

**IMPROVING MAKESHIFT PLACES:
THE ARCHITECTURE AND DESIGN OF INFORMAL SETTLEMENTS**

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ABSTRACT

Informal urbanism is a non-institutionalized but systematic building practice and a sign of the destabilization of institutions and inefficiency of mainstream building policy in the US and developing countries worldwide. It comes in many forms, but in most cases, “informal” buildings and communities emerge from the absence, insufficiency, or exorbitant cost of dwelling options for low-income populations in conventional public and private housing markets. What I am calling “makeshift” places are the consequence of a series of deteriorating political rights and deficient market initiatives culminating in the maximization of land use and the privatization of city structures. Such profit-driven building policies often accompany environmental degradation, economic segregation, and social exclusion.

Informal buildings and makeshift compounds are growing at a faster rate than any other form of urban development. They comprise urban neighborhoods or districts that develop and operate outside the formal control of the state. They are so economically, spatially, and socially integrated with their urban background that most developing cities are unsustainable without them.¹ However, the desire to remove them has persisted and remains linked to the issues of urban imagery, place, and identity. Although the literature includes a considerable amount of research on informal settlements, the notion of “informality” is both stigmatized and underexamined; yet, it remains a dominant way of building and must be included in debates about the future of architecture and urban development.

¹ Kimberly Dovey and Ross King, “Forms of Informality: Morphology And Visibility Of Informal Settlements,” *Built Environment* 37, no. 1 (2011), <https://doi.org/10.2148/benv.37.1.11>.

This study will first explore the process of informal building and recognize its consequences for architecture and urban development. It may also serve as a basis to suggest systemic improvements to established, object-oriented, architectural practices that will become a catalyst for achieving more sustainable and equitable cities and communities. We will examine different aspects of residential context, including how the sense of belonging and housing operates with respect to culture, society, and land. It takes architectural of design beyond the impulse to reaffirm individual identity and speaks to dignity and self-determination in ways that shape individuals and enable them to manage the spaces where they live. In this context, informality is architecturally relevant.

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ACRONMYS

CAG: Comptroller and Auditor General of India

CBO: Creation of Local Organization

EWS: Environmentally Weaker Section

GoTN: Government of Tamil Nadu

HCDA: Hawaii Community Development Authority

HIG: High Income Group

IRCDUC: Information and Resource Centre for the Deprived Urban Communities

KIP: Kampung Improvement Program

LGBTQ: Lesbian, Gay, Bisexual, Transgender, Queer or Questioning

LIG: Low Income Group

MDGs: Millennium Development Goals

MIG: Middle Income Group

NBC: National Building Code of India

NCD: Non-Communicable Condition

NGO: None-Governmental Organization

NIMBY: Not in my backyard

OM: Occupy Madison

PDU: Planned Unit Development

PIT: O'ahu Point in Time Count

PMBOK Guide: Project Management Body of Knowledge

STIs: Sexually Transmitted Infections

TNSCB: Tamil Nadu Slum Clearance Board

UN: United Nation

UN Habitat: United Nation Human Settlement Programme

1. INTRODUCTION

1.1. Background

Informal settlements have existed for a long time, in the sense that an individual other than the landowner has built houses with or without the landowner's consent. However, the term "informal settlements" is a more recent Western-initiated development and came out of the writing of Charles Abrams and John Turner, following the 1976 Habitat Conference in Vancouver, Canada.² Charles Abrams illustrates the process of squatting as the illegal appropriation of the space for shelter, defined both by the law of force and the force of law.³ John Turner takes a positive outlook of squatting and portrays squatter settlements as highly successful solutions to housing problems in urban areas of developing countries.⁴ This definition of such informal or spontaneous settlements as squatter settlements represented a growing change in attitude from utter hostility to support and protection.

For the millions of poor living in the developing areas of the world, moving to the city has always been a means for improving job opportunities and quality of the life. Recent studies have shown a dramatic increase in urban population; governments are not able to meet the high demand for building plots, resulting in the proliferation of informal settlements. The informal settlement has been defined in various ways depending on the planning and legal framework of the country in which it is located. This incorporates the UN Habitat Program's definition: informal settlements are residential areas where a group of housing units has been constructed on land to which the

² "The Vancouver Declaration on Human Settlements," United Nations Conference on Human Settlements, 1976, <https://www.un.org/en/conferences/habitat/vancouver1976>.

³ Charles Abrams, *Man's Struggle for Shelter in An Urbanizing World* (Cambridge, MA: MIT Press, 1964).

⁴ Gerald Breese, *The City in Newly Developing Countries: Readings on Urbanism And Urbanization* (Englewood Cliffs: Prentice Hall, 1969).

occupants have no legal claim or which constitute unplanned settlements and housing developments constructed outside the authority of building regulation.⁵ They are characterized mostly by low-quality construction, inadequate infrastructure and social services. It has been perceived both as a problem and solution to housing needs in speedily growing cities of many developing countries.⁶

Informal settlements can be defined as urban assemblages that operate outside the formal control of the state. Although it may be impossible to separate them from slum housing and legal tenure issues, it is important to define informality separately from slums. Squatter settlement implies a blanket lack of tenure; most informal settlements involve a range of rental, squatting, and informal entitlements. Many dwellings in informal settlements have most or all of these, yet not every informal settlement is a slum. The United Nations defines a slum as any dwelling with more than three people per room or without access to clean water, sanitation, security, and durable shelter.⁷ It presupposes the shortage of many of the primary environmental services considered crucial to a healthy living environment: sanitation, water, toilets, and personal space. Most of the developments have no formal access to water and rudimentary self-built drainage channels for wastewater and sewage. In many cases, these clusters of houses might start off as slums, but with the addition of toilets and upgrading transform into a healthy neighborhood. Overall, slums are urban areas characterized by poverty and substandard living conditions, and informal settlements are areas developed outside of planning regulations and legally sanctioned housing and land markets. Slum settlement refers to the condition of a settlement, while squatter settlement refers to the legal position of the

⁵ Raymond J. Struyk, *Guide to Preparing A Housing Finance Strategy* (Nairobi: UN-HABITAT, 2009).

⁶ Peter Kellett and Mark Napier, "Squatter Architecture? A Critical Examination of Vernacular Theory and Spontaneous Settlement with Reference to South Africa," *Traditional Dwellings and Settlements Review* 6, no. 2 (1995).

⁷ *Slums of The World* (Nairobi: UN-HABITAT, 2003).

settlement.⁸ There is a significant overlap between them, but some slums are part of the formal housing sector, and some informal settlements may have excellent living conditions and are relatively affluent.

There are several names by which different writers identify squatter settlements that highlight various attitudes toward and approaches to them, ranging from positive to neutral to negative perspectives. These include informal settlements, low-income settlements, semi-permanent settlements, shanty towns, spontaneous settlements, unauthorized settlements, unplanned settlements, and uncontrolled settlements. Noteworthy local names for squatter settlements (often also used for slum settlements) include *villas misarias* in Argentina, *favelas* in Brazil, *kevettits* in Burma, *callampas* or *campamentos* in Chile, *bastee* or *juggi-johmpri* in India, *colonias letarias* in Mexico, *barriadas* in Peru, *barong-barong* in the Philippines, *gecekondu* in Turkey, and *ranchos* in Venezuela.⁹

Term	Definition	Source/ Organization
Informal Settlements	<ol style="list-style-type: none"> 1. Areas where groups of housing units have been constructed for illegal occupation. 2. Unplanned settlements and areas where housing is not in compliance with current planning and building regulation (unauthorized housing). 	UN Statistics Division Glossary of Environment Statistics ¹⁰
Slums	<ol style="list-style-type: none"> 1. Areas of older housing that are deteriorating in the sense of their being underserved, overcrowded, and dilapidated. 2. Slums are operationally defined by inadequate access to safe water, inadequate access to sanitation and other infrastructure, 	UN Statistics Division Glossary of Environment Statistics/ UN-Habitat ¹¹

⁸ Will Jason, "Sustainable Development," *LILP*, 2018.

⁹ Hari Srinivas, "Defining Squatter Settlements," Gdrc.Org, 2015, <https://www.gdrc.org/uem/define-squatter.html>.

¹⁰ *Glossary of Environment Statistics* (New York: United Nations, 2000), https://unstats.un.org/unsd/publication/SeriesF/SeriesF_67E.pdf.

¹¹ Shaaban Sheuya and Xing Quan Zhang, *Informal Settlements and Finance in Dar Es Salaam, Tanzania* (Nairobi: UN-HABITAT, 2020), xx.

	overcrowding, insecure residential status, and poor structural quality of housing.	
Inadequate Housing	Housing is not adequate if <ol style="list-style-type: none"> 1. Its occupants do not have a degree of tenure security. 2. Its occupants do not have availability of services, material, facilities, and infrastructure. 3. Its cost compromises the occupants' enjoyment of other human rights. 4. It does not guarantee physical safety or adequate space. 5. The specific needs of disadvantaged and marginalized groups are not taken into account. 6. Its location is cut off from services and infrastructure or is located in dangerous areas. 7. It does not take into account the expression of cultural identity. 	UN High Commissioner for Human Rights/ UN-Habitat
Minimally Housing	For housing to be adequate, it must, at minimum, meet the following criteria: security of tenure, availability of services, materials facilities, infrastructure, affordability, habitability, accessibility, location, and cultural adequacy.	UN High Commissioner for Human Right/ UN-Habitat
Squatter Settlements	Areas of housing units that have been contracted or erected on land to which the occupants do not have a legal claim. See also <i>Informal Settlement</i> .	UN Statistics Division Glossary of Environment Statistics ¹²
Marginal Settlements	Housing units that lack basic amenities and/or are not considered fit for human habitation.	Glossary of Environment Statistics

Table 1: Definition of Housing and Informal Settlements

Reference: Baptiste et al. "Housing and Informal Settlements." Chapter. In *Climate Change and Cities: Second Assessment Report of the Urban Climate Change Research Network*, 399–431. Cambridge: Cambridge University Press, 2018.

Amount the listed settlements typologies, squatters and informal settlements are not qualified as formal houses because of their lack of legal claim; the housing condition

¹² *Glossary of Environment Statistics*.

defines others. Only the minimum housing meets the standard for living, and the rest are all suggested to upgrade.



Figure 1: Suggest Action for the Settlement Typologies.

Source: Author, 2021.

1.2. Objective

Most of the literature on informal settlements focuses on the social consequences of urban poverty and marginalization, and only a sparse portion is concerned with understanding the form of informal settlements. Among all these studies, some adhere to the lingering concept of informal settlements as a pathology rather than as a permanent part of the housing supply.¹³ These settlements have also increasingly been ignored or forgotten by urban planners despite informal settlements being visually indistinguishable from the urban form of the city, and this does not only happen in developing countries.

¹³ Lombard, "Constructing Ordinary Places: Place-Making In Urban Informal Settlements In Mexico," *Progress in Planning* 94 (2014), <https://doi.org/10.1016/j.progress.2013.05.003>.

When an outsider first perceives these “makeshift” places, space appears to be organic and lacking structure, but on closer inspection, a form of logic begins to emerge. Although most of these buildings have not been designed by an architect or structured by an engineer, they are no less reasonable than buildings designed by professionals. Unregulated construction is a reality; and the environmental adoption of informal housing often suggests logical economic saving and intelligent planning of the household. Surprising similarities have been observed between modern building material and techniques in informal settlements, a finding that piqued my interest in establishing a link between builders of informal settlements and professional architectural design and practice.

Didier Drummond, who studies the urban growth of the *favelas* in Rio de Janeiro, finds that informal settlements go through a sequence of three stages of changing consolidation: *implementation of precarious shelters, the transformation of shelters to shade, and solid construction*.¹⁴ Drummond underscores the spontaneous development of these three stages. These stages typically include the minimal and only the most essential infrastructure. If it is true that all informal settlements continuously improve, then the effects of improved infrastructure must be linked to perceived tenure and security. Such improvements at the urban scale are followed by those in the housing units, especially when the state takes part in those urban improvements, because it provides community members with some assurance that they will not be removed.

When people cannot afford to own a house, they end up having to live in makeshift neighborhoods that are crime infested, unsanitary, and overcrowded, with poor education opportunities, no playgrounds, and no outdoor recreation. For such neighborhoods, there is an opportunity for planning objectives to guarantee access to green space and to nature,

¹⁴ Didier Drummond, *Architectes Des Favelas* (Paris: Dunod, 1981).

access to physical activity and group sports, and walkability to elementary schools and health-care centers.

In the final stage of these makeshift places, improvements are made cooperatively to the physical structure of the neighborhoods after residents have built their own houses. Living as a collective would be one of the most important features for successful conversion to established functional township. Indeed, the most successful upgrading often occurs when these features are present in combination, as government agencies recognize that upgrading is cheaper, more effective, and more long-lasting if their upgrading programs work with community resident organizations. The goal of this research is therefore to extract lessons of value for the different settings of informal settlements and to provide an effective approach to improving these makeshift places through community involvement. Perhaps most significantly, development chances for informal settlements lie in their integration into the formal planning and organizational processes. If our cities want to continue to promote development and progress, we must address the issue of informal neighborhoods in a way that makes development sustainable and equitable for everyone.

1.3. Methodology

The past and future are connected in some. To provide a guideline to improve informal settlements' current situation, a deep understanding of previous experience is necessary. Figure 1 defines the framework of this research. The report is based on a summary of previous scholarly findings, theories, and literature reviews based on trends, images, and events of current makeshift places, concluding with complementary methods for improving the imperfect. As explained, the theory is evidence of the present, and it provides a peek into what can happen in the future.

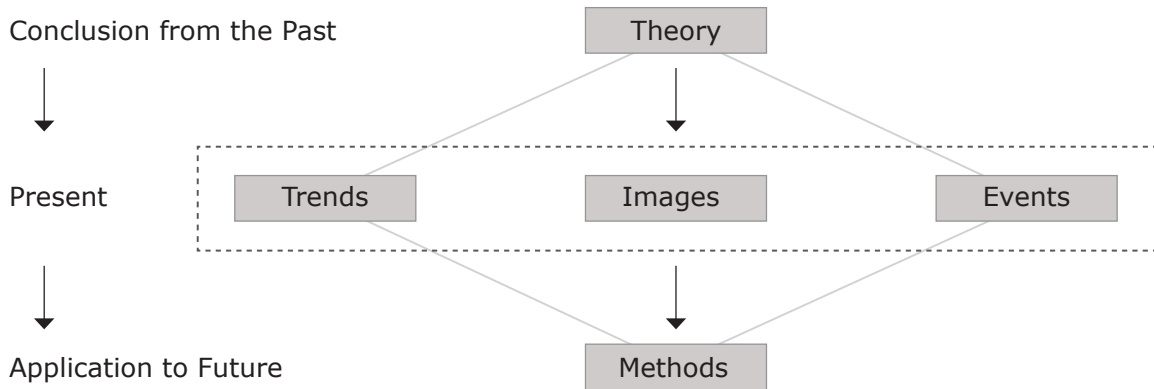


Figure 2: Planning Process
Source: Author, 2021

This research aims to identify a series of key drivers and approaches with the most straightforward and simplest application with “if” or “else” methods regarding improving makeshift places through architecture and design thinking. Every chapter introduces makeshift places in different aspects and presented them with color-coded diagrams. These diagrams are developed to help categorized informal settlements systematically and may be applied to other cases worldwide. It also reflects on the way the architecture and planning of such settlements are being taught and conceived.



