DOI : 10.14456/bei.2024.11

External Space Coordinating with Everyday Activities Khlong Toei, Neighborhood Cluster of Low-income Communities as a Case Study

Eisuke Shoji[a*], Supitcha Tovivich[b], Takuya Abe[c] and Ikuro Shimizu[d]
[a]Faculty of Architecture, Silpakorn University, Thailand / Graduate School of Architecture, Shibaura Institute of Technology, Japan
[b]Faculty of Architecture, Silpakorn University, Thailand
[c]Philosophy in Design, University of Tsukuba, Japan
[d]School of Architecture, Shibaura Institute of Technology, Japan
*Corresponding Author. E-mail: shojishoji0909@gmail.com

Received: April 24, 2024 Revised: June 8, 2024 Accepted: June 17, 2024

ABSTRACT

Policies and studies that have been conducted in the past targeting low-income communities have not fit into the lives of the residents. It is necessary to learn what kind of living environments have been formed in long-lasting communities. The question of this study is: How are the living environments formed in accordance with everyday activities? This study employs qualitative research such as participatory observation combined with measurement, interviews, and photography. The following three points were clarified by the investigation. First of all, the residential environment which can be said to be a neighborhood cluster composed of alley shape, social relationships were clarified. The second point is the two types of housing frontages. Due to the differences in the physical and social environments, we found that the activities observed there also differed. The third point is the factor that formed such living environments. In addition to the original shape of the land, residents themselves expanded their dwellings or utilized the existing living environment, depending on their daily needs. This results in a living environment suitable for everyday activities.

Keywords: Low-income community, Everyday activity, External space, Socio-physical environment, Neighborhood cluster

Introduction

The number of low-income communities is currently increasing all over the world. UN-Habitat(2003) defines slums as the following: Access to improved water/ Access to improved sanitation facilities/ Sufficient-living area, not overcrowded/ Structural quality/ durability of dwellings/ Security of tenure. Over the next 30 years, an additional 2 billion people are expected to live in such settlements (UN-Habitat, 2003). In Thailand, the slum is referred to as *chumchon*. Narrowly described as *chumchon eh at*, densely populated communities, are defined as settlements with at least 15 dwellings in 1 rai (1600sq m). According to the Bangkok Metropolitan Administration(BMA), Bangkok is said to have 2,016 communities with 1,996,669 people, and 583,801families. Moreover, 32% (640 *chumchon*) of these are *chumchon eh at*(BMA, 2021). Solving these problems is an urgent global issue.

To solve these problems, they have been resettled or relocated to suburbs in the past, but these solutions did not suit residents' everyday lives and resulted in the re-slumming of the area. In recent years, there has been a lot of research in architectural studies that attempts to investigate the dynamics inherent in these settlements. In these studies, external spaces, including alleys(*soi*) and residential frontages(*naa baan*), have been the subject of investigation. However, everyday activities have not been the subject of research. This study explores the interaction between the living environments and everyday activities.

Against this background, this study aims at the following two points.

1. To identify the socio-physical environments that constitute/support everyday activities.

2. To identify the factors shaping the socio-physical environment.

Literature review: Lacks a perspective on "Everyday life"

Policies and studies that have been conducted to date on low-income communities lack a perspective on everyday life. In classical slum policies, the actual conditions of the residents were ignored. Although there has been a movement in recent architectural studies to clarify the living environments with a focus on exterior space, everyday life and everyday activities have not been the main subject of research.

Top-down policies

Past policies that were implemented in a top-down manner failed because they did not fit into the lives of residents.

There were also plans to relocate residents of low-income communities to public housing in the suburbs of Bangkok. However, there was a tendency for relocated residents to return to the city center. This is because many residents are in occupations that are only possible in low-income communities where producers and consumers are in proximity (e.g. street vendors, motorbike taxis), and therefore relocation away from work and to locations with high transport costs is a difficult choice for slum dwellers(Endo, 2011; Hitomi, 2013). In 1973, the National Housing Authority (NHA) was established to solve these problem in Bangkok in 10 years, and four-story apartments were built in Huai Kwang and Khlong Toei, but as the rent was kept at 400-800THB, subletting and reselling occurred frequently(Hata, 2003). It can be said that residents are not settled because past policies were not in line with their daily lives.

External space as a stage for "Everyday activities"

In recent years, there has been a movement toward clarifying the living environment, but everyday life has not been explored in depth.

In architectural studies, researchers have actively explored the domain of outdoor space to exploring the dynamics of these settlements(Harani, Atmodiwirjo, & Yatmo, 2023; Hernández-García, 2012; Jones, 2020; Natakun, 2010; Okyere, Diko, Hiraoka, & Kita, 2017; Thai, Stevens, & Rogers, 2022). There are many terms for urban external spaces, including public spaces, semi-public spaces, open spaces, and communal spaces. These spaces are important in terms of residential spaces, social spaces, and spaces in between private and public domain. As an extension of the living space, external spaces replace small and limited residential spaces. Such spaces are especially important when supporting residents who engage in income-generating activities within their homes. These activities draw people and goods from the street to the home, create movement along pathways, and transform private spaces into semi-private ones(Thai, *et al.*). As a social space, these external spaces promote socialization, social bonding, social mixing across groups, and social inclusion. It is also a place to encounter neighbors and form a community. Finally, for intermediate space, there are the boundary between the two places mentioned above. Doors and windows are transitional elements, which the open space enters the house, and the house extends into the street.

