and enhance productivity. Lastly, the implementation of features that support social and economic activities can further improve the quality of life for fishermen. Creating spaces that can be utilized for small-scale vending businesses or eco-tourism can provide additional income sources, contributing to the economic sustainability of the fishing community (Galampa, 2020).

By addressing these architectural features, the proposed design framework can significantly enhance the living conditions and overall well-being of fishermen in Kuantan, fostering a supportive and sustainable community environment.

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