博士論文（要約）

From Informal Transformations of Formal Housing to Morphological Transformation of Urban Fabric:
Learning from the Case of Hanoi's Collective Housing Areas Built under Socialism

（集合住宅のインフォーマルな増改築による都市空間の変容に関する研―
ハノイにおける社会主義時代の集合住宅を事例として）

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I. Introduction

1. Research Background

1.1. Urban informality as problem or as opportunities?

According to a new United Nations report, today urban population accounts for 54 percent of the world's population, a noticeable increase from 29 percent in 1950, and this proportion is anticipated to increase to 69 percent in 2050, with most of the increase concentrated in Asia and Africa (Figure 1. 1). Developing cities are facing numerous challenges in meeting the needs of their increasing urban populations. Among those challenges, meeting housing demands are so imperative that most of the urbanization has been occurring through informal access to land and housing. Governments are unable to implement laws and regulations governing land and housing development. Plan proposals are often over-ridden due to a desperate need for housing and income. Rapid urbanization, poverty and limited access to land and ownership, lack of social housing have made citizens occupy land and build their homes illegally under very poor environmental conditions. Not only does informal settlement provide shelters for a noteworthy number of urban dwellers, but it also provides access to employment to its dwellers and services to the remaining city. Informal housing has become so common that many cities have already housed more than half of their citizens in these settlements (Fig. 1. 2). It is reported by UN-HABITAT (United Nations Human Settlements Program) that in 2009, 62.2 percent of the urban population in Sub-Saharan Africa lived in informal settlement, 42.9 percent respectively in Southern Asia, 36.5 percent in Eastern Asia and 27 percent in Latin America and the Caribbean, 14.5 percent in North Africa. The phenomenon is growing at an alarming rate in Eastern Europe, Caucasus and Central Asia; and calling for urgent political, legal, and planning solutions (UNECE, 2009).

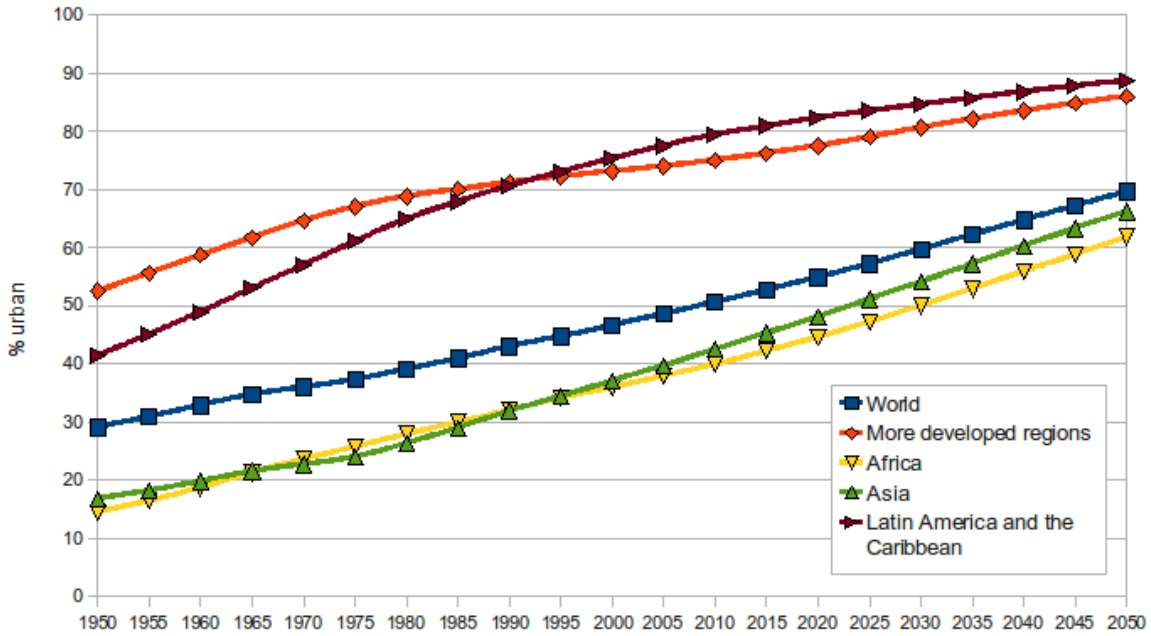


Fig. 1. 1: Percentage of Urban Population by Region over a period, 1950-2050

Source: UN World Urbanization Prospects 2014

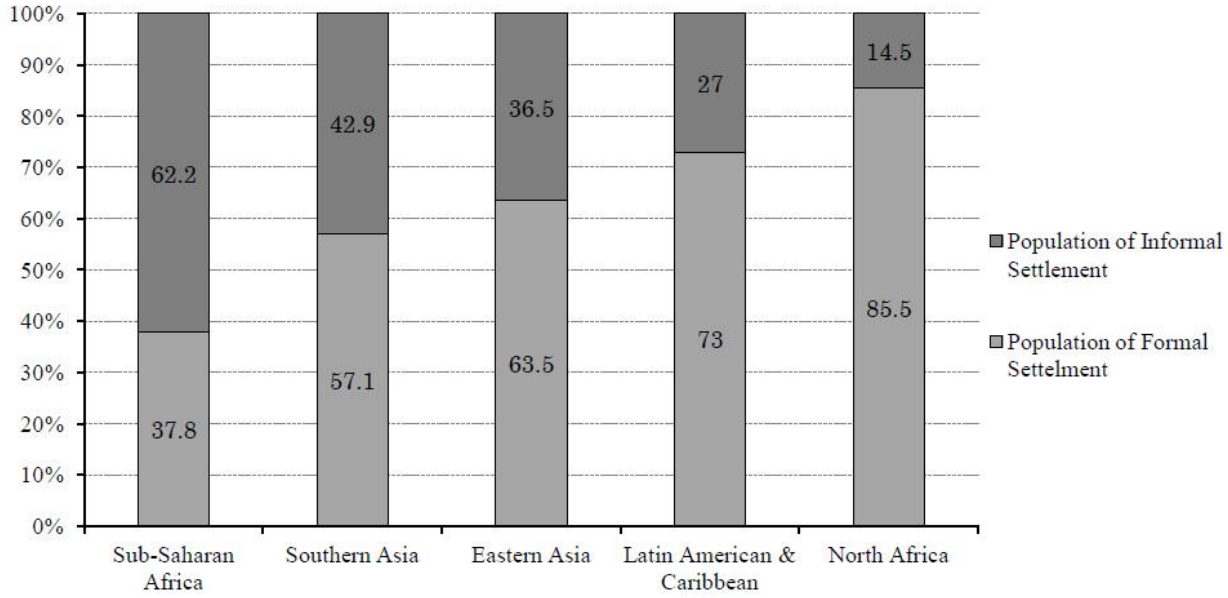


Fig. 1. 2: The share of urban population living in informal settlement in developing countries 2009

Source: UN-HABITAT

Although poverty and rural-urban migration are obviously two significant sources of urban informality, development processes in Latin American cities prove that despite their completed urban transition with high urbanization levels and increasing average income, informality persists (UN-Habitat 2006). It is expected that given the current urbanization trends, Asia, home to a half of the urban population of the world, will possibly face much greater challenges than their Latin American counterparts.

The incapacity of unequipped governments to cope with rapid urbanization and housing needs has led to the absence of adequate affordable housing programs, insufficient public investment in urban infrastructure. In this context, self-help construction activity is currently seen to be the only method to secure housing for the poor, with the result is the emergence of illegal developing cities that are separated from the legal order. This separation, in turn, has led to the emergence of paradoxes when informality is perceived from legal perspectives. That is, governments, when confronting with illegal land occupation may evict illegal occupants, but may also formalize their tenure and integrate informality into the legal fabric of the city (Van Gelder & Jean-Louis 2013). Forced evictions are often regarded by international laws as human rights violation, thus Governments are urged to first consider all possible alternatives to forced evictions. In their attempts to deal with the widespread phenomena of informal settlements, massive legalization programs to formalize informal tenure have been implemented actively by many countries like Peru, Thailand, Egypt, Ghana, Indonesia, inspired by their supposed potential to foster economic growth (De Soto 2000). Despite the provision of property title and lower legal standards for urbanization, trends toward urban informality often persist (Pamuk 2000).

To explain connection between the persistence of informality and legalization policies, previous studies in several Latin American countries like Honduras, Nicaragua, Paraguay; and other Asian countries indicate that "groups are most likely to directly benefit from titling are the relatively wealthy households" (Van Gelder & Jean-Louis 2013). In implementing legalization, instead of housing the poor, governments destroy their legal order and stimulate further property violations and illegal land occupation.

Other studies have sought to "clarify the role of law in the production and persistence of informality and to resolve the paradoxes" in different Latin American cities (Van Gelder & Jean-Louis 2013). Doing so requires an approach that views illegal settlements as having their own internal orders; and to recognize residents' ability in adapting to and resisting pressure from the legal system through noncompliance strategy. Karst described how Caracas's *barrio juntas*, the residents' informal administrations, replaced government institutions in functioning as a law-making body for the community while dealing with dispute settlement (Karst 1971). In another study, de Souza Santos found that Rio de Janeiro's *favelas*, apart from having their own informal rules, inventively imitated official law whenever convenient and applicable (de Souza Santos 1977). Similarly, Mangin (1967) described the roles of community organizations in Lima's *barriadas*, in defending their interests and advocating their cause toward government. These studies show, as Van Gelder (2010) also argued for Buenos Aires' *asentamientos* that "within informal settlements social practices give rise to normative orders that decouple from the official legal order, and in a sense replace it" (Van Gelder & Jean-Louis 2013).

Managing urban informality has increased in both scope and complexity and has become one of the most important challenges for urban planners of the 21st century to deal with. However, once the activity of housing is defined as a problem, the existence of a specific group of experts engaged in solving the problem is a guarantee that the problem will not go away (Turner 1976).

According to UN-HABITAT, informal urbanism is "the production of urbanization independent from formal frameworks and assistance (if they exist) that do not comply with official rules and regulations".[1]

Informal urbanism generally emerges as a result of the incapacity of cities to absorb growth within a formal planned urban framework due to the lack of affordable housing options, deficient building and planning regulations, and shortage of suitable housing finance that consequently exclude low-income groups from formal urbanization.

Informal urbanism ranges from low-income rural migrants who build their houses in an emerging community by gradual process of informal land occupation and consolidation to developers who subdivide plots without conforming to all regulations.

The "informal" is not necessarily corresponded to "illegal", as informality may be the only option in cities where no other ways of urbanization exist.

[1] *https://unhabitat.org/wp-content/uploads/2014/03/Hub-Informal-Urbanism.pdf*

The “informal” cannot be simply corresponded to “inferior” or “marginal”, as there are many cases where informally developed neighborhoods offer a better place to live than lifeless identical housing projects produced by commercial developers.

The “informal” cannot be corresponded to “poor”, since more and more middle class families find their housing in non-formal neighborhoods.

Understandably, existing criticism from governments and institutions tends to focus on informality’s negative aspects and see it only as a problem in cities, but it also draws cautious recognition from academics, practitioners and community members who see these settlements as opportunities and look at the hidden values, human capital and contribution they make to cities through closer investigation.

For a long time, informality had been related to poor living conditions, thus stayed outside the interest area of architects, urban planners and policy makers. Over time, the way informality has been perceived has significantly changed, from being outlawed, neglected, to being accepted, celebrated owing to the influence of urban policies and international architecture discussions. Since Turner (1972) revealed the efficiency of self-organization activities in the suburban of Lima called *barriadas* and the wide range of strategies and inventions that urban poor offered, “informality started to be seen as a site of potentiality to learn from, rather than a mere problem to solve” (Camillo 2016). Wangshu, 2012 Pritzker winner, when examining about illegal architecture in Hangzhou and Taiwan indicated that “though illegal constructions often look piled up and messy, if we examine them carefully, they are actually not chaotic but direct and distinguishable, as all the reusable materials in the surroundings are recycled and the lightest structures and simplest methods are adopted. What is more important than such a simple approach is the pattern created, which fits in the expanding order of the city and is close to nature, presenting a structural humanity” (Lim, 2014). The phenomenon of illegal architecture, instead of being seen as an issue to be addressed, can actually “provide us with a springboard from which we can jump and acquire a fresh way of looking at things. Hopefully, we can thereafter reflect on our usual professional top-down – and strictly uni-directional – approach more realistically and with more respect for users and residents” (Lim, 2014).

1.2. Informal transformations of formal housing – Previous studies

Informal transformations of formal housing

Housing is human’s essential activity, and transformation is one important part of that.

Definition: Informal transformation or Spontaneous transformation or User-initiated transformation is “operationally defined as alterations, addition, extensions, or modifications of a house, both in terms of the form and the interior spaces usage” (Khan 2014).

The phenomenon of informal transformations has been examined by numerous honorable researchers. Spontaneous transformation doesn’t occur suddenly but involves a long period of thorough considerations among households’ members, and its show some reflection about human behavior which can be manifested in different ways. Reckless (1973) developed the most commonly known theory as such human behavior is caused by one’s internal needs, not by outside

stimuli. Caniggia (2001)'s theory also features the role of internal needs, yet furthermore states that people tend to act rationally, but if there is chances to act divergently, they would. Glasser (1998) identified certain internal needs that shape human behavior which are: to survive, to belong and to have freedom, to control, and to have emotional fulfillment. In a recent study, Khan (2014) extensively analyzed the relation between internal needs and human behaviors in the field of informal transformation of housing which will be summarized as follow.

❖ Transform to survive:

The endless and ever-changing housing needs for survival of family life creates a housing gap between current level and preferred level of housing consumption (Khan 2014). According to Khan, every household has a 'level of tolerance' until which point no action is taken. When this level is reached, it comes a critical point when actions are needed for necessary housing modification to fill the housing gap. Household owners have three options which are to make improvement to the current house, or to move out to a different house, or to move and then improve the new place. If action is taken, the fare comparison between moving and improving shows that moving costs are significantly higher, which prevents households from frequent moving (Maclennan 1982, Fallis 1986). Seek (1983) points out that homeowners around the world have a tendency to live in the same place for a long time regardless of their wealth level or social status. Different studies refer to improving decision as a predominant alternative to moving (Montogomery 1992, Potepan 1989, Shear 1983). Although many researchers use the term 'improving' in a sense that there is positive upgrading, this research adopts the more neutral term of 'transformation' used by Tipple (1999).

Explicit reasons for informal transformation:

i. Demographic issues: has been widely acknowledged as major reasons behind transformation by many researchers:
   - To adapt to increase in family members or household numbers (Tipple 2000)
   - To house children growing older (Seek 1983, Tipple 2000)
   - To have better spatial arrangement in relevant to changing family needs (Tipple 2000)

ii. Economic issues: in houses where owners have more space than they need, or need extra income to benefit their survival.

   Tipple (2000) studies informal transformation of government-built housing in many developing countries. The comparative study pointed out that people transform housing for following purposes:
   - To increase rental income benefited from habitable flats.
   - To increase rental income benefited from renting shops or offices
   - To increase income by converting part of the house into home-based enterprises.

iii. Other issues:
   - To improve overcrowded conditions

- To adapt to change of ownership

❖ Transform to belong and to have freedom

Survival alone is not the single motivator for transformation. Turner (1972) specified that people want to decide on their own the way they would live, it brings them pleasure and accordingly a sense of self-belonging. “Transformation incidents are often outcomes of such decisions, where a strive for achieving self-belongingness and freedom are expressed” (Khan 2014). The relation between two phenomena was revealed by Turner’s three laws.

By learning from illegal settlement, Turner summarizes the universal truths about housing in his ‘second law’ stating that dweller satisfaction is not necessarily related to the standard in which they live, but with having control over major decisions in design, construction, and management. Most importantly, the third law stated that housing is significantly more tolerable if it is the user’s responsibility than if it is somebody else’s. Similarly, Seek (1983) stated that the level of tolerance is adjustable. Thus, only when housing decision is granted to the users, only then that lowers the level of tolerance. The first law stressed the necessity for dwellers to have the control over major decisions irrespective of their wealth.

❖ Transform to belong and to control

Social study on human behaviors shows that men needs a certain degree of power over his surroundings and also needs to express that power in order to feel his existence, to have control on certain things around his surroundings. If an actor is happy at certain level with the designated boundary of the level, and is allowed freedom inside that boundary, it results in satisfaction. This is the kind of satisfaction that was uncovered in Turner’s three laws which allow people to control their living environment through housing design, construction, and management.

It is important to conceive Habraken (1998)’s theory of ‘three orders’ because the orders help us to understand human behaviors through physical forms and their transformations. The first order is the ‘formal order’ which is more about a physical thing where we get the idea of physical elements that constitute a particular form. The second order is called ‘territorial order’ which is about the control of space rather than control of form. Sitting uninvited on neighbor’s lawn is a violence of formal order, but territorial order may allow it as it might be seen as a guest’s behavior; but placing garbage on neighbor’s lawn violate both formal and territorial order. As such, the formal order acts as the basic premise to exercise territorial order; however, while formal boundary can be limited, territorial boundary can be large scale. One single formal boundary cannot guarantee one single territory. For example, one flat occupied by a family can become two territories if one room becomes a shop. The third but not less important order is called ‘cultural order’ which includes regularities, customs, habits, conventions. According to Habraken, urban environment has been set up with all kinds of unspoken rules. As density increases, hidden rules start to form which eventually will become formal regulations. Thus, traces of the unspoken can be seized through some patterns, types, and systems. They are the same patterns that Alexander (1977) suggested to find out in order to analyze the vernacular. Hence, typological patterns in urban tissue becomes the evidence of those patterns, and the only reason behind developing to a collective pattern is that people need to co-exist. New styles can generate within the cultural

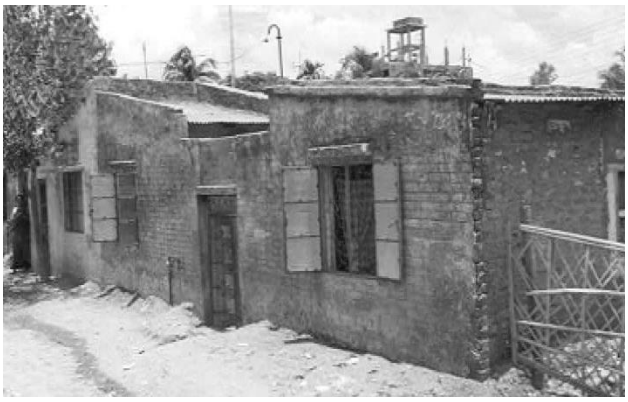
order because of people's practical habit in build forms, yet the whole process must not go without respecting the existing customs.

In brief, people transform for numerous reasons. As Alexander (1979) mentioned, the basic search of humans lie behind the explicit description of the patterns, studying the explicit physical patterns or transformation helps to form the gate to find the implicit way to explain human behaviors (Khan 2014).

In a comparative research of informal transformations, Tipple (1999, 2012) studied the informal transformations in government-built housing in large quantity in Bangladesh, Egypt, Ghana, and Zimbabwe (fig. 1.3) in order to evaluate whether the extensions are effective in housing supply and withdraw lessons for formal planning policies.

a. Transformation of multi-storey apartments in Helwan, Egypt, horizontal collaboration

b. An extended house in Ghana, 3 rooms expanded to 27 rooms and 15 occupants



c. A transformed house in Bangladesh, with four household and 18 occupants

d. A transformed house in Zimbabwe, semi-detached villa extended to 8 rooms

Fig. 1. 3: Comparative study of informal transformations in government-built housing
Source: Tipple (1999)

Data revealed that most transformers are not rich but neither very poor (i.e. below poverty threshold) within their country, and have large households which indicates greater need for privacy while original dwelling were designed for nuclear family households. As a result, most of the original housing were not capable of providing sufficient space with adequate privacy for all occupants. It was the concluded from the data that transformations are impressively effective in providing housing, with habitable space and

number of rooms increased remarkably in all the countries. Transformations were also able to house more people without extending the city in all four countries, proved by remarkably increasing number of persons per house and households per house, the increasing number of houses with tenant households and with family (rent-free) tenants. Thus, transformations should be seen as a way people improve their own space and other people's space in their houses, not as "building slums" as accused by local planners; and hence should be encouraged in countries in great need for housing.

Moreover, transformations bring a greater variety of space, use, occupants and tenure than in original dwellings with uniformity. Business activities generated through transformation not only provide employment and income-generating opportunities but also provide cheaper services in a walking distance, thus serve local people especially low-income households for their economic, cultural, social needs. Additionally, a typical lack of maintenance in government-built housing and changing lifestyles which leads to poor physical performance become subjected to transformation with higher quality construction and higher level of finish, and noticeably occupants bearing the full cost in most cases. "As money is likely to be in short supply, the efficiency of transformation in adding low-cost floor space to the cities' housing stocks should be very attractive to housing policy makers." (Tipple 1999). Instead of heavy-handed policies that deter potential extensions through introducing administrative delays and interference, by enabling transformations through the formal planning process brings, governments have much to gain (Tipple 1999). Tipple mentioned that neighbors' satisfaction with the level of development in transformed estates is more important than maintaining some notion of a few policymakers of ordered development. Thus, it is suggested that neighborly cooperation possibly enabled through assigning people trained to be involved in assisting negotiation and dispute among neighbors (Tipple 1999). Furthermore, Tipple recommended that "there is a need for a balance between control that inhibits and control that enables". For instance, controls must prevent dangerous structures, structures that block access or built over service lines; whereas building technologies and types of spatial organization commonly used in the area but not in line with high standards incorporated in law should be accepted. Other suggestion was suitable loans to fund an extension is important in policy on housing finance for low-income households in their incremental improvements. Through transformation, physical planners learned a lesson to regard residential areas as constantly changing places where plot shapes and sizes should take into account the pressures to extend houses efficiently with minimum disturbance to their neighbors and to the layout of the area as a whole (Tipple 1999).