Figure 3: Legend and Suggested Action.
Source: Author, 2021.

2. UNDERSTANDING INFORMAL SETTLEMENTS

Informality is not confined to the third world or developing countries only but is a perception that exists even in a rigid setting. During the last decades, hundreds of thousands of informal buildings have been built around the world. Although they are rarely made by people with architectural skills or building expertise, the number of these units produced per year exceeds the number of units in formalized developments. Compared with the institutionalized planning policy characterized by highly regulated and organized building production, informal buildings are typically constructed under deregulated conditions by individuals who have no vision or plan for the final whole. Instead, they build ad hoc by sequentially adding one element to another. The results have often been determined by the basic construction techniques and materials available. Nevertheless, informal buildings have rapidly filled up all the voids in downtown areas as well as in the outskirts, such as the flat rooftops of the existing houses, green zones along the boulevards, empty spaces between the buildings, and crop fields at the edges of the cities. They cluster near primary city services and infrastructure, creating a new urban layer that reflects the instability of today's society.

2.1. Beginnings of Informal Urban Development

Both the informal and the formal involve form. The prefix "in-" hints at a secondary character of the notion that formal allegedly came first, but this is true only in terms of the morphology of the language. Informality prevails at the beginning of many spaces and fields of activities, and humans regulate and create formality afterwards. One could say that formality is the systematization of informality by humans. It is an attempt at order and regulation. We divide physical space using walls, screens, and other partitions.

We create restrictions known as rules and laws to regulate behavior. Therefore, the human-made frontier can be seen as the essence of formality.

The other way in which these two notions are not interchangeable is that the formality performed by humans is not the alternative of informality. It only partitions space and set frames while the informal process is still applied within, just with less freedom. Of course, informality has its own rules, with complex structures and thousands of parameters, but formality makes things more understandable and controllable for people. Finding the balance between the limitations and flexibilities within a domain is important. Formality is clearer and more organized but less adaptable, whereas informality is flexible but also corrupt.

Either is imperfect because human nature is imperfect. Rules and restrictions are sometimes well considered or too weak to prevent informality entirely. One can frequently find loopholes in the boundaries of formality that allow informality to evade it. Formality is like a dam surrounding water pushing against it constantly, but many scenarios can occur that crash the system: the dam could break under pressure, or the reservoir may overflow or dry out completely. There is a continuous disequilibrium between formal and informal, and urban informality can provide a starting point in understanding the relationship between the two.

The urbanization process brings up new urban challenges, including the insufficient supply of infrastructure, public transport, and employment. One of the most significant problems remains the supply of adequate shelter. Informal urban development is perceived as a consequence of uneven urban growth, influenced by speculative financial markets and docile governments. The cities' crises overwhelm the conventional planning industry and require the formulation of alternatives that will integrate the architecture of informality into the whole urban structure.

Informal architecture and global urbanization are closely related. An investigation into the effects of neoliberalism and dysfunctional political systems on the growth of informal settlements reveals the underlying reasons. In addition, the ways informal dwellers subsist in poor conditions shows how the scarcity of resources and adverse living environments trigger creativity in the development of resilient communities for living and working, even in poverty.

The earliest developed literature regarding urban informality may come from sociology. It posits informality as a pre-existing condition in the 18th century before the formal urban realm began. Nezar AlSayyad argues that “many aspects of the formal and/or informal dichotomy may owe their origin to unresolved problems in this historical process.”¹⁵ Other sociological lines of reasoning describe informality as a by-product of globalization's continuing process and the implementation of neoliberal capitalist practices that exclude a large segment of the population.¹⁶ Ananya Roy argues insightfully that “the urban growth of the 21st century is happening in the developing world, but many of the theories of how cities function remain rooted in the developed world.”¹⁷ The sociological account of informality in the urban context typically privileges social, economic, and political problems. There was a surprising lack of research on informality's physical properties before the early 1960s when a theory by Perlman based on research in Latin America dismantled many of the “myths” about informality. She argued that informal settlements are squarely part of the more extensive economic system, and informal economies are criticized as distinct from the formal economy.¹⁸ This

¹⁵ Ananya Roy and Nezar AlSayyad, *Urban Informality: Transnational Perspectives from the Middle East, Latin America, and South Asia* (Berkeley: Lexington Books, 2004).

¹⁶ Gavin Shatkin, “Planning to Forget: Informal Settlements As 'Forgotten Places' In Globalising Metro Manila,” *Urban Studies* 41, no. 12 (2004), <https://doi.org/10.1080/00420980412331297636>.

¹⁷ Ananya Roy, “Urban Informality: Toward an Epistemology of Planning,” *Journal of The American Planning Association*, 71, no. 2 (2005), <https://doi.org/10.1080/01944360508976689>.

¹⁸ Janice Perlman, *Myth of Marginality: Urban Poverty and Politics in Rio De Janeiro* (City, CA: University of California Press, 1992).

provided the possibility of understanding that informal settlements are not a finite static object but rather an outcome of a long process of socioeconomic exchange and physical improvement in the city collectively through the formal means of production.¹⁹

2.2. Informal Settlements and Global Urbanization

In his book, *Planet of Slums*, Mike Davis introduces the scale of the problem of urban informality. He writes that “neoliberal capitalism since 1970 has multiplied Dickens's notorious slum of Tom-all-Alone's²⁰ in *Bleak House* by exponential powers. Residents of slums, while only 6% of the city population of the developed countries, constitute a staggering 78.2% of urbanites in the least-developed countries.”²¹ If half of the world's population is considered urban, and more than one billion urban residents live in informal settlements, then at least one-third of the world's urban population lives in slums.²² The United Nations' Population Division predicts that there will be 9.3 billion human beings on our planet by 2050.²³ This dilemma gives birth to a host of environmental concerns, scarcity, political strife, and perhaps most significantly, slums. Not only are our numbers rising rapidly, but we are also witnessing a growing concentration of settlements in towns, otherwise known as urbanization. This process has brought with it the production of slums in many developing countries. The relationship between informal settlements and global urbanization is a close one.

¹⁹ Jose Samper, “Toward an Epistemology of The Form of The Informal City: Mapping the Process of Informal City Making,” *SSRN Electronic Journal*, 2014, <https://doi.org/10.2139/ssrn.3492729>.

²⁰ Lynn Shepherd, *Tom-All-Along's* (City: Constable & Robinson, 2012). The story *Tom-All-Along's* takes place in the “space between” two masterpieces of mid-Victorian fiction: *Bleak House* and *The Woman in White*. The novel explores a dark underside of Victorian life in London slum.

²¹ Mike Davis, *Planet of Slums* (New York: Verso, 2017).

²² “SDG Indicators,” Unstats.Un.Org, 2020, <https://unstats.un.org/sdgs/report/2019/goal-11/>.

²³ “World Population Prospects,” Population.un.org, 2004, <https://population.un.org/wpp/>.

The underlying causes can be identified by investigating the impact of neoliberalism²⁴ and the fragmented political system on the sprouting of informal settlements. In addition to finding out the reasons for their formation, the ways informal dwellers strive to subsist in impoverished conditions are further analyzed to demonstrate how the scarcity of resources and an adverse living environment can trigger residents' creativity to shape a resilient community for living and working. Teresa Almeida provides a detailed discussion on each of the key concepts mentioned above: "Although capitalism necessarily creates inequalities, it was a particularly stringent version of capitalism (known as neoliberalism or market fundamentalism) in combination with increasing global integration that exacerbated unequal and exclusionary development, giving rise to slums."²⁵

Globalization has resulted in a series of derailed political rights, and deviant market initiatives have culminated in broken infrastructure, environmental damage, and economic and social segregation. Cities and urban population growth correlate with globalization, particularly in developing countries. The growth of slums was not an entirely organic creation within a country's domestic conditions. Instead, it is one of the consequences of globalized and neoliberal capitalism.

The formation of makeshift settlements is inevitable in the development of a city. People usually associate their formation with economic growth and housing development, highlighting the interplay between poverty and insufficient housing provision among urban populations. Informal settlements have become the only housing solution for low-income earners, accounting for almost a third of the urban population that strives to live

²⁴ Neoliberalism is a political approach that favors free-market capitalism, deregulation, and reduction in government spending.

²⁵ Teresa Almeida, "Goal 11, Department of Economic And Social Affairs," Sdgs.un.org, 2020, <https://sdgs.un.org/goals/goal11>.

in urban cities by informality. There is no doubt that globalization plays a vital role in promoting the growth of informal settlements, but there is a preliminary discussion regarding the correlation between the exact role of globalization and economic development in the sprawl of informal settlements in urban cities. The principle of free-flowing capital admired by globalized neoliberal capitalism can be applied to understand further development of informal settlements caused by urbanization.

Globalized neoliberal capitalism has intensified population migration from rural to urban areas. Privatization, deregulation, free markets, free trade, minimal state interference, and regulation are all primary characteristics of neoliberalism and its establishment of a free trade world market. As a political policy to encourage economic development, neoliberalism is directly correlated with perceived advantages such as free trade between nations and the integrity of markets. However, it also increases the income gap in modern society between the wealthy and the poor. While the poor remain under great economic hardship throughout their lives as they do not benefit much from the economic growth, while the wealthy have become more prosperous. Under neoliberal capitalism, the city population faces difficulties in accessing formal employment because of over-urbanization. This leads to minimal wages and a poor working environment for contract workers, part-time workers, and unregistered workers. As the poor cannot afford conventional housing or access to privatized land for subsistence living, considering the poor living environment, they can only choose to reside in informal settlements despite poor housing conditions. Their willingness to reside in cities is closely linked with the economic growth driven by the rapid urbanization of those seeking better working and investment opportunities than subsistence farming in rural areas.

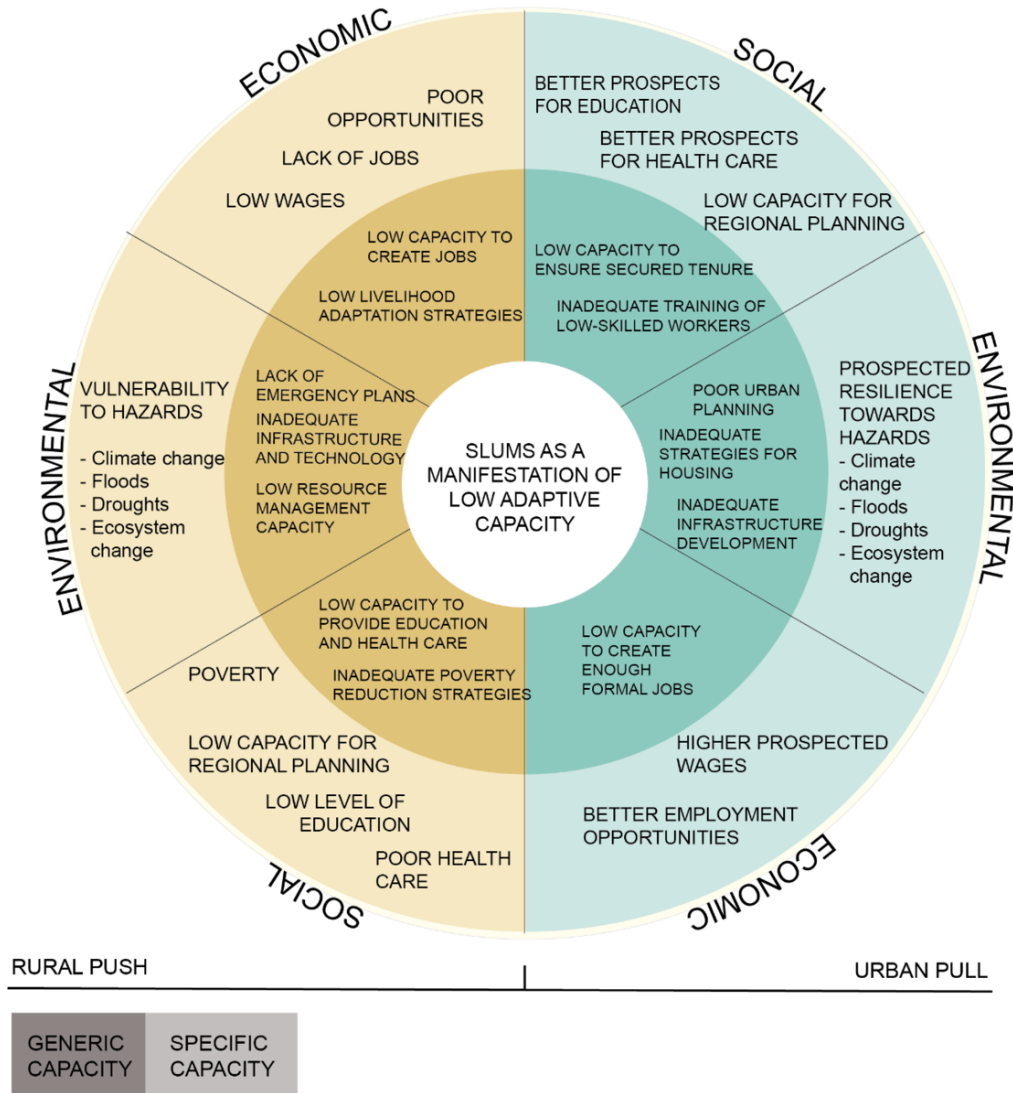


Figure 4: Schematic illustration of the emergence of informal settlements as a manifestation of low adaptive capacity within a rural-urban SES. The left and right sides of the outmost circle represent factors of generic capacities as rural push and urban pull. The middle circle illustrates the lack of specific capacities required to address vulnerabilities in the outmost circle.

Source: Niva, Taka and Varis, *Rural-Urban Migration And The Growth Of Informal Settlements: A Socio-Ecological System Conceptualization With Insights Through A "Water Lens"*.

Informal urbanization is not a pragmatic solution for the lack of formal housing in developing countries but a sign of non-inclusive and dysfunctional political systems.²⁶

²⁶ Roberto Rocco and Jan van Ballegooijen, *The Routledge Handbook on Informal Urbanization* (New York: Routledge, 2018).