These studies have significant implications for this study. This is because of the extension and renovation of spaces, and overflows, backlight the needs, and daily lives of the residents. Some of them refer to everyday behaviors. However, the subject of the study is the transformation of space, and observational studies of everyday activities are only supplementary. In this study, the aim is to obtain in-depth information from everyday activities as a starting point to understand the living environment in the external space.

Methodology: Ethnography of place

In order to investigate the everyday activities in the external space and the corresponding living environments, it is necessary to take one alley as a case study and conduct a qualitative examination of everyday behavior over a long period. As a qualitative examination we conducted participant observation combining with this, we employed interviews, physical environment measurements, 3D scanning, and fixed-point photography. Each survey was conducted from November 2022 to September 2023.

Perspectives on observing places

Throughout the survey, we focused on three items: everyday activities, physical environment, and social environment. Everyday activities include essential activities for living such as eating, cooking, and earning activities, as well as recreational activities such as chatting and drinking. The physical environment is broadly defined as alleys, dwellings, and their frontages, but also includes more detailed information such as the components of the dwellings, such as doors and windows, the steps of the alleys, and furniture used for activities, such as chairs and desks. The social environment refers to blood relations, friendships, or social functions such as stores.

The observation survey focused on three key aspects. Firstly, documenting what behaviors were being observed. Specifically, these included social activities, daily activities, and income generating activities. Secondly, documenting who is carrying out the activities. The third step is to focus on where these activities are taking place. The activities are recorded by linking them to the maps created by measurement and 3D scanning, which are described below.

Participant observation

Participatory observation is an effective means of capturing complex realities. In this study, in-depth information was obtained by actually participating in social activities such as meals, etc. However, there are some disadvantages, such as the possibility that the author's presence may influence the community.

The significance of qualitative research is that it provides deeper insights into how spaces are perceived and utilized by residents. Qualitative data obtained through direct observation of everyday activities and direct feedback from users provide insights that cannot be captured by urban morphological assessments, building typological surveys, or spatial syntax mapping(Thai, *et al.*).

During the survey, we observed the social activities taking place in this alleyway while participating in them ourselves (**Figure. 1**). Observations were scheduled to cover weekdays, and weekends, mornings, afternoons and evenings. This broad coverage allowed for a comprehensive understanding of daily life in the community.

However, it is important to recognize the limitations of participant observation. First, the presence of observers may have an impact on existing relationships. To minimize this impact, repeated visits were made over a longer period.



Figure 1. Picture which author participates in communal dining

Measurement, 3D scanning

This approach facilitated a deeper understanding of the physical environment and provided the basis for studying residents' activities within the spatial configuration defined by micro-scale architectural elements such as stairs, corridors, and awnings. The study of fixed and semi-fixed objects also provided insight into the adaptability and flexibility of space. Measurements were taken in the alleyway, in front of each house and 3D scans were taken with an iPad Pro (3rd generation) and the app SiteScape from FARO Technologies, Inc.

Interviews

Interviews in this study consisted of semi-structured interviews and informal conversations. Interview topics centered on the use of space and social relations with the neighborhood. As far as possible, questions were also asked about each resident's living situation, family structure, and occupation. Interviews were conducted in two of the houses, that operate stores closely related to the activity. Conversations were held with each resident.

Fixed-point photography

Fixed-point photographs were systematically taken to document daily activities, space use, the role of the space, and changes over time. These photographs were consistently taken from the same position. The photographs were taken for the two types of housing frontage spaces described later.

Subject area: "Neighborhood cluster" in long-lasting community

This study will focus on the Lock456 community in Khlong Toei and the "Neighborhood cluster" within it as a case study (**Figure. 2**). The reason for selecting these communities is that they are concentrated in daily activities, and the living environment is shaped by these activities. The Khlong Toei area is one of the low-income communities that have been in existence for more than 80 years, and the Lock456 community has been less affected by relocation and rezoning, and the living environment is considered to have been formed in accordance with the residents' lives. "Neighborhood cluster" is defined as a place where social relations are concentrated, and the alley shape is curved.

Formation history of the Khlong Toei community

The Khlong Toei community emerged around 1937 along the Chao Phraya River, with its large-scale development coinciding with the construction of the Khlong Toei port. This development attracted people from across the country in search of employment opportunities. Khlong Toei community was established through the informal occupation of wetlands owned by the Port Authority, due to the extraordinarily high cost of land in Bangkok. Nowadays, Khlong Toei is made up of 39 communities, and there are 84,784 people and 21,784 families(BMA, 2021).

Long-lasting low-income community

Within the larger Khlong Toei community, this study narrows its focus to the Lock456 community. The selection of this community for study was based on several factors. It is a longstanding lo-income community in Bangkok, and the spatial organization created by residents has been maintained without government-led rezoning or large-scale relocations. Furthermore, it is crucial to examine the current residential situation in this area due to impending relocation plans. Since its formation, up grading development have occurred, including the concrete paving of existing alleyways, the installation of water and utility poles, and more. Gradual and autonomous transformations in spatial order and social dynamics can be observed through house construction, extensions, renovations, and the subleasing of houses and rooms.