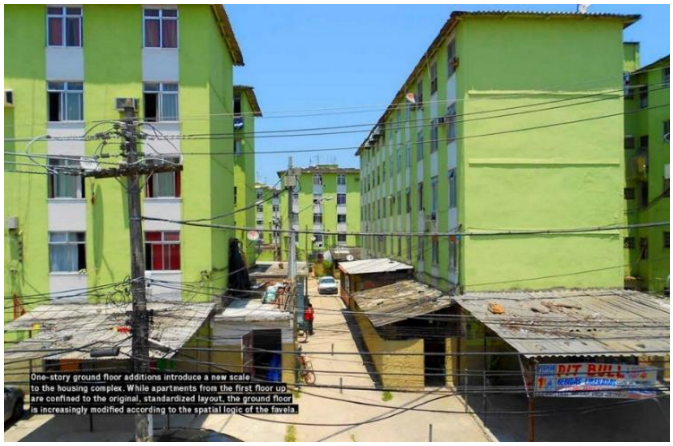
Dweller-initiated transformations of formal housing in Nairobi, Kenya have been well researched by many authors (Makachia 2010, 2013; Anyamba 2006; Gitau 1999, Ochieng 2001). Using comparative case studies of middle-income housing estates of Buru-Buru and Kaloleni, Peter (2010, 2012) illustrates physical qualities in informal transformations in the contribution of design strategy to informal transformations. Ochieng (2001) examines changes due to ten years of informal densification of other planned housing estate of Koma Rock in Nairobi. Gitau (1999) also analyzes the phenomenon of informal extensions in planned estates and furthermore proposes solutions based on lessons learned from this phenomenon. Anyamba (2006) studies diverse urban spatial transformation process based on informality.

Favelas, informal neighborhoods (fig. 1. 4) in Rio de Janeiro are the most iconic image of urban informality characterized by their strong flexibility, by an organic and evolving architecture. Their capacity to quickly evolve and constantly adapt to a specific topology, a context, and most importantly to the changing needs of residents. The flexibility of informal settlements is also beneficial to the production of social interfaces, as a way to insert a specific activity in a stagnating neighborhood.

Fig. 1. 4: *Favelas* neighborhoods, famous for their capacity to quickly evolve and constantly adapt to a specific context, and to the changing needs of residents

City of God is a good example. As a social housing complex launched by the government in the 1960s (fig. 1. 5, 1. 6), the project struggled to meet the newly relocated residents' basic social needs, after having been planned as a mono-functional residential area.

Fig. 1. 5: City of God, low-rise as plan and after transformations



To activate the dead space between the generic housing blocks, the community informally implemented social and commercial interfaces, such as bars, kiosks and gyms, soon turning the area into a semi-informal hybrid neighborhood, ultimately becoming one of the most famous of Rio's favelas today. The community with strong identity, after all, is the most valuable asset of a favela to the extent that it overcomes the limits of formal planning.

Fig. 1. 6: City of God, multi-story blocks after transformed

Incremental housing – formal housing allowing informal growth in design

Incremental housing is a phased process which allows more people to have access to housing opportunity starting with right of tenure with rudimentary services followed by basic services and eventually acquire a house through a self-build process.

Incremental housing is an affordable way to rapidly resettle many families at a minimum housing and services level by linking the energy of family with a large-scale city planning. This incremental process has been adopted by governments into programs called 'site and services' and 'core houses' where the residents are provided a base – developed to varying degree – upon which they continue the development themselves. These concepts were increasingly acknowledged and since the mid-1970s this approach was and accepted by the World Bank as the official alternative to conventional housing for low-income groups in developing countries.

Originally created for the low-income groups who are unable to house themselves, over time the informal housing gradually matches higher income standard. Thus, from late 1970s to early 1990s, the 'self-help housing debate' with Neo-Marxist critic like Burgess opposing some of the ideas of Turner, criticizing these concepts for being economically unfavorable – i.e. the problem of 'down-ward raiding', that higher-income groups obtains houses originally planned for the poor (Jenkins et al. 2007). However, since this critique could not provide better solutions, it was eventually ignored in late 1980s.

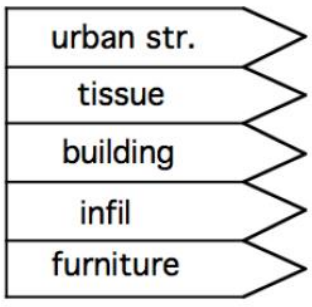
Incremental housing revisited

In an article for World Urban Forum 5, Wakely and Riley (2010) argues that the current incapacity to provide housing for the urban poor gives reason "to revisit the 'incremental housing' approaches of the 1970s- 1980s". They clarified six arguments assisting incremental housing strategies as followed:

- While governments lack resources to facilitate housing, people demonstrate their own ability to house themselves in incremental housing, which is not possible and affordable in the formal housing market.
- Even low-income households are able to invest substantial amounts of money in their housing as long as the security of their investment is guaranteed.
- “The basis of incremental housing is that government does what households cannot effectively do […] and households do what governments cannot do efficiently”. In this way, by assigning control to the most appropriate level, the efficiency of urban management can be improved
- “By planning areas of legitimate low-income housing development as part of an integrated urban development strategy, governments are able to set strategic priorities for an entire urban area”
- The users’ participation in the governance of the housing area through which sense of ownership and pride is mediated among users is important.
- By bringing participants together in a common cause, the process can function as a catalyst to social and economic development.

In short, Wakely and Riley (2010), just like Turner in the 1970s, recognize that the engagement and ability of users should be seen as part of the solution rather than a problem.

Habraken (2002) uses the concept of levels to discuss the relation between physical form and control distribution. In his theory, he describes the built environment as a hierarchical set of levels where properties of a higher level sets the conditions for the lower (fig. 1. 7).



Urban structure level: major roads and infrastructure of the city

Tissue level: streets and related urban elements on the scale of neighborhood

Building level: building parts which are not possible to change without affecting other parts, e.g. load bearing walls, foundation

Infill level: building parts could be changed without necessarily forcing change upon other parts of the building, but might affect furniture level, e.g. partitioning walls, kitchen equipment

Furniture level

Fig. 1. 7: Five level model
Source: Habraken 2002: 8

He compares how control is distributed over different levels between a conventional project and a ‘core house’ scheme (fig. 1. 8). In a conventional project, two professional groups control four levels leaving furniture level in the hands of users. On the other hand, a flat hierarchy where lines between tissue and building levels are ambiguously defined, thus the consequences of any

change are hard to predict and plan for. In dense urban contexts, the higher levels are crucial in making the city work as a whole.

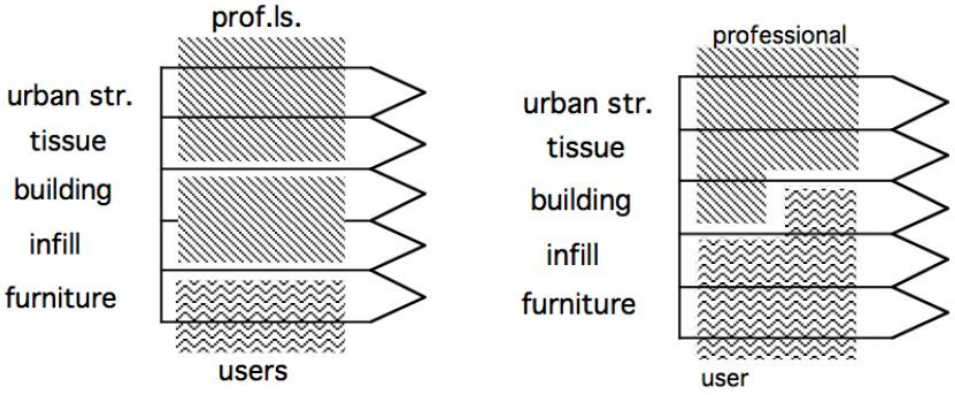


Fig. 1. 8: Control distribution in a conventional project and in a 'core house' scheme
Source: Habraken (2002: 9, 10)

According to Habraken, the level of urban structure should be under control of professionals, who in turn should provide the stability needed to support continued development in lower levels. Dealing with the neighborhood, stability and planning are still crucial on the tissue level, which requires organized collaboration for instance between homeowners and professionals. In the lower levels of building and infill, a possible participation of both professionals and non-professionals makes these levels particularly interesting when considering incremental growth. Habraken suggests that a separation of the building and infill levels can offer freedom to users while achieving efficiency and flexibility in buildings. The building level can be built in rigorous repetition, but on the level of the infill each unit can be different, he describes. As such, the building level can contribute with stability to the tissue level without imposing too much rigidity on the infill level. This separation of building and infill level will however hardly occur automatically or unintentionally, as evident in squatter areas. Instead, this is to a large extend a design issue that requires professional skills and knowledge. The inclusion of a professional actor in incremental process could be done, for instance in the form of technical assistance in the building process or as pre-designed core houses.

The ability to adapt and evolve over time is stressed as an important factor when evaluating the success of incremental housing projects (Habraken 2002, Wakely and Riley 2010). Through photos taken and description of three housing areas in Colombia, Sri Lanka and India; Wakely and Riley convey a clear message: something that starts as scanty shelter can develop into a valid part of a city with the right conditions, support and reasonable amount of time (Wakely and Riley 2010).

The PREVI plan in Peru (1965-1975) was an experimental housing project that embraced informal growth as crucial part of design, one of the rare occasions when informality generated a response from the regular architectural discourse with involvement of a generation of radical avant-garde architects. It was developed to address the increasing growth of *barriadas* in the periphery of the city, PREVI was a low rise high density plan (fig. 1. 9.), designed as a platform for change. The core idea was to incorporate the principle of incremental housing and informal growth into design, in which the houses were conceived to gradually grow over time according to the need of growing

family and financial situation. Forty years later after its completion, although the growth pattern is ultimately disregarded, people didn't move out as their financial condition improved which is the great success of PREVI.

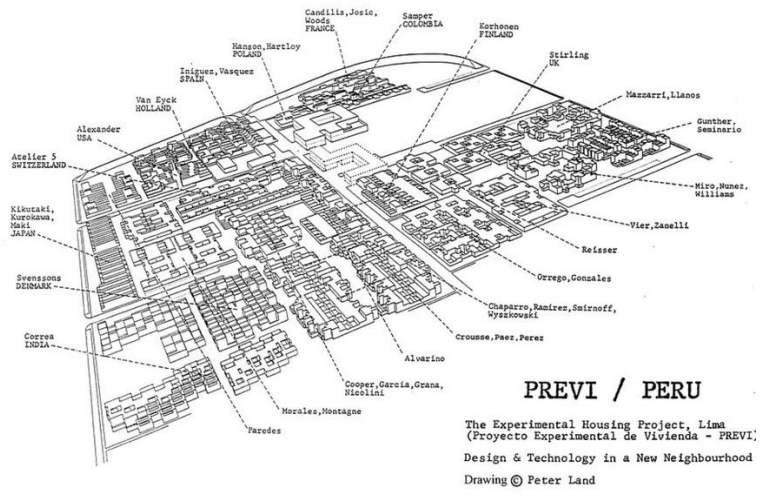


Fig. 1. 9: The PREVI plan in Lima

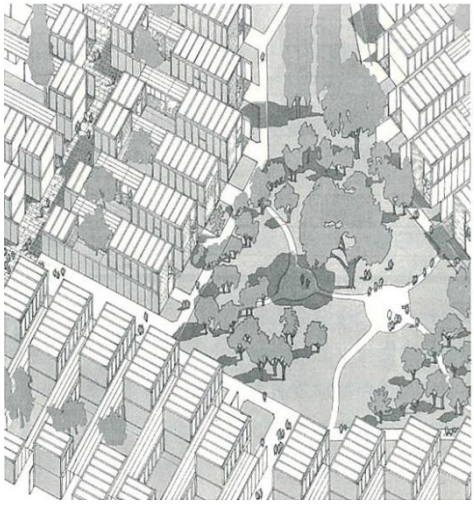


Fig. 1. 10: Maki-Kurokawa-Kikutake proposal

The PREVI's unique combination between a formal master plan and informal housing, and between state-led intervention and individual action, marked a route to follow in contemporary approaches to housing; though it was never incorporated into policies, and its principles forgotten (García-Huidobro, Torres Torriti &Tugas 2011; Kahatt 2011, Salas & Lucas 2012). PREVI may have been largely forgotten but the lessons have not been lost. Today, there is a new orthodoxy emerging, at least in Latin America that says housing should be built with a view to expansion and adaptation. PREVI highlights the new approach that take advantage of the evolutionary, organic nature of informal settlements, that characters has now been followed by a new generation of socially motivated architects such as Urban Think Tank, Jorge Mario Jáuregui and Elemental of Alejandro Aravena. And in them, Aldo van Eyck, and Georges Candilis, and Shadrach Woods et al finally have their successors.

Project Renewal in Israel

In contrast with the international common 'building slum' attitude, local authorities in Israel have been inspired by the success of user-initiated Project Renewal enlargements to alter their planning and building regulations to enable transformations such as allowing more built space on each lot or streamlining administration procedures (Tipple 2000). In this enlargement program, all income groups exploited the potential for expanding the flats in all directions, they cooperated and hired professionals to design a complete enlargement of their flats. Carmon (1992), when examining the program's impacts on further housing improvement potential, stated that when successful extensions appeared on these buildings, the main Israeli housing type became liable for transformation (Tipple 2000).

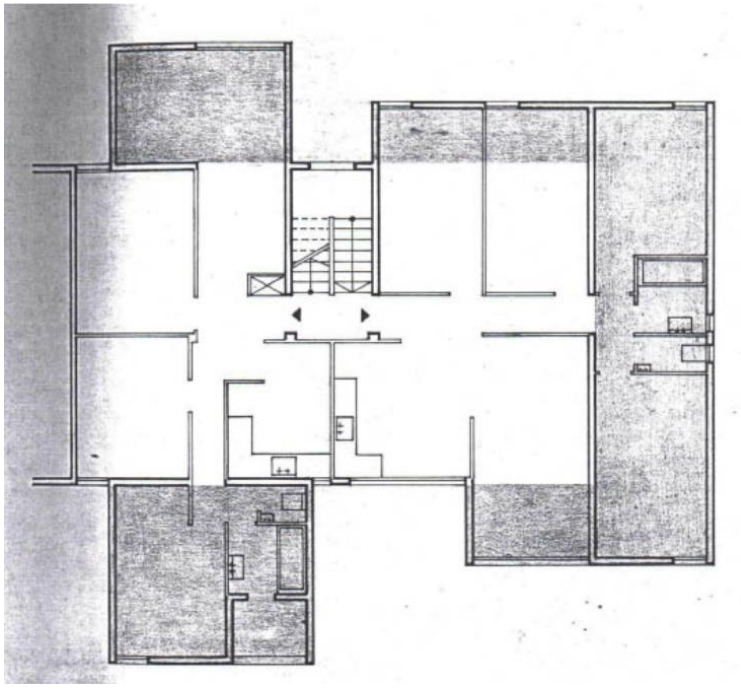


Fig. 1. 11: Plan proposal for end and middle flats under Project Renewal in Israel
Source: Tipple (2012)

Phenomenon-based design proposal that includes future extension potential in Egypt

Helwan, a workers' city in Egypt, has gone through an informal transformation of its multi-storey public housing. 18 years after completion, flats were in downgrading condition (fig. 1. 13). Extensions began when ownership is secured, multi-storey stacks whose owners chose to collaborate were constructed by informal contractors, and the cost is shared by all households. Transformations mainly provides more space for low-income households who were unable to move to improve their housing, allows separation of boys and girls at night and allows married children to share living space with their parents due to the lack of alternative affordable housing nearby, and recently accommodate home-based enterprises (Tipple 2012)

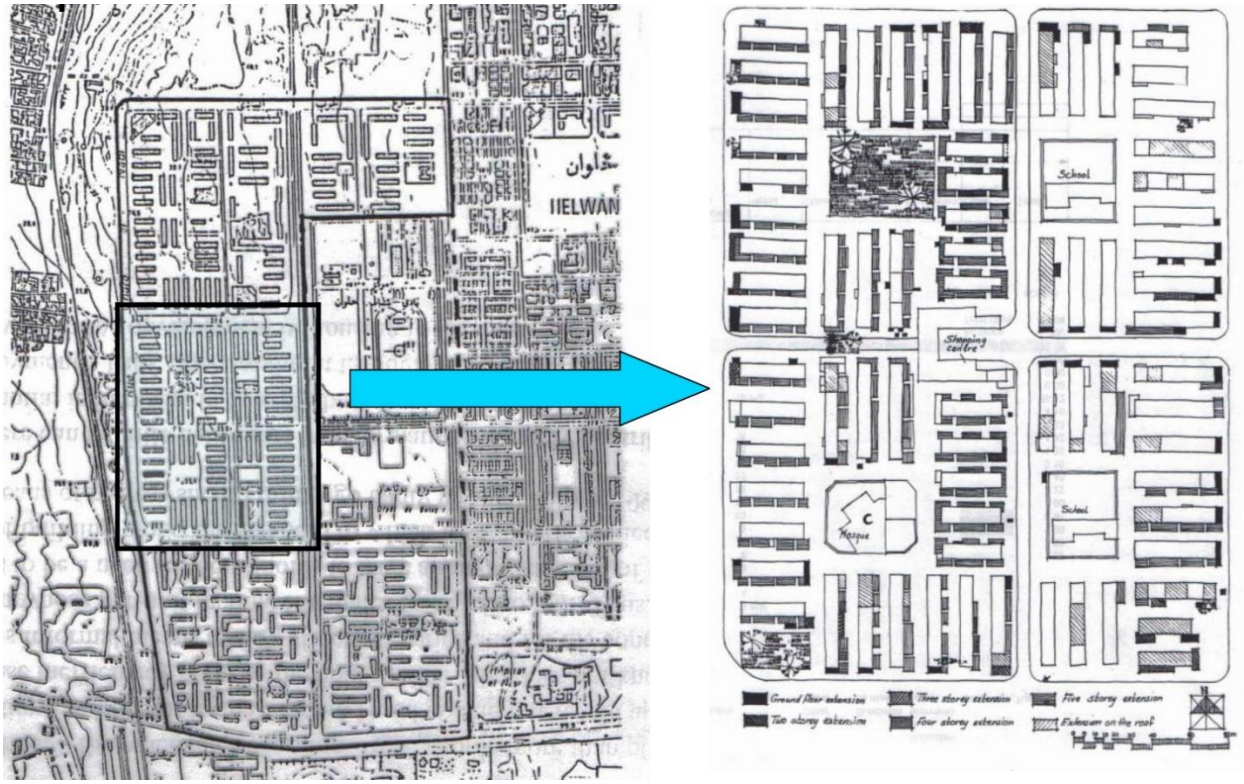


Fig. 1. 12: Informal transformation of planned multi-storey housing of Helwan in Egypt 1965-1993
Source: Tipple (2012)

Fig. 1. 13: Appearance of the estate in 1983

Fig. 1. 14: Same view in 2000

Source: Tipple (2012)

Nick Wilkinson developed a design proposal (fig. 1. 15) for one type of Helwan flat which takes into account extension potential. It is a 'supports' –based plan, with foundation pads in place with nibs protruding for attaching the new structure to the 'mother building' (Tipple 2012). He also suggested that residents should be able to seek help from local 'architects' (government workers); liaising with planners, contractors and banks (Tipple 2012).

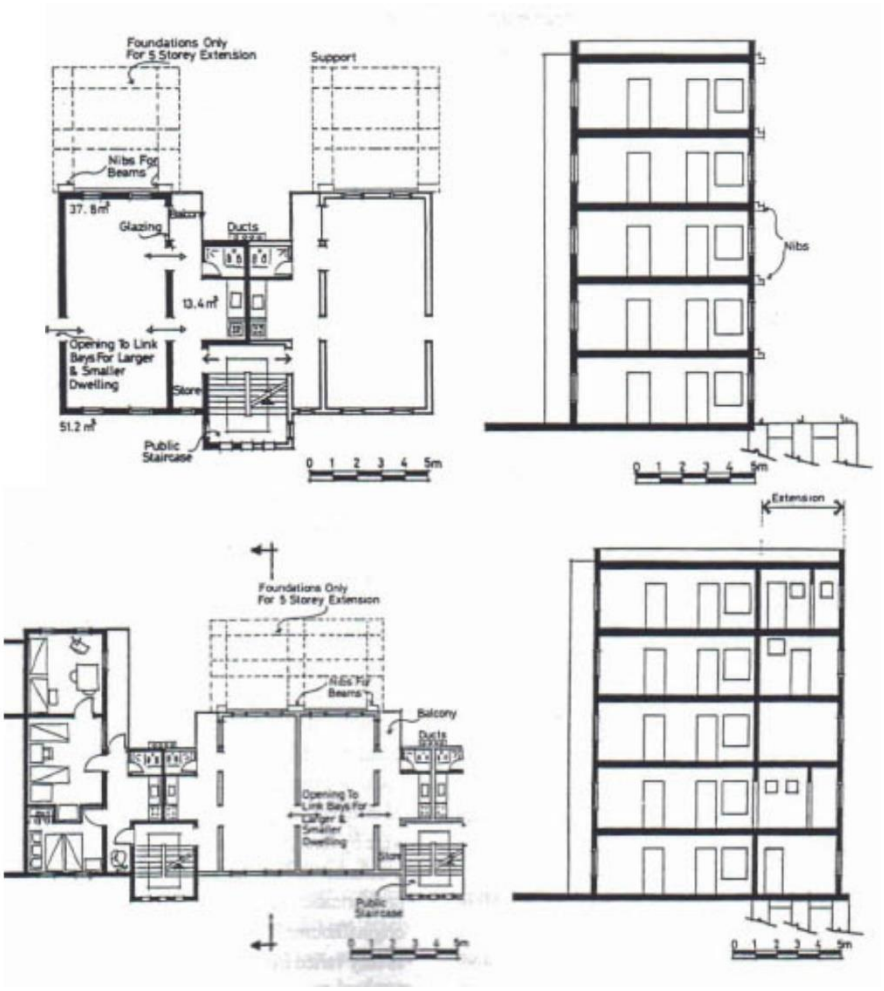


Fig. 1. 15: A proposal for one type of Helwan flat to be designed with extension in mind
Source: Tipple (2012)

Quinta Monroy (Elemental) in Chile

Elemental, a Chilean architectural firm shows how the core house concept considering the future horizontal growth could be developed in their Quinta Monroy. By leaving space between built volumes on the second and third floor (fig. 1. 16), so that extension can have opportunities to take place within the infill level without expanding building footprint (fig. 1. 17). Thus, the support level (pre-built core parts) maintains its role in shaping the general development. If the support level is not there, it is necessary to expand that structure first to allow for infill level expansion of more than one floor. Harper (2013) and Habraken (1998) emphasize the great importance of left-over spaces in the evolution of a residential area, thus working with multiple levels in building design can create flexibility and allow stable and predictable changes.