Living in informal settlements becomes the only solution for the poor striving to stay in urban areas because of the lack of affordable formal housing. It is also an expression of the social exclusion associated with dysfunctional political systems that the public has only a little awareness of these issues. City planners fail to cope with rapid rural-to-urban migration, such as providing affordable housing for the newcomers, and the government has no funding for massive demand for housing to construct in a short time. The whole city marginalizes the urban poor outside of the city's development and believes that the problem will disappear with economic growth. Therefore, the proliferation of informal settlements is mainly the result of poor housing planning by the city government resulting from insufficient financial funds and the lack of coordination among different governmental departments in terms of urban planning, land allocation, and economic development.

At the same time, the housing market profits more from the supply of middle- rather than low-income dwellings, which exacerbates the demand for informal construction. Formal building procedures are determined by the restrictive conditions of the market economy, which have shifted housing policy goals from protecting a fundamental human right to housing to production of a commodity. Following this trend, architecture has been transformed from a discipline in service of the larger part of the population to a disparate niche of the real estate business that has more to do with the marketing industry than the public good. Building schemes have been reduced to those that are standardized, best-selling, and most profitable for a society of consumers. Because opportunities for conceptual innovations are limited, architecture efforts have been redirected toward rendering facades to provide a fancy, luxurious face to compete in the market.

Without the rights and voices that other city residents have, people living in informal settlements are continually faced not only with political injustice but also with social exclusion. The everyday activities of informal dwellers are often hampered by their poor living conditions and infrastructure. Their activities are limited to what is within walking distance, and this divides them from the formal cities and results in social isolation. To raise consciousness among city governments and other citizens on issues of citizenship rights, the urban poor's habitation in informal settlements is regarded as an active engagement of informal dwellers to express their dissatisfaction toward the dysfunctional political system of their cities' governments.

2.3. Poverty and Inequality

As we discuss economic inequality as the conjunction of informal settlements, the problem of health disparities arises. These informal settlements are characterized by poverty, tenure insecurity, informal housing, lack of basic services, and overcrowding.²⁷ Apart from urbanization, their expansion has also been attributed to colonialism, poor urban planning approaches, poor management, and the governments' inability to meet the demands of the growing urban population.²⁸ However, these settlements also provide shelter to a substantial portion of a city's population.

Poverty is often a defining characteristic of makeshift places. Their disenfranchisement from the general economy means that dwellers in the informal settlements do not have equal access to good jobs, good health care, better education, or, in some cases, even potable water. They face various economic and health

²⁷ Davis, *Planet of Slums*.

²⁸ Simiyu, Cairncross, and Swilling, "Understanding Living Conditions And Deprivation In Informal Settlements Of Kisumu, Kenya."

vulnerabilities, such as unstable income from which they must pay a premium for necessities; insufficient rights protection; powerlessness within political structures; lack of infrastructure; limited collateral for accessing credit; little or no savings; no health insurance; and undernutrition.²⁹ In addition, the residents of informal settlements often face discrimination when attempting to access public services and find employment.

These makeshift settlements are usually created by land invasions, squatting or informal subdivision, sale, and vacant land development. Residents are forced to use low-cost building materials to construct shelter and often build community assets incrementally. Thus, urban informal settlements are dynamic communities with a complex combination of assets and risks, making conventional epidemiologic approaches to studying population health and “neighborhood effects” on health difficulties for measuring and tracking health status.³⁰

Although city living can be healthy for most people, where one lives in a city plays a critical role in determining one’s well-being and life chances.³¹ Residents in informal settlements may experience several overlapping challenges such as elevated poverty levels, low-quality shelter, food insecurity, and political exclusion. These factors all widely interact with environmental health risks. The formal health department normally encounters slum residents only when they develop complications of preventable chronic diseases, which takes a costly toll on these uninformed communities and already limited healthcare services. Indeed, the urban poor living in informal settlements face a “triple threat” of injury, infectious disease, and non-communicable conditions (NCDs) such as diabetes and heart disease.³² The multiple risks residents of informal settlements face

²⁹ Satterthwaite, McGranahan and Tacoli, “Urbanization and Its Implications for Food and Farming.”

³⁰ Lilford et al., “Improving the Health and Welfare of People Who Live in Slums.”

³¹ Dye, “Health and Urban Living.”

³² UN-Habitat, *Slum Almanac 2015–2016: Tracking Improvement in the Lives of Slum Dwellers*.

are due to (1) hazardous shelter and poor living environment; (2) limited or no access to safe water, sanitation, public transport, and clean energy; (3) tenure insecurity; (4) exclusion from affordable, high-quality healthcare, education, and other vital services; (5) spatial segregation; (6) violence and insecurity; and (7) political marginalization.³³ These social inequalities may influence housing risk and health, as listed as following table:

Example Slum Characteristics	Definition and Indicators (Examples)	Community Health Risks (Select)
Overcrowding	>2 person/room or <5 m ² per person	Spread of TB, influenza, meningitis, skin infections, and rheumatic heart disease
Low-quality housing structure	Inferior building materials, dirt floors, and substandard construction	Vulnerability to floods, extreme heat/cold, burns, and falling injuries
Hazardous housing site	Geological and site hazards (e.g., industrial waste sites, garbage dumps, railways, wetlands, steep slopes, etc.)	Acute poisoning; unintentional injuries, landslides, flooding, toxic contamination, environmental pollutants, leptospirosis, cholera, malaria, dengue, hepatitis, drowning
Inadequate water access	<50% of households have affordable, 24/7 access to piped water/public standpipe	Malaria, dengue and diarrheal diseases, cholera, typhoid, hepatitis; increased HIV/AIDS vulnerability
Inadequate sanitation access	<50% of households with sewer, septic tank, pour-flush or ventilated improved latrine	Fecal-oral diseases, hookworms, roundworm; missed schooldays during girls' menstruation; malnutrition and children's stunting; lack of safety/sexual violence for women in unsafe toilets
Limited services and infrastructure	Inadequate healthcare, drainage, roads, energy, transport, schools and/or refuse collection	Traffic injuries; lack of emergency provision; fires; flooding/drowning; waste burning and air pollution; respiratory diseases and cancer
Tenure insecurity	Lack of formal title deeds to land and/or structure	Fear; increased hypertension; diabetes; low-birthweight newborns

³³ Corburn and Sverdlik, "Slum Upgrading and Health Equity."

Poverty and informal livelihoods	Low incomes, few assets and access to credit; lack of social protection	Increased occupational hazards; maternal health complications; vaccine-preventable diseases; perinatal diseases; drug-resistant infections
Violence and insecurity	Elevated crime, including domestic and gender-based violence	Homicides; hypertension; obesity; sexual violence; vulnerability to STIs, especially for young people forced into sex work
Political disempowerment	Low or no governmental responsiveness to needs and services	Lack of health services; poor education; preventable hospitalizations; typhus, leptospirosis, cholera, chronic respiratory diseases, growth retardation
Example Slum Characteristics	Definition and Indicators (Examples)	Community Health Risks (Select)
Overcrowding	>2 person/room or <5 m ² per person	Spread of TB, influenza, meningitis, skin infections and rheumatic heart disease
Law-quality housing structure	Inferior building materials dirt floors and substandard construction	Vulnerability to floods, extreme heat/cold, burns and falling injuries
Hazardous housing Site	Geological and site hazards (e.g. industrial waste sites, garbage dumps, railways, wetlands, steep slopes, etc.)	Acute poisoning; unintentional injuries, landslides, flooding, toxic contamination, environmental pollutants, leptospirosis, cholera, malaria, dengue, hepatitis, drowning
Inadequate water access	<50% of households have affordable, 24/7 access to piped water/public standpipe	Malaria, dengue and diarrheal diseases, cholera, typhoid, hepatitis; increased HIV/AIDS vulnerability
Inadequate sanitation access	<50% of households with sewer, septic tank, pour-flush or ventilated improved latrine	Fecal-oral diseases, hookworms, roundworm; missed schooldays during girls' menstruation; malnutrition and children's stunting; safety/sexual violence for women from unsafe toilets
Limited services and infrastructure	Inadequate healthcare, drainage, roads, energy, transport, schools and/or refuse collection	Traffic injuries; lack of emergency provision; fires; flooding/drowning; waste burning and air pollution; respiratory diseases and cancer
Tenure insecurity	Lack of formal title deeds to land and/or structure	Fear; increased hypertension; diabetes; low birthweight newborns

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Political disempowerment	Low or no governmental responsiveness to needs and services	Lack of health services; poor education; preventable hospitalizations; typhus, leptospirosis, cholera, chronic respiratory diseases, growth retardation

Table 2: Informal Settlements and Selected Health Risks

Resource: Nieuwenhuijsen, Mark J, and Haneen Khreis. *Integrating Human Health Into Urban And Transport Planning*. Texas, US: Springer, 2019.

Many contemporary informal settlements are located on dangerous sites such as areas at high risk of flooding or landslides. Indigenous populations are not permitted by the occupying power to live in urban areas. Instead, they are only allowed either to labor in the city or settle on land designated for them, which is frequently the riskiest, flood-prone, and/or adjacent to growing industries. Informal settlements reflect not only household poverty and urban population growth but also represent a legacy of discriminatory, segregationist planning, national policies that have compounded economic exclusion, and municipal governments that are unable or unwilling to serve the urban poor.

Slum health is a complicated issue, and interventions are often hampered by a lack of reliable population and place-based exposure data in informal settlements. We have summarized the key health issues facing many urban slum-dwellers and emphasized that their root causes are spatial and material deprivation and pervasive discrimination as well as inadequate or inappropriate urban and transport planning. A healthy environment is what all human beings and all forms of life need to thrive. Poor

health in informal urban settlements is not due to the behaviors or lifestyles of the urban poor. Urban slum upgrading is a process and collection of outcomes that can have a beneficial influence on multiple health determinants and potentially reduce health inequities experienced by the urban poor. Responses to inequitable health outcomes and living conditions in urban slums must not merely treat people and return them to the living and working conditions that made them sick in the first place.

Slum Upgrading Characteristic (Select)	Health Influences (Examples)
Community Empowerment and Political Recognition via Participatory Upgrading	Trust; empowerment; control of life decisions
Right to Remain (In-Situ Upgrading)	Social Connections; collective efficacy; no fear of displacement
Housing Improvements and Land Tenure	Reduced anxiety from fear of displacement; a formal address can facilitate access to social services, banking, etc.
Safety and Security	Reduced gender-based violence; reduce physical violence, improved mental health
Integration of Slums into Formal City	Transportation and access to employment, education and services; reduced isolation and segregation
Poverty Reduction	Income for food, electricity and other services
Climate Change Resilience	Reduced health impact from flooding, heat events, or water scarcity due to drought

Table 3: Select Upgrading Characteristics and Related Health Benefits

Resource: Corburn, Jason, and Alice Sverdlik. "Slum Upgrading And Health Equity". *International Journal Of Environmental Research And Public Health* 14, no. 4 (2017): 342. doi:10.3390/ijerph14040342.

2.4. Failures of Formality

Formality, which is defined as the rigid observance of rules or norms to secure the overall progress of society, leaves room for a lot of loopholes. People react and only obey rules when it serves their best interests. If the system offers no economic or personal benefit,

ways around it are found that give rise to informality. Formality is concerned with following protocols to achieve a result, but it allows for just one protocol to be strictly followed and replicated by all, without making various changes and adjustments in conditions. On the contrary, informality, as a system, is very flexible: the result, rather than the protocol, is what matters. For example, formality requires setting down principles, guidelines, and materials to build a house and a lot more before construction can begin. In contrast, with informality, the opportunities to build are always considered before any work is applied. The flexibility of the informal gives rises to creativity and allows for a progression. Informality has given rise to so-called "incremental building," whereby houses can be built over a period of time and improved upon, in contrast to the formal protocol where everything is thoroughly planned and constructed before habitation.

The "formality" of residential districts and housing development was contrived as a means to develop control over resources and then redistribute them equally. However, this did not end up working out as planned. In fact, most of the formal ways used nowadays were written down years ago, ignoring the fact that people, societies, and cultures do change over time. It is impossible to get the same result every time by applying the same framework all the time. Although formality could have been created with the best intentions to streamline efforts and increase efficiency, these divisions created limits to our actions. Despite its acceptance, formality has also always met with opposition for many different reasons.

Most cities have planned for a specific number of inhabitants and expected population growth which would be constant and kept under check from the start. However, the rate at which the world has urbanized over the past years has been unprecedented. City populations have more than doubled or tripled, in some cases, and have grown way past projections. The problem is our failure to plan for this expected influx. Urbanization has limited formality from functioning in some cities already. Unplanned urban sprawl, deficiencies in basic facilities, environmental pollution, and general urban decay have brought formality almost to a halt. Basic services and public infrastructure must be sourced informally. Formality has made our

cities so stiff and rigid that they cannot be modified to embrace changes. One advantage of the informal in this regard is its flexibility and resilience. It could be said that informal systems do not have an identity but work against odds that definitely are not in their favor. Against all these odds, informality remains afloat and accommodates change as it happens and is always able to make enough space for the next influx. We must learn from the process and apply it to our formal cities to be able to cope with the upcoming new wave of urbanization.

The impact of rapid population growth on the need for housing in the city is also an example of the failure of managing growth. In almost all economies, the growth of housing development is usually the result of the push of rural areas and the pull of town. This move, despite being anticipated, still appears highly unplanned. It is absolutely understandable that people would want to stay in an area with jobs or other economic opportunities, but they move into cities where they are almost unable to get befitting accommodation at a price they can afford. Some remain at the mercy of housing policies, which is often an attempt to keep them silent but is never enough. Housing growth arising from acute unemployment results from the increase of people in cities. This growth and physical expansion of cities have been accompanied by unplanned urban sprawl, environmental pollution, deteriorating public infrastructure, and general urban decay. Most cities have lost their original dignity, social cohesion, and administrative efficiency as the rise in poverty and urbanization exerts more pressure on urban facilities. Providing affordable housing for incoming citizens has always been a major problem, so they have no way but to resort to the informal. The informal system is flexible, expandable, and able to readjust at little or no cost and is almost always less trouble.

Galvin Shatkin exposes the ways that informal settlements have increasingly been forgotten by urban planners despite these housing crises, as planners have consciously abandoned place-based poverty alleviation efforts based on the rationale that they are no

longer tenable in the global era.³⁴ Such purely legal approaches are limited in that they do not address physical or social needs. The global urban planning approach to dealing with urban poverty and its impact on inhabitants' quality of life is more a compilation of strategies than a single-minded approach. This approach is reflected in various sectors of the Millennium Development Goals (MDG)³⁵ and developed as a multi-practice approach in the UN. It broadly follows the same structure defined in policy guidelines, and this guidance offer is implemented in the neighborhood upgrading programs and emphasizes seven necessary dimensions: (1) poverty is a complex multifaceted problem; (2) a multisectoral approach; (3) design as a vehicle of social and physical integration; (4) the project must have an impact on a citywide scale; (5) public and private partnerships; (6) engagement in these type of projects requires some level of state reform and support from the state; and (7) the pursuit of inclusion, participation, and democratization.³⁶ This represents the state's recognition of its responsibility toward the inhabitants of the slum areas as a "social debt"³⁷ or their "right of the city."