The spatial organization of the Lock456 community is as follows. Lock456 community alley runs through the central east side and a railway track runs through the upper part of the road. The alley connects the northern part to the At Narong road and the southern part to 70 rai community, making it one of the few roads that connect the inside and outside of the communities day and night, with active traffic of cars and motorbikes. Several goods trains pass on the railway line each day. These Lock456 community alley and tracks are connected to narrow alleys of about 1.5 meters wide. The narrow alleys are irregular in shape, with bends and dead-ends in places, and are used not only by passers-by but also by motorbikes. It is bounded on the east side by the Port Authority fence and on the west side by a direct link to Lock123 community.

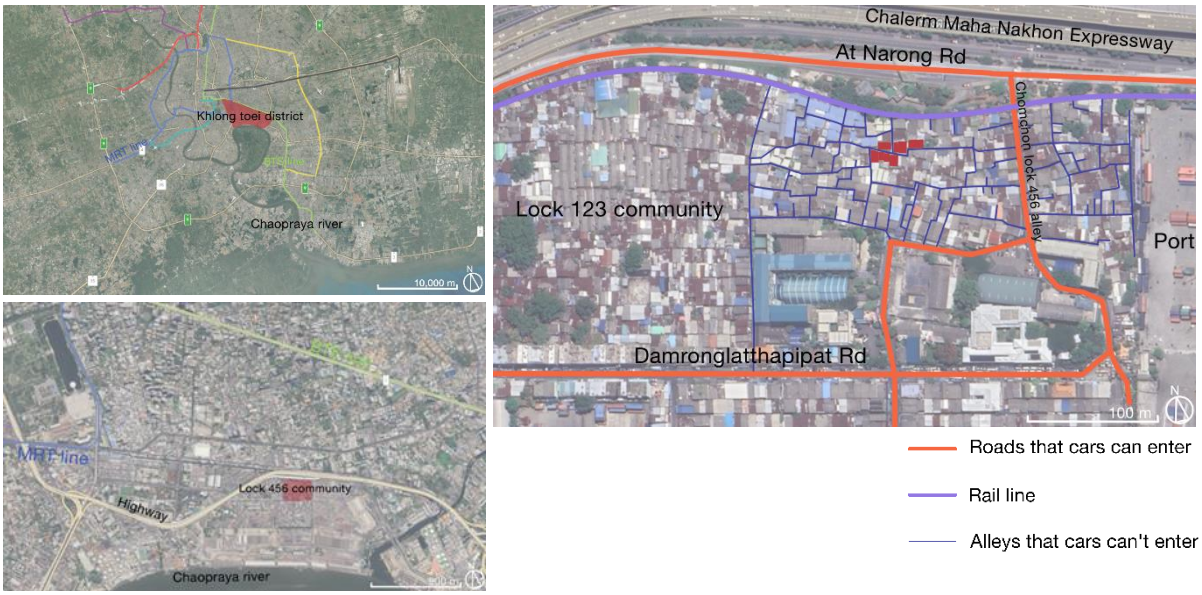


Figure 2. Khlong Toei, Lock456 community

Neighborhood cluster

In this study, the living environment created by the combination of social relations and alley geometry is defined as a "neighborhood cluster" as a research subject.

Social relationships act as the main catalyst for activity. As Askew(2002) points out, residents rarely enter the area alone, and most households maintain interconnectedness. Networks of relationships, whether familial, friendly, or work-related, form a cohesive social structure. These networks facilitate mutual assistance in house building, facilitate job searches, enable the borrowing of money, childcare assistance, and house supervision.

In this study, relatives, mainly HOUSE-01, were significantly involved in activities in front of each residence. Originally, HOUSE-01's owner's uncle from *Sakheo* province in Northeast Thailand settled here. The owner of HOUSE-01 and his wife were called to this place for his uncle's work. Later, his brother and sister came to the neighborhood. Eventually, they had more children, who now live in their respective households (**Figure. 3**).

In addition to this, close neighborhood friendships are deeply involved in the social activities of the place. HOUSE-02 is one of the notable members of this neighborhood, a close friend of HOUSE-01, who originally lived elsewhere in Khlong Toei. However, HOUSE-01 bought her house and took up residence here. The residents of HOUSE-03 are also deeply involved in daily activities such as cooking and eating, although they are not blood relatives. Alternatively, it can be said that the various activities in the external space, such as the use of shop space and communal meals, make the neighborhood relations of this place more open to external blood relatives.

Under these circumstances, this study uses social relationships (relatives and friends) as selection criteria to identify external spaces where daily activities are actively observed. Specifically, areas were selected where several dwellings with social relationships were clustered in closer proximity (e.g. next to each other, opposite each other, one house on top of the other).