Fig. 1. 16: Quinta Monroy in initial design that allows incremental growth

Fig. 1. 17: Quinta Monroy after incremental development

Source: Elemental

Incremental collective housing in Cambodia

Adopting the opposite approach with Quinta Monroy, vertical expansion approach is used by the Community Architects Network in Cambodia to reduce construction costs by installing walls only on second floor, freeing up space beneath and leaving it for users to develop incrementally based on their needs and economic situation. In urban context where ground floor is considered suitable for livelihood activities, this approach can enhance and revitalize urban life.

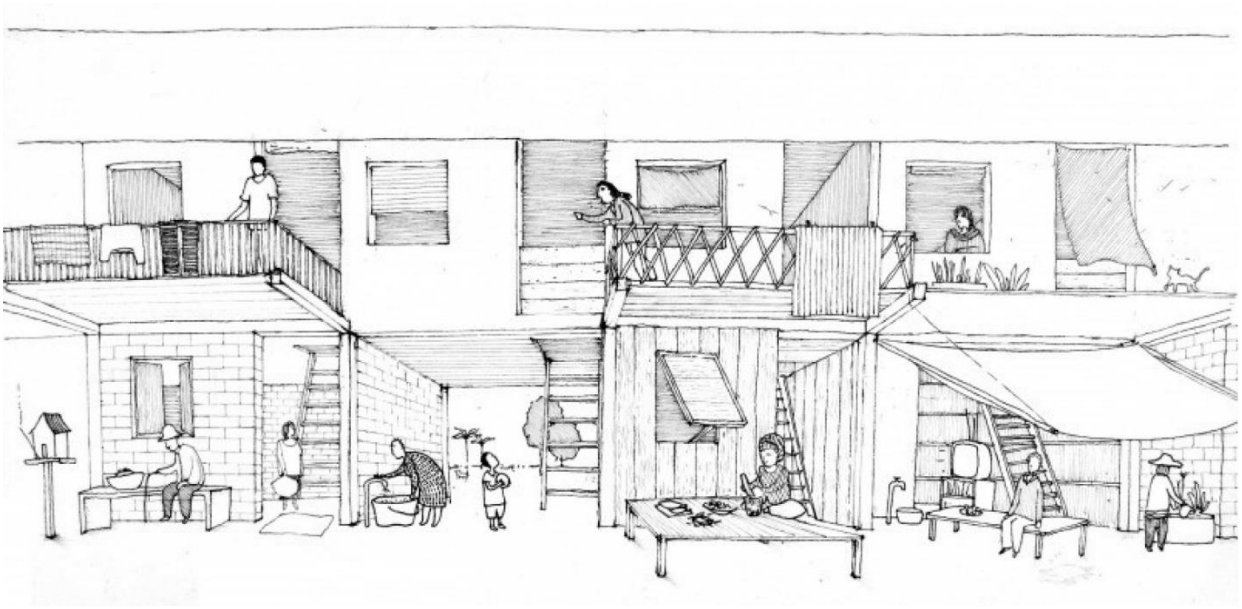


Fig. 1. 18: Sketch of incremental collective housing in Cambodia.
Source: The Community Architects Network

In dense urban context, it is possible to combine horizontal expansion with vertical expansion approach, yet there is no easy answer to the question of how incremental development can be included in the design of multi-storey.

Overall, research of informal transformations of formal housing is quite limited mostly focused on Latin America and Africa, informal transformations of multi-storey is even more rare, the question of how incremental development can be incorporated in multi-story is not yet answered.

1.3. Informal transformations of planned housing in Vietnam – Previous studies

Informal housing in Vietnam is widely seen in the form of informal transformation of planned housing, either single-family or multi-family houses due to long period of housing distribution by the state.

The phenomenon of informality in Hanoi should be examined within the specific socio-economic context with the setting of overall urban expansion chronologically (fig. 1. 19). In Hanoi after the country claimed independence in 1954, the capital city became a magnet for urban-rural migration. Vietnam has been experiencing rapid urbanization specifically since Renovation Policy in 1986. Before this year, housing production was under state monopoly, the state remained heavy regulation in all housing matters. Following Marxist theory, all land in Vietnam belongs to the state. In socialist ideal, housing should be divided and distributed equally. Thus, housing, together with other everyday life necessities, such as food and clothing, were provided by the state to its employees as part of their salary. Distribution of housing was considered a social welfare with state's determination to implement a universal housing provision for the urban population as in socialist ideal (Nhuan and Mathey, 1990; Luan and Vinh, 2001). "The state has its own housing construction agency that built flats as ordered by the state's five-year socio-economic plans. No significant housing market survived in this housing regime, and any transfer of housing among people was supposed to be approved and registered by the state." (Koh 2004: 345, 346).

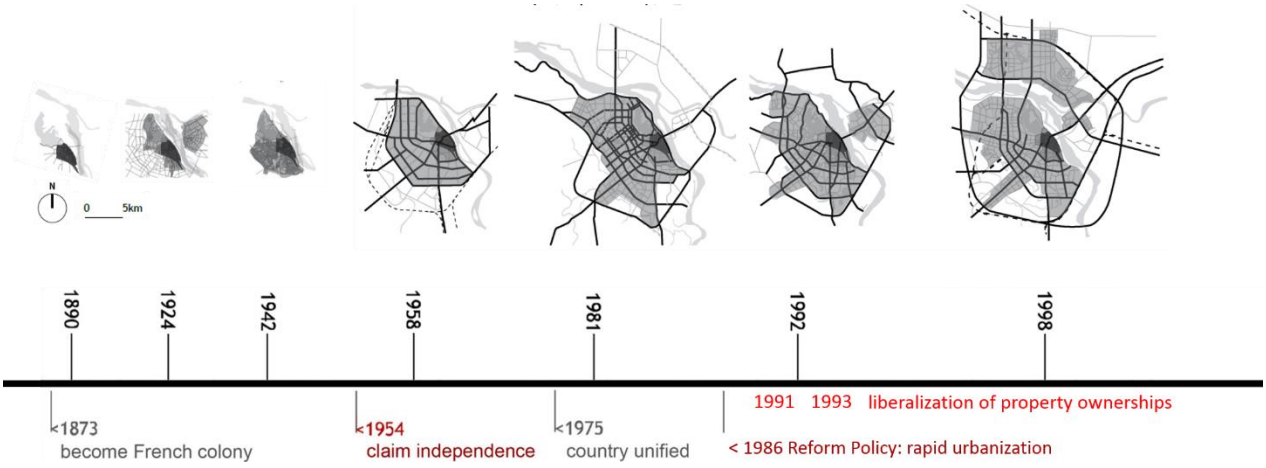


Fig. 1. 19: Informal transformation in the context of urban expansion in Hanoi over the history.

After 1954, the government implemented subsidized public housing called KTT (collective housing areas). Hanoi has the largest number of collective housing areas, 40 areas, with 200,000 residents which accounts for 5.8% of urban residents in Hanoi. 18% of Hanoians used to live or is living in one of the collective housing areas.

Fig. 1. 20: Distribution map of collective housing areas KTT. Source: Cerise (2001)

The state attempted to provide housing wholly (to its employees) in the form of collective apartments, yet the ambitious plan was proved to fail to meet the demand of most urban residents. At the same time, the state strictly restricted private production of housing. These together led to a severe shortage of housing in urban area, with average living space per person remaining extremely low continuously. Despite government housing policy to discourage private housing production, the overcrowded condition made people defy state's rules and try all possible ways to add space to their existing limited allocated living space (fig. 1. 22, 1. 24, 1. 26). Many families started extending and renovating their units to better suit the increases in family members, and the general living standard in Hanoi (Phuong 2011). In some areas, the population has almost doubled compared to its initial population (Hanoi Housing Development Company, 2007). Part of the population who were not provided apartments under subsidized program started building their own houses. Residents had no choice but to violate the rules to improve their existing houses as a short-term measure to cope with the living space shortage situation and economic hardship.

Fig. 1. 21: Original image of Thanh Xuan area 1984

Fig. 1. 22: Current image of Thanh Xuan area

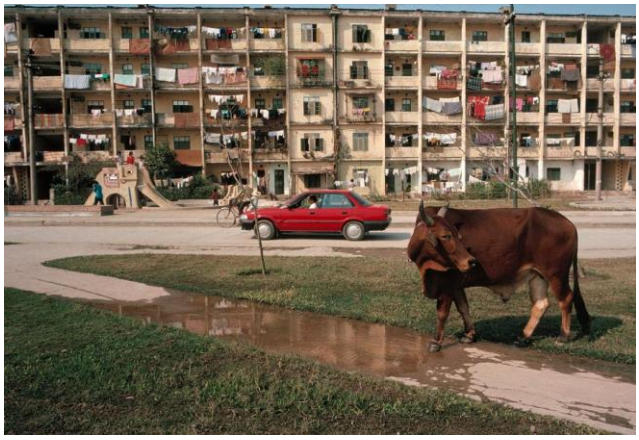


Fig. 1. 23: Original image of Giang Vo area before informal transformation

Fig. 1. 24: Current image of Giang Vo area after informal transformation

Fig. 1. 25: Original image of Kim Lien area 1965

Fig. 1. 26: Current aerial view of Kim Lien area in the urban fabric
Source: taken by author

After the implementation of Doi Moi (Renovation) Policy, subsidizing policy as gradually abandoned, liberation of the housing stock made people approved the right of housing and land-use possession. Apartments were sold with very low price. Ownership of the existing house is shifted to individual residents. Realizing its incompetence in full provision of housing, Government issues policies to encourage people to build their own houses and to engage in housing maintenance. The new policies have triggered an ongoing spontaneous housing construction boom in urban areas, which led to illegal occupation of land and chaos in urban development. In

collective housing areas, much of the open space in the areas is occupied by unauthorized apartment expansions. As a result of the complicated, time consuming and unclear policies in land rules and construction license approval, overlap of functions and responsibilities in administrative machine, most housing transaction and construction fell outside state management. In Hanoi, illegal building constructions are more or less accepted by the authorities through the levying of fines. Violators were fined for these illegal constructions, but they were usually tolerated. The state issued numerous debatable policies and regulations, many among them legalized illegal structures by indicating that illegal structures built before certain year can be legalized and granted land-use right if it is confirmed by the local authorities that there has been no dispute with neighbors. This did not stop further occupation but instead led to further social inequality and provide incentives for further illegal land occupation. This explains the role of laws, which didn't respond well to the local changing needs, in the persistence of informality.

Collective housing regime under Socialism stage was chosen for study because one of the reasons for massive amount of informal housing is the housing shortage; and reason for that shortage, in turn, can be traced back to the subsidization policy when housing provision was under state monopoly in a certain socio-economic context. Furthermore, in Vietnam especially in Hanoi, different from many developing cities around the world, informal housing in the form of housing modification is more common than squatter or slum, thus housing modification has transformed urban fabric drastically. The phenomenon of housing modification can be examined most extensively in collective housing areas.

Previous studies of urban informality and informal transformation in Vietnam

Previous study has reviewed the interactive relationship between the state and people in order to explain for the persistence of informality. In Vietnam, most policies and laws are made behind "closed doors" (within Communist Party- the only political party, and government offices), in a process that is "rarely accessible to most citizens" (Kerkvliet 2003: 32). The state system and policies of socialist Vietnam has been influenced by traditional Confucian culture where the emperor was perceived as the 'Son of Heaven' (Geertman 2001). Similarly, "high-ranking party officials are by implication, 'superior men' inhabiting a moral high ground that descend in all social directions" (Gillepsie 2001). Being the sole determinant of erecting rules and policy making without consulting society, the state is very central with tremendous powers in dominating lives of Vietnamese people. However, at the same time, many authors also argued that there is a certain degree of flexibility towards societal wishes and changes by the same state (Vinh 2002; Kerkvliet 2003; Kolko 2006). Kerkvliet identified three interacting interpretations of the government system which are: 'dominating state' interpretation, 'mobilizational corporist' interpretation, and 'dialogical' interpretation (Kerkvliet 2003). The second interpretation emphasized the role of official organizations in mobilizing support from the state and being a channel through which people's concerns can affect what the state do. "People can ignore the state's rules on some matters. They can also go beyond official channels to make their view and concerns known" (Kerkvliet 2003). The third one highlights how the government system incorporates individuals and social forces outside official channels which also influence the political system. Similarly, Kolko states that "Groups and forces in society beyond the reach of the

state do not exist but their activities from time to time influence what authorities decide" (Kolko 2006). Specifically, the big gap in-between the state and people is especially filled by largely recognized unions and local groups of residents. The research of Parenteau and Thong (2005) shows that although party and people committees are tightly knit, local non-political organizations as *To dan pho*, translated as 'resident groups', have great autonomy over organizing unofficially public affairs and residents' direct living environment. They represent great potential, as they can be rapidly mobilized, their crews are considered competent, honest, and devoted. *To dan pho* was also investigated by Koh in a recent research in 2006. Being the lowest administrative level organized by residents, originated from traditional informal social organization in the village called *giap*, *To dan pho* remains some linkage and control from the state. When a construction work is illegal but caused no harm to anyone, neighbors' support via the leader of *to dan pho* is very important in how the authorities enforce law. According to David Koh (2006: 9), in Vietnam, the state and society are not necessarily separate but are frequently interactive. At the local level, there is societal influence on the conduct and outcome of politics in which, through mediation, a new way of doing things arise and they exist alongside the official ways.

In an excellent study, Koh (2004) examined the irrationality of housing regime that led to widespread violations against construction rules and show why and how local administrators may and may not enforce rules, when and how they side with people instead of their employers-the state. He thus explains indispensable roles of ward officials at local level in mediating between state's demands for more discipline and people's demands for more liberties and living space, and how their behavior was influenced by situational dynamics. Koh also indicates resident's ability in resisting to pressures from authorities through a series of noncompliance strategies. Widespread violations caused by the irrationality of housing regime forced the state to make new laws and policies (including legalization) that were more in line with what people actually were doing. "In other words, unauthorized societal pressure outside official channels has helped shape the state's rules" (Geertman 2007: 172). Yet, again the abundance of practical policies was proved inefficient to deter illegal construction.

The lack of interest in preserving the socialist period of Hanoi comes obviously from the government, with the reason stated by Logan as "the relative significance of the revolutionary and Soviet heritage was being downgraded, while the growth of international tourism to Vietnam gave a new economic value to certain cultural heritage features" (2000, p.225). To the residents, living in collective apartment is no longer an optimal option due to the change in urban lifestyle from the socialist ideal of egalitarian lifestyle to an individual way of living which came along with Doi Moi. ation of the blocks, the narrowness of the dwelling units, and the deterioration of the living environment caused by the overloaded infrastructure, dangerous structures, and invaded open spaces. Obviously, the current condition is not desired by most residents.

In a study examining residents' perceptions, opinions and consensus on upgrading projects of Kim Lien and Giang Vo areas, majority of residents are positive in supporting upgrading project (Dan 2011). Yet again, 80% of the households want to be resettled in the same location instead of receiving compensation or alternative housing elsewhere (Dan 2011). This fact raises a question regarding why many residents don't want to move out despite poor living condition. Close

proximity to city center of most collective housing areas is one of the reasons. Another reason mentioned by many authors is the sociable spaces existing in these areas. Neighborhood identity with strong sense of community expressed by a particular relationship between public, common and private space was mentioned by Francesco & Thao (2007). Similarly, Bakman & Maria (2004) investigated sociable neighborhood atmosphere and people-friendly urban environment of Nguyen Cong Tru area, and furthermore used the concept of sociable space to make redevelopment proposals for the downgraded area. Another study of Maria & Jenny (2007) made redevelopment proposals for Giang Vo area which also take social life and local small businesses at ground level into consideration. Schenk (2013) gives a sustainable perspective on collective housing areas which should especially include the fact that so many inhabitants of Hanoi were happy to live in an apartment after built, and many others are satisfied to live there now in the current context of overall shortage of affordable and accessible housing.

General changes in thirteen collective housing areas have been summarized in a study of Narumi & Bui & Oka (2005). Characteristics of plan and location were examined, stating that collective housing areas were located on the previous villages with the same names, community houses, mausoleums or ponds. Traditional institutions are maintained by residents until recent years. Noticeably, extensions of dwelling units and shop use of ground floor were seen in all areas. However, many areas still have open spaces in good conditions. It was concluded that keeping the community and clear management of open spaces should be an important key for the future of collective housing areas.

Another study by Phuong (2011) examines spatial changes in smaller scale, particularly the impact of informal housing extensions on interior/exterior space, with 2 case studies in Nguyen Cong Tru area. The extended structures illustrate local adaptation and reaction to the newly imported built form. The additional structures such as shop-fronts, mezzanines, internal courtyards, mix-used rooms reflect the local pattern of family shops in Hanoi's Ancient Quarter. It is concluded that housing extensions deserve more positive judgements in terms of livability, human-scale of spaces, and sense of place which is enhanced by the community life and everyday experiences inside and between them.

1.4. Statement of problem

Although extensively researched in the context of Latin America and Africa, evidence of urban informality in Southeast Asia, and particularly in Vietnam, remains under researched and neglected by existing scholarship. In a context of Vietnam that legal research on urban informality is relatively limited, no comprehensive studies has generalized, categorized and assessed the informal housing transformation with architectural approach based on users' behaviors in various scales. Comprehensive study reexamining how informal transformations lead to the morphological transformation of urban fabric hasn't been done in any research.

In Vietnam, informal transformations and apartment blocks themselves face mostly criticism focusing on negative aspects: displeasing appearance, structure failures, failing infrastructural facilities, etc. (fig. 1. 27, 1. 28). Thus, the state shows no interest in preserving collective housing areas or even learning from them. The main reason was state by Logan as "the relative significance

of the revolutionary and Soviet heritage was being downgraded, while the growth of international tourism to Vietnam gave a new economic value to certain cultural heritage features" (2000: 225)


Fig. 1. 27, Fig. 1. 28: Displeasing appearance, structure failures

Accordingly, Government has launched clearance projects to replace the old blocks gradually with high-rise buildings without drawing any lessons from informal transformations (fig. 1. 29, 1. 30).

Fig. 1. 29, Fig. 1. 30: Clearance, replacement of old blocks with free-standing high-rise

New urban areas are constructed like mushroom all over the city, yet building new things without learning from the past is a big mistake. The paradox that informal transformations and informal markets already started its root in new urban areas in a less humanistic way and scale (fig. 1. 31) suggested that it is necessary to reexamine mechanism of informal transformations.

a. Playground gives up space for informal market b. Community space gives up space for car parking

Fig. 1. 31: Trung Hoa Nhan Chinh new urban area under 1st stage of informal transformations

Source: taken by author

The author believes that there are many lessons to be learned from these "urbanisms of the informal" amongst which, diversity, tolerance, innovation, adaptation and citizen participation could provide solutions to improve many issues of the formal urban environment.

2. Statement of Purpose

This study aims at contributing to fill the big gap in current literature, by providing in-depth knowledge and context specific analysis of spatial transformations on various scales, and to deeply explore residents' needs based on their behaviors and characterize location specific spaces generated after transformation. Accordingly, suggestions for future redevelopment programs of collective housing areas will be proposed.

This study attempts to examine the phenomenon of informal transformations of formal housing in three different scales:

- single unit scale
- unit-group scale
- block-group scale

centered on users' behavior, in order to begin determining its nature, its influence in changing urban morphology, and its impact on planning practices and land management. Special attention was therefore given to the typologies and patterns of informal housing modification and to extensively evaluate how it takes shape in their urban fabric. The second purpose is trace unspoken rules, to seek indication of residents' needs through physical patterns created. The final purpose is to seek lessons from the phenomenon of informal transformations to withdraw its positive aspects to be adopted and to its solve problems in formal planning. Accordingly, a counterplan to state's clearance plan with realistic bottom-up approach taking into account more respects for users' changing needs will be proposed to contribute to the future renovation of the areas.

I believe that besides enhancing regulation system, planning and architectural approaches are crucial in guiding and managing growth developing city.

Housing should be seen as a process of constant transformation and endless variation. There is certainly a lot to be learnt by looking at user transformation as it unfolds in a continuing open ended process of unexpected development. (Salama, 1998)

3. Research methodology

This research adopted two complementary approaches of etic and emic. By moving between the two positions of an insider (emic) and an observer (etic), the author could immerse fuller in a culture, but at the same time staying objective.