The other main struggle in formality has been control. The main purpose has been a way to control human activity, but we all know that the last thing any human being needs is to be controlled. With formality in place, boundaries are set. Freedom is given, but not fully. With the informal, boundaries are so blurred that they almost do not exist. Restriction of people to designated areas almost does not allow for a social mix. What is required is an inclusive development that leaves space for control to help with social mixing and exchanges.

³⁴ Shatkin, "Planning to Forget."

³⁵ According to the UN, The Millennium Development Goals (MDGs) were eight international development goals for the year 2015 and committed by 191 United Nation member states, and at least 22 international organizations. The following are the MDGs by 2015: (1) To eradicate extreme poverty and hunger. (2) To achieve universal primary education. (3) To promote gender equality and empower women. (4) To reduce child mortality. (5) To improve maternal health. (6) To combat HIV/AIDS, malaria, and other diseases. (7) To ensure environmental sustainability. (8) To develop a global partnership for development. Each goal has specific targets, and dates to achieving those targets.

³⁶ Vicente del Rio and William Siembieda, *Contemporary Urbanism in Brazil* (Gainesville, University Press of Florida, 2010).

³⁷ Jose Samper, "Urban Regeneration in a Context Of Violence: The Case of the Favela-Bairro in Rio De Janeiro," *Informalsettlementsresearch.com*, 2020, <http://www.informalsettlementsresearch.com/2011/06/urban-regeneration-in-context-of.html>.

In response to these failures over the last few decades, a new form of strategy has emerged, with government agencies investing in policies and programs that engage the problem of the informal from a new viewpoint. These policies are moving from focusing on a single practice to a more operational multi-practice approach. The world has been trying to learn from informality and apply the experiences extracted from informal settlements. This learning opportunity would not exist if formality were as perfect as proclaimed. This is not intended to romanticize informality, which also is not perfect, but together the informal and the formal could work for the betterment of all. It is important to note that formality and informality should be seen as a continuum and part of a socioeconomic fabric with participants communicating with varying degrees of formality, interacting, competing, and engaging in exchanges with one another and not as a hierarchy of one over the other. Also, one should not be simply regarded as necessarily good or the other as bad, but both should be seen as a part of a whole. The goal is to make both benefit those who happen to live within them. The decision we make now would significantly affect our world's future sustainability.

3. THE BOUNDARY BETWEEN THE FORMAL AND INFORMAL

3.1. Ambiguity

Informal urbanism is an urban phenomenon that defies clichés, and its only common characteristic is its origin. Typically, it draws criticism from governing entities, which focus on its negative aspects, but it can draw cautious praise from select academics, practitioners, and community members who find hidden value through closer study. In reality, whereas the formal urban process tends to destabilize, the informal solidifies. The integration of formal and informal at any scale becomes a code for managing sustainable urban development.

The binaries of “informal” versus “formal” cannot be understood as absolute; they are working descriptions of urban reality with varying degrees of formality. Informal urbanism ranges from the penniless rural migrant who builds his home in an emerging community to the speculator or developer who subdivides land without complying with all regulations.³⁸

- “Informal” and “illegal” are not equivalent because the informal may be the only possible way to urbanize in cities.
- “Informal” is not equivalent to “inferior” or “marginal” because in many cases informal communities are superior to dysfunctional formal public housing projects.
- “Informal” and “poor” are not equivalent because middle class families can be found in non-formal neighborhoods.

³⁸ Werthmann, “Informal Urbanism,” Uni.Unhabitat.org, accessed 12 December 2020, <https://uni.unhabitat.org/informal-urbanism-about/>.

Therefore, no settlement is ever completely formal or informal, and the abiding condition is ambiguity.³⁹ What is known as “squatting” often occurs on land without clear cadastral maps or legitimate title, where there are contested claims over land tenure, and/or where squatting often becomes formal tenure over time.⁴⁰

Martin and Mathema describe three primary process models for the formation and growth of informal settlements.⁴¹ The first involves the unauthorized occupation of unused land by a small group who may then take a role in overseeing further development as others join in. In some cases, the first squatters charge a fee or become slum landlords to those who follow. The urban morphology in such cases tends to be piecemeal. The second model is the overnight land invasion organized by a group of community leaders, sometimes with informal “rights” of use bought from the “owner.” Such settlements tend to be roughly pre-planned in grid layout with plots allocated. In a third model, the owners of a title develop it in an unauthorized subdivision where plots or houses are then sold or rented for profit, a model that is sometimes called pirate housing.⁴²

A spectrum of land tenure rights is often present, especially in developing countries where different sources of law and patterns of ownership can coexist. There is also a range of tenure situations, varying from the most informal forms of possession and use to full ownership. Many kinds of informal tenure engender the emergence of “landlords” who charge rent on property for which they do not hold title. Land and houses are

³⁹ Kimberly Dovey and Ross King, “Forms of Informality: Morphology and Visibility of Informal Settlements,” *Built Environment* 37, no. 1 (2011).

⁴⁰ Hans-Dieter Evers and Rudiger Korff, *Southeast Asian Urbanism: The Meaning and Power of Social Space* (Munster: LIT Verlag, 2003).

⁴¹ Martin Robert and Ashna Mathema, “Clash of Civilization: Reflections on the Problems of Upgrading Informal Settlements, Experiences in Ethiopia, Kenya, Swaziland, and Zambia,” *Informal Settlements: A Perpetual Challenge?* (2006).

⁴² Davis, *Planet of Slums*.

informally “bought,” “sold,” and “registered” with community leaders. Political alliances often emerge between political parties and squatter communities who guarantee to deliver voting blocs in return for protection from eviction. Resident interests in security of tenure can be countered by those of landlords and politicians in keeping tenure ambiguous.

The following table details the continuum in land tenure rights according to type of land tenure. However, it is important to note that a variety of other considerations can still affect the level of rights. These include limitations on land usage, given that land use must comply with zoning regulations, development, and construction standards and norms, as well as with the form of development referred in the agreement or contract between the owner and the land user. The level of rights will also depend on the period for which the rights are negotiated and whether they are renewable and transferable. Finally, the degree of formality of rights or lease contracts can influence the level of rights as they can range from informal unwritten agreements to formal contracts between landlords and tenants. There will also be customary arrangements, which may allow for different levels of rights depending on the local legal and regulatory framework.

Level of Right		Tenure Status			
		No Rights	Rights Limited to Legal, or Administrative Protection	Limited Number of Rights to Use	Full Bundle of Rights
Squatters	Not Protected Against Forced Eviction	✓			
	With Temporary Protection Against Forced Eviction		✓		

Occupants in Unauthorized Land Subdivision	On Sites Unsuitable for Development	✓	✓		
	On Sites Eligible for Upgrading		✓	✓	
Holders of Temporary Permits to Occupy				✓	
Holders of Long-Term or Renewable Permits to Occupy				✓	
Leaseholders	With No Formal Contracts			✓	
	With Formal Contracts (Sort-Term Renewable Leaseholds)			✓	
Long-Term Leaseholders (Registered Leaseholds)					✓
Freeholders					✓

Table 4: The Continuum in Land Tenure Rights

Reference: Durand Lasserre, Alain, and Harris Selod. *The Formalisation Of Urban Land Tenure In Developing Countries*. 2007.

The definition of a home is distinguished from a house by the fact that the former is a relationship, and this experiential feature of a home distinguishes it from a house. The use of a term such as “home ownership” considers house and home as synonymous phrases. However, there may be more uncertainty in the context of other uses.⁴³ Although a house is an object, a part of the environment, a “home” is best conceived of as a kind of relationship between people and their environment. Being at home is a mode

⁴³ Kimberly Dovey, “Home and Homelessness,” *Home Environments*, 1985, xx, https://doi.org/10.1007/978-1-4899-2266-3_2.

of habitation whereby we are oriented within a spatial, temporal, and sociocultural order that we understand. It is an emotionally based and meaningful relationship between dwellers and their dwelling places. Concomitant with this distinction is that the assumption of the "housing problem" is not identical to that of "homelessness." Indeed, the housing problem can be, and often is, solved in a manner that creates homelessness.

Differentiation Factors	People in Informal Settlements		Street Homeless People
	Inadequately Housed	Homeless	
Type of settlement	Spontaneous/ informal	Spontaneous	Spontaneous
Access to land	Invasion (Legal)	Invasion (Illegal)	Invasion/Illegal
Type of government land	Not assigned for other use or not likely to be used as intended	May be assigned for other use	Assigned for other use
Security of tenure	Partial or temporary/ psychological security	None, little, or misplaced psychological security	None
Permanence	Permanent	Not permanent	Not permanent
Level of consolidation	Consolidated	Not consolidated	Stable/more problematic
Physical planning	Quasi/informal planning	Quasi/informal planning	Not planned
Building quality	Improving/consolidating	Not improving/ consolidating	Stable or deteriorating
Type of building materials	Wood, iron sheets, sometimes mud, brick or stone walls	Scavenged wood, iron sheets	Scavenged cardboard boxes/ blankets, plastic sheets
Life span of housing	More than 5 years	Less than 5 years	Weeks or months
Personal safety	Moderate safety	Minimum safety	Not safe

Type of accommodation	Renting or informally constructed owner occupation	Renting or informally constructed owner occupation	Night shelter, under flyover, in station, pipes, etc.
Location	Tend to be in the urban periphery	Inner city or urban periphery	Inner city areas
Growth	Increases/expands in density over a limited area	Increases/expands in density over a limited area	Expand without control
Social status	Low but accepted for most employment	Low but accepted for most employment	Not trusted, lowest status
Recognition as citizens	Sometimes ID and ration cards can be obtained by policy patronage	Sometimes ID and ration cards can be obtained by policy patronage	Non-existent
Employment	Full-time in most cases, low-paid manual and domestic work. Many small businesses	Lowest paid manual and domestic work, some unemployed/very erratic; begging. Few small businesses	Lowest paid manual and domestic work, some unemployed, very erratic; begging
Community organization	Organized into CBOs	Many organize over time into CBOs	Not organized
Response of government	Upgrading	Resettlement/often summary eviction	Non-recognition/demolition and relocation
Access to facilities, e.g., banking	Difficult	Difficult	Impossible
Access to services	Partial, often illegally connected, likely to improve	Very basic, often illegally connected, none. Unlikely to improve	None or a few street taps and Public toilets

Table 5: Differentiating Factors Between Inadequately Housed and Homeless people in Informal Settlements and Street-Homeless People

Reference: Based on Tables Compiled by Tipple Graham. 2006. "Who is Homeless in Developing Countries." International Development Planning Review

3.2. Image and Identity

The process of globalization affects the very definition of place and identity in architecture and urban design. One could argue that re-conquest of the capacity of architecture and urbanism to express local identity is among the key requirements for sustainable development.⁴⁴ The identity of one place emerges from a specific locality but embodies a multitude of layered phenomena. Some are tangible and measurable, while other escape easy comprehension, comprising an accumulation of experiences, unique and common practices over time. The locality in which an image of place is rooted consists of physical setting and activities. Traditional urban and architectural history charts the process of the creation and identity of a place.

In place theory, the identity of a particular place often refers to its significance in relation to other places. The cluster of characteristics defines the unity and uniqueness of one place and its relation to some other places. Thus, the identity of place refers not only to the distinctiveness of individual places but also to sameness between different places.⁴⁵ Norberg-Schultz emphasized that the identity of place, or its spirit, is a fundamental element in any definition of place.⁴⁶ Such approaches insist that identity is never complete, that it is in a continuous flux of becoming.

Tangible elements of place identity, its physical setting, and its activities are palpable and immanent elements that conceive ground for its creation. Intangible elements of the place identity establish themselves through experiences.⁴⁷ Although these experiences are based on tangible elements of place, they do not necessarily depend on it. The meanings of place may be situated and linked to their physical elements

⁴⁴ Milica Muminović and Darko Radović, "Spatial Expressions of Local Identity in the Times of Rapid Globalization," paper presented at the International Network Symposium, 2012.

⁴⁵ Edward Relph, *Place and Placelessness* (London: Sage, 2016).

⁴⁶ Christian Norberg-Schulz, *Genius Loci: Towards A Phenomenology of Architecture* (New York: Rizzoli).

⁴⁷ Muminović and Radović, "Spatial Expressions."

and associated activities, but they are not their property; they are, rather, the property of human intentions and experiences.

Informal settlements are used to being perceived as an inferior and desperate attempt to conform by lesser means. Nowadays, there is more architectural and urban discourse to talk about informality in a positive–negative duality. The dwellers in the informal system, where the threshold between formality and informality is blurred, can say that they have acquired a sense of resilience and resourcefulness as part of their skill set. Society has acknowledged that informal settings are a “beautiful chaos” and a resource for understanding urban culture. Advocates for the formal system are now looking at developing cities where informality is challenging conventional and formal urbanism.

John Turner, whose influential work in Peru made way for the self-help policies of the World Bank, remarks eloquently that housing needs to be seen as a verb instead of a noun. Not only is housing the constructional built form, it is also about the process of social evolution. Informal settlements are one of the best examples of adaptability and incremental growth. They develop through a bottom-up process and demonstrate a level of community participation rarely seen in planned developments. Their morphology is an outcome of the negotiations between the settlement’s different decision-makers.

Informality is an expression of urban culture. When we travel to a new place, we notice its informal characteristic through its people and their behavior. These observations inform us of how people live and go about their everyday life. We learn more about the city from a chat with the local taxi driver than from the travel guidebook. Informality is a complex and fascinating organizational system, constantly evolving to meet individual or collective needs.

Unfortunately, most of the informal settlements are portrayed as the black holes of social, economic, and cultural pathologies- a site of violence, insecurity, and poverty. However, these settlements are not going to go away. They are a part of the contemporary city and the attempt to produce public housing as a remedy for substandard housing. We still have such backfired projects in New York City and the other cities. The characteristics of life in the projects are crime, drugs, lack of security, police surveillance, hardship, and overcrowding—all all negatives.

Popular culture reinforces that these places are different and separate from everything else, and this is the kind of language in images that influences the public debates. In practice, there are actually lessons in urban design that we can learn here. Almost all these neighborhoods are mixed-use, pedestrian friendly, and within walking distance of jobs. They display high-density, low-rise housing, with a high degree of outdoor life in the laneways. Through driven by cramped interior space, the house interface allows for activity to spill out of the indoors and creates a lively streetscape, which in turn contributes to public safety through “eyes on the street,” as pointed out decades ago by Jane Jacobs.⁴⁸ These settlements serve as an exemplary model for contextual response and satiable living.