The curving alley shape that surrounds these dwellings further enhances everyday activities. This is because the shape of these alleys forces motorcycles to slow down. Indeed, a three-year-old child in HOUSE-01 walks alone from HOUSE-01 to HOUSE-05 (this is within the sight of parents and relatives). The extent to which other children play around is also mostly in this area. The alley shape, combined with the social relationships, creates a "Neighborhood cluster" where activity is seen to be active

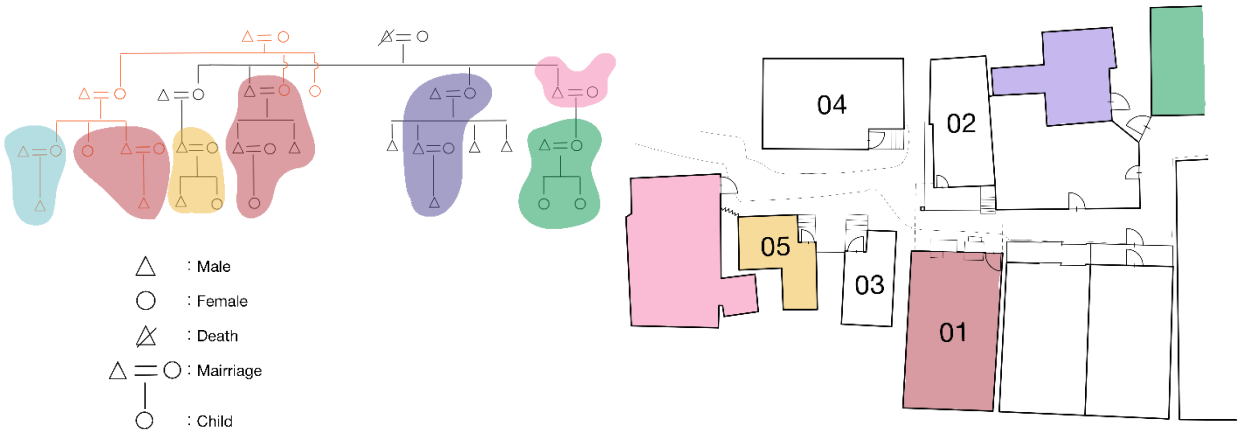


Figure 3. Family tree and the place of residence
(Colors correspond in the left and right. Blue family don't be described in the map but live in neighborhood.)

Results: Everyday activity and socio-physical environment

The activity was mainly observed in the frontage of five dwellings within neighborhood cluster (**Figure 4**). After explaining the basic information, this section describes the activities, physical environments, and social environments for each of the five housing fronts.



Figure 4. Site map and factors that compose the neighborhood cluster created by measurements and 3D scan

HOUSE-01: Grocery store

Basical information

A two-story house, the ground floor comprises a living room, bedroom, and water room. The side facing the front of the house is a grocery store, where various products are displayed. The owner is 54 years old and his wife is 50 years old; they sleep in a bedroom on the ground floor; the second floor consists of three bedrooms. His two sons and their families, and the owner's wife's niece and her family live in the house. The sons are 33 and 28 years old. The children are 8 and 2 years old. In total, 10 people from three generations live in HOUSE-01. The front of the house has benches and goods from a grocery store. They are also craftsman and build their own dwellings. The housing frontage is shown in **Figure 5**.

Activities

・*Grocery store*

The grocery store is not only an earning activity for HOUSE-01. The presence of goods, either outside or within the dwelling, makes the space communal. Particularly, open windows and accessible interiors invite customers in and foster conversation with residents, often leading to longer stays.

・*Customer of grocery store 1*

Ladyboy, who lives in the neighborhood. When she comes to the grocery store, she bought only one cigarette, sat on the icebox at the front of the grocery store, lighted it with a lighter tied to the item shelf with a string, and smoked a cigarette before leaving.

・*Customer of grocery store 2*

The residents of HOUSE-01 and HOUSE-02 were enjoying a meal at the front of the dwelling. The owner of HOUSE-01 prefers Tiger whisky and drank it himself from the grocery store shelves. He often made others around him drink it too. Others bought beer and drink it through a straw in a bottle.

・*Customer of grocery store 3*

Children living in the neighborhood. They came alone or with their brothers. When they arrive, they opend the cooler box at the front of the dwelling and took out the products. Strawberry syrup juice (naam dang) and melon syrup juice (naam kiaw) are popular. It is also popular that a cola with ice (a plastic bag with ice and a cola in it).

・*Cooking*

A bench in front of the house is often used for cooking. At the bench, they often mash vegetables with a mortar and pestle. When cooking normally, the frontage of HOUSE-02 is also often used. Details are given in HOUSE-02. Most of the activities are carried out with relatives and friends living in the neighborhood.

・*Meals*

As with cooking, benches are often used for meals. When eating a regular meal, the frontage of HOUSE-02 is often used as well. Details are given in HOUSE-02. Most of the activities are carried out with relatives and friends living in the neighborhood.

・*Shoe shops*

The frontages of dwellings function as neighborhood occupational spaces. Shoemaking, the main occupation found at the front of the house, contributes significantly to household income. Relatives of HOUSE-01 who live nearby work together.

Physical environment

・*Self-built housing*

The fact that HOUSE-01 is a craftsman and that this dwelling was constructed by itself probably has a lot to do with the formation of the physical environmen. In fact, benches, shelves, roofs, etc. were built by the residents. The space and architecture itself are highly flexible.

・*Shelf overhanging an alley, goods from a grocery store on a shelf*

The grocery store is open from morning until night when the goods are displayed overhanging the alley. In addition to displaying the goods of the grocery store, it is also a place where customers and storekeepers exchange money and goods.