With emic approach, from the position of an insider within the culture, the study tried to understand people's culture specific behaviors and investigates how local residents implement housing improvement, which nonverbal rules exist to avoid disputes among neighbors. Measurement and drawings of the twenty apartment units in different areas were conducted. Furthermore, personal interviews with the owners, renters, community leaders, authorities were applied to gather deeper information regarding original conditions of the relevant unit, whether cooperation and negotiation with neighbors were occurred during housing renovation process. Due to the lack of information regarding original plan of the units, photos were taken to observe trace of new structure on the exterior and interior.

With etic approach, from the position of an observer, the study tried to generalize and categorize residents' behaviors of housing improvement and open space modification. Massive systematic observation was made in exclusive on-site surveys in five representatively chosen areas. Particularly, zoomed-out photos of building exterior and open spaces were taken in different areas and different time frames to track behaviors over space and time. Accordingly, behavioral mapping were generated in order to examine how site-specific spaces are actually being used by the residents. Interviews were made when necessary to understand meanings of behaviors.

On-site survey and interviews with residents, combined with pictures taken in different time frame to examine how spaces are actually used by the residents.

Process of selecting analysis scales and subjects

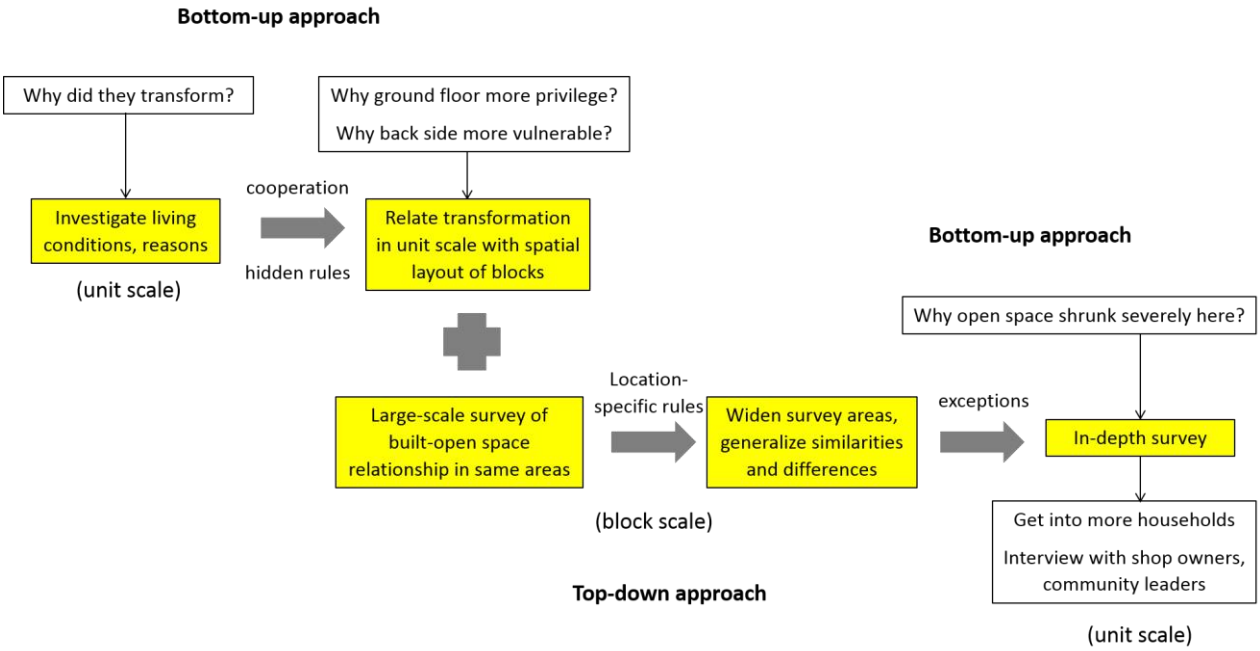


Fig. 1. 32: Process of selecting analysis subjects

First, I wondered why residents transformed their flats, thus I investigated living conditions in unit scale.

As I interviewed the residents, I realized that cooperation exists among neighbors with hidden rules, so I asked: Why back side is more vulnerable to be occupied? Why ground floor households have more privilege in extension behavior? To answer these, I related transformation in unit scale with original layout of blocks, and did large-scale survey of built-open space relationship in the same areas.

Through this survey, I saw some location-specific rules existed, thus I widened survey areas and generalized similarities and differences.

Then I saw some exceptions, for example severely shrunk open space with unclear reasons. To find the reasons, I did more in-depth survey by getting into more households in concerned area, or interviewed shop owners, community leaders.

In short, I went back and forth between bottom-up approach and top-down approach, related single scale and block scale to each other in order to answer the research questions.

Huddles in collecting data

Statistics on urban housing in Vietnam are insufficient or unavailable. Since 1989, there has not been any general survey of urban housing and little is known about the amount that has been produced by the private and popular sectors (Peter Boothroyd & Pham Xuan Nam 2000). Due to the unsystematic and overlap management of the data, even the insider like experience researchers of urban planning in Vietnam face great problems in collecting the relevant data such as current spatial layout, original plan of blocks... They do exist although out-of-date, and mismatched. Typical plans of the blocks are available, but it is unclear which is which.

Data sources

The author struggled to find the sources of data due to the above-mentioned overlapped management. Raw data of existing spatial layouts of blocks was then provided by Hanoi Environment and Natural Resources Department. However, due to the outdated and insufficient information, field survey was conducted by the author and thus revision and updates were made where necessary.

4. Research questions

The central questions ask:

- What social factors triggered informal transformations in large scale?
- Which locations are more vulnerable to be occupied? Why?
- What are new spaces and new uses emerged after transformations?
- To what degree cooperation occurred among residents in the transformation? What are hidden rules among neighbors?
- How do informal transformations influence urban morphology changes?
- What lessons can be learnt from informal transformations?

5. Hypothesis

Informal housing transformation, an urban phenomenon in Hanoi, after all is not the only issue that needs to be addressed, through this practitioners and policy makers can acquire a different way of looking at things. Although it often looks messy, if we examine it carefully, it is actually not chaotic but complexly diverse and hidden rules actually exist. By applying bottom-up attitude, learning from those rules and organic patterns created which are adaptive to morphology and expanding orders of the city, professionals can come up with a more realistic approach which takes into account more respects for users and community and changing needs over time. Resident informal activities have created other new uses and forms of space and transform unused spaces into a site of potentiality, efficiency, delightful encounters and liveliness. As such, positive aspects of informal housing transformation (community space, grouping people) should be adopted in formal planning and spatial design.

6. Literature review

6.1. The study of affordance-based design of space

The idea of affordance, borrowed from perceptual psychology, is applied to the domain of architecture. First presented by psychologist James Gibson (1977, 1986) as his "Theory of Affordances", environmental affordances are what the physical environment provides in response to the needs of people, in other words, what it affords human beings to meet their desires. Because to design physical spaces means to design the physical features of spaces by considering how they are used by human.

Five affordances to define the capacity of urban environment to support basic human needs and social exchange were employed by several authors (Kane et al. 2003, Lang 1994). They include:

(S) Safety/Security – encourages a feeling of personal safety

(B) Sense of Belonging – welcoming messages, a connection to the space

(M) Multiple Activities – flexible/accommodates lots of different uses

(A) Differing Physical Abilities – supports mobility/people of all ages can get around

(E) Interpersonal Engagement – provides for connecting/communicating with a friend.

The fundamental environmental needs of safety and belonging were taken from the model of developmental needs of Maslow (1943, 1954) because human need to feel safe and feel connected before choosing a space to socialize. The interpretation of sense of belonging is best stated in the work of Ted Relph (1976) through seven modes of outsideness and insideness. The importance of *insideness* is stated in explaining human's connection to place, that the greater the capacity for an environment to generate a feeling of attachment, the greater the capacity for that environment to become a place to stay and enjoy (Relph 1976). Through a review of urban landscape in many cities, Bunnell (2002) suggests that drama and dignity, variety and oddness, and reflection of local values in architecture forms, details, facades, and vegetation do create a sense of belonging for residents living there. The third and the fourth affordances suggest that an open space should afford a variety of uses, and accessibility with ease for people of all ages from one part to another of the community. More than consumerism, a diversity of choices and things to do are considered significant features of quality places (Bunnell 2002). In fact, Jane Jacobs (1961), in 'The Death and Life of Great American Cities', specifies that the required intricacy of good quality urban open places is directly related to the variety of space features and arrangements that afford a variety of activities. Judged by urban open space designers as a key element of sociable outdoor places, open spaces with areas for seating are considered *sociable settings* (Bunnell 2002, 42)." "Although most park users claim that 'contact with nature' is their main motivation for going to a park, observation of what people actually do in parks suggests that social contact – both overt and covert – is equally important (Marcus et al. 1990, 73)."

6.2. The study of urban morphology

Definition: "Urban morphology" is the study of the form of human settlements and the process of their formation and transformation[2].

The study of urban morphology seeks to understand spatial structure and character of a metropolitan area, city, town or village by examining the patterns of its component parts and the process of its development. Carmona considered that the study of urban morphology involves the analysis of physical structures at different scales as well as patterns of movement, land use, ownership or control and occupation (Carmona et al. 2010). Typically, analysis of physical form focuses on street pattern, plot pattern and building pattern, sometimes referred to collectively as urban grain. Analysis of specific settlements is usually undertaken using cartographic sources and the process of development is deduced from comparison of historic maps. Special attention is given to how the physical form of a city changes over time and to how different cities compare to each other. Another significant part of this subfield deals with the study of the social forms which are expressed in the physical layout of a city, and, conversely, how physical form produces or reproduces various social forms (Carmona et al. 2010).

The morphological system of one city can be breakdown into different levels to establish simply for analysis purpose. The choice of components that serve to describe a complex system is arbitrary and depend on the observer's point of view (Salat, 2011). According to Serge Salat, urban morphology can be categorized into six different levels that, superimposed, capture all the components of a city (Salat, 2011).

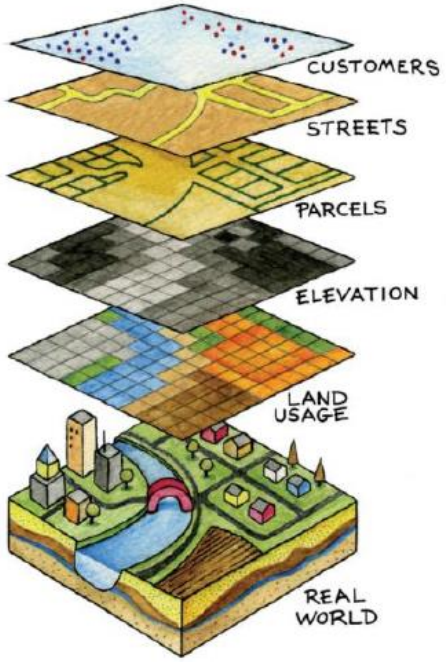


Fig. 1. 33 : Six layers of urban morphology

First level: people and activities. Social interactions largely govern the organization of a city, just as the urban composition impacts its interactions. Cities are sites of exchange and activities.

[2] https://en.wikipedia.org/wiki/Urban_morphology

Second level: the network of streets and the road grid of the city. The arrangement of roads plays a primal role in transportation and in modes of travel and thus in the city's social activity and its footprint.

Third level: plot subdivisions. Their organization plays a decisive role in the form of the build environment.

Fourth level: topography and relief of the site. Topography impacts street patterns.

Fifth level: land use and activity distribution. These affect the flows of people, the consumption of transit-related energy, and the organization of different built elements.

Sixth level: three dimensions of the buildings and its infrastructure.

Tools for Urban Morphology Analysis

There are some theories used as tools for urban morphology analysis, such as: figure and ground theory, place theory, linkage theory.

Figure and ground theory is founded on the study of the relationship of land coverage of buildings as solid mass (figure) to open voids (ground). Each urban environment has an existing pattern of solid and voids, and figure and ground approach to spatial design is an attempt to manipulate these relationships by adding to, subtracting from, or changing the physical geometry of the pattern. The objective of these manipulations is to clarify the structure of urban space in a city or district by establishing a hierarchy of spaces of different sizes that are individually enclosed but ordered directionally in relation to each other.

Place theory operates upon structured systems of human needs and usage.

The linkage theory is derived from "lines" connecting one element to another. These lines are formed by street, pedestrian ways, linear open spaces or other linking elements that physically connect the parts of the city.

II. People's action vs. state's institution

1. Socialist housing regime 1954-1990 and severe housing shortage

Informality in Hanoi should be examined within the specific socio-economical institutional context of a country after a long history of wars with enormous economic and social hardship.

With peace prevailed and country reunited in 1975, rising demands for housing and other types of goods and services burst out, while the state was unprepared, and insufficient of budget. Table 1 shows state funding shortfalls throughout five years after the war.

Year	State investments in housing (million dong, constant prices)	State investments in housing as a percentage of all state investments (%)
1976	88.6	3.0
1977	143.6	4.0
1978	165.0	4.3
1979	103.7	2.8
1980	76.0	2.1

Table 1: State investment in housing construction, 1976-1980
Source: Nigel and Thrift 1986: 127

Socialist housing regime 1954-1990 dramatically affected housing conditions, especially after 1975. After 1954, Hanoi government implemented subsidized public housing called KTT (Collective housing areas), which were planned according to Soviet housing system called *mikroraion* (Bater, 1980). The *mikroraion* is in turn based on Clarence Perry's residential planning concept of neighborhood unit in the 1920s. The major difference between the two models is the distribution of shops and commercial services at the center of the neighborhood in original model which provides customers with more choices according to their needs; whereas in socialist model goods are distributed equally among people leaving people no right to choose since there is no competition among suppliers (fig. 2. 1). Each *mikroraion* is a self-contained unit with housing, working and schools located in the same site which restricted the movements in the city. Housing are clustered inside multi-storey blocks with shared amenities like kitchen and toilet. Each KTT similarly was a self-contained residential community that comprise four- or five-storey apartment blocks and basic services like schools, kindergarten, and medical centers. Each block has standard units and monotonous design. A big difference of Vietnamese model from the Soviet one is the local context with war and rural condition. As a result, residents living in KTT blocks continued their rural lifestyles in their new urban living environment, e.g. planting crops on the balconies, raising domestic animals in the left-over space between buildings (Geertman 2007: 238).

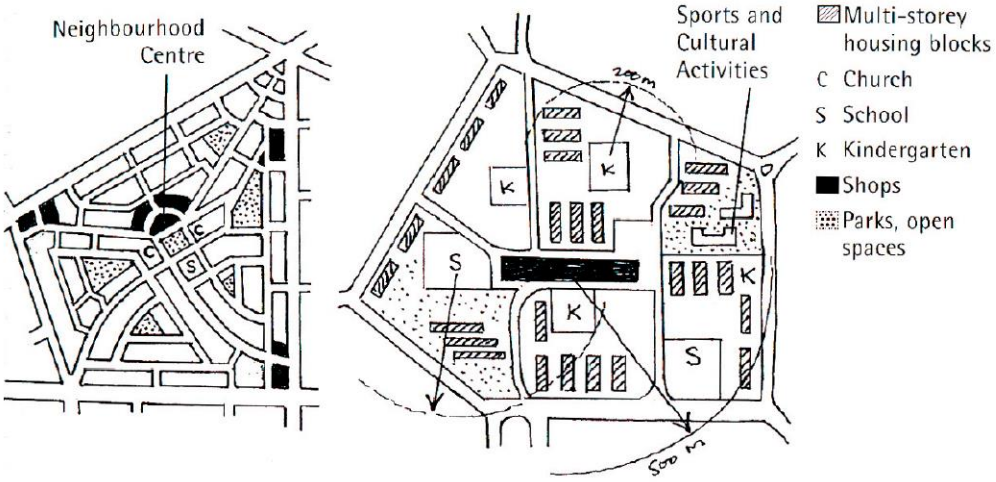


Fig. 2. 1: Clarence Perry's neighborhood unit (left) and Mikroraion – its Soviet modification (right)
Source: Logan 2000: 206

One more difference of Socialist model from Perry's concept is the allocation standard. While original model includes every residents regardless of social status, apartments in KTT were exclusively intended for state employees as housing subsidies, with flats allocated on the basis of rank and duration of employment[3]. Employees of different ranks belonging to one workplace

[3] Other criteria include numbers of state employees in a household, present housing condition. Priority went to war veterans. According to a retired chairwoman of a factory who was in charge of distribution of flats, desperate people were lying in front of her house, begging for help and asking her to ignore the regular procedures (Schenk 2013: 548)

were placed in the same area. Tenants were given long-term rights of occupancy with very low rent, equal to only 1% of salaries. Due to strong restriction towards private construction, collective apartments were in great demand, given the fact that apartments after built were considered modern and superior to the old house types. An apartment is said as a good fortune in a lottery held among employees in state institutions and factories. The lengthy selection procedure for distribution took on average 27 months (Luan & Vinh 2001: 52). However, other source mentioned that the length of waiting list varied and influenced by social positions in which high rank officers could quickly get an apartment among several offers in a few months, while others are waiting desperately for years (Schenk 2013: 548). Powerful workplaces with high social status residents were resided in 'top' areas such as Giang Vo or Trung Tu, while relatively poor workers of factories were allocated apartments in poorly located area such as Quynh Mai area. "Unfairness in housing provision was rampant. Housing 'wars', disputes and grievances were not uncommon" (Luan and Vinh 2001: 54). "The inequality created by the fact that those who were given subsidized housing were benefiting unfairly from this, especially when they tried to trade their surplus housing space in the informal market" (Phe 2002)

In 1976 after the new independence of the country, ambitious plans were set to industrialize and standardized housing construction (Geertman, 2007: 229). Large-scale technological production lines for prefabricated construction industry were imported from Soviet Union, with expectation to be applied for every city in Vietnam in a new master plan. Compared to previous period with communal lifestyles (collective kitchen and sanitary areas), apartments built from 1970s had modern living standard with private amenities for each household. Theoretically, each apartment was originally designed for one family with low allocation standard of at least 4 square meters per person[4].

By the end of 1980s and early 90s, the ambitious plan of monopoly of housing distribution failed to meet the demand of majority of urban population, with only 30% of state workers were provided with housing units by the end of 1980s, not to mention private sector (Luan & Vinh, 2001: 55).

Overcrowded condition, further accelerated by originally insufficient maintenance[5] have led to the rapid deterioration of blocks and failing infrastructural facilities such as inadequate water pressure, choked drains, and ripped-off construction materials (Schenk 2013: 538). Besides, technical deficiencies like rusty joints or sinking foundation were also created by the fact that construction elements were applied without carefully considering tropical climate and weak soils in Hanoi. In 1979, Hanoi could only complete only 20% of the work needed maintain its housing stock properly (Koh 2006: 215). Consequently, the so-called "high-storey slums" is the result (Luan 2000: 95). As the apartment blocks became gradually degraded due to lack of management and maintenance, they lost the modern and superior status.

[4] Some collective housing areas built in later period like Thanh Xuan, Trung Tu applied higher allocation standard of 6 square meters per capita. The distinction is made between the so-called Class I apartment blocks (4 sq. m.) and Class II – Class III blocks (6 sq. m.)

[5] The originally low rent (1% of salaries) created a serious financial burden for management agencies, as renovation cost, which had to be generated mainly by the rent, vastly outweighed the rent (Luan and Vinh 2001: 56)

State's severe restriction of private construction

The state attempted to provide housing wholly but it performed so poorly. Yet at the same time severely restricted private construction by strongly opposing to people's income and wealth differences shown by the housings level they possessed. Particularly, during early 1980s, people, who purchased or improved their houses using income from unclear sources like corruption or private trading which was also considered illegal back then, would be investigated by authorities and faced the utmost risk that their houses be confiscated (HNM 1983; Tha 1983). Thus, in order to avoid attention from the state, people were unlikely to improve their private houses regardless of their wealth and housing conditions. Private construction, by mid 1980s, was however reported widely in collective housing areas in the form of house repairs and extensions, due to degraded and overcrowded condition.

The second strategy the state used to strongly discourage private construction is by requiring numerous licenses and permits that took complicated and time-consuming procedures to issue. Under socialist housing regime, in order to request for more living space, people needed certification from ward office prove that additional housing space is warranted, together with necessary documentary and political support for requests for additional living area. During the war, supplies of building materials were under state monopoly, thus appropriate release documents are additionally required to get materials. In 1970s and 1980s, construction licenses are needed for building and repairing even minor maintenance work like painting a door. In 1990s, some requirements were dropped, yet some types of official paper are required in addition. Administration unit in charge of issuing construction licenses and demolishing illegal structures is mainly the ward[6], but once illegal construction is found, the ward has to report to the district and wait for district's orders in executing demolition. After construction, official inspection by ward officials is also required.

Maintenance in collective housing areas in Hanoi is implemented and tasks are distributed by many agencies such as: Hanoi Land and Housing Office, Hanoi Electricity Office, Hanoi Public Works Office, Hanoi City Committee on Basic Construction, etc... Each has a specific function to perform, yet an overlap of management and a lack of coordination caused difficulties and delays in performing tasks. A plumbing problem, for example, required residents to report to Hanoi Land and Housing office, who then informed the local authority, who in turn contacted the concerned expert department (see Ngoc 1981: 2, Thuc 1988: 3). Residents who prefer private repair are obstructed by those time-consuming procedures to issue excessive permits.

Illegal construction as a consequence of serious housing shortage

The incapability of the state in providing housing and policies restricting private construction together led to a severe housing shortage in urban areas.