3.3. Provisionality

Developing typologies of informal settlements in a global context based on spatial criteria has been the topic of several studies. As an accurate description of urban informality is often impossible to provide, the concept has been adopted differently over recent decades. In fact, the criteria for developing typologies of informal settlements are

⁴⁸ Robert Kanigel, *Eyes On The Street: The Life of Jane Jacobs* (New York: Vintage Books, 2017).

often not the same. Davis suggests a typology of informal settlements based on proximity to job opportunities. His typology develops a framework for categorizing informal settlements based on their location and formal/informal condition.⁴⁹

Dovey and King outline a typology of informal settlements that considers the process in three terms. The first is *settling* on the unclaimed and often unbounded land as indigenous village/town over millennia. The second is *inserting* into the uninhabited, abandoned, or leftover fragment of urban space. Third is *attaching* as informal creation or excrescences grow out of, or attach onto, the structure of the formal city.⁵⁰ This typology introduces eight types framed within the categories of districts, interfaces, trajectories, and topographic. Such categorizations help organize thinking rather than simply classifying places.

1. *District*

The most common type of urban slum is often that where informal settlements have grown to become large mixed-use districts incorporating major retail and industrial functions. Such informal settlements develop over a long period and cannot be described simply as infiltration or encroachments. They are often the site of major upgrading schemes where the prevailing informality has been infiltrated by the formal city. *Examples: Kibera (Nairobi), Tondo (Manila), Khlong Toei (Bangkok), Kampung Kaliasin (Surabaya), Dharavi (Bombay)*

⁴⁹ Davis, *Planet of Slums*.

⁵⁰ Dovey and King, "Forms of Informality."



Figure 5: Urban District Settlement. Kibera Slum in Nairobi (Left) and Dharavi Slum in Bombay (Right)
Resources: Peter Prokosch (Left), Ritesh Uttamchandani (Right)

2. Waterfront

These are are settlements located on marginal land between formal city and water frontage. This marginal land has usually been considered unsafe for settlements due to flooding or exposure but directly connects to the ecological or economic resources of water. This type of settlement may be exposed to flooding, storms, and tsunami. In some cases, the settlements have been raised artificially above the water. Many informal settlements in the wet tropical cities of Southeast Asia are of this type. *Examples: Khlong (Bankok), Rivers of Manila and Indonesia.*

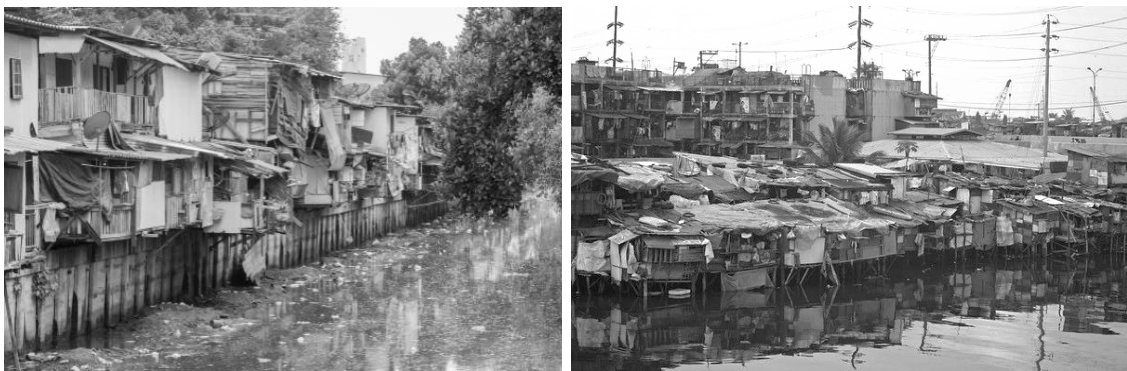


Figure 6: Waterfront Settlements of Khlong, Bankok (Left) and Manila (Right)
Resources: David Bokuchava (Left) and Sarah Novak (Right)

3. Backstage

Backstage informal settlement forms largely through attachment to or insertion between existing city buildings under conditions where it is largely hidden from the public gaze of the formal city. This “backstage” is an urban zone that becomes more informal the deeper one penetrates behind a relatively formal street frontage. At times, the entry through the street wall is nothing more than a half-meter gap, beyond which the morphology of public street give way within a few meters to semi-private alleys where informal settlement becomes a relatively fluid and irregular morphology. These developments are particularly common under conditions of authoritarian states (such as China and Vietnam) or where the visibility of informality is more politically sensitive.



Figure 7: Backstage Settlements. Manshiet Nasser (Left), Guangzhou (Middle), and Zhuhai (Right)

Resources: Adriana Navarro Sertich (Left), Cinzia Losavio (Middle and Right)

4. Enclosures

This type of informal settlement is physically contained within a formal shell of a large building, vacant lot, or institutional compound. The defining characteristic here is that the formal boundary sets a limit to the extension (and often the visibility) of the informal settlement. The original shell becomes the bounding

condition of informal appropriation even where the informal accretions are clearly visible. Examples here are cemeteries in Indonesia and Egypt.



Figure 8: Enclosures. Indonesia (Left) and Manila
Resources: Yahoo! News Indonesia (Left) and South China Morning Post

5. Easements

Major urban infrastructures such as railways, freeway, bridges, and major power or sewer lines often have easements or buffer zones that become major sites of informal encroachment. Railway siding is usually settled in a manner that utilizes these easements and sometimes turns the railway line into a pedestrian street between trains. If the freeway is elevated, then the space underneath can become accessible as well. Easement settlements can both form as a large district or be inserted into the smallest fragment of leftover space.



Figure 9: Infrastructure Easement. Slums in Delhi (Left) and Manila (Right)
Resources: Indian Legal (Left) and The Daily Opium (Right)

6. Sidewalk

Sidewalk settlements often emerge under conditions where public sidewalks are lined with blank walls or fences and are not used for access to adjacent properties. The spatial framework generally leads to linear housing that is only one room deep but several stories high. Domestic space thus occupies what remains of the sidewalk, which in turn become blocked to pedestrian access. Sidewalk settlements can be most exposed and vulnerable to informal settlements and, if constructed from cardboard and plastic, can be cleared away during the day.

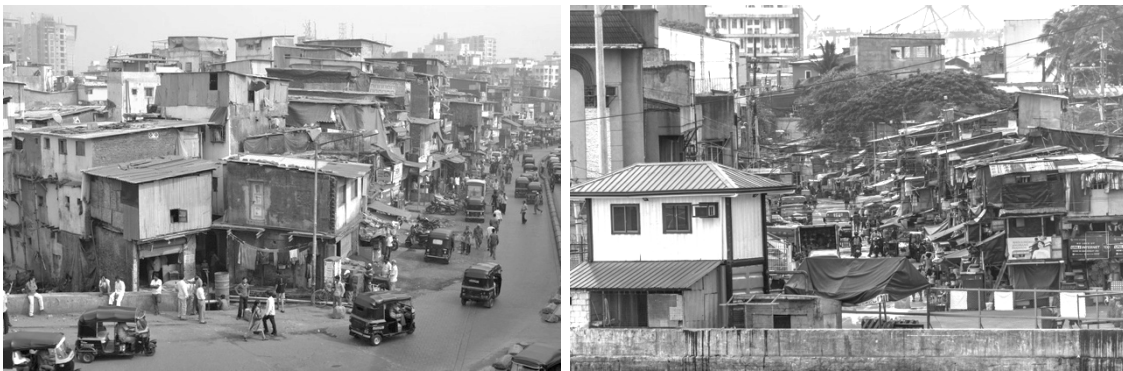


Figure 10: Sidewalk Settlement. Dharavi, Mambi (Left) and Manila (Right)
Resources: Flickr CC User M M (Left) and Guidelines (Right)

7. Adherences

This type is based on a principle of dependency of urban informality on a pre-existing formal framework. The formal construction becomes the armature for informal appropriation, which attaches onto or bursts through a formal public façade. Although informal additions may also be internal, the impact on the city is related to informal intrusions into public space. This type differs from the sidewalk type in that the source of informality lies in the occupation of the formal buildings.



Figure 11: Adherences Settlement. Dharavi Slum Area in Mumba (Left) and Manila
 Resources: Elena Odareeva (Left) and The Borgen Project

8. Escarpments

Some parts of urban topography are too steep to build on but have been appropriated for informal settlements. Frequently, this is the margin between the formal city and mountains, with terrain too rugged for vehicle to navigate that may also be subject to landslides. *Examples are most found in South American where the favelas of Rio de Janeiro and the squatters of Caracas are largely located on escarpments.*



Figure 12: Escarpments. Favelas of Rio de Janeiro (Left) and Squatters of Caracas (Right)
 Resources: Yahoo Life on Pinterest (Left), Gabriel J. Diaz (Right)

Although the previous descriptions seem to suggest the typology of informal settlements, a mix of scholarship, fieldwork, analysis of historical maps and photographs, and exploration in Google Earth demonstrates that the distinctions outlined here are heuristic tools. Nearly all informal settlements are hybrids. A waterfront is often an embankment or escarpment that combines the dangers of flooding and land slippage. Railway, freeway, water, and power easements may be co-located with waterfront or large informal districts. A strip of sidewalk urbanism may be adjacent to an escarpment or the exterior of an enclosure. One settlement type can also be transformed or morphed into another.



Figure 13: Suggest Action for the Site Typologies.
Source: Author, 2021.

3.4. Adaptation to Place

Those opposed to informal settlements usually operate on the so-called NIMBY (not in my backyard) principle, which connotes that such residents only oppose them

when the development is close by but tolerate or support settlements built farther away.⁵¹ They are noticeably against the chaos, disordered planning, and ramshackle construction. But like other informal sectors, these informal settlements benefit from the deficiencies of the formal sectors and use their own capital to create a habitable environment through flexibility, pragmatism, negotiation, and the constant struggle for survival and self-organization. In other words, it could be said that informal settlements need their cities to survive, just as much as these cities benefit from their informal parts. Many informal economic activities in informal settlements are essential links in supply chains and closely integrate with the “formal” sector. They also provide the basis for cost-effective improvements in living conditions.

Understanding a given discourse as a socially constructed system of relationships in which ideas have their meaning, one might suggest that the impressions surrounding informal settlements are images of chaos, poverty, violence, and disease. However, those are only a construction built from outside informality and are created for people who belong outside. Currently, the central debate around informal settlements is that they are dangerous and toxic wastelands that must be contained, tamed, and remediated; and that they would never recover without outside intervention. We expect poor communities to suffer from a culture of poverty that undermines initiative and rewards predatory behavior, that the poor can only mimic the affluent and become upwardly mobile through submission and repetition while creating and perpetuating a culture of helplessness and chaos.

Such statements suggest underestimation and misunderstanding of the complex structures underlying the informal settlements and their varied internal organization. In fact, informal dwellers develop their own practical solutions in dealing with environmental,

⁵¹ “NIMBY,” Dictionary.com.

social, and economic problems. These implications must be considered when talking about sustainable development. Political mismanagement that limits adaptive or creative capacities could aggravate social and cultural problems. In short, one could conclude that although the negative aspects and dynamics of informality cannot be denied, the positive effects in terms of providing infrastructure, housing, communal integration, and control should not be ignored either. On the one hand, it is essential to understand that informal settlements are indeed centers of poverty, criminality and ecological problems, but on the other, they are also the provenance of innovation. Their inhabitants find solutions under critical environment and political restrictions on a scale without historical precedent. This is a vital and essential challenge to dominant narratives of the megacity.

The rules of informality serve as a force concurrent with that of the governing body in shaping the urban condition. Whether these contrasting ways of producing and appropriating cities coexist, one must look at inner relationships within informal settlements that appear at first glance to be chaotic and accidental.

As Ananya Roy states, informality must be understood as an idiom of urbanization, a logic through which various spatial values are produced and managed.⁵² The city is definitely a fine example of a complex system, where the parts can only be understood through the whole, and the whole is more than the simple sum of its parts. Informal settlements are clearly subsystems within complex urban systems. Like third world cities, traditionally known for their inherent chaotic and discontinuous spatial patterns and rapid and unorganized development process, the morphological characteristics of informal settlements, combined with their development process, are generally understood as chaotic and unorganized.

⁵² Roy, "Slumdog Cities: Rethinking Subaltern Urbanism," *International Journal of Urban and Regional Research* 35, no. 2 (2011), <https://doi.org/10.1111/j.1468-2427.2011.01051.x>.

3.5. The Coexistence of the Formal and Informal

More research than ever now focuses on informal architecture and urban planning. Following the dissatisfaction with the modern approach to housing solutions, some studies have directed attention toward understanding the production and functioning of informal settlements. The bottom-up formation of the informal building practice has become the quality that architects are now exploring to apply and integrate into the formal design process. Therefore, it is important to understand how formal and informal sectors coexist when regrading spatial production, use, and management.

Informal settlements generally entail a lack of land tenure security, basic infrastructure and services, and substandard dwellings at locations that are not in compliance with land use regulations and are often not suitable for development. Features of informal settlements are houses made of local building materials with significant variations in construction quality, built incrementally on a do-it-yourself basis with informal finance arrangements. Informal settlements comprise heterogeneous urban populations managed by small-scale and large-scale landlords. Most dwellers are low-income tenants living in a single room, predominantly engaged in informal economic activities. Rental accommodation is the most common form of tenancy. Still, these settlements offer an affordable shelter alternative for many. Informal settlements are more supportive of people socially than formally organized ones. This makes us question the spatial and social qualities in informal settlements that support their residents' livelihoods.

Spatial qualities that are lacking in planned housing areas are the main characteristics of the unplanned housing settlements. They could be found in the negotiation, appropriation, and utilization of spaces and innovative approaches in making utilities for everyday life. Because they are built by the dwellers, they can more accurately

facilitate their needs. From a broader perspective, other qualities of informality are heterogeneity, flexibility, and flow of spaces for specialized and temporal uses and housing diversity in terms of scale, architecture, and materials of construction. Informal settlements provide a flexible environment that allows for continuous transformation because they are temporary in nature. Their transformability makes them resilient to changing conditions such as economic crisis.

The built environment of informal settlements does more than provide shelter that is defined by the walls, the ceiling, and the floor. It provides privacy, identity, security, additional sources of income, and much more. The social qualities of informal settlements include the social and economic mix of residents, a rich network of social interactions among them, and a high level of social capital. Above all, bottom-up resourcing is the rule by which informality forms, operates, and evolves across multiple scales. This kind of urban ecology reframes the very discourse on sustainability.

This finding is a big blow to current urban development policies and practices, which are based primarily on the assumption that formalization improves living conditions. Following the successful model for sustainable and equitable development of informal settlements, formal procedures must be upgraded to support their evolution by allowing the active participation of a broader group of actors in the building process. In recent times, the concept of urban commons has gained popularity with its strong potential to counteract the monopoly of commodification occurring at large. Collective ownership and management of resources turns out to be the most vital urban strategy for generating genuine urban development.