・*Window*

There is another window apart from the shelf where the goods are displayed. This window is also basically open. These windows are used to exchange goods in and out of the house. There is also a bench in front of the alley side window, which allows them to sit on the bench and communicate with the residents inside the residence.

・*Installation of benches*

A bench of size 350 x 1,050 mm and height 450 mm is installed in front of the house. Various activities that are important in daily life such as cooking at night and work are carried out. In addition, since it faces the front space of HOUSE-02, it is possible to communicate with the resident.

・*Installation of a cooler box*

A cooler box is under the display shelf. Not just to take the drinks out, residents and customers are often seen sitting here.

・*Installation of tiles on the front of the dwelling*

The space in front of the house is 100-150 mm raised and the area is tiled. This slight elevation is due to a water pipe installed at the north end of the alley, and the tiles on the front of the HOUSE-01 cover the pipe completely.

・*Extension of the roof*

The front of the house on the alley side is covered with galvanized iron. This allows visitors to stay outside during the hot day. The roof extends from the front of the HOUSE-01 to the front of HOUSE-02 across the alley. It can be said that it is an effort to make the outside space private.

Social environment

・*Blood relatives*

The owner is related to HOUSE-05 and other neighbor. He has many other relatives nearby. Relatives often gather to cook, eat and work together.

・*Friends*

HOUSE-02 and HOUSE-03 are not relatives of HOUSE-01, but they are deeply involved in daily activities such as cooking and eating.



Figure 5. Fixed-point photography, HOUSE-01 (left) and HOUSE-02 (right) in each picture

HOUSE-02: Large residential front

Basical information

This dwelling is located in front of HOUSE-01. The house owner is about 70 years old. Her husband is dead and her children lives elsewhere. The front of the dwelling is frequently used by her, and by neighboring residents. The house was also constructed by the residents of HOUSE-01. The owner is currently unemployed and often stays at home all day. The housing frontage is shown in **Figure 5**.

Activities

・*Cooking: Pork and vegetable soup*

One day afternoon, the owner went to flat market that is close to their place and bought some ingredients. When she returned to her house, she took out a wooden chopping board, knife and bowl from her house and began to cut the vegetable and pork. Once the ingredients had been chopped, she puts them into a pot and began to stew them over the gas in the kitchen next to the toilet inside the dwelling. When it is finished, she puts them in a large deep dish and serve them at the front of the house. HOUSE-01 and HOUSE-03, and other neighbor ate her soup at there.

・*Meals: drinking party*

One day, they drank and ate from lunch time to night time. During the day, they ate food from nearby Thai noodle shops or food prepared by themselves, and at night, they ate food prepared separately or served with soup from nearby residents. Furthermore, they bought alcohol at the grocery store across the street. In addition, the owner of HOUSE-01 took out a large speaker from his residence, played music from the northeast of Thailand, and sometimes enjoyed a dinner drunk while dancing.

・*Shoe production*

As described in HOUSE-01.

Physical environment

・*Self-built housing*

This dwelling was also constructed by the residents of HOUSE-01. Therefore, it is considered that the architecture itself was designed in accordance with the residents' daily lives. In fact, the frontage of HOUSE-02 is frequently used in daily life.

・*Installation of the frontage of house(naa baan)*

It is possible to sit down with shoes on or to take off shoes and sit in the back of the frontage space of size 1,050 x 3,000 mm and height 100 mm. When they sit down, their face on the bench of HOUSE-01, and it becomes a place for communication. The same tiles are used as in the interior of the dwelling, which is explicitly understandable as part of HOUSE-02. However, due to the shape of the alley, the front of the dwelling is just visible from the alley, creating an open space. It is frequently used by residents, neighbors, and customers of grocery store, but objects are not placed while they are not in use. It is cleaned regularly by residents and HOUSE-01 residents.

Social environment

・*Living alone*

This residence is characterized by a large frontage space. This space is made possible by the fact that the resident lives alone. In other words, the frontage space can be remained because not much space is needed for residence. For example, 10 people live in HOUSE-01, and it is difficult to provide a large frontage space.

・*Friends*

The owner is elderly and lives alone, but she lives day to day by cooking and sharing meals with her neighbors. She sometimes asks neighbors to buy her food or clean her room. She also sometimes lends money to neighbors.

・*Grocery store*

The grocery store held in HOUSE-01 has a strong influence on the activities in HOUSE-02. The customers of the grocery store sit on front of the residence, and if the customers of the grocery store are friends of the residents, they talk with each other. She used to prefer buying beer at the grocery store, but due to recent health problems, she does not drink alcohol and only enjoys meals.

HOUSE-03: Small lot for temporary activities

Basic information

This housing was supported housing by CP Group for poor families. The design was done by a design firm. One couple lives in the house. They are almost 50 years old. The husband actively uses the frontage of HOUSE-01 and HOUSE-02 to engage in cooking, eating, and relaxing activities. The wife alternates smoking cigarettes and tending to the plants in front of the house. The housing frontage is shown in **Figure 6**.

Activities

・*Cooking: Grilled pork*

The residents of HOUSE-01 prepared charcoal, and a scrap of tire tube from under the bench on the front of HOUSE-01 and placed them on the front of HOUSE-03. The resident of HOUSE-03 started a fire, and after that, the resident grilled the pork while adjusting the fire.