Table 2 refers to the average living space in Hanoi throughout the years. Partially due to the stagnation of socialist distribution system, Hanoi had severe housing shortage developed in the 60s and 70s. The level of crowding and long waiting list were such that many families had to share

[6] for housing along lanes and small streets and flats in collective housing areas.

one apartment which was originally designed for one family, thus actual density is only about 2 square meters per person (Binh 1977: 3-4, Hung & Thong 1995: 138-139). Similarly tube houses or French villas were divided so that each family would have one room. Consequently, a decline in levels of privacy and cleanliness was inevitable (Luan & Vinh 2001; Pédelahors de Loddis 2001; Logan 2000).

Year	Population	Total housing stock (million sq. m.)	Housing space per person (sq. m.)
1954	445,529	1.79	4.84
1955			6.5
1960	462,000	1.8	3.89
1965	840,000	2.07	6.2
1975		2.51	2.15
1980	876,000	2.25	5.8
1984	905,400	2.75	3.04
1990			4.6

Table 2: Housing space in Hanoi, 1954-1975. Source Koh, 2004

Although the government housing policy did not encourage the private production of housing, part of the population who were not provided apartments under subsidized program built their own housing. From 1975 until the late 1990s, many Hanoians decided to build or repair houses or apartments themselves without licenses, with tens of thousands cases recorded as illegal construction, not to mention numerous undetected cases (Phe 2000, 2002). The continuing housing shortage and the incapability of the state to produce enough housing also made the city authorities deal with construction without approval with a flexible manner of 'fine and let it be'. After payment, the house has a status of 'a house built without permission' which actually mean that it is approved to stay where it is. Violators are willing to pay fines which is not beyond their financial capability to preserve their construction. The reason of this situation is the complicated and time-consuming process for acquiring construction permission, and people often do not have all the papers required for the application (Luan 2000:24).

2. Self-help housing tradition with strong informal social organization

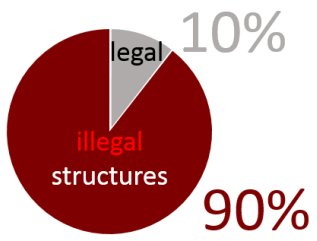


Fig. 2. 2: Share of illegal and legal structures, Hanoi 1997

It was estimated that if relevant laws applied to strict extent, 90% of all construction in Hanoi would be considered illegal (Tuan & Thuy, 1997).

Self-build practice should be understood in a strong family-based trading culture of Hanoi developed from pre-colonial period, in which families build housing for themselves to live and open small businesses.

Self-help housing continued even during the war and after the war as a means to cope with housing shortage, and boomed after 1986 as stimulated by economy liberalization.

The rural origin of the city with strong informal social organization is another important factor to understand informality. Since the feudal period, every village had a great autonomy with its own manners, customary laws, and administrative rules. The existence of these by laws had led to the

famous proverbs like: “The customs of the village have precedence over the laws of the king”, or “Each village strikes its own drum and worships its own deities”. Although these bylaws were always inspected by officials to make sure that they were not against the spirit of imperial laws, villages could operate autonomously to a certain degree. Strong informal social organization facilitates self-help to the most extent.

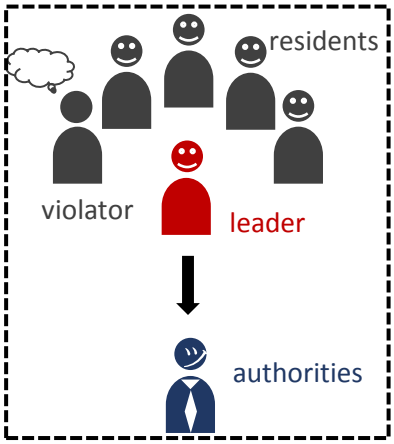
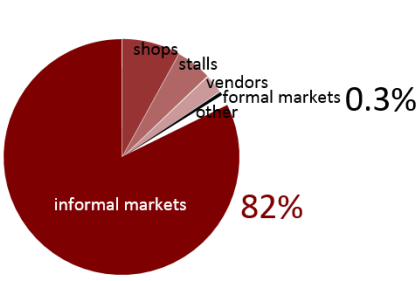


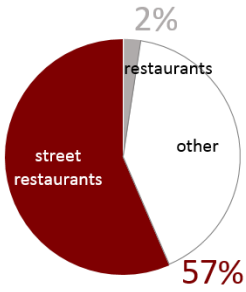
Fig. 2. 3: Illustration of how autonomous resident group protects its residents

In contemporary urban context, this social practice remains with resident groups having great autonomy over organizing resident’s living environment. When a construction work is illegal but caused no harm to anyone, neighbors’ support via the leader of *to dan pho* is very important in how the authorities enforce law. If an illegal construction causing no harm to anyone, is confirmed no disputes with neighbors by residents’ group leader, it is likely that ward officials wouldn’t take further action (fig. 2.3).

3. Strong informal trade network



Food purchase



Outside home consumption

Fig. 2. 4, 2. 5: Share of food expenditure in Quynh Mai area 2006 (monitoring expenditure during one week in 110 households) Source: Figuie, Truyen, 2006:45

A recent survey in a low-income area (Quynh Mai area) showed that Majority (82.3%) of residents purchase food everyday in informal markets, and more than half of outside home consumption (57%) is made in open-air street restaurants (fig. 2. 4, 2. 5). Informal trading is appreciated by low price and proximity.

The organization of strong informal trade network dated back from pre-colonial trading tradition (fig. 2. 8, 2. 9) that continued to exist also during the central economy when private trade was severely restricted by the state. The networks were so strong that it didn’t disappear under state’s pressure, but became underground. The difference since Reform Policy is that these networks are no longer underground but tolerated by authorities, further intensified and expanded (fig. 2. 10, 2. 11).

In the pre-colonial period, the city was for the emperor (based on Chinese model). Since the 18th century, a trade city arose next to it, but as in China, cities in Vietnam did not have an urban class of permanent traders living in cities. Traders considered villages as their homes and relations in cities were based on rural kinships (Geertman 2007: 92). The rural customs of villages greatly influence social practices and urban morphology of the city.

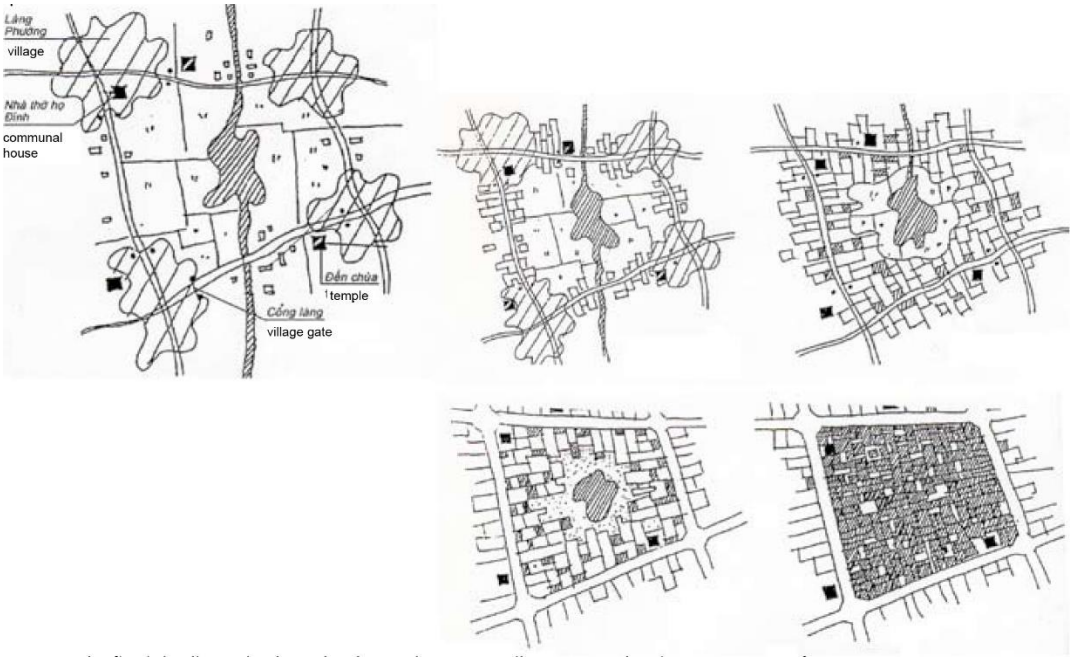


Fig. 2. 6: Hypothesis of urban structure evolution

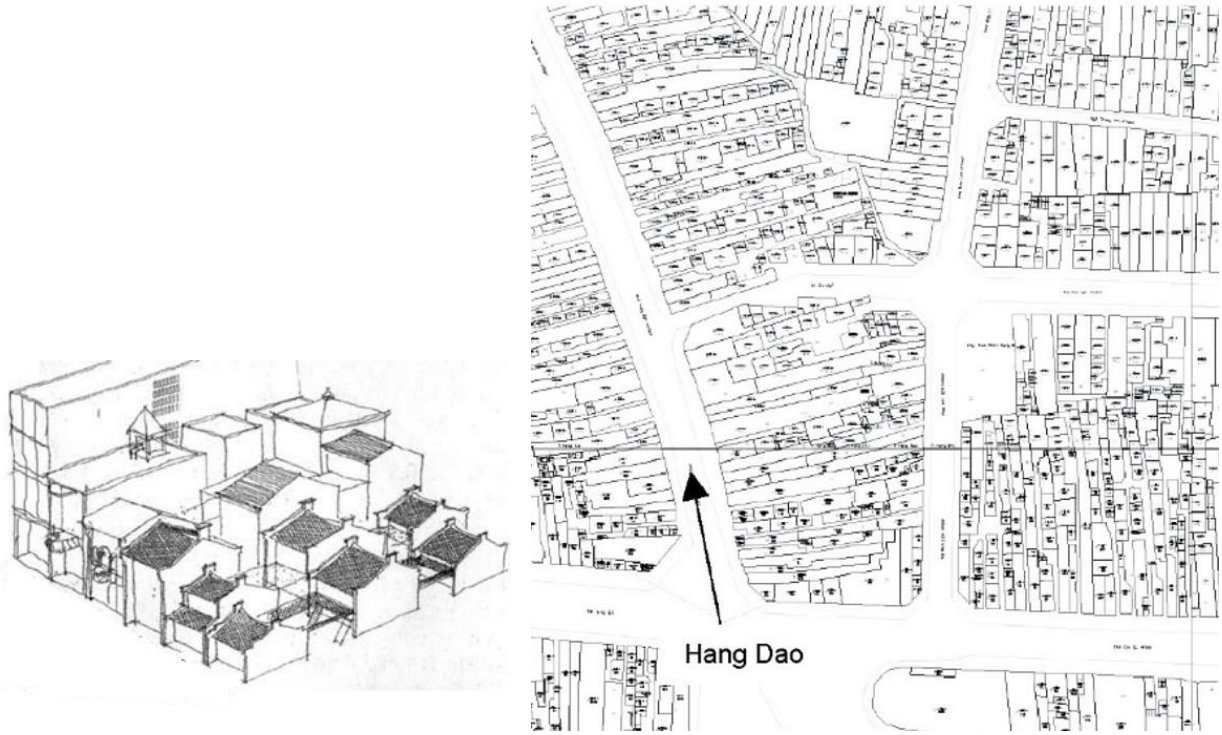


Fig. 2. 7: Pre-colonial long narrow shop houses and its evolution to facilitate trade network

Fig. 2. 8, 2. 9: Pre-colonial trading network

Fig. 2. 10, 2. 11: Current intensified network in collective housing areas

4. Space in-between state and people in Vietnam

Most policies and laws are made behind "closed doors" (within Communist Party- the only political party, and government offices), in a process that is "rarely accessible to most citizens" (Kerkvliet 2003: 32). The state system and policies of socialist Vietnam has been influenced by traditional Confucian culture where the emperor was perceived as the 'Son of Heaven' (Geertman 2001). Similarly, "high-ranking party officials are by implication, 'superior men' inhabiting a moral high ground that descend in all social directions" (Gillepsie 2001). Thus, the state is very central with tremendous powers in dominating lives of Vietnamese people. However, at the same time, many authors also argued that there is a certain degree of flexibility towards societal wishes and changes by the same state (Leaf 1999; Vinh 2002; Kerkvliet 2003; Kolko 2006). "People can ignore the state's rules on some matters. They can also go beyond official channels to make their view and concerns known" (Kerkvliet 2003). "Groups and forces in society beyond the reach of the state do not exist but their activities from time to time influence what authorities decide" (Kolko 2006). According to David Koh (2006: 9), in Vietnam, the state and society are not necessarily separate but are frequently interactive. At the local level, there is societal influence on the conduct and outcome of politics in which, through mediation, a new way of doing things arise and they exist alongside the official ways.

'To dan pho's role in urban administration

The lowest communal level named *to dan pho,* originated from traditional informal social organization in the village called *giap*, is a local non-political organization, made up of voluntary residents of a street, block; headed by a leader elected among them; regulates daily life of residents. Being an administrative unit organized by residents, *To dan pho* remains some linkage and control from the state. *To dan pho* was translated as 'resident groups' and investigated by Koh in a recent research in 2006. "Resident groups are the smallest formal grouping of contiguous rows of houses and their occupants, with each group comprising 25 to 30 households. Wards determine their numbers, ranging from 50 resident groups (in a newly-formed Hanoi ward) to somewhere between 70 and 100 resident groups in matured wards of the city. Residents have to deal with the resident group head for matters such as collection of monies on behalf of the ward, and references for matters such as registration of birth, marriage, and residence, mobilization work on behalf of the state, and many other matters. They even have to mediate quarrels among residents" (Koh 2006:47). Group's leaders are usually older people who reside in the locality for a long time. *To dan pho* or resident groups are responsible for the community's self-regulation such as maintaining public order and health, says Koh. The research of Thong and Parenteau (2005) shows that although party and people committees are tightly knit, non-political but well-organized organizations as *To dan pho* have great autonomy over organizing unofficially public affairs and residents' direct living environment. They represent great potential, as they can be rapidly mobilized, their crews are considered competent, honest, and devoted. Particularly, when a construction work is illegal but caused no harm to anyone, neighbors' support via the leader of *to dan pho* is very important in how the authorities enforce law. This will be explained better in the next part. The great autonomy of *to dan pho* was expressed through bulletin boards' contents in front of some blocks taken by the author.

Fig. 2. 12, 2. 13: To dan pho's gate

Fig. 2. 14, 2. 15: To dan pho's bulletine boards

Fig. 2. 16, 2. 17: Community's self-regulation in maintaining public order by assigning cleaning task of common stairs

Fig. 2. 18: Stating that each household should have one member joining cleaning task of open space

Fig. 2. 19: Reminds about pensions payment day

Fig. 2. 20:Informing about gathering day for special event

Fig. 2. 21: Informing about the event of land tax payment

5. Informal housing from pre-doimoi

As mentioned earlier, despite obstacles for residents caused by heavy subsidization policy and severe restriction of private construction before *Doi moi*, many people took actions to privately improve their living conditions, given the burst-out of rising demands of housing after the war ended in 1975[7]. Much of the informal housing improvement in this period were reported in collective housing areas. The level of crowding was such that the outdoor environment has come to function also as extension to people's homes and provides space for a large amount of activities that otherwise would have been performed indoors (Bakman, M. & Maria Rundokvist 2004).With demands outweighing supplies, apartments were overloaded with many households or three generations co-living in one flat, "people cooked in the corridor in front of their rooms instead of using the collective kitchen. Separate private kitchens were built on the balconies." (Hoai Anh, 1999: 114). The socialist ideal of collective living in KTT in which "individualism was considered equal to egoistic" was conflicted with people's genuine desire for "privatization of the apartment buildings" (Hoai Anh, 1999: 110-115). The originally allocated narrow living areas no longer match residents' new lifestyle. On ground floor, open areas between apartment blocks in Nguyen Cong Tru were first occupied by temporary structures from bamboo and straw to test state's will to enforce construction rules, and temporary materials were gradually replaced with stronger materials like bricks if the ward showed inattention or hesitation in law enforcement, which was often the case. The extended structures were used to raise chickens, cook meals, park bicycles or bikes, store household items, and even to do small businesses (Phuong, 1975: 2).

In response to residents' actions, in 1978, Hanoi wards launched the Civilized Way of Life and New Cultured Family movement (*nep song van minh, gia dinh van hoa moi)*- a political approach mobilizing people to voluntarily follow rules and regulations in all aspects of everyday life (HNM 1977). The campaign, although claimed successful by the state, was proved inefficient in stopping illegal construction activities. Instead, offences grew in great number in collective housing areas and other parts of the city in the early 1980s (HNM 1979, 1981). "Along Giang Vo Street beside

[7] The period prior to 1975 under special conditions of war, such as state monopoly of building materials supplies etc. already experienced illegal self-build but in insignificant scale, thus is not the focus of this research

the Giang Vo Exhibition Centre area, squatters began in 1982 to build houses and sheds. They usually completed construction in one night or one day, presenting a fait accompli to the authorities by the time ward inspectors had heard of it. On a piece of vacant land at the nearby Thanh Cong area, 20 sheds appeared in 1982, days after the government said the land was being reserved for a future market." (Koh 2004: 352). Compared to the late 1970s, offenders in the 1980s were bolder in the way that they used strong lasting materials straightly without bothering to test authorities' responses by first building modestly, with the belief that their structures will outlast state's will (Koh 2004: 355). A survey in 1983 of all Hanoi collective housing areas showed that 75-83% of people living on the ground floor and 50% of those living on upper floors had removed their apartments' inner walls without asking for permission (Hung 1983).

The complicated and time-consuming process for construction license approval which caused complaints from citizens.

In 1983, Hanoi municipal government promulgated Decree II/XDCB, a set of regulations stating that in collective housing areas, renovations must follow plans for areas and should not encroach or occupy open spaces without permission (see Thuc 1985). For violations occurred after 1972[8] until these regulations came into effect, the city issued a warning and imposed a fine which was not beyond their financial capability of most people. Yet this time, a heavier fine was imposed, calculated as a percentage of construction cost, but should not exceed 10%. Again, the regulations were evidently taken lightly by residents, demonstrated by increasing number of violations. Before 1982, a total number of 52 cases of illegal construction were reported in Trung Tu-Kim Lien area, yet after the Decree, there were 16 cases in 1983, 41 in 1984, 33 in the first six months of 1985, and 473 cases from July 1985 to 1989. Among 109 cases before 1985, 86 had extensions of 4 to 6 square meters, and 18 cases extended from 7 to 12 square meters (Thuc 1985). In 1985, local authorities in Trung Tu-Kim Lien were even demanded by the national government cabinet to enforce construction regulations without exceptions, yet illegal construction persisted with 10 cases recorded illegal and 20 households preparing to start illegal activities (Thuc 1986).

There were several reasons for these unstoppable violations, and the role of ward officials are important in explaining the reasons.

The ward is the lowest level in the urban administration structure, serves as "eyes, ears and hands of the state" (Koh, 2004: 343). In construction matters, ward officials are in charge of issuing construction license for houses not facing main streets, investigating illegal construction cases and reporting to the district (one level higher) and executing district orders in demolishing illegal structures. Again, the ward often relies on the leaders of resident groups to report those violations.

Ward officials confronted a great deal of difficulties when attempting to enforce rules, said Koh (2004: 353). The first difficulty came from the ward officials not fully empowered to immediately demolish illegal structures. Once discovered, ward officials although can order the violators to suspend construction but couldn't take immediate action and had to report and wait for demolition order from the district. This delay gave offenders time to complete and inhabit their

[8] Cases occurred before 11 January 1972 were tolerated unconditionally

structures. Demolishing inhabited houses in a context of severe housing shortage around the city were unlikely to be implemented due to worsening image of the state for uncaring for its people's needs.

Secondly, when dealing with many cases in early 1980s who were in genuine need for more living space, higher levels overrode the district and the ward in giving special treatment as exceptions to those families, which in turn made it difficult for ward and district officials to enforce rules with other illegal cases who claimed that they were not in less hardship circumstances. People with very low living standards even blatantly confronted ward officials who tried to apply rules. According to an informant, "it was hopeless to tell a family of three generations with six to eight people living in a 30 sq m flat that they ought not to extend their living area. When the officials approached and talked to the offending family, they were told that they did not understand what it was like to live in such a crowded place and therefore they had no authority to tell the family what to do." (Koh, 2004-340). In such cases, many officials gave up because "in Vietnam, local officials often have to play dual roles of being party-state agents and being a part of the local community. When the values of the two roles clash, mediation of state power often occurs. It dilutes local officials' sense of being state officials, but enhances their sense of being part of the local community" (Koh 2006: 9). This lack of clear differentiation between public and private roles significantly restricted the state's power in managing local affairs.

Thirdly, residents' ability to resist to pressures from the authorities through a strategy of noncompliance is an important reason. In order to block the inspections, violators refused to welcome ward officials' visits to meet families' heads. Neighbors' agreement and cooperation are important in persuading the ward officials not to take actions. In crowded housing situation especially in 1980s when housing are in high demand, many people shared houses and flats with shared walls or amenities. Therefore, renovation made carelessly by one household can be a threat to the privacy, safety and rights of other households, which could result in compensation as discussed by neighbors in advance. Moreover, when a construction work is illegal, neighbors' support via the resident group's leader, only when the work simply defied the law but caused no harm to anyone, is important in persuading the officials so that no further action taken. If the construction plan is reported to have a conflict of interests with neighbors, the ward tends to refuse issuing construction license, or fine the illegal construction if license was issued already (the construction with all necessary documents could still be illegal if the work done does not comply with the specifications mentioned in the license or violated zoning regulation). Cooperation between neighbor households who have shared walls or floor in renovation activity was another widely used method in persuading the ward to ignore their case because it caused no harm to anybody (Luan & Vinh 1998). Generally, ward officials could not persist in implementing demolition order without intense arguments and strong responses from people. There were cases where a few days after demolished, the structures were rebuilt in an even bolder manner (Thuc 1985).