The problem with formal systems is that they appear to take advantage of lower classes or migrants to benefit wealthy and influential policy makers. In many cases, informality emerges from a formal system that has failed to meet the needs of the

community. Housing inequity may result from public policy that favors the “one size fits all” approach. Formality cannot deal with the things which are not absolute because formality tries to deny and set boundaries, which, inevitably, sparks a slow but steady mass social revolt, eventually leading to the development of the informal. If something cannot be addressed by solving or repairing it, people might seek ways of “hacking” it. We all have the potential to be extremely creative when facing the problem of survival, even willing to take risk and work illegally. Satisfying physiological needs is usually more important than considering the formal and the informal.

The “underground” market in Penang, Malesia, may exemplify the coexistence of formal and informal. It is a nighttime street market that lies along a one-kilometer stretch road with glimmering lights and sounds, enticing visitors to purchase all sort of items. Juxtaposition operates at varying levels: the makeshift kiosks against the backdrop of a five-star hotel and the pirated “luxury” products neatly arranged within these kiosks are fascinating. These night markets are not at all “underground,” visually and economically speaking. In fact, all of this activity happens openly and aboveboard; nothing is underground except our prejudgment. What interesting is that these five-star hotels acknowledge that these night markets draw in the tourists and therefore turn a blind eye to their illegal presence. Police raids are conducted on a regular basis, but informal agreements, perhaps in the form of bribery, have been pre-arranged, so the vendors are given notice before the arrival of the police. In the bigger picture, these night markets collectively form a vital role in the island’s tourism industry that has led to its progressive development.

As society evolves and constantly progresses through a method of adoption or trial and error, could it be that what is perceived as informal today could be considered formal tomorrow? That formal systems can benefit from informality has long been argued. The

perception of informal settlements has changed from that of a colony of misery to a potential model for affordable housing. Instead of viewing informal settlements as illegal, researchers or policy makers are now focusing on the development. Developments of informal settlements have been the starting point for transforming our approach to design strategies from that of an imposed sequence of esthetic and functional choices made by few into a process that engages many.

What makes informality so important is its success as an experiment. Informality is more flexible and self-regulating. The genius of human nature is our ability to self-organize. This positive attribute can be explained by a phenomenon called “emergence.” Emergence is defined as many independent, random particles interacting to create higher-order systems and patterns. According to the laws of human evolution, we are not exempt from this behavior.

To best explain this, just observe the traffic on a road and imagine cars as individual particles. When one car slows down or comes to an immediate halt, it causes a trail of cars behind, braking slowly or braking immediately to avoid crashing into one another. We are like independent “cars,” making decisions individually to slow or brake, thereby creating a higher order of systems and patterns within the framework of traffic—in this case, society. This is essentially the theme of Adam Smith’s economic text *The Wealth of Nations*, which refers to this phenomenon as the “invisible hand” guiding the market. This scheme was not deliberately invented but emerged from a natural human desire to increase personal wealth and standing.

What is equally impressive is understanding the relationship between formality and informality as a continuum that could reframe discussions and ways of planning urban environments. Although urban systems of informality and formality overlap, urban development policies still divide cities into islands of prosperity and poverty. How

informality and formality are treated and often presented as an either-or problem must be overcome to develop ideas that integrate the different qualities of informal and formal systems. The framework of the formal-in-formal continuum could inspire innovations of urban and housing development models for cities in developing countries. It is a new paradigm that can reflect the actual coexistence of formal and informal systems in spatial and social terms and is also capable of explaining diversities with respect to functional, social, and economic parameters that span them.

3.6. Peoples in Transit

The emergence of informal settlements is among the most apparent challenges in our rapidly urbanizing world. Despite numerous attempts to upgrade slums worldwide, informal settlements remain a pervasive negative side effect of urbanization. Currently, a total of 863 million people globally accommodates in informal settlements.⁵³ These inhabitants are exposed to numerous threats and vulnerabilities because of the extremely dense population and lack of security, responsible and healthy living environment, and access to the most basic facilities, such as clean water, sanitation, and health care. Notably, all these needs are known as fundamental human rights and are included in the Sustainable Development Goals of the United Nations, suggesting significant shortcomings in sustainable development.

There are many reasons for people to live in informal settlements, ranging from lack of security, demography, and human rights to poverty and climate change. There are usually both push factors and pull factors at work. Push factors are the reasons why people leave an area, including lack of services, safety, high crime, crop failure, drought,

⁵³ Acuto, Parnell and Seto, "Building A Global Urban Science."

flooding, poverty, and war. Pull factors are the reasons for people to move to a particular area: high employment, better income, political stability, less crime, good services, more fertile land, and lower risk from natural hazards.

		Specific Capacity: Coping with Know Hazards	
		Low	Hight
General Capacity: Human Development Needs	Hight	<p>Safe Development Paradox: Migration into slums</p> <ul style="list-style-type: none"> - High general assets (education, income level, health care; both individual and system level) - Fail safe development plans - Low capacity for risk management - Increased local vulnerabilities 	<p>Sustainable Adaption: Sustainable Migration</p> <ul style="list-style-type: none"> - High general assets (individual and system level) - Hight risk management capacity - Balance between short-term and long-term development (both individuals and system-level)
	Low	<p>Poverty Trap: Trapped populations in poor rural and urban areas</p> <ul style="list-style-type: none"> - Chronic vulnerability - Low human development - Inability to cope with chronic vulnerability or acute stress (both individuals and system-level) 	<p>Safety First: Migration into slums</p> <ul style="list-style-type: none"> - Poor general assets - Short-term security prioritized over long-term development - Week government level support to build generic capacities

Table 6: Capacities matrix illustrates the interplay of generic and specific. Each quadrant illustrates one possible migration outcome.

Reference: Niva, V., Taka, M., & Varis, O. 2019. Rural-Urban Migration and the Growth of Informal Settlements: A Socio-Ecological System Conceptualization with Insights Through a "Water Lens". Retrieved December 10, 2020, from <https://doi.org/10.3390/su11123487>

The condition of occupants of informal settlements and homelessness seems ambiguous. There is no official definition of homeless people in most countries, but we can find the idea from censuses or other policy arrangements. Several countries consider only people without a roof above their heads as homeless, whether they are poor or legal or otherwise. Based on this definition, squatters in Bangladesh, Ghana, or India are considered homeless. Other countries emphasize tenure. For example, in Zimbabwe, anyone who does not own a formal-sector dwelling is classed as homeless. Thus,

squatters who do not own the property on which they squat fall into this category, however good a dwelling they have. Conversely, anyone owning a formal dwelling that is now dilapidated or unsafe is not homeless because they own their own home. Similarly, in Peru, tenure is emphasized, so squatters may be considered homeless because they do not have legitimate tenure to the land they live in. Again, ironically, those who own old houses too dilapidated and unsafe in which to live are not classed as homeless.⁵⁴

In addition to homelessness, migration influences informal settlements. Migration usually results from a combination of these pushes and pull factors. Some people choose to migrate, and some are forced to migrate. They can move either independently or en masse. For example, people who relocate for economical or educational purposes will travel independently and then join their families, whereas people who move for political reasons may move together as a group with or without their families. Although not all migrants are from ethnic minority groups, a substantial proportion are.

There are various aspects by which migration can be classified: reasons for migration, migrant social status and education, duration of relocation, and geographical distribution of resettlement. Furthermore, migrants can be classified based on whether their contact with the "majority" or "dominant" culture is perceived as voluntary. Migrants may be categorized as immigrants and sojourners when the change in their location results in voluntary contact, whereas refugees are deemed to change their location involuntarily. Refugees often do not carry many possessions with them and do not have a clear idea of where they may finally settle. Of every thousand people who live in the world today, 0.035 are refugees. Without stable source of income, they often end up in informal settlements.

⁵⁴ Graham Tipple and Suzanne Speak, "Who Is Homeless In Developing Countries? Differentiating Between Inadequately Housed And Homeless People," *International Development Planning Review* 28, no. 1 (2006), <https://doi.org/10.3828/idpr.28.1.3>.

In developing nations, these migrations have led to a rich diversity of cultures, ethnicities, and races. Individuals who migrate experience many pressures, including the loss of cultural traditions, religious customs, and social support systems. They also must learn to adapt to a new environment through the adjustment of identity. The following table summarizes the stages and characterization of urbanization and migration patterns.

Date	1800- 1900	1900- 1970	1970- 2000	2000- 2015
Urbanization Stage	Growth of Urban Fabric	Urban Expansion	Urban Networking	Regional Corridors
Dominant Urban Economic Activities	Commercial and Administrative	Industrial	Industrial and Services	Services Plus the Rise of Information and Community Technology
Urbanization Patterns	Towns Transformed into Cities	Metropolises	Metropolises and Intermediary Cities	Small and Intermediary Cities and Metropolises
Migration Origin	International Migration and Migration from the Area Surrounding the City	Rural Areas and International Migration (Due to World Wars)	Cities (Internal and International Migration) and Rural Areas	Metropolises (International and National) and Neighborhoods within Metropolises
Migration Destination	Capital Cities	Metropolises	Metropolises and Intermediary Cities	Small and Intermediary Cities and Neighborhoods within Metropolises
Major Planning Challenges	Provision of Basic Infrastructure	Expansion of Infrastructure to Support Agglomeration of Economies	Relocation of Industrial Activities, Location of Services	Segregation and Fragmentation

Table 7: Stages and Characterization of Urbanization and Migration in Cities

Reference: Murillo, Rernando. *World Migration Report 2015*. Image, 2015. <https://www.iom.int/world-migration-report-2015>.

Although squatters and other residents of informal settlements are unlikely to have complete security of tenure, they tend to have more security than homeless people. The security level is often used as a measure to distinguish between types of informal settlements or categories of inhabitants and may also be helpful in determining which people in informal settlements are homeless. For example, tenants and sub-tenants living in squatter and informal settlements are usually more insecure than owners.⁵⁵ Many of people in informal settlements, seeing their place as “makeshift,” perceive themselves to be on an upwards housing trajectory, which their shelters and the services provided to improve over time. If the circumstances of the settlements make it possible for their denizens to improve their lives, their housing must be included in the estimation of the housing stock, albeit with a caveat for the need for improvement. Many occupants of informal settlements are forcibly evicted and their homes removed, leaving them genuinely homeless. More attention should be given to eliminate poor policies that raise the numbers of people in the homeless categories and increase numbers of those enjoying better security, servicing, physical conditions, and other benefits of housing in urban areas.

⁵⁵ Durand-Lasserve and Royston, *Holding Their Ground*.

4. INFORMAL SPACE AND MAKESHIFT TRANSFORMATION

4.1. Patterns of Informal Building and Community Formation

Informal settlements have become a reality with which many governments must cope, as they include a large proportion of the urban population, especially in developing countries. The most significant policy response to informal settlements has been to legalize informal land development, especially the practice of squatting. This response is the clearest indication of the government's efforts to regulate informality on their territory. In this case, formalization is the process by which actions, situations, persons, or buildings that are not authorized by legal terms or formal channels obtain such recognition. This may happen through individuals taking the necessary steps to achieve formal recognition, such as titling, upgrading, or urban redevelopment or by the government's moving to confer such recognition by its own initiative. In the last decades, inhabitants of many consolidated informal communities have been compensated for the inadequacy of basic services and the lack of public amenities.

Formalization can be justified by a wide variety of social, legal, moral, sociopolitical, economic and environmental arguments. Many such arguments are based on sociopolitical and legal problems. Although formalization experiences have become a fundamental component of the constitutional social right to adequate housing in certain countries, few policymakers understand thoroughly the nature and dynamics of informal development processes.

In the case of redevelopment by the gradual demolition and building of alternative housing, government policies respond by ensuring the security of consolidated informal areas in one area of the city to provide access to better living standards. These interventions are often targeted at degraded informal communities where living conditions are unsafe and closed to vulnerable urban areas. The state's responses to

urban informality range from upgrading and increasing the supply of urban housing to neglect and demolition/eviction.⁵⁶ Not all informal settlements are sustainable, but most clearly are a permanent part of the urban economy and often incorporate significant levels of industry as well as housing.⁵⁷

Forced eviction is generally coupled with demolition of the settlements and may or may not involve compensation or resettlement. There are many reasons for forced eviction, including presenting a cleaner image of the city, lowering the risk of natural disasters such as flood plain or unstable hillsides, and clearing sites for new development. One such reason may be used as cover for another, but forced eviction is often politically unpalatable and attracts the attention of both local and global media.

Resettlement schemes frequently involve relocation to cheaper land on the urban outskirts without access to jobs. Such relocation, however, stimulates the development of more informal settlements as residents move back closer to employment. Most of the time, residents are either enticed or intimidated into moving or selling under conditions that are not in their interest.

However, neither of these traditional, positivist planning solutions such as relocation, clearance, or slum upgrading techniques focus on the creation of new, affordable housing stock or on providing basic infrastructure as an effective approach to controlling or dealing with the problems of the slum. Such single-minded tools have been inadequate for the scale of the issues of substandard housing and related social ills such as environmental and economic segregation and, in many cases, high levels of insecurity; they only translate the problem to a new location. Some effects of failed slum clearance program renewal include feelings of loss on the part of those who have been expelled

⁵⁶ John F. C. Turner, *Housing by People: Towards Autonomy in Building Environments* (London: Marion Boyars, 1976).

⁵⁷ Geoffrey K. Payne, *Making Common Ground* (London: Intermediate Technology, 1999).

and grief for their neighborhoods. In other cases, such as Indore's Habitat Improvement project in India, the new amenities are so poorly designed that the circumstances are even worse than before the upgrade occurred.⁵⁸ Because of the failures of these types of physical interventions, the emerging policy literature on informal settlement upgrades focuses on obtaining tenure rights as a critical instrument for developing housing in low-income squatter settlements.⁵⁹

Various responses to informal development have been developed since the late 1960s when Turner and others successfully highlighted the fact that self-help housing was part of the solution to urban shelter provision. The demolition of slums, squatter areas, and public housing programs gradually gave way to settlement upgrading, often conducted in tandem with sites and service schemes. These approaches recognized the legitimate role of residents to construct their own shelters.

The upgrading of informal settlements is generally executed on a project-by-project basis, and each project phase may take several years. The project model suggested by Forbes Davidson and Geoffrey Payne groups tasks into five main stages: *feasibility studies, detailed studies, developing project options, detailed development purposes and project implementation.*⁶⁰

1. Conventional Approaches to Upgrading

The conventional approach was common in the 1970s. A special unit would first be established, usually with a government organization or ministry as a lead agency for a specific project. This unit would be responsible for overall project management and coordination of the input of other agencies and organizations.

⁵⁸ Gita Dewan Verma, "Indore's Habitat Improvement Project: Success Or Failure?" Habitat International, 24, no. 1 (2000), [https://doi.org/10.1016/s0197-3975\(99\)00031-4](https://doi.org/10.1016/s0197-3975(99)00031-4).