・*Cooking: USA fried rice*

The residents went to Khlong Toei market which located nearby and bought some meat. A neighbor brought vegetables. Then, the residents of HOUSE-02, brought a knife, a chopping board and a bowl from inside the house and started to cut the ingredients. After receiving the chopped ingredients, he started frying them in front of his house. When he had finished cooking, he offered the fried rice to neighbors who passed by in the alley. He called it USA fried rice.

Physical environment

・*Supported house*

As mentioned earlier, this residence is supported housing. The residence is built with a 1 meter buffer from the alley. Because it is a supported housing, it is difficult to expand or remodel. As a result, irregularly shaped vacant lots tend to form in front of the dwellings. In addition, all the supported housing units are equipped with an entrance staircase.

・*Entrance staircase*

The owner's wife sits and smokes.

・*Small paved step*

It is a raised step of 50-150 mm height caused by the construction of water pipes. Many activities take place here. In particular, activities that are difficult to do in front of HOUSE-01 and HOUSE-02, such as making a fire, etc., are done here.

・ *Installation of planters*

A lot of planters are installed at a small paved step in front of the dwelling. The small paved steps are considered to be occupied by objects.

Social environment

・*Friends*

The house owner is a friend of HOUSE-01 and HOUSE-02. Residents often enjoy cooking and eating with them on the front of HOUSE-01 and HOUSE-02. On the other hand, the residents of HOUSE-01 also cook freely on the front of HOUSE-03. These relationships create activity. The owner sometimes also participates in the construction work of the HOUSE-01 residence



Figure 6. Fixed-point photography, HOUSE-04 (left) and HOUSE-03 (right) and HOUSE-02(center)

HOUSE-04: Rental parking and temporary shop

Basic information

Like HOUSE-03, this dwelling is a supported house. This housing is located next to HOUSE-02. One couple lives in the house and their son lives nearby. The alley-facing parts of the dwellings are slightly elevated and show a certain amount of activity. The housing frontage is shown in **Figure 6**.

Activities

・*Rental motorbike parking*

The front of the house is used as a motorbike parking area, which is rented by a neighbor for 100 THB per month. In particular, many residents in HOUSE-01 own motorcycles but cannot park them because the frontage of the residence is too narrow. In addition, in HOUSE-03, there were examples of occupancy of the front of the residence by objects, but here the place is occupied by rules.

・*Shop*

Periodically, they set up shop in front of their house and sell an ever-changing menu of meals. During this time, they often leave the door open and sit nearby. They are also seen interacting with neighbors and their opening hours vary between day and night. When opening a shop, use the entrance stairs to prepare the shop. They use temporary desks, chairs, and parasols. They also sometimes eat their dinner on the spot while selling their products.

Physical environment

・*Supported house*

As described in HOUSE-03.

・*Entrance staircase*

As described in HOUSE-03. They are often used to open stores. They also grow herbs used in cooking.

・*Small paved step*

As described in HOUSE-03. Used for motorcycle parking and store openings.

Social environment

・*Friends*

He is friends with HOUSE-01, HOUSE-02 and HOUSE-05. They spend most of their time indoors. But occasionally they set up a diner in front of their house and eat together with their neighbors.

HOUSE-05: Small lot for temporary activities

Basical information

Like HOUSE-03, this dwelling is a supported house. A nephew of the owner of HOUSE-01 and his wife and two children live in this house. They are aged in their 30s. Both couples work during the day and their children attend school. They sometimes talk in front of HOUSE-01 and HOUSE-02, but rarely eat meals together. The house owner has a chair set up in front of his residence and is frequently seen talking with neighbors. The housing frontage is shown in **Figure 6**.

Activities

・*Chatting*

The husband sometimes takes their chairs outside to talk to the neighbors. He sits on the front steps, and the neighbors bring their chairs and put them on the small paved step.

・*Playing by children*

It is also seen that children gather in front of the house and play games. Since HOUSE-01 and HOUSE-02 are used by adults, it is considered that children gathered here. Outside, they skate and play tag. Sometimes they go inside the house and play.

・*Shop*

They have only once opened a snack shop in front of their shop. Since it was hot during the day, parasols were set up and desks were set up under them to display the products.

・*Hair cut*

HOUSE-01 residents set up chairs and had their hair cut by their sister-in-law, who also lives in HOUSE-01. The barber shop is open today, she said jokingly.

Physical environment

・*Supported house*

As described in HOUSE-03.

・*Entrance staircase*

As described in HOUSE-03. It is used to talk with neighbors and as a playground for children.

・*Small paved step*

As described in HOUSE-03. Residents' bikes are placed there, as well as temporary chairs, desks, and parasols, depending on their daily activities.

Social environment

・*Blood relatives*

The house owner was related to HOUSE-01. He also has many relatives in the neighborhood. The children of relatives in the neighborhood get together and play a lot. They sometimes go inside the residence and play.

・*Friends*

The house owner is friends with the residents of HOUSE-02 and HOUSE-03. He is seen chatting occasionally, though not often.

・*Grocery store*

Children frequently go to the grocery store to buy juice and snacks.

Discussion: Space for everyday activities

The five housing frontages described in the previous section can be divided into two types (**Figure.7**). One is the building-oriented type, which is characterized by self-constructed houses and relatively long-period activities, and the other is the environment-oriented type, which is formed by chance by the surrounding environment and relatively short-period activities. In addition, this section explores the factors that contribute to the formation of the "Neighborhood cluster" and the two types of housing frontages divided into four categories.