Finally, personal connections between residents and officials greatly affected how ward officials behaved. Residents in collective housing areas were state employees, many of them are of senior or middle rank who could easily obtain cooperation from ward officials. In these cases, officials

tended to be not too tough on their colleagues, neighbors, fellow party members who needed extra living space; or even keep silent on the situation of illegal activities. In worse cases, violators who have connection with higher level officials could even defy ward officials. Because when district officials for example request the ward officials to ignore the case as a favor, ward cannot either say no or enforce regulations (Than 1989). Consequently, such exceptions provided incentives and justifications for other illegal constructions.

6. Informal housing post-doimoi

6.1. Spontaneous housing construction boom triggered by Doimoi

Traditionally, housing production in Vietnam has always been managed and financed by small-scale families building housing for themselves to live and open small businesses (Geertman, 2007: 228). Self-help housing is strongly embedded in the pre-1945 period during the war, and the way it re-emerged after the renovation is unique. Economic liberalization in 1986 provided another incentives for self-build. With private business then legalized, there was a significant flow of labor from state sector to private sector. Many families wanted to open small shops to improve household income in which they needed space. In collective housing areas, many households on ground floor occupied open spaces in front of their flats to run small businesses and gradually consolidate structures as the businesses grow.

'Housing Ordinance' 1991 gave people the right to own a house

'Land Law 1993' gave people the right to own land-use/ property. Thus it legalized the informal land market which led to an explosion in property deals (Phe 1997, 2000; Geertman 2002, 2003).

'Housing Act' 1993 implies that houses could be legally inherited and exchanged. In subsidized housing units, the act tried to eliminate of fully subsidized housing distribution, long queues and inequality in subsidization by increasing the rent in collective housing so that housing can be treated as a market's good. The rent was increased by a factor of 54, "from 25 dong to 1,350 dong per square meter. However, this increased rent was only a of the real market rent, which could reach to 10,000 dong per square meter" (Phe 2002). However, institutions had 'compensated' by paying a housing allowance to cover the state rent for employees.

With the liberalization of property rights in *early 1990s*, a phenomenon of 'parachute jumping' started and became popular indicating people 'jumping out of their tiny rooms' in a search for more space. They moved out of their overcrowded multi-family houses, illegally invaded left-over space to build houses to live in. In the late 1980s, there was no housing construction business in Hanoi, thus people had to rebuild or upgrade their existing houses with whatever method irrespective of its legality (Leaf, Luan, Quang & Brahm, 2000). Triggered by changes in property ownerships, this spontaneous housing construction boom led to a quick densification of Hanoi city, which was actually an extension of an already existing process of informal construction by people during the war and also post war years (Phe 1997, 2002; Evertz 1997, 2000; Harnois 2000; Oudkerk and Van der Chijs 1999).

The state's power in managing local affairs is furthermore weakened after the shift from a centralized to a market economy since *doimoi* – a shock to the overall governing system (Luan

1996). Municipal governments are not well-trained with very limited knowledge of local markets and laws, which leads to poor capacity in municipal organization and management (Luan 1996: 189).”Local officers and managers are not adequately trained for their job in the new system; and the minimum technical support for their activities is extremely poor” (Luan 1996: 190). Furthermore, local governments also have to face with massive violation due to “vacuum zones” in the legal system and abuse of powers like corruption, ect… (Luan 1996: 190). Housing belongs to the fields in which state rules have been significantly violated. This has to be understood in the real situation of the legal environment where many laws and sub laws are still missing; existing laws are weak, inconsistent, insufficient, often amended, supplemented or replaced by new legal documents (Luan 2000).

As such, many activities at local level falls outside official channels. Informal arrangement between officials and citizens accounts for one set of such activities affecting government operations. Personal connections work effectively in how rules are implemented and rules are made. “Family ties, friendships, and relationships carrying over from when people were classmates, in the army together, or hailing from the same province or village can influence how officials behave. Having ‘connections’ makes it possible, at least in some cases, for a citizen to get a favorable decision from a government office if otherwise not merited or have an infraction that the persons has committed ignored” (Kerkvliet 2003:34).

In the 1980s, tens of thousands of urban residents ignored and defied state’s rules about housing construction (Phe 2000, 2002). For a combination of reasons including urban housing shortage and limited resources for law enforcement; many local officials turned a blind eye or even help people to escape the punishment and fines. Widespread violations forced the state to make new laws that were more in line with what people actually were doing. In other words, “unauthorized societal pressure outside official channels has helped shape the state’s rules” (Geertman 2007: 172). For example, Housing Ordinance was already promulgated in 1991, but hundreds of sub-law documents which serve the urban housing management have been issued afterwards. “As a result, the whole urban housing sector has not been managed in an efficient and organized way, just like an ‘orchestra without a conductor’” (Luan 2000: 27).

Between 1995 and 2000 small-scale families annually produced an average of 70% of the new housing stock (table 3)

	1995	1997	1999	2000
Central construction (State)	3.9	3.3	8.7	13.7
Local construction	96.1	96.7	91.3	86.3
Local Budget	-	2.5	0.7	-
Other Capitals	2.1	2.6	3.6	-
Self-building by people	**65.7**	**79.0**	**68.7**	**68.7**
Bid Capital	1.7	-	-	-
Capital for building houses for sale and joint-venture capital	26.6	12.6	18.3	17.6

Source: Statistical Yearbook Hanoi 1999 and 2000

Table 3: Differentiation of local construction of new residential areas in Hanoi 1995-2000

State-owned collective housing areas were transformed dramatically due to the policies in late 1980s that liberalized self-help. Apartments were not only repaired but also extended intensively

to supply more space to meet the new individualized lifestyles of inhabitants. Initially, a lack of maintenance and management made the extensions and trading of the units a very common practice among residents (table 4). With the liberalizing policies, one and two room units (20 – 40m2) shared by many families increased their extensions on balconies' side from 3 to 10 meters, and on street's side from 2 meters to the border with the street on ground floor level (Cerise 2001, Pédelahore de Loddis 2001). With the state selling off the apartments to sitting residents with very low price in 1996, the process could take place legally, and this type of 'privately-owned apartment' has become fully accepted at the housing market. "The process is a result of the many practical policies that were implemented out of necessities" (Geertman 2007: 235). Self-help improvement and the environment in which people are given freedom in organizing their own built environment are inevitable consequences in response to the change in policies.

Year	Density *(m2\p.p.)*	state owned FA *(m2)*	managed FA *(m2)*	non- managed FA *(%)*
1954	6,7	1.773.900	357.650	**79,9**
1975		2.509.51	870.477	**65,3**
1995	4,6	4.917.235	1.804.830	**63,3**
1996	*since 1996 apartments are sold to sitting residents*			

Source: Statistical Yearbooks Hanoi 199- 2000, Land and Housing Department Hanoi, 2002

Table 4: Density and distribution of management of floor area in Hanoi (1954-2000)

6.2. Informal property market triggered by Doimoi

The willingness and motivation for Vietnamese people to build themselves and to invest in land should be understood through the living culture and dysfunctional public domain. In Vietnam especially in Hanoi, renting houses or apartments is very uncommon, while ownership of land or house is the most valuable assets of a household, spiritually and economically (Hoang 2002; Huong 1997; Luan 2000). This has rooted from traditional belief that there is a connection between people and the land, which is related to ancestors, they live on. Thus it is believed that a family should not change the location they reside more than 3 times in their lives. The need for ownership was escalated due to inoperative public domain and lack of trust in institutions by common people. After 30 years of poverty, in 1990s, Hanoians do not trust banks and Vietnamese Dong in general. In an interview by Geertman (2007) with 20 families who built their house in the reform period, most of respondents said that they didn't use banks simply because they didn't understand the concept of the bank and its mechanism and its benefit for them. Instead, they continue to rely on an informal banking system operative among relatives and friends. There was no mortgage system to finance houses; instead, salary savings together with selling land and borrowings from family or friends was common. Specifically, state-workers who were allocated land by government (from 1988) have accumulated large amount of capital because they sell this land for high prices. In this culture, a house is used as a bank, and as a status symbol, and for many people as a way to earn a living by speculation (Phe 1997; Hoai Anh 1999). "The liberalizing socio-economic lifestyle, due to new capital available through overseas Vietnamese returning home, export workers, new foreign companies in Vietnam, and new media, changed housing demand greatly" (Geertman 2007: 225). Housing changed its meaning from providing shelter into a mean for economic profit making and investment. Land Law 1993 which gave people the right to own

land-use furthermore legalized an ongoing process of an already existing informal land market operative among small-scale families.

Since 1991, the actual prices of houses were already related to their location in Hanoi, whereas many housing transactions were carried out in the informal market long before 1986. Between late 1970s and to the early 1980s, housing stock was idle with low housing prices – i.e. houses were exchanged for light motorbikes from relatives working abroad, a type of wealth that could not be accumulated in the Vietnamese socialist command economy (Phe 2002). Hoang Huu Phe further explains that before 1993, families had only one place to live, as it was much easier to get urban registration. There was a ban on private housing transaction to ensure that houses were for accommodation rather than for profit. In reality, houses did change hands often. "The prospective buyers in the public sector first negotiate the price of a property, and later add a certain percentages of what was called 'procedural fee', which is unofficial" (Phe 2002). Thus, the rules of the deal were quite predictable and clear, just as in normal market transactions. Housing price in informal market "could easily swing widely on the basis of just rumors about potential buyers or new urban development project, which used to be decided bureaucratically without proper information made available to the public. The transactions were often informal, because it had to operate in an environment that was unfriendly to profit making because housing had always been a social service" (Phe 2002). He insisted that the essence of economic reform process in Vietnam was to make price mater, to create a functioning market; that "*doi moi* simply accelerates an on-going process in the private housing sector. "The working of a housing market was perceived as acceptable (or tolerated) at the practical level, even before 1993" (Phe 2002). It is a practice characterized by "regulatory vagueness while guaranties of tenure rights are secured through personal ties to local authorities rather than through proper administrative procedures" (Gillespie, 1995).

After legalization of land market in 1993, due to the complicated, time-consuming and unclear policies in land rules, most transaction continue to take place outside the state administration. In 1995, 80% of all land deals and self-building took place outside the official system (JBIC 1999).

The consequence of this was extremely high land prices. In 2004, prices varied between 12,000 $/m2 in the old quarter, to 5,760 $/m2 on the edges of the city (Hong Ha 2004). Land prices at this time were over inflated to be among the highest in the world rivaling New York, when Vietnamese's income per capita equals only a fraction of earnings in the US (Hong Ha 2004). In 1995, prices of land in Hanoi were 55 $/m2, compared to Beijing 80 $/m2, Tokyo 62 $/m2, Bangkok 13,5 $/m2 and Kuala Lumpur 13 $/m2 (Pandolfi 2002:198).

6.3. Experimental policies encouraging participation of private sector and self-build

In the context of a lack of national and international capital, the policy changes gradually replaced the socialist ideal of housing as a social service with market-oriented elements. Series of policies with high degree of pragmatism, are important in comprehending this process. Different policies are not separated from one another but somehow overlap.

By the middle of the 1980s, partial solutions for the housing shortage were found in the form of work-unit housing. Large state-owned organizations set up their own funds to support housing

construction for their employees. However, due to the devaluation of Vietnam currency in 1985, labor cost and material cost increase steeply, thus the funds became worthless which had the policy stopped.

"In 1988, the state began allocating land to state enterprises to let them build houses, giving them full rights to manage and to approve renovations without needing local authorities' approval. Most enterprises, however, redistributed the land to employees for them to build their own houses" (Koh 2006: 220). It was estimated that in the late 1980s, the private sector was responsible for over 80% of urban housing construction and improvement, up from less than 30% by the end of 1970s (JBIC 1999).

Recognition of failure of full subsidization policy made the state try another experiment called "state and people working together" (Luan and Vinh, 2001: 54, Koh 2006: 219) movement from 1989 to 1993 to construct and repair houses. As a solution to gradually eliminate subsidization (Tu Anh 2001), the state provides land and building materials, while people contributed labor and partial capital. The residents were in charge of building or renovating their own houses. Pham Cao Nguyen described this a very practical approach to solve urgent need for residents. Although the houses built were reported as having better quality and privately owned, all constructions had to follow the state's macro plans for housing (Koh 2006: 219). A second model was house repair cooperatives. In the degrading socialist collective housing areas, the state provided basic amount of money to repaint blocks, and subdivided shared toilet kitchen into private amenities in old flats built during first period. Meanwhile, residents contributed labor and extra money if they need better furnished spaces.

The persistent shortage of housing and state's incapability to provide enough housing based on the socialist concept of total subsidization system forced the state to try new experiments as an alternative to provide fast housing called 'site-and-services subdivision schemes' (1989-2000). The government allowed municipalities to allocate land to certain state enterprises and ministries. Assigned construction companies subdivided areas with basic infrastructure into plots which were sold to employees for cheap price or to financially capable residents to build their own homes. This policy was influenced by the "site-and-services" approaches in other developing countries, with the only difference is that it is not specifically meant for urban low income groups. The result of this experiment is that all non-built spaces (including areas inside villages, socialist collective housing areas) has been subdivided and filled with self-built houses (table 5).

	No House	Rent from Government	Rent and Built	Inheritance	Self-Building
Central	0.0	52.0	10.0	16.0	**22.0**
Intermediate	0.0	28.6	4.1	34.7	**32.7**
Suburban	2.0	8.0	18.0	14.0	**58.0**

** 'Rent from the government' are mainly the housing estates; 'inheritance' mainly houses in villages.*
Source: Tuong Lai, 1998, published in JICA 2000

Table 5: Dwelling types in Hanoi and location 1997 (percentage)

Housing provision share of public sector only about 30% of the total new houses 1991-1995 (Table 6)

Year	In which

	Total area of new houses (sq. m.)	Built by households	Built by public sector	Contribution of public sector (%)
1991	140,000	96,000	44,000	20%
1992	170,000	110,000	60,000	38%
1993	220,000	150,000	70,000	33%
1994	180,000	155,000	25,000	16%
1995				less than 16%

Table 6: Data on housing production in Hanoi 1991-1995. Source: Hanoi Land and Housing Department

In 2000, 14 institutions had been allocated 59.054 m2 land with 100.030 m2 floor area – which makes up of 16.7% of the total newly built floor area (Hanoi Land and Housing department, 2002). Since the 1990s, the self-built houses produced within the new site and service experiment became the target of speculation, thus new housing stayed out of reach for the worst-off. The acknowledgement of inefficient land use, very low densities, and low provision of service had the experiment stopped by 2000 (Geertman, 2007).

The recent policy in Vietnam is to promote project-oriented housing development aiming at comprehensive development of the whole 'new urban areas' with high-rise blocks and integrated infrastructure (Pandolfi 2001; Geertmand 2002; Leish 2003). In Hanoi, initially it consists of 49 new housing projects launched in the 1998 Master Plan. Projects mostly consist of two type, high-rise reaching up to 34 levels and low-rise villa or semi-detached houses. Although the original purpose was to address housing shortage and funded by domestic sources, many of the projects are ambitious in scale and complex with mix uses as many developers (privatizing state-owned companies) are trying to gain as much benefit as they can of the maximum 30% they have for commercial use, which results in relatively top-end luxury housing influenced from newest projects with high-rise towers emerging in Pacific Asia. Adopting previous strategies from subsidization policies, 30 to 40% of the total floor area is allocated to the enterprise' employees with lower price. And the remaining 20 to 30% are to address urgently needed social housing. However, in reality, it turned out that the so-called 'social housing' flats for sale were bought by wealthy people who already own several apartments (Son, 2002). Employees who were allocated the apartments with low prices resold them with higher prices. For example, in one of the first new commercial housing project, Dinh Cong, plots were originally sold of 80 square meters of land for VND 260 million, while in 2002, prices for the same plots were increased by a factor of 6 and sold for VND 1.5 billion (Hung, 2002). The practice of speculation pushes the prices extremely high compared to average income in Vietnam, thus apartments in new urban areas are mostly out of reach for middle and low incomes.

In 2012, the Hanoi Department of Construction reported that, there were 152 new urban areas (60% of construction land for high-rise, mainly located in suburban area, with sizes varying from 50 to 200 hectares), with estimated of inhabitants 2 million.

6.4. Urban planning in transition assisting informality

To cope with rapid urbanization, Vietnamese government adopts the current tool of master planning which started in the early 1990s, which continued the master planning process as it began in 1961 (Fig. 2. 22). In the 1990s, the 1980s Soviet plan was criticized as abstract and no

longer suitable for the new market economy, thus a new master planning phase was started 'in a socialist market economy' in the place of the closed economy plans from 1970s and 1980s (Fig. 2. 23, 2. 24). The first Master Plan Hanoi 2010, approved in 1992, was a combination of commercial high-rise development in peripheral zones and heritage protection in ancient quarters (Fig. 2. 25). This plan adopted similar orientation and process of earlier socialist planning, yet a newly-emerged property market and urban growth was much greater.

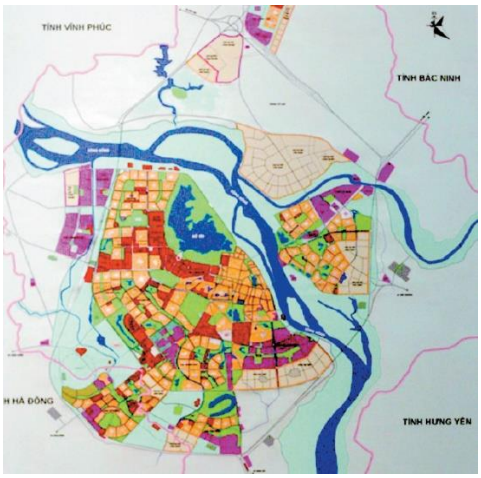


Fig. 2. 22: Master plan prepared 1960s for development up to 1980

Fig. 2. 23: Master plan prepared 1970s for development up to 1990

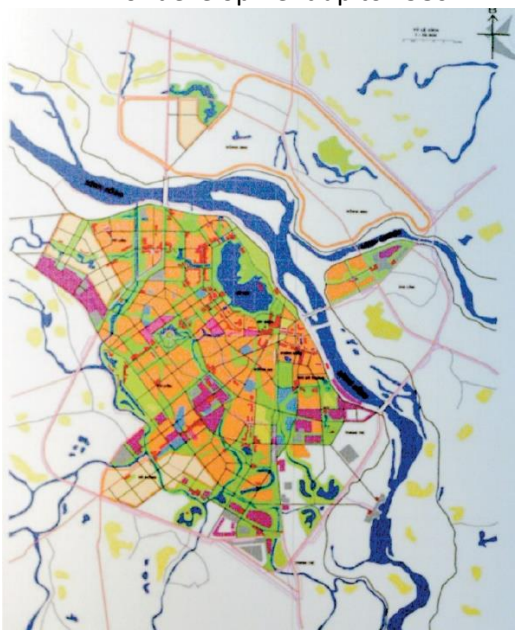
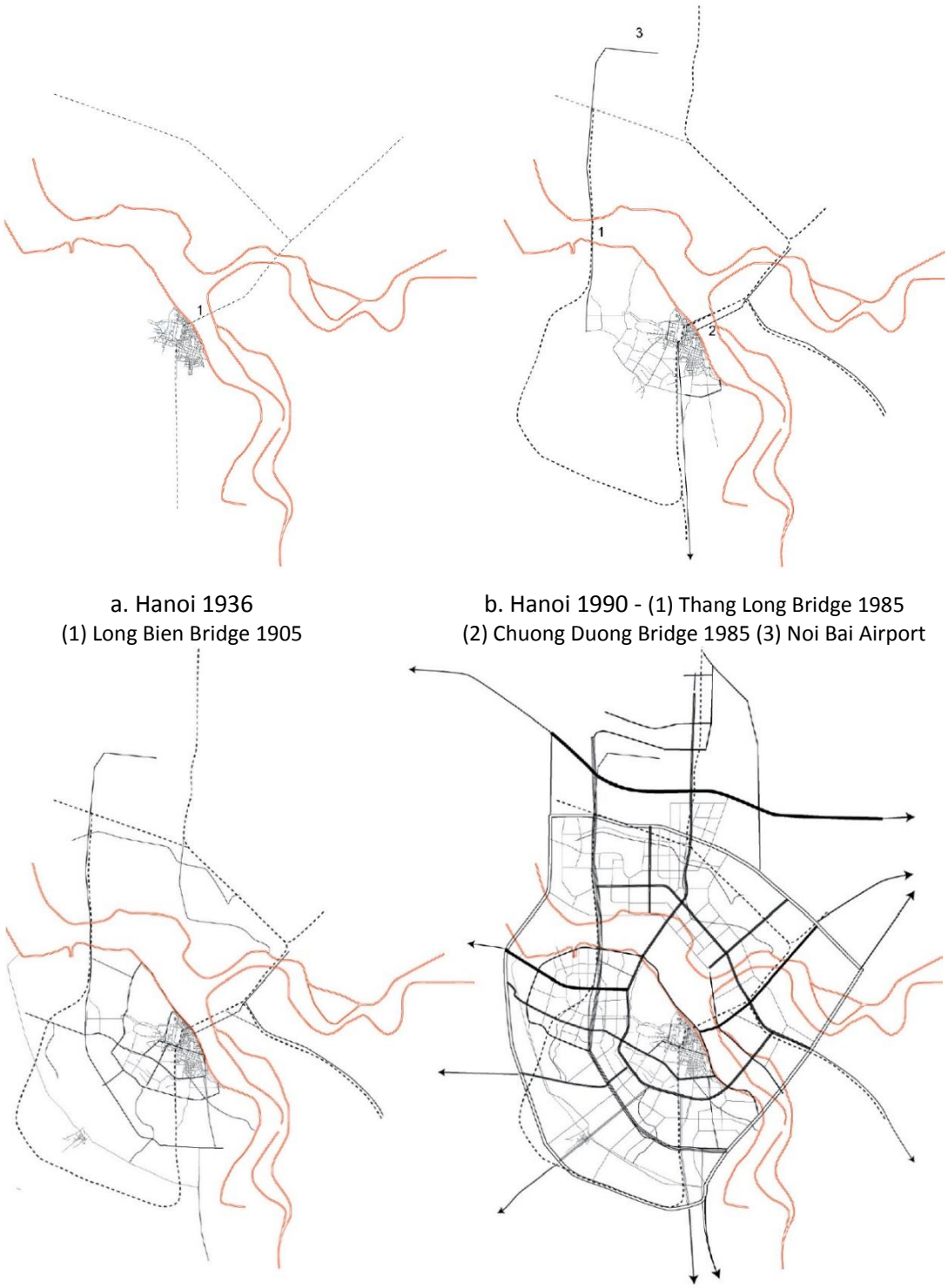


Fig. 2. 24: Master plan prepared 1980s for development up to 2000

Fig. 2. 25: Master plan prepared 1990s for development up to 2010

Source: Exhibition 'The orientation of the Masterplan for sustainable development of Hanoi 2006'



a. Hanoi 1936
(1) Long Bien Bridge 1905

b. Hanoi 1990 - (1) Thang Long Bridge 1985
(2) Chuong Duong Bridge 1985 (3) Noi Bai Airport

c. Hanoi 2000 – Construction Ring Roads

d. Hanoi 2010 – Planned Infrastructure, JICA

Fig. 2. 26: Road infrastructure master plan - Changing Urban Development Processes since *doi moi.* Source: Geertman 2007

To address pressing housing need and to divert the development pressures away from the existing inner city, the master plan was adjusted into Hanoi New Town Plan by the mid-1996 with foreign advisors invited, and finance from the South Korean Daewoo Corporation (see Daewoo & Bechtel

1997). Japanese Investment Cooperation Agency (JICA) made the road infrastructure master plan for 2010 (Fig. 2. 26d). The original plan was to develop a so-called 'new towns'- two big residential areas, one in the northern bank of the Red River (Dong Anh District), one to the southwest (Tu Liem District). However, after the 1997 Asian crisis, foreign investment's withdrawal made the state realize a low potential for development of the Northern Red River Bank without capital for necessary bridges, or new public transport. Thus, the city decided to refocus development to the south direction where land was more accessible with 49 housing projects, and to rely on domestic investment instead of foreign investment in the adjusted plan in 1998.