⁵⁹ Vinit Mukhija, "Enabling Slum Redevelopment In Mumbai: Policy Paradox In Practice," Housing Studies 16, no. 6 (2001), <https://doi.org/10.1080/02673030120090548>.

⁶⁰ Forbes Davidson and Geoffrey Payne, *Urban Projects Manual*, 2nd ed. (Paris: Liverpool University Press, 2000).

However, the level of participation was relatively low most of the time. Although the community members are seen as the project's target, they are not key partners in the development process. In fact, the lead agencies and professionals dominate the project and tend to adopt technocratic approaches to infrastructure and services, yet fail to establish a local capacity for cost recovery, operations, and maintenance.

2. Community-Based Approaches

The essential difference between conventional and community-based upgrading is in the adoption of a more inclusive, collaborative style of project planning and implementation. This provides a higher level of community mobilization and involvement in decision making, which is an essential ingredient for successful upgrading. Community participation may also provide a means to address the long-term sustainability of project benefits by encouraging a feeling of ownership and responsibility that further fosters adoption of participatory approaches. *Community-based action planning has been introduced in numerous informal settlements, including Hanna Nassif, Tanzania.*

3. Basic Issues in Settlement Upgrading

The major issues in projects center upon four main topics: the nature of the target population and, in particular, the most disadvantaged groups; the physical nature of the project site and prevailing land tenure arrangements; the nature and level of site development; and the institutional and financial framework. In practice, upgrading models and checklists should be used only as a guideline. Engaging communities to set the agenda for development will improve the project's relevance but carries some risks. Professional knowledge and expertise experience are also required to ensure the related problems and other integrated manners.

On the other hand, although formalization improves land-market efficiency and labor market participation, it generally fails to affect access to financial resources in economic terms. This does not mean that formalization has few substantial benefits; residents show that it is of great use, albeit in a different manner from what the theory assumes. Rather, formalization helps to quickly consolidate their homes and thereby greatly increase property values.

Although informality is increasingly recognized, the economic and social problems of informal settlements have been largely ignored by policy makers and planners. Major public and private investments which remain outside the formal economy are mobilized through informal settlements. These settlements often take over public or private property, transferring the cost to local municipalities for compensation and facilities. Because of its sprawling pattern, the land, often developed with single-family housing in a sporadic way, is underused. Informal settlements often impair the ability of the local authority to control land use such as parks, unsafe brownfield sites, or land that may have had other more productive uses. At the same time, informal housing, the single largest asset for dwellers, is under permanent threat of destruction, particularly through environmental hazards or demolition. Efforts to formalize informal buildings are still on the agenda of policy makers and at the forefront of urban planners' minds in many cities around the world.

4.2. Design Implications

People usually evaluate informal settlements in relation to their surrounding environment of poor sanitation, insecure housing quality, hazardous environment and lack of basic infrastructure; however, they ignore the significant intangible knowledge

that these settlements provide about resilience, resource efficiency, and community values. In the recent past, more of us have started changing our stance toward informal settlements, from seeing them as an unapproachable part of the city to understanding their importance, and now, accepting and working with them to include these areas in mainstream governance. Architects and urban planners recognize their rational and intelligent innovations and seek to fulfill their needs to incorporate them into formal planning. Janice Perlman questions whether we see a chaotic, poorly-built, overcrowded, disorderly slum or a neighborhood in progress, emphasized by meticulous planning on the use of scarce housing space and creative construction techniques for building.⁶¹ She sees these settlements as a physical expression of people struggling to move upwards against obstacles and as an inspiration symbolizing the true grit of human necessity.

The dwellers of the informal city negotiate as outsiders with the system, improvise on the deficiencies of public-private institutions, and somehow manage to improve their lives every day. Being in this situation, they create a socially active and dynamic environment that cannot be ignored. Informality is strengthening from day to day, becoming a non-institutional resilient system. Its development questions whether formal construction processes could be changed from a top-down, immutable delivery system into a transparent, inclusive, bottom-up, and open-ended process that can adapt to the unforeseen initiatives of people engaged in building. The apparent direction for architects is to influence, steer, and shift the process themselves.

What is needed is a new methodology and a practice to identify, visualize, and to a certain degree, foster architecture evolution toward informality. The propositions for such methodology are coordinating and synchronizing diversity to integrate various unpredictable rhythms to make choices in the multiplicity, groove, and shift of real space.

⁶¹ Perlman, *Myth of Marginality*.

It should not be based on a personal fantasy of order and omnipotence but rather on the staging of discussions and collaborations between architects and people who strive to build for themselves. It should no longer be aimed at stable configurations but at creating spaces that accommodate processes that simultaneously transform them.

If designers, architects, and planners hope to be relevant in this context, they must first enhance the immediate well-being of residents through minor interventions and proposals. These initiatives must be tactical and should be executed by including local communities in creating solutions that retain the central philosophy of informal settlement. The goal is to change policies by demonstrating meaningful change, relying on self-reliance and ingenuity and not necessarily on political will. From an individual household to a porch–corridor, to an apartment shrine, to a street market, these growing spaces of differing scale somehow find a balance with the formal city. Beyond the informal façade, spectacle of chaos and traces of everyday life continue to weave a rich fabric of urban narratives.

The aims to improve the present status of informality are a highlighted opportunity for architecture activities. The tasks for professional roles are reconsidered. Instead of providing completed building solutions, architects nowadays are asked to work together with the people.

4.3. Self-Organizing Buildings and Settlements

Under the scope of informality, self-organization can be understood as a system where certain types of global order or coordination emerge from local interactions between the components of an initially disordered system. The process is spontaneous: it is not directly or controlled by any government agency or systematic guideline; however, the rules followed by the process and its initial status may have been chosen or caused

by an agent. The resulting organization is totally autonomous and distributed over all the components of the system. As a result, it is typically very durable and able to survive despite substantial damage.

Self-organization originates in person-based social relationships in loose networks, stabilized through the definition of mutual interests, positions, and relations. Thus, direct communication like face-to-face contacts transform into trust inside the organization. This process usually relies on the concept of charisma, based on which communities naturally choose their leaders. Bob Jessop provides a typical example for the explicit identification of governance with social coordination, arguing that social coordination refers to how disparate but interdependent social agencies are coordinated and/or attempt to coordinate themselves through a different form of self-organization to achieve specific common objectives in the situation of complex reciprocal interdependence. Exchange, command, networking, and solidarity are techniques and mechanisms deployed as below.⁶²

Because self-organized communities do not fall under a defined institutional framework or an existing system, they can collectively articulate their needs and interests. Following Korff and Rothfuss, the underlying concept of agora governance offers the possibility to stimulate urban management processes in a sustainable way. Self-organization here evidences the existence of an open and complex system, characterized by situations of non-linearity, non-causality, unsteadiness, confusion, and chaos.⁶³ Multiple social relations and interdependencies between informal dwellers, developed through work, trade, neighborhood, kinship, and friendship, are established through

⁶² Bob Jessop and Ngai-Ling Sum, "Towards A Cultural International Political Economy: Poststructuralism And The Italian School," *International Political Economy and Postructural Politics*, 2006, https://doi.org/10.1057/9780230800892_9.

⁶³ Herman Casakin and Juval Portugali, *The Design and Dynamics Of Cities as Self-Organized Systems*, <https://www.scribd.com/document/273031901/The-design-and-dynamics-of-cities-as-self-organizing-systems>.

organizations. Thus, localized problems requiring collective action—in this context, self-organization—are circumscribed as territorial definitions and demarcations of a collective. Improving social cohesion enhances social control, making feasible the reduction of external control. The self-organized society also enables shared support for economic and social welfare for its members. If social creativity is the potential to establish new patterns of social relations and organizations, then social capital is maintained as a collective agency through a process that retains a socially cohesive collective within self-organized groups.⁶⁴

Despite the lack of proper spatial planning and organization, regulatory control, and insufficient resources, inhabitants often demonstrate ingeniously through makeshift shelter design how they meet their basic needs of living in a modern city economically. The innovative solutions and skills of informal builders are highlighted for their potential as permanent upgrades to informal settlements. Moreover, the paradigm of self-organization is represented as hope for overall social and spatial regeneration. They are recognized as self-regulating, self-sufficient, and self-determining modern cities. These are fully illustrated by the following example on the Kowloon Walled City in Hong Kong.

By its peak in the 1990s, Kowloon Walled City housed 33,000 inhabitants within 6.5 acres of solid buildings.⁶⁵ It was created in response to government and societal ignorance regarding affordable housing provision and social inequality for the poor and urban newcomers. Informality offered them the opportunity to use labor to maintain a living. As it reflects a modern city, inhabitants not only have made a space for living but

⁶⁴ Rüdiger Korff and Eberhard Rothfuß, "Urban Revolution as Catastrophe or Solution? Governance of Megacities in the Global South," *DIE ERDE* 140, no. 4 (2009), https://www.researchgate.net/publication/267776875_Urban_Revolution_as_Catastrophe_or_Solution_Governance_of_Megacities_in_the_Gobal_South.

⁶⁵ Sharon Lam, "Here's What Western Accounts of The Kowloon Walled City Don't Tell You," *Archdaily*, 2016, <https://www.archdaily.com/800698/heres-what-western-accounts-of-the-kowloon-walled-city-dont-tell-you>.

also explore ways to diversify the use of this space for business. They learn to be innovative to maximize the utilization of small living spaces.



Figure 14: The aerial view of Kowloon Walled City in 1990s.
Resource: Mywowo. Image, 2020. <https://mywowo.net/en>.



Figure 15: Walled City Dentist Window, 1989 (Left) and Walled City Mail Delivery, 1987 (Right)
Resource: Greg Girard

Informal settlements are organic in that they adapt to the needs of inhabitants. The development of self-organization is inspiring in Kowloon Walled City. Inhabitants have solved water supply problems, electricity accessibility, safe housing, and building construction by themselves without the help of government authorities. They have found alternative ways to get things to work. For example, to obtain a water supply, some have hired private suppliers to pump water from wells or drilled wells themselves. Those who are more comfortable doing so build water tanks on rooftops. In the worst case, some may steal water from the formal water system. Electricity access is another challenge. Electric cables can be carried only to lower floors in Kowloon Walled City because of the maze of pipes and wires everywhere. The owners on the lower floors extended the cables to the upper floors so that other inhabitants could have access to electricity. During the later stages, inhabitants even set up electrical stations inside the slum to accommodate two high-density cables for the overuse of electricity by 33,000 inhabitants. Thus, the housing units in Kowloon Walled City were built on top of others through the inhabitants' efforts to meet the basic daily living needs of a modern city.

Informal settlements are believed to be more sustainable by producing less waste than a formal city by using fewer resources. In fact, many informal settlements serve as recycling hubs where dwellers gather and sort undesirable waste such as plastics, glass, and metals from across the city and sell them to scrap distributors for processing and later reuse. The dwellers are naturally taught to be more independent and skillful by transforming from rag-pickers and sorters into product makers to earn more money rather than working for minimal wages in recycling workshops for owners who are not dwellers. This is not only limited to recycling of waste such as plastic and metals but also encompasses the innovative process of converting discarded old/waste/scrap clothes into new pieces to be sold around the world. This ingenuity demonstrates residents' ability to

raise their living standards through all possible means and to sustain themselves by earning a living with dignity, including creating job opportunities for themselves without help from any organization.

The settlements are the collective outcome of a synergistic and self-organizing process in which thousands of independents participate locally in their own ways. Although the ongoing process appears chaotic and unorganized, the resulting elements are coherent and concise. The entire process depends as much on the organization of the individual, entity, and agent as on collaboration in the community. In the formal understanding of design and construction, the process has a clear structure. Starting with identification of the problems, design and redesign reaches a point of design optimization, the final product ready to be applied. However, the design of informal settlements depends on a self-organized system. Each person is operating in the city as a planner and/or designer at a particular scale. This kind of bottom-up action triggers complex dynamics whose effects we cannot fully predict or control, but it is not an implication of chaos. Such upcoming evolutionary behaviors generate urban liveliness, economic vitality, health, and livability for the residents of informal settlements. The people of informal settlements function as semi-autonomous agents, following generative rules: laws, codes, regulations, incentives, and disincentives.⁶⁶

There is no doubt that informal dwellers are among the most inventive groups of people in the world as they continuously manipulate their surrounding environment to address the problems they encounter with limited resources. To make the place habitable requires great commitment, hard work, and creative energy. Their potential for small-scale innovations and unpredictable distribution all over the city territory appears

⁶⁶ Michael Mehaffy, "Design Technologies For Self-Organizing Cities," *Meeting of the Minds*, 2014, <https://meetingoftheminds.org/design-technologies-for-self-organizing-cities-7100>.

essential to informal urban transformation on a massive scale. Surprisingly, while authorities decline to the minimum of stability, informal practices evolve in stages from the disequilibrium of initial systems, growth of claimed territories, and legislation toward new building typologies and solidification as parasitizing forms. With a little imagination and intelligence, physical structures can be used to develop specific forms of self-organization based on their social structures and rules to cope with their daily life.

5. PRECEDENT STUDIES

The discussion in this chapter will be tackling community participation to obtain quality and efficiency in informal settlements through case studies of different parameters involved in any intervention procedures. Whereas the roles of non-governmental organizations, youth, and charities in relieving governments' burden toward better qualities of life in these makeshift places. Those procedures include on-site redevelopment, incremental adjustment, servicing approach, evection and relocation.⁶⁷ Each intervention applies according to many factors, and not all upgrading interventions are suitable. The following precedent studies will briefly review the different upgrading models in makeshift places and clarify the methods best applied for transforming the informal settlements into a better community.



Figure 16: Suggest Action for Upgrading Approach.
Source: Author, 2021.

⁶⁷ Dina Mamdouh Nassar and Hanan Gamil Elsayed, "From Informal Settlements To Sustainable Communities", *Alexandria Engineering Journal* 57, no. 4 (2018): 2367-2376, doi:10.1016/j.aej.2017.09.004.