Building-oriented type (HOUSE-01 and HOUSE-02)

The building-oriented type refers to the frontage space of a dwelling actively created by self-construction, such as the bench, shelves, and roof in the frontage of HOUSE-01, and the frontage of HOUSE-02.

The activities at this location are characterized by the fact that many of them take place over a relatively long period of time and that the space is open to others. In terms of length of stay, in addition to cooking, eating, and working, residents of the neighborhood who come to shop at the grocery store sometimes sit down and stay for an hour. The management of the store is not temporary, as in HOUSE-04 and HOUSE-05, but a semi-permanent grocery store. The building itself can be flexibly constructed, expanded, and remodeled to create a comfortable space where people can stay for a long period of time. In particular, the frontage of HOUSE-02 is of a certain size and can be used for various activities. In terms of the openness of space, residents clear away equipment used for cooking, eating, and working after use. They also regularly mop the floor to keep it clean. The frontage of the dwelling is part of the architecture, but at the same time, it is an open space in this way.

Environment-oriented type (HOUSE03, HOUSE-04, and HOUSE-05)

While the building-oriented type is a space actively constructed by the residents, the environment-oriented type is a space formed by chance. Specifically, it is an irregularly shaped small paved step created between a supported housing, which is difficult to extend or remodel, and a curving alley space.

Activities at this location are characterized by the temporary use of space using furniture, and the relatively limited number of users. Temporary use of space includes the temporary installation of chairs, desks, parasols, etc. for the purpose of chatting, opening a store, etc. Such objects are cleared away after use, and the space is used for a short period compared to the building-oriented type. In some places, planters are used to occupy the space, the space used as a rental parking lot for motorcycles. The architecture itself is fixed, so that furniture and objects can be used flexibly. Compared to the building-oriented type, it is an open space close to an alley, but the users are limited to relatives and close friends because furniture needs to be installed to use the space.

Formation factors of places

This section will examine how the living environments were created in accordance with the activities. After describing the formation factors of the "Neighborhood cluster" through **(1) Original landscape** and **(2) Social environment**, this section describes how the two types of frontage spaces were formed in **(3) Building-oriented type** and **(4) Environment-oriented type**. The physical factors are shown in **Figure 4**.

(1) Original landscape

- **A** Narrow alley
- **B** Curved alleys surrounding five houses
- **C** Water pipes along the alley create a small paved step

(2) Social environment

- **D** HOUSE-01 occupies more than one piece of land
- **E** Residents of HOUSE-01 work as a shoemaker or craftsman
- **F** The owner of HOUSE-01 call a blood relative or a close friend to the neighborhood for a reason for **D** and **E**
- **G** **A, B,** and **F** make neighborhoods private (forming neighborhood clusters)

(3) Building-oriented type (HOUSE-01, HOUSE-02)

- **H** HOUSE-01 is a craftsman and can construct dwellings
- **I** The resident of HOUSE-02 lived alone (Large families are more likely to have their homes built to the edge of the alley.)
- **J** Frontage of HOUSE-02 (*naa baan*) is formed due to **D, H,** and **I**
- **K** HOUSE-01 is also a grocery store
- **L** Installation of product shelves and cooler boxes due to **H** and **K**
- **M** Installation of benches, roofs, windows, etc. due to **H**
- **N** Frontage of HOUSE-01 is formed because of **K, L,** and **M**
- **O** **E, G**, **J**, **K**, and **N** induce active use of building-oriented type

(4) Environment-oriented type (HOUSE-03, HOUSE-04, and HOUSE-05)

- **P** The house was supported housing
- **Q** A buffer is likely to be created between the residence and the alley because of **B** and **P**
- **R** Difficult to expand or remodel dwelling because of **P**
- **S** The irregularly vacant areas are shaped on small paved steps in front of the dwelling because of **C, Q,** and **R**

T Frontage of HOUSE-03, HOUSE-04, and HOUSE-05 is formed because of **P** and **S**

U **G** and **T** induce temporary use of environment-oriented type



(a) Building-oriented type



(b) Environment-oriented type

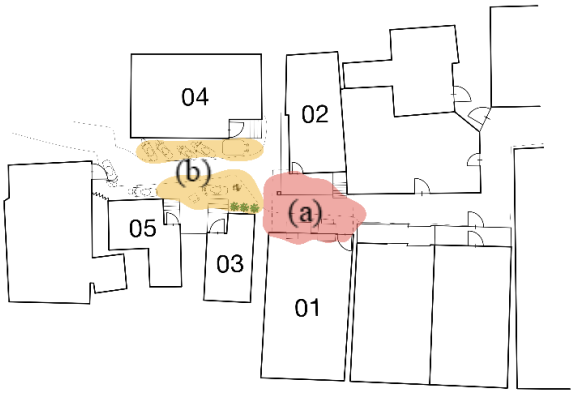


Figure 7. Activities in building-oriented type and environment-oriented type

Conclusion

The research question of this study is: How are the living environments formed in accordance with everyday activities? This study answers this question in the following three points.