At the same time, Vietnamese people started to become very active in adapting to the new property market. Sites around new commercial residential projects became target for speculation. Enterprises/investors are also active in land speculation by buying lands from government (long term lease in Vietnam) for a very cheap price, keeping land in vacant lots, waiting patiently until prices are pushed up, and sell plots to private citizens to build 'popular housing' at sites scheduled for high-rise. This alternative is more profitable for Vietnamese developers and for the state in the condition of limited budget. The original zoning plans were asked to revise and plots were sold to individuals to realize the construction by themselves. Thus, in this master plan, the major part of housing development continued to be informally built.

The strategy for urban development in Vietnam is based on strict zoning is divided into 3 steps:

- Regional plan (scale 1/25,000): made for prefecture-level cities, towns, and new urban centers;
- The zoning master plan (scale 1/10,000): made for areas (zones) within cities, towns and new urban centers;
- The detailed plan (scale 1/500; 1/2,000): made for areas to meet urban development or construction investment needs.

In master plan, land-use planning is not mandatory, and can be easily changed from its intended zoning in the master plan by local authorities. "Master plan is merely a guide, a projection of a desired future". This ambiguous urban management "gives power to local management to operate differently from decisions centrally made", "enable a selective group of people, well connected to the right networks, to use it exclusively for economic profit making" (Geertman 2007: 185).

Detailed plan is the basic plan for all the housing projects, which are areas in master plan that designate a certain zone for a certain land use. In detailed plan, each assigned use in one zone can cover rather broader activities and does not prohibit other uses. Construction approval is based upon the detailed plan. Complicated and time-consuming process for acquiring construction approval delays implementation or urban development projects. These delays give private individuals, speculators, land brokers enough time to speculate around the new project set in the master plan, buy land from farmers, and earn good profit. As a result, people are much faster to supply housing than the official system does, thus they realize their vision for the future.

Urban administration in transition assisting informality

Since *doi moi,* "Vietnam has tried to impose control that is being lost by the weakening party state system, but is not yet replaced by an effective regulatory system" (Dixon and Kilmour 2002). "Vietnam's urban management system was born on (traditional) imperial roots where rural and urban were not separated and local levels were autonomic – self-regulating – to a large extent" (Geertman 2007: 173). The localization of power since *doi moi* in Hanoi's urban administrative system is not entirely new, it is intensified by reduced control level of the state due to economic liberalization. "The system in transition remains highly centralized and extends throughout every aspect of Vietnamese social life. At the same time, however, the system in transition intensifies the toleration of person-to-person negotiation and regulatory flexibility" (Leaf 1999).

Officially, in Vietnam, the urban management structure of spatial units, inherited from imperial time, have of strict hierarchy from government level to household management (see Table 7). Each level is administrated by an elected body called a People Committee. Within the vertical system, there is a linked horizontal structures of the ministries on various levels. For example, Ministry of Construction governs operations of the Municipal level of Department of Construction which is laid within the municipal government, and Department of Construction in turn oversees activities of Bureau of Construction which is housed within the district government. These parallel structures created ambiguity in the responsibilities' division between central and municipal government structures (Luan 1997, Leaf 1999, Koh 2006). The complicated system created opportunities for those who know how to 'work the system'. Thus, there is space for negotiation and flexibility to keep an eye closed to relatives, friends, people willing to pay as explained earlier, or just out of pity for the poor.

General Government Levels		Type of Administration	
		Land	Construction
Central	Ministries and Agencies of the Government	General Department of Land Administration (GDLA)	Ministry of Construction (MoC)
Municipal	People Committee of Hanoi (*Quan*)	Department of Land Administration	Department of Construction
District	People Committee of districts in Hanoi (*Phuong*)	Bureau of Land Administration	Bureau of Construction
Communal	People committee of Commune's in Hanoi (*Cum and To*)	*quasi official land manager*	*quasi official construction manager*

Table 7: Urban administration Hanoi. Source: JICA 1999

Level of Government		Related Departments
Central government	Ministry of Construction (MoC)	- Department of Land and Housing - Department of Planning and Investment - Department of Construction Works - Inspection office of Construction - Institute for Urban and Rural Planning - Institute for Construction Economy - Hanoi and Ho Chi Minh Architecture Colleges
Municipal government	People Committee of Hanoi (*Quan*)	- Chief Architecture Office - Hanoi Authority of Planning and Investment - Department of House and Land - Department of Construction - Transportation and Urban Public Works Service

Table 8: Level of government and related departments involved in urban development in Hanoi. Source: JICA 1999

For urban development, finding coordination within the different agencies (table 8) that all work parallel and separate under Ministry of Construction caused enormous struggles for implementation of 1990-2010 master plan of Hanoi. These agencies are again being supplemented by Chief Architecture Office and other agencies under People Committee of Hanoi at municipal-level. Again, these agencies' action must also be coordinated with those of People Committee at the district and communal levels. Altogether an extremely complex system in which urban administration and management are operated is becoming a diffuse and unclear process where "laws and regulation are translated in different departments, levels, and agencies differently" (Geertman 2007: 174). The system although appears centralized and hierarchical at first sight, accommodates local autonomy in many domains of management. Having connection to a certain social group with access to power brings much benefits, especially in buying and selling land, and legalizing informal construction. As such, the local autonomy influentially controls urban development.

In sum, today's urban administration and management in Vietnam remains officially limited to the state with strict top-down orders in the spirit of old system; yet the complex system creates many opportunities for informal activities and great autonomy at local level with well-organized society group having great influences on urban development process.

6.5. Inefficient regulations in deterring illegal construction

The state issued hundreds of policies, regulations that were more in line with what residents were actually doing, yet it was proved inefficient to deter illegal construction. The reason why housing rules have received little respect from people was explained as "because they have prohibited people from achieving a basic – and later desired – standard of housing, which also varied across time" (Koh 2006- 238)

Decision 4637/QD-UB was issued in 1987, stating that there is no amnesty to illegal construction, yet legitimizing the existence of illegal houses on vacant public land as long as offenders paid land taxes and vacated the land when new development project is launched. This legalization measure was a major concession from the state, yet it may have eroded the legal orders and implicitly created incentives for squatters to grow. The new regulation also stated that the ward should be the first authority to deal with illegal construction, and specifying significant punishments for ward officials if they reported incorrectly on people's housing situation (People's Committee of Hanoi 1987, B.V. 1988). Despite the new regulation, the situation worsened with 1,768 offences recorded in the four inner city districts in 1988, more than twice the number of construction license (769) issued in the same year (Thuc 1988). There were two deficiencies of Decisions 4637 that led to the worsening situation. Firstly, in reality, Decision 4637 did not significantly give ward officials real power to enforce rules strictly because they continued being confused about district's orders, thus they chose to play on the safe side by delaying acting or enforcing the law so weakly (Ha 1988). Another deficiency of Decision 4637 was that it did not reduce the big number of construction licenses required, which created opportunities for corruption in a context of rife

hyperinflation when people with fixed income like state officials faced enormous pressures to obtain side income from the mid-1980s. “Many bureaucrats of all levels extracted bribes from license applicants” (Koh 2004: 362). The speed of approving construction permits varied from a few months to one year depending on the price that applicants could pay.

Apart from their official roles, ward officials often have informal arrangements with residents. Particularly, they often ask ward officials to help them avoid dealing with the district or to mediate with district officers in suspension of demolishing illegal structures (Tha, 1982-2). There are three grounds when ward officials can help residents avoid dealing with the district: a construction activity that gained neighbors’ approval, it does not offend public work installations (which make the case too exposed to higher level supervisors), and a pay-offs is paid to the officials or the ward. For cases directly under the ward’s control, neighbors’ agreement is still essential.

In general, there are several methods how ward officials can assist the violators. For houses facing main streets that already obtained licenses issued by the district, ward officials who are in charge of inspecting the post-construction may visit the house and issue a certificate of inspection verifying that the construction complies with regulations. A bribe kept in side an envelope is often given to the official concerned to keep the violation unknown to high-level supervisors. A second way to help the residents is that the officials may levy a fine on illegal constructions which is called ‘fine for existence’ and keep the money as ward income but never oblige the household to remove or repair the structure. A third way is to show up at the site only when the illegal construction is almost complete. In this case, the home owner will beg officials for treating the violation as a ‘fine for existence’, and tacitly give officials a bribe.

Responding to the worsening situation, in 1990 the city authority issued Decision 2704 QD/UB and Decision 2771 QD/UB which reduced the number of licenses required, thus closed some channel for grease. Under Decision 2704, some requirements were dropped, such as ward’s certification of housing need, and permit of small-scale repairs provided there was no extension of living space (People’s Committee of Hanoi, 1990). Decision 2771 (People’s Committee of Hanoi, 1990) regarding temporary use of land and houses, “once again, granted different degrees of amnesty to all illegal construction, provided local authorities agreed. The last provision, therefore, opened a new channel for grease” (Koh 2004: 363). Increasing number of illegal construction cases between 1990 and 1992 made the state issue Decision 1431 in August 1992 which urged the higher degree of caution in catching illegal construction among officials. The ward police - an extra layer of bureaucracy- was added in the battle against illegal construction, in the place of District Inspectorate who became too corrupt. Ward policemen were expected to have a closer supervision of neighborhoods and better District Inspectorate in enforcing construction rules (Thuy 1994). This was proved mistaken by an average of 109 cases of construction without licenses found per month in one district (Hai Ba Trung) alone after Decision 1431 in 1992 (Mai 1993). In 1993, Ba Dinh district (which always performed best in social orders) recorded 143 cases per month (Chi Thanh 1994). Realizing the problem that ward policemen (who are also ward officials) was ineffective and still being in cahoots with violators, in 1994, the city issued Decision 677 which transferred powers back to District Inspectorate (Dung 1994). By 1995, illegal construction in Hanoi was occurring at the alarming rate of 250 cases per district per month (Chi Uyen 1994),

which soar up to seven times the 1987's rate. According to Ministry of Construction, in two years from 1992-1994 there were 13,000 houses newly-built without permission, which is equal to five times those with permission. The offence rate escalated quickly, in the first four month of 1995, Hanoi had 5000 cases violating construction regulations, in which 80% were construction without permission (JBIC, 1999).

In a political system like in Vietnam which the state has tried to keep enormous power over all aspects of people's lives, this paradox that people show little respects for law that grew out of necessity raised questions about the capability of the state in enforcing law and ability of people in resisting to the pressures.

7. Conclusion

To explain for the widespread violations against construction rules, it is important to understand:

- Socio-economic institutional context of a country in transition with severe housing shortage, rapid urbanization, weak legal system, weakened state's management capacity after a shift from centralized to market economy (Reform Policy 1986)
- Changes in property ownerships in early 1990s which triggered an ongoing process of self-build housing during the war and also post-war years, and led to spontaneous housing construction boom in the city
- Strong family-based trading culture and informal social organization with great autonomy in defending its residents' interest.
- Interactive relations between state and people in Vietnam at local level via ward officials, their indispensable roles in mediating between state's demands for more discipline and people's demands for more liberties and living space.

III. Research methodology and analysis

This chapter will analyze informal transformations in two main scales, unit scale and block scale. In each scale, methodology, case selection criteria, case study list, and analysis for every single case will be provided.

In Unit Scale, the cases is arranged and grouped in the following order: ground floor, second floor, middle floor, and top floor. In each group of same floor cases, order of cases is arranged in a logic in which similar cases are put following each other. Accordingly, summary including location-specific extension territory and dispute-free extension territory in both scales. Furthermore, hidden rules among neighbors will be discussed in unit scale.

In Block Scale, however, cases (areas) are equally ordered and analyzed in the following sequence: general introduction of the area, transformation analysis maps, blocked/shrunk open space, encircled open space, temporarily occupied open space. Accordingly, location-specific and context-specific occupation will be summarized.

Conclusions stating the main findings of data analysis will close the chapter.

1. Unit scale

1.1. Methodology

Measurement and drawings of the apartment units in different areas were conducted. I faced great problems in collecting the relevant data due to the lack of information regarding original plan of the units, although some typical plans of the blocks are available, but it is unclear which is which (fig. 3. 1). Thus, photos were taken to observe trace of new structure on the exterior and interior. Furthermore, personal interviews with the owners were applied to gather deeper information regarding original conditions of the relevant unit, whether cooperation and negotiation with neighbors occurred during housing renovation process.

Case selection criteria:

The selection of case studies is based on the following four criteria:

- Units without privacy concerns
- Units with variety of layouts, in different locations, in surveyed areas.
- Units with various housing conditions: from shared amenities to private facilities, belong to from low income to middle income households.
- Units with wide range of extension conditions

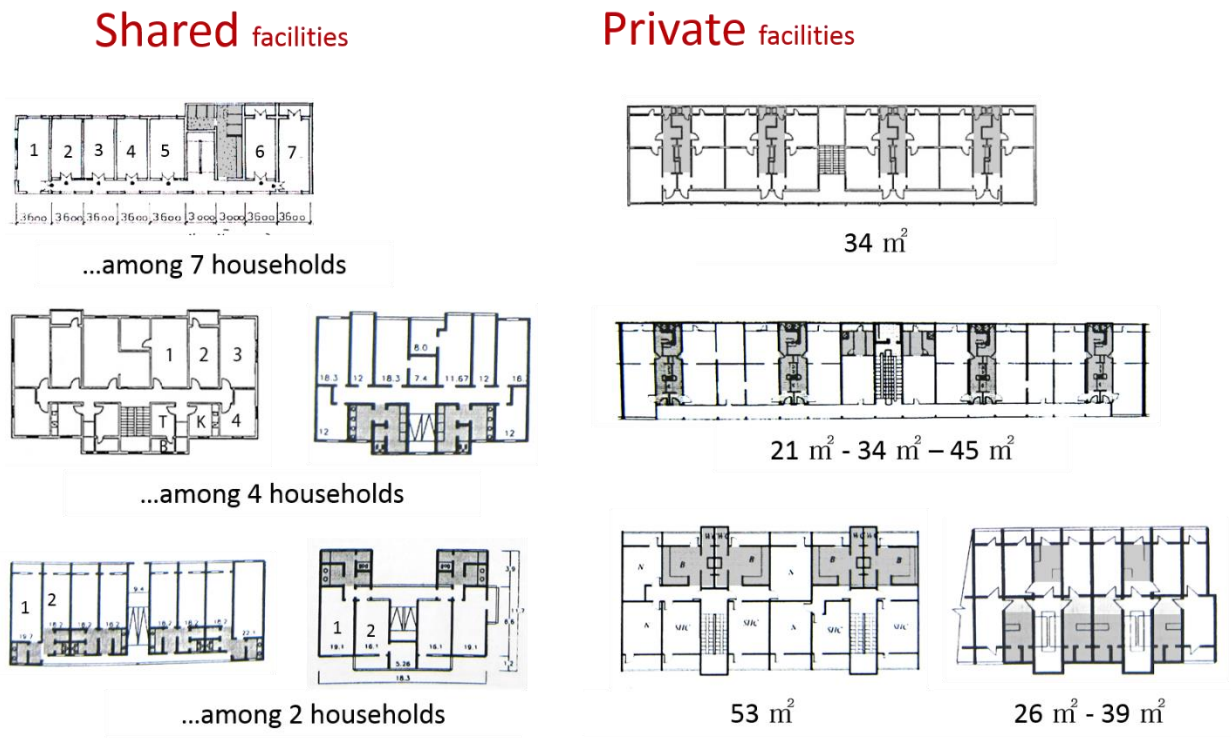


Fig. 3. 1: Typical block layout plans

22 following households were chosen for analysis.

Case No.	Housing estate name	Block	Room No., Floor	Original area (m^2)	Current area (m^2)
1.	Kim Lien	B20	105	24	80
2.	Thanh Xuan Bac	C19	103,	32	16 (sold) + 48
3.	Thanh Xuan Bac	C4	104	28	51
4.	Giang Vo	A2	112		
5.	Khuong Thuong	A5	206	34	53
6.	Nam Dong	A3	208	31	46
7.	Kim Lien	B16	222	15	26
8.	Nam Dong	C2	203	23	45
9.	Nam Dong	C2	204	42	42 + 40
10.	Nghia Tan	D3	301	55	75
11.	Trung Tu	D7	308	38	48
12.	Kim Lien	B12	406	27	60
13.	Trung Tu	B3	505	34	70
14.	Nghia Tan	A3	504	23	60
15.	Thanh Xuan Bac	C16	421	26	13 (sold) + 27
16.	Kim Lien	C11	416	20	32
17.	Thanh Xuan Bac	E3	509	16	40
18.	Thanh Xuan Bac	B7	502	39	55
19.	Thanh Xuan Bac	D1	516	43	60
20.	Thanh Xuan Nam	A3	411	32	40
21.	Khuong Thuong	A9	504	45	65 (horizontal)

1.2. Case studies

1.3. Summary00

1.3.1. Single unit scale

i. Location-specific extension territory

There is a tacit agreement that adjacent households have a right to control semi-private space in front of their apartments, or void space next to transitional space in upper floors. One household tends to first temporarily occupy adjacent space to their lot for domestic activities such as washing, cooking, drying clothes, gardening…; added simple structure for shades; and gradually consolidate the structures. When a space obviously or debatably belongs to a group of households, it should be avoided. This space territory is defined by author as the location-specific extension territory. Void (on upper floors), poorly-used open space (on ground floor) and unused rooftop (on top floor) which is adjacent to each apartment are examples of location-specific extension territory. There are locations that are more vulnerable than others.

- On ground floor:

Open spaces were initially empty with lawn and vegetation, leaving narrow entrance paths running parallel in front of blocks. This poorly-used adjacent lawn is vulnerable under the pressure of shortage of living space.

Block access arrangement with single-loaded corridor is the most typical type in all areas. On ground floor, corridor space in front of each household have been widely privatized in all areas. Extensions were subsequently made towards the lawn reaching the border with the entrance path. Low brick walls to emphasis the border and accordingly prevent further encroachment were later on constructed.

On the other hand, at the back side which is even idler than the front with grass and no entrance access, more severe extension was observed.

Apartments on ground floor, due to the attachment to the ground, are therefore more advantageous with typically long span extension.

Moreover, at the back side or rear side, ground-floor household in many areas extended to second floor of extended structure to ensure more living space. Apartment adjacent to the staircase tends to privatize hidden spaces behind the stairwell. Especially, corner apartments even have more priorities in extending toward the rear side towards the access road.

- On back side of blocks, more severe extension is typical.

As mentioned above, on ground level, the back side, with poorly used open space and no access entrance, is typically occupied for longer span than in the front. On upper floor, similar phenomenon was observed. The front side which is accessible from the side corridor in use by neighbors experiences less severe extension. On the contrary, the back side which is out of sight of neighbors, is extended in almost all households. This will be further examined in block-group scale.

- On top floor:

Making use of the unused rooftop of the block, many households on top floor encroached upwards for more living space when family grows. However, while in some central areas residents tries to avoid troubles with authorities by making rooftop extension unnoticeable from outside (by either lower ceiling height), in remote areas noticeable collective extension on rooftop can be observed (some simulated original form, some even boldly squatted on rooftop)

ii. Dispute-free extension territory:

- Set-back is nonverbally needed to avoid conflicts.

a. No touching structure of up-down households.
b. Apartment adjacent to the staircase tends to privatize hidden space behind the stairwell. However, as this space lies in-between two apartments, a set-back in extension behavior is tacitly set to avoid disputes among these two households.
c. On top floor, when one household first extended upwards, it is safer to extend right above their allocated area in order to avoid conflicts in the future. The rooftop above the stairwell

should also be avoided. Set-back is also needed in majority of cases so that extended structures are hidden from outside to avoid attention from local authorities, then consolidation could be gradually made in less central locations.

- No leaning structure on common space which is in use by neighbors

While unused common space tends to be occupied by adjacent households, used common space is nonverbally avoided. On ground floor, one household can occupy the lawn, but cannot occupy the entrance path which is in use every day by neighbors. The residents wisely took advantages of the border between active and idle open space. On upper floor, one can lean extended structure onto existing structure of their private space, but not onto the common corridor which would change the level of corridor and bring inconvenience for neighbors. This is also one of the reasons why back side is more severely occupied than front side. Many households came up with a smart solution to lean new structure on their existing balcony's beams, which resulted in a step from existing living room to the extended bedroom observable in all the examined households. This solution, at the same time, created a distance between up-down extended structures. On the other hand, the level of single-loaded corridor which acts as transitional space for same floor neighbors should always be kept flat.

- Subdividing ownership to avoid disputes of neighbors and surveillance of authorities is quite typical among ground floor households.

Two patterns of extension – subdivision order: Due to economic hardship and/or changes in family structure, many households (with two-span apartments) resold a half of their living space to get money to extend the other half (subdivision → extension). On the other hand, middle-income households chose to extend first and lend or resell one part to others who want to run small business (extension → subdivision). Here, corner apartment particularly have larger extension territory, thus extension-subdivision order is obviously more beneficial.

1.3.2. Unit-group scale

i. Horizontal cooperation

Horizontal collaboration of extension or subdivision occurs among next-door neighbors in group of residents that share common interest (hobbies, amenities) or in close intimacy.

Simultaneous extension: occurs among two intimate next-door households by coordinately installing racks or extending a short span from the single-loaded corridor. In one case, this was originated from the common hobby of planting, so the two households use this extension for decorating plants, and watering time happens to become the communication time. In other cases, the racks are used for drying clothes or storing. As plug-ins are placed outside private space and nearby transitional space (corridor), it is likely that while one is doing household chores, the chance of being met by a neighbor passing by increases, and small conversation starts. Or the occasional case is two neighbors happen to do daily chores at the same time, and transitional space also functions as interaction space. This case is more likely to happen among neighbors who spend more time at home like the elderly, housewives, housemaids.

Grouping gate: is widely seen in all blocks with either single-loaded or double-loaded corridor with either private or shared amenities. Grouping gate was installed among households in one wing of the floor after racks or cages were plugged into the other side of the corridor in single-loaded corridor arrangement, and after shared amenities was subdivided into private spaces in double-loaded corridor arrangement. Originally the purpose was for higher security and privacy degree due to the outside location of the private facilities. But since the gate is unlocked during day time when the author did the survey, it also conveyed a sense of belonging to a smaller autonomous community/group. Each household of the group has a key, and they created rules such as who would be in charge of locking the gate in different days of the week, or if there is some problem the neighbors will gather and talk over it.

Subdivision of shared facilities: Shared facilities (toilet, kitchen) among 2-5 households are seen in blocks constructed built during first period with very low standard. The households would discuss on how to fairly subdivide it into private spaces for each households depending on the shape of the initially shared space and other conditions like location of water pipes. Then they cooperatively did the renovation, then installed a grouping gate for better privacy of the whole group. As private amenities are still accessed from common corridor, the chance of being met by the same group neighbors remains the same. It is understandable that people prefer private facilities over shared one. Yet, the fact that the doors to private amenity room are mostly open suggested that being seen by neighbors of same groups doesn't bother people.

ii. Vertical cooperation

Vertical cooperation in transformation occurs among up-down neighbors with conditions (priority always goes to GF households). Concession of roof space of plug-in of ground floor households occurs with conditions: no leaning structures (leaning structures is conditionally accepted rarely in exchange of other benefit).

Concession: after ground-floor households extended at the front or back, rooftops of the plug-ins tacitly belong to ground-floor. Upstairs households, however, could extend towards this sides, within their dispute-free extension territory as mentioned earlier with a condition: no touching structure. Most of the cases, the ground-floor household would make a concession of this space if it's flat with one very important condition: no leaning structure onto their extended space. Here, again it's up to ground-floor households whether they constructed a flat or slanting roof (slanting roof is more temporary), or no roof. This could be due to a fact that the plug-in was initially constructed with simple structure not taken into account the upward extension, and was followed by consolidation process. Thus, once concession is made, this rooftop space of ground-floor plug-in can be used by their upstairs neighbors as space for planting, or drying clothes, or storing some furniture temporarily, etc. Usually this concession is observable in unit-group at the front of buildings where exposure level is high, meaning that residents are less likely to extend severely at the front to avoid authority's eyes, thus second-floor households consequently have an outdoor terrace space with more exposure to sunlight and vegetation, just like their ground-floor counterparts, but indirectly accessible from the common corridor. This outdoor space generated a sense of living closer to the ground and nature which didn't exist before the extension. The back side, on the other hand, tends to experience extension in all floors to accommodate more living

space; thus as long as structure not leant on ground-floor's plug-in structure, generally second-floor households can use the left-over rooftop area as a small roof terrace. Nevertheless, leaning structure is accepted rarely like in one examined case study with two intimate households, and ground-floor household claimed excessed extension territory vertically in the other side for running business. In one examined case in Back Khoa area, the top floor household also utilizes the flat roof space of the vertical cooperative extension among four households downstairs, and use this big terrace as a breathing space for the family.

One-sided extension: Ground-floor households tend to encroach long span at the back, but as the longer the span the worse the ventilation and natural lighting, many households tend to leave a void for ventilation in the middle of the extension when the span is too long. This void happens to prevent negotiation of second-floor households of using their whole plug-in's roof flat surface, and bring a potential to extend upwards at further part from the original part. There was a tacit rule among the community that a set-back of minimum 3 meters from the second floor household's structure is necessary if the ground households wish to extend upwards.

Simultaneous extension: Simultaneous renovation tends to be made among up-down neighbors with a must-have condition which is the agreement of ground-floor household with more benefits. So when ground floor households accept or invite to extend, a shared foundation and columns were constructed, and the households upstairs are tacitly in charge of this fee in many cases. Normally three to five households coordinated to build the addition from the foundation to the roof. It is necessary to mention that timing of extensions are essential here.

In unit scale, the new findings of location-specific extension territory and dispute-free extension territory are important in explaining informality:

- Location-specific extension territory:

  Poorly-used or unused common spaces are vulnerable: inaccessible back side, mono-functional ground floor, unused rooftop. Thus, long span expansion is typical on ground to facilitate small businesses, and unnoticeable encroachment is typical in central location while in more remote areas noticeable rooftop extension is also observable.

- Dispute-free extension territory:

- Set-back is nonverbally needed to avoid conflicts with neighbors. Leaning structure is not allowed on common space in use by neighbors like: corridor, block entrance path.

- Ownership subdivision to finance the extension in low-income households, or to avoid disputes with neighbors and surveillance of authorities on ground floor is typical.

- Subdivision of shared facilities indicates that private ownership is preferable.

- Horizontal cooperation tends to occur simultaneously, to create a sequence of privately-owned open spaces accessible from the transitional space (corridor). The fact that grouping gates and doors to private facilities are mostly open shows a sense of belonging to a small community, and that even though private space is preferable, people don't mind being seen by neighbors of the same group while being in their own private spaces.

- Vertical cooperation is often observed in different timing in the form of concession rooftop flat space with conditions that favor ground floor households. Nevertheless, simultaneous extension also occurs with good timing and agreement of ground floor households.

2. Block scale

2.1. Methodology

From the position of an observer, the study attempts to generalize and categorize residents' behaviors of housing improvement and open space modification. Massive systematic observation was made in exclusive on-site surveys in five representatively chosen areas. Particularly, zoomed-out photos of building exterior and open spaces were taken in different areas and different time frames to track behaviors over space and time. Accordingly, behavioral mapping were generated in order to examine how site-specific spaces are actually being used by the residents. Interviews were made when necessary to understand meanings of behaviors.

In block scale, which locations are more vulnerable to be occupied in which way, how open spaces between buildings are being used by residents will be examined.

After examining vulnerable locations in all the areas, the author realized that they have a certain connection with the following hierarchical system of roads.

Inside collective housing areas, streets are classified into three levels:

Hierarchical street classification system

- Major streets: efficient distributor of vehicular traffic to circulate in city network.

- Local streets: distributor within the area, connecting with major roads

- Access streets: connect with local roads to provide access to block-group or individual blocks. In these areas access roads accommodate bikes, bicycles, and pedestrians.

Circulation path which lies in-between a block and the open space and is typically fenced from open space by low brick walls is under third category.

So far, even the number of cars are increasing rapidly during this decade, bikes remain the main personal transportation means in Vietnam. Bike is considered a very convenient and mobile vehicle in the city of Hanoi, due to the low level development of infrastructure. Thus, local streets not only accommodate residents in the area, but are also accessible to a significant numbers of outsiders using them as shortcuts, or dropping in for shopping or having a coffee or a light meal. Meanwhile, access streets, although aim mainly at the insider residents, are accessible to hawkers coming from suburban areas.

Major streets, on the other hand, with a nonstop moving flow of all kinds of vehicles, although full of commercial activities too, are not preferable as an ideal stop unless in case of special compulsory needs. Therefore, local streets and access streets will be the main focus when determining vulnerable-to-be-occupied spaces.

Case selection criteria:

The selection of case studies is based on the following three criteria:

- The area is large enough with diverse layout and various patterns of occupation
- Each area is representative for each period, or areas built in many phases with different lifestyles and living standards
- Areas with variety of conditions, residents with wide variety of social status

Six collective housing areas that are most representative were chosen for analysis.

Area	Construction year	Area square	Block layout	Floor number
Giang Vo	mid 1970s – mid 1980s	18 ha	parallel, closure	3-5 floors
Kim Lien	1960-1970	40 ha	parallel	4 floors
Trung Tu	1965-1975	16.5 ha	paralle	5 floors
Thanh Cong	1970s-1980s	36 ha	parallel	5 floors
Quynh Mai	1960s – 1970s – 1980s	15 ha	parallel	4-5 floors
Thanh Xuan Bac	1981-1990	56 ha	closure	5 floors

Each area was designed to be self-contained, with schools at the center of the area.

Three occupation patterns of open space:

In all areas, it was examined that open spaces are occupied in three common patterns:

a. Encircled open space: open space between 2 blocks is enclosed at the junction

b. Shrunk open space: open space is intensively occupied and thus turned into narrow alleys.

c. Temporarily occupied open space: open space is temporarily occupied for local commerce

In block scale, the new findings that open spaces are occupied in three different patterns, and primary/location-specific occupation and secondary/context-specific occupation are important in explaining collective patterns of informality:

• Primary occupation- Location-specific occupation: Open spaces are occupied in different patterns depending on locations related to hierarchical system of streets:

- At further end from the local street and in blocks with degraded living condition or shared facilities, open spaces tend to be shrunk.
- Along the busy local street, open spaces tend to be enclosed which reflects the traditional morphology of shop house along commercial streets.
- At the border with low-rise housing areas, open spaces can be either enclosed or shrunk.
- At/ near the junction with access streets: open spaces tend to be temporarily occupied for small businesses.
- Along the edge of blocks, temporary occupation is to accommodate living function.

- Secondary occupation- Context-specific occupation: occurs when residents inventively mimic legal orders, learn from each other, or take advantages of existing structure or hidden location.

- In poorly-used sides (back-back, back-rear), at hidden locations behind legal structures (school's fence, legally inserted public facilities), open spaces tend to be secondarily shrunk.

- At the other end behind primary enclosure, behind or next to legally inserted public facilities, open spaces tend to be secondarily enclosed

- Open spaces enclosed at both ends (following secondary enclosure) or shrunk into strip tend to be secondarily occupied by scattered small businesses

IV. Conclusion

The study attempts to give proper answers the research questions.

What social factors triggered informal transformations in large scale?

- Socio-economic institutional context of a country in transition with severe housing shortage, rapid urbanization, weak legal system, weakened state's management capacity after a shift from centralized to market economy (Reform Policy 1986)

- Changes in property ownerships in early 1990s which triggered an ongoing process of self-build housing during the war and also post-war years, and led to spontaneous housing construction boom in the city

- Strong family-based trading culture and informal social organization with great autonomy in defending its residents' interest.

- Interactive relations between state and people in Vietnam at local level via ward officials, their indispensable roles in mediating between state's demands for more discipline and people's demands for more liberties and living space.

Which locations are more vulnerable to be occupied? For what purposes?

- In unit scale, the following locations are more vulnerable to be occupied:

- ground floor especially corner units

- top floor

- back side of blocks

Reasons are related to original spatial layout of blocks with: mono-functional ground floor, unused rooftop, back side with low accessibility

- In block scale, the following locations are more vulnerable to be occupied:

- At further end from the local street and in blocks with degraded living condition or shared facilities, open spaces tend to be shrunk.

- Along the busy local street, open spaces tend to be enclosed under the pressure of commercialization.
- At the border with detached housing areas, open spaces can be either enclosed or shrunk with low-rise houses at this transition area.
- Near the junction with access streets: open spaces tend to be temporarily occupied for small businesses serving daily needs of residents and run by low-income residents or vendor, hawkers.
- Along the edge of blocks, temporary occupation is to accommodate living function.
- In close proximity with legally inserted public facilities, open spaces tend to be secondarily shrunk or encircled.
- Behind primary enclosure, open space tends to be temporarily occupied or encircled at the other end.
- Open space enclosed at both ends (following secondary enclosure) or shrunk into strip tend to be secondarily occupied by scattered small businesses.

To what degree cooperation occurred among residents in the transformation? What are hidden rules among neighbors?

- Cooperation, negotiation occurred on the basis of mutual benefits, intimacy, common interest with priorities go to ground floor households
- Horizontal cooperation: cooperation degree varies from simultaneous cooperation (simultaneous extension, grouping gate, and subdivision of shared facilities), to concession (of extension territory). Cooperation occurs with mutual benefits, intimacy degrees and common interest.
- Vertical cooperation: Cooperation degree varies from simultaneous cooperation, concession (of rooftop flat space) to one-sidedness. Nevertheless, cooperation conditions always favor ground floor households and depends on extension timing, intimacy degree, and with mutual benefits.
- Hidden rules:
- Residents tend to be bolder in remote areas and more cautious in central locations. For example, unnoticeable encroachment is typical in central location while in more remote areas noticeable rooftop extension is also observable.
- Set-back is nonverbally needed to avoid conflicts with neighbors. Leaning structure is not allowed on common space in use by neighbors like corridor or block entrance path; yet it is tolerated on unused common space like lawn
- Ownership subdivision to finance the extension in low-income households, or to avoid disputes with neighbors and surveillance of authorities on ground floor is typical.

- Subdivision of shared facilities indicates that private ownership is preferable.
- Residents inventively mimic legal orders, learn from each other, or take advantages of existing elements such as: poorly-used sides (back-back, back-rear), hidden locations behind legal structures (school's fence, legally inserted public facilities), behind enclosed structures

What are new spaces and new uses emerged after transformations?

- In household scale:

- New apartment typologies which respond well to individual changing needs of space: apartment with loft, apartment with rooftop terrace, two-floor apartment, apartment with courtyard, store-front apartment.
- Open private space (open annex that is privately-owned but open to neighbors) as interaction territory among neighbors. This multi-functional open private space structured with light steel frame that let daylight and wind in, and accommodates a lot of different uses which do not require a high degree of privacy such as: storage, bike parking space, kid's playroom, planting space, terrace… A certain degree of openness and accessibility from transitional space turn it into an inviting space for intimate neighbors by increasing chances of being met by same floor neighbors which in turn stimulates conversation to occur. A sequence of these open private spaces open on to each other can further increase opportunities for interaction among next-door neighbors while doing household chores.
- Open-air space like courtyard on ground floor or rooftop terrace on upper floors. Even though indoor private space is in great need, many residents chose to have an open-air space instead. In this space, plant pots are placed, or clotheslines are installed. Rooftop terrace often occurs after vertical concession of lower floor households.
- Successful extensions for more living space while maintaining daylighting and ventilation are possible with vertical cooperation for example by leaving an opening in the core part.

- In community scale:

- Partly enclosed open space with high accessibility and connectivity is greatly used by neighbors.
- Temporary enclosure of open space with human activities (including small businesses) is related to the frequent use of open space by increasing chances of being met by neighbors, thus assists social interaction among neighbors. The interconnection of these temporary enclosure in strip guarantees the vibrancy of neighborhood.
- The edge (intermediate space in-between a block and main open space) acts as semi- space, an outdoor living room that stimulates liveliness and usage of open space. This soft extension territory accommodates plants, clotheslines, benches, a small tea stall… This intermediate space blurs the distinction between private and public space yet it is still used for the sake of the community.

How do informal transformations influence urban morphology changes?

- Along the busy local street, a layer is added enclosing open spaces with small shops facing this bustling street. This reflects the traditional morphology of shop house along commercial streets.
- The boundary between collective housing area and low-rise housing area tends to be blurred with enclosure or shrinkage of open space with detached houses spilling onto the border.
- At the junction with access streets, open spaces tend to have higher temporal density with temporary occupation of small businesses interconnected in strip at the heart of the neighborhood. This arrangement can increase socializing opportunities for neighbors, and strengthen cohesion of neighborhood.
- The edge of blocks is softened by temporary occupation on ground floor or open extension cage on upper floors. This soft territory acts as semi- spaces between private and public, which blur the borderlines between in and out accommodate private life to spill onto community space.
- The urban morphology transformation is a gradual and collective process: temporarily occupied → permanent occupied → further temporarily occupied. Thus, further densification is expected in the future.

What lessons can be learnt from informal transformations?

- Emergence of new typologies created wide range of apartment types and sizes, but also raised concerns about inequality among different floor households. Thus incremental direction should be oriented by design and better management.
- Emergence of open private space as interaction territory assists interaction among next-door neighbors. Nevertheless, low degree of openness badly affects ventilation and daylighting. Thus, private spaces given a certain degree of openness arranged in sequence can increase socializing opportunities among neighbors, and also draw people's attention outwards to the open space, blur borderlines between public & private
- Emergence of open-air like rooftop terrace reveals that although private space not necessarily always the first priority. Therefore, upper floors accommodate people with open-air that fosters the sense of living closer to the ground.
- By examining simultaneously vertical cooperation, more indoor space while maintaining daylighting and ventilation is possible with good incremental design.
- Secondary enclosure is a threat to the good use and good management of open spaces, which stimulates further occupation, because excessively strong degree of enclosure, turn hidden open space into underused, thus vulnerable to be further occupied. Hence, give open space a certain degree of openness and looseness at one junction so that people can appropriate for their own use which serves the community.
- Scattered small businesses cause obstacles for community usage of open space. Activity design can increase usage efficiency of open space, stimulate liveliness of the community. A

schematic arrangement of open space with “temporary enclosure” which loosen control at the junction and the edge, and surround main open space with pockets of positive leisure activities can vitalize the community space.

- Severe shrinkage of open space leads to the loss of community gathering space, but can be avoided by better spatial arrangement of blocks that avoid inaccessible and ambiguous open space. There is a need for a solution that guarantees high physical density while regaining community socializing space in vulnerable locations.
- Evolutional schematic neighborhood arrangement: high temporal density interconnected in the heart of the neighborhood can increase socializing opportunities, and strengthen cohesion of neighborhood.

Informal housing transformation, an urban phenomenon in Hanoi, after all is not the only issue that needs to be addressed, through this practitioners and policy makers can acquire a different way of looking at things. Although it often looks messy, if we examine it carefully, it is actually not chaotic but complexly diverse and hidden rules actually exist. The phenomenon has been analyzed extensively in order to capitalize on the creative energy of the community in creating new uses and space forms, in transforming unused spaces into a site of potentiality, efficiency, delightful encounters and liveliness; and in transforming the morphology of the urban fabric. Hidden rules of location-specific extension territory, dispute-free extension territory, open private space, distribution of high temporal density are expected to be adopted in formal urban and spatial design. By learning from those rules and organic patterns created which are adaptive to morphology and expanding orders of the city, a realistic approach which takes into account more respects for users and community and changing needs over time has been proposed.

The findings stress the importance of open space in and local retail in enhancing vitality of the area. Local commerce should be utilized in place-making strategy as a place to socialize among neighbors. Give each community open space a designated area at the heart of the community so that people can appropriate for new uses and enclose it with activities which give each one a strong sense of place. Blur the boundary between public and private by giving public space a certain level of tolerance for temporary occupation and giving private space a certain degree of openness.

Application, limitation and future work

The ability to adapt and evolve over time is stressed as an important factor when evaluating the success of incremental housing projects, thus to justify the effectiveness of the proposal is not an easy task. Yet, since programs based on customary practices is more likely to succeed, the proposal is believed to match with local context, and meet resident’s needs of resettlement in the same area and especially meet ground floor residents’ needs of running small businesses. Nevertheless, as human needs change with time, it is also important to create programs that can be flexibly transformed.

To adopt informal transformations and their mechanism in formal planning, it is necessary to improve legal system and incorporate citizen participation by reinforcing connection among community, public, and private sector on the basis of win-win-win partnerships that profit their

investors, fulfill public policy goals and provide values in their communities. Furthermore, to realize the proposal, more research can be done regarding structure with expandability, light-weight construction methods, technical solutions can be further proposed.

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