First of all, the living environments which can be said to be a "Neighborhood cluster" composed of alley shape, blood relation, and friendship was clarified. This induces the activities in the neighborhood.

In the second point, the housing frontages can be divided into two types. One is the building-oriented type, which is characterized by self-constructed houses, relatively long-period activities, and openness to the neighbors. The other is the environment-oriented type, which is characterized by where they are formed by chance, temporary use of space, and the relatively limited number of users.

Finally, this study examined how these living environments were created. In addition to the original landscape, such as the shape of the alley, the neighborhood cluster was formed because relatives were called to the area for work and the owner of HOUSE-01 owned a lot of land. Building-oriented types flexibly created the facilities and spaces necessary for daily

living including grocery store through self-building. On the other hand, the environment-oriented type, the buffer left in front of the housing frontage, was formed by the curving shape of the alley, the small paved step caused by the water pipe, supported housing which is difficult to expand and remodel. The space was used for temporary use with desks, chairs, parasols, etc.

The research may have revealed the actual living conditions of low-income community. The various activities in the external spaces, might say, are indicative of the richness of this place. The socio-physical environment was formed in line with everyday activities, and everyday activities were carried out in line with the socio-physical environment. In particular, essential activities such as cooking, eating, and working were carried out in the external spaces, creating a community way of life.

However, this study has several limitations. Firstly, language barriers, particularly in understanding conversations and narratives, were a major handicap when analyzing relationships. Furthermore, the phenomena documented in this study do not necessarily reflect those found in different neighborhoods. Consideration should also be given to differences in the use of space by age and sex.

Acknowledgment

This paper acknowledges the invaluable cooperation of the residents in Khlong Toei community and Duang Pratheep Foundation in conducting the research. This paper would also like to acknowledge Associate Professor Kreangkrai Kirdsiri and Professor Kyota Yamada for their invaluable advice and assistance in conducting research. K.MATSUSHITA FOUNDATION financially supported the research.

Footnote

This study is developed from the International Seminar on Vernacular Settlements(ISVS)-12 proceedings(Social Constructions through Everyday Activities in External Spaces: A Case Study of Khlong Toei Community, Informal Settlements in Bangkok).

References

Askew, M. (2002). *Bangkok: Place, practice and representation*. London: Routledge.

Bangkok Metropolitan Administration (BMK). (2021). สถิติกรุงเทพมหานครประจำปี 2564 [Statistics of Bangkok Metropolitan 2021].

Dovey, K. (2012). Informal urbanism and complex adaptive assemblage. *International Development Planning Review, 34*(3).

Endo, T. (2011). Toshi wo ikiru hitobito: Toshikasoumin no risuku taiou [People Living in the City: Risk Responses of Bangkok's Urban Underclass]. Kyoto University Press. (in Japanese)

Harani, R. A., Atmodiwirjo, P., & Yatmo, A. Y. (2023). URBAN KITCHEN: A FORM OF URBAN SYSTEM BASED ON COLLECTIVE OPERATION. *Journal of Architecture and Urbanism, 47*(2), 96–105.

Hata, T. (2003). A Study of Human Settlement Policy with People's Participation Enhancement and Processes of CBO Networking in Slum and Squatter Settlements in Thailand. *Journal of the City Planning Institute of Japan, 38*(3), 313-318.

Hernández-García, G. (2012). Open spaces in informal settlements in Bogotá, expressions of attachment and identity. In *The Role of Place Identity in the Perception, Understanding, and Design of Built Environments* (pp. 123-141).

Hitomi, Y. (2013). The Current Situation and Problems on the Urban Slum in Bangkok: A Case Study on the Klong Toey Slum. *Social Sciences Journal of Nagoya Gakuin University, 49*(3), 95-106. (in Japanese)

Jones, P. (2020). Distance and proximity matters: Understanding housing transformation through micromorphology in informal settlements. *International Journal of Housing Policy*.

Natakun, B. (2010). COLLECTIVE NEAR-HOME SPACE APPROPRIATION: A CASE STUDY OF BAAN MANKONG, PARTICIPATORY SLUM-UPGRADING PROJECT, BANGKOK.

Nattika, N., & Sasima, C. (2019). Market as Social Space: A Study of Everyday Socio-spatial Practices in Thailand. *7th Annual International Conference on Architecture and Civil Engineering*.

Okyere, A. S., Diko, K. S., Hiraoka, M., & Kita, M. (2017). An Urban "Mixity": Spatial Dynamics of Social Interactions and Human Behaviors in the Abese informal Quarter of La Dadekotopon, Ghana. *Urban Science, 1*, 13.

Thai, H. M. H., Stevens, Q., & Rogers, J. (2022). Mapping and measuring spatial connectivity of the pathways to home-based businesses within informal urban contexts. *International Journal of Architectural Research, 16*(1), 90-111.

Habitat, U. N. (2003). Slums of the world: The face of urban poverty in the new millennium? Monitoring the millennium development goal, target 11–worldwide slum dweller estimation. *Nairobi, Kenya: UN-HABITAT*.

Monaco, S. (2024). SDG 11. Make Cities and Human Settlements Inclusive, Safe, Resilient, and Sustainable. In *Identity, Territories, and Sustainability: Challenges and Opportunities for Achieving the UN Sustainable Development Goals* (pp. 107-115). Emerald Publishing Limited.