5.1. On-Site Redevelopment: Kampung Improvement Program

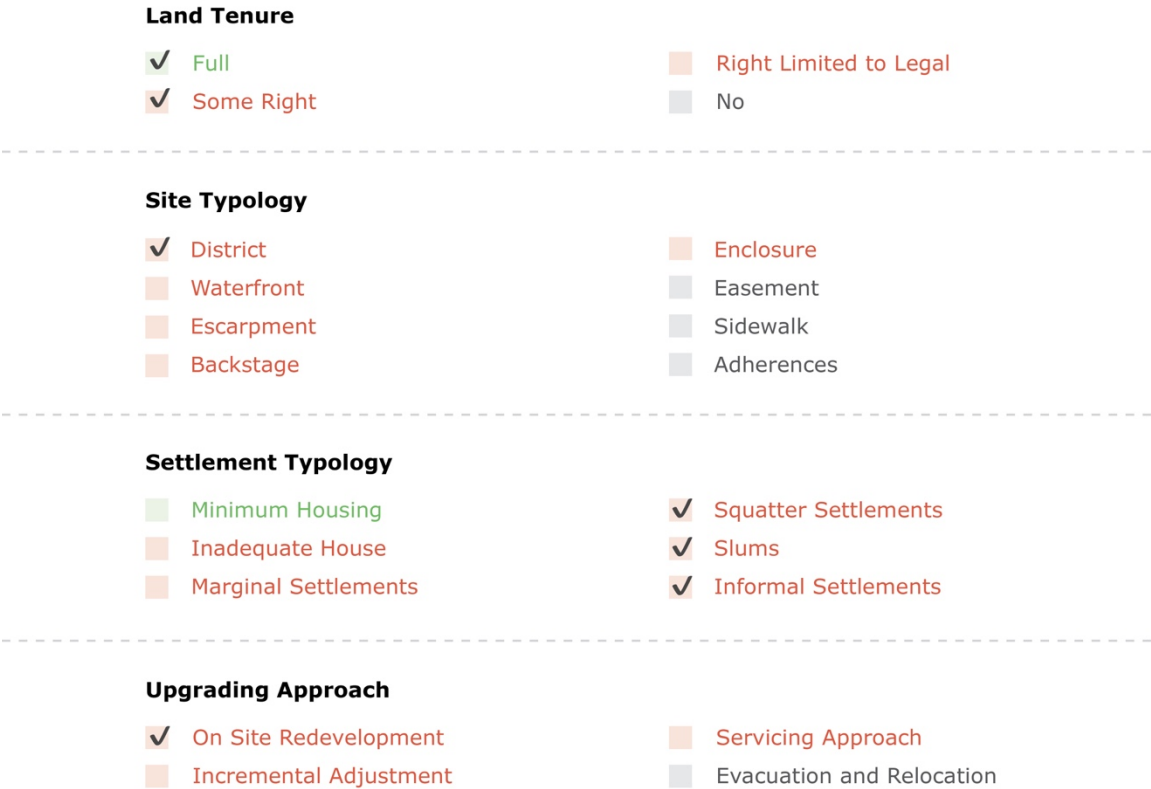


Figure 17: Characteristics of Surabaya Kampung Improvement Program.
 Source: Author, 2021.

The on-side redevelopment is the intervention for targets informal settlements with highly deteriorated and unsafe housing conditions. The ultimate goal is to replace the old physical fabrics completely through gradual demolition, and in-situ replacement. It respects residents' legal right of staying in the same location of the city, and the dependency of their livelihood. Also, by the time of complete the upgrades, different functions of public and private spaces and consolidates residents' relationship with the city, and the availability of basic infrastructure and services can be installed.

The on-site upgrading projects of government-assisted, self-help community planning has a long history in Indonesia. A well-known example is the Kampung

Improvement Program (KIP), which lasted from 1969 to 1998.⁶⁸ The nationwide program aimed to provide basic infrastructure to poor neighborhoods in cities such as Jakarta and Surabaya. It lauds as a success story by its funder, the World Bank, and often represent as a successful example of makeshift places upgrading due to its comparatively low amount of spending and visible physical improvement.



Figure 18: KIP has created healthier urban environments by providing municipal services.

Source: AKDN. Image, 2021. <https://www.akdn.org/architecture/project/kampung-improvement-programme>.

The transformation of Surabaya rates as the foremost settlement upgrading achievement in the world. It's success with upgrading kampung is driven by several factors: visionary and zealous leadership; political will and commitment; sustainable,

⁶⁸ World Bank, "Kampung Kebalen Improvement", *Aga Khan Development Network*, accessed 2 March 2021, <https://www.akdn.org/architecture/project/kampung-kebalen-improvement>.

long-term financial support; city-university and community cooperation that built institutional capacity and intellectual credibility; and, consequently, enhanced community capacity and trust in local government.⁶⁹ The following research review the approaches of urban development planning, and specific implementation result from KIP.

5.1.1. Study Area Profile

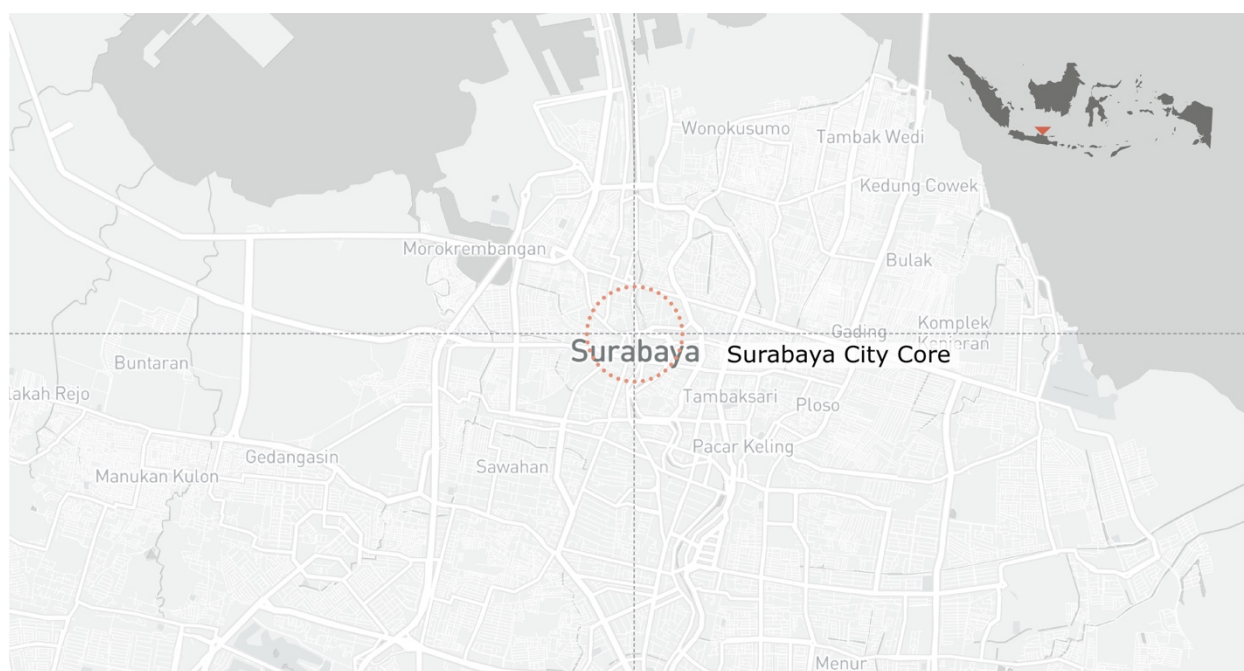


Figure 19: Location of Surabaya, Indonesia.

Source: Based on *Mapbox Studio*, Remade by Author 2021.

Surabaya is the second-largest city in Indonesia after Jakarta and the capital of the Indonesian province of East Java. It is a port city that mixes modern skyscrapers with canals and buildings from its Dutch colonial past. As with most urban growth in the developing country, the majority of the Indonesian cities have also grown with a process of informal expansion called kampungs. Kampung is an informal, unplanned, and un-

⁶⁹ Ashok Das and Robin King, *Surabaya: The Legacy Of Participatory Upgrading Of Informal Settlements*, ebook (World Resources Institute, 2019), <http://creativecommons.org/licenses/by/4.0/>.

serviced housing area.⁷⁰ This distinctive style of household is the only affordable housing choice for long-term residents and newcomers seeking the benefits and services provided in the city, such as education, employment, healthcare, and amenities.⁷¹

Incoming migrants who could not find space in the original village, are squatting on vacant or abandoned land in the city center and formed these kampung villages after World War Two. Many of these migrants ended up living in sprawling kampungs and working in the informal sector activities.⁷² These kampungs have been gradually built and developed by inhabitants in abundance of the Indonesian city's building blocks. As economic and urban growth, they transformed the rural village into urban kampungs by the time.

Indonesian cities exhibit two development patterns, the formal and the informal. During the colonial periods, the Dutch government exercised two different planning and land tenure systems. The first is within the city boundary that Dutch adopted formal planning and land regulation mainly based on a European system. The second type is outside of the city or so-called kampung, where no formal planning, and the land tenure was regulated customary law.⁷³

The residential areas in Indonesia cities also separated by development patterns. The formal residential areas had been located within a city boundary, serviced with urban infrastructure, and occupied by the colonial government officials or Europeans. The houses of the colonial upper class are still present in the older parts of cities. They are still being imitated today, but this type of settlement is degenerating due to incongruities

⁷⁰ Nick Devas, "Indonesia's Kampung Improvement Program: An Evaluative Case Study", *Ekistics* 48, no. 286 (1981): 19-36, <https://www.jstor.org/stable/43620193>.

⁷¹ Oscar Carracedo García-Villalba, *Resilient Urban Regeneration In Informal Settlements In The Tropics*, 1st ed. (Singapore: Spring, 2020).

⁷² Hasan Mustafa Djajadiningrat, "Sustainable Urban Development In The Kampung Improvement Program: A Case Study Of Jakarta, Indonesia" (Degree of Doctor of Philosophy, University of Sheffield, 1994).

⁷³ Hasan Mustafa Djajadiningrat, "Sustainable Urban Development In The Kampung Improvement Program: A Case Study Of Jakarta, Indonesia" (Degree of Doctor of Philosophy, University of Sheffield, 1994).

in style, high building density, and the construction of boundary walls.⁷⁴ The kampung on the other hand, located exclusively beyond the city boundary, spreading from the inner city to the edge, with limited or no urban infrastructure, and comprised primarily of single-story structures of middle and low-income people. The Dutch government maintained clear-cut development areas, separating the Europeans from these informal settlements.

Since independence, this development pattern has continued. The formal planning has been mostly carried out through government projects, and the kampungs have been growing, developed by individuals. However, the government does not adopt a clear division of development between the formal and the informal.⁷⁵ As a result, urban growth in Indonesia exhibits two different types of residential areas blended between the formal and the informal.⁷⁶ Most kampung areas are occupied by the lower and lowest-income people and they have only limited resources with which to erect houses and to organize their neighborhoods. As a result, a large number of dwellings in the kampungs are built of makeshift materials while basic infrastructure is lacking.

Surabaya today, is the second largest city after Jakarta, with nearly 3 million inhabitants and large parts of the city are covered with kampung, providing housing options especially for low-income households.⁷⁷ It is estimated that more than 60% of the city's inhabitants live in these areas.⁷⁸ The kampung has an average density of 800 people per hectare living in densely packed single-story wooden houses within networks

⁷⁴ Siswono Yudohusodo, *Rumah Untuk Seluruh Rakyat* (Jakarta: Jakarta: INKOPPOL, Unit Percetakan Bharakerta., 1991).

⁷⁵ John Taylor and David Williams, *Urban Planning Practice In Developing Countries* (Kent: Elsevier Science, 2014).

⁷⁶ Werner Rutz, *Cities And Towns In Indonesia* (Berlin: Gebrüder Borntraeger, 1987).

⁷⁷ "Surabaya Population 2021 (Demographics, Maps, Graphs)", *Worldpopulationreview.Com*, 2021, <https://worldpopulationreview.com/world-cities/surabaya-population>.

⁷⁸ Alex Mutebi, "Southeast Asia. Civilizing The Margins: Southeast Asian Government Policies For The Development Of Minorities. Edited By CHRISTOPHER R. DUNCAN. Ithaca And London: Cornell University Press, 2004. Pp. Vii, 278. Maps, Illustrations, Index.", *Journal Of Southeast Asian Studies* 37, no. 1 (2006): 159-161, doi:10.1017/s0022463405490475.

of narrow alleys.⁷⁹ Flooding occurred during the rainy season. The city upgraded Kampung by adding footpaths, drainage, water and sanitation, efficiently constructed within a six-month period.⁸⁰ The public works program began as a physical infrastructure program, like in Jakarta. However, soon it was realized that to be successful, significant community involvement was needed due to the limited financial and technical resources in Surabaya. As highlights, the attractiveness of this approach was that community contributions were matched by government funds, typically up to 50% of the required budget.⁸¹

5.1.2. Cultural and Social Context

The Indonesian made their own country a pluralistic and consist of a multi-ethnic and a racial entity, with cultural heritage and socio manifestations. These entities are being held together by political, economic, and integrity. Kampung are often populated by people with certain shared socio-cultural characteristics. Traditional kinship ties often play an essential role in the economic survival of low-income urban families. This reflects the situation in the urban kampung and metropolitan Surabaya as a whole.

One of Indonesian most important traits is "Gotong Royong", which represent "carrying a burden using one's shoulder" in Javanese.⁸² The idea of together and community practice in Indonesia social life. This means that families and members of the community work together in a kind of mutual-help program. A dynamic means of Gotong

⁷⁹ World Bank, "Kampung Kebalen Improvement", *Aga Khan Development Network*, accessed 2 March 2021, <https://www.akdn.org/architecture/project/kampung-kebalen-improvement>.

⁸⁰ *Impact Evaluation Report On Indonesia: Enhancing The Quality Of Life In Urban Indonesia: The Legacy Of Kampung Improvement Programs*, ebook (Washington D.C.: World Bank, 1995), <http://documents1.worldbank.org/curated/en/927561468752367336/pdf/multi-page.pdf>.

⁸¹ Oscar Carracedo Garcia-Villalba, *Resilient Urban Regeneration In Informal Settlements In The Tropics*, 1st ed. (Singapore: Spring, 2020).

⁸² Hasan Mustafa Djajadiningrat, "Sustainable Urban Development In The Kampung Improvement Program: A Case Study Of Jakarta, Indonesia" (Degree of Doctor of Philosophy, University of Sheffield, 1994).

Royong strengthening the bonds of the urban community. The spirit also applies to many neighborhood improvements projects. This mutual-help policy extends into assisting in build a neighbor's house or being of support when there is a family tragedy.

The KIP's social and community resilience dimension can be considered one of the innovative strengths that have developed further in the program's updates. As defined by Magis, social or community resilience encompasses the "development, existence, and engagement of community resources by dwellers to thrive in an environment characterized by uncertainty, unpredictability, change, and surprise."⁸³

In Surabaya Kampung's case, close cooperation between the beneficiaries and the municipality was sustained throughout the entire process, and at all levels of progression of the improvement program. The community's involvement and commitment in the process of designing and conceptualizing the project, and later its involvement in the construction and maintenance phases through community-based initiatives, created a very resilient approach through social attachment.

5.1.3. Physical Building and Structure Analysis

Characteristics shared by most kinds of housing used in kampung areas are overcrowding, poor ventilation, and cramped conditions, which mean that diseases such as tuberculosis, influenza, and meningitis may transmit from one person to another. Household accidents are also common when six or more persons live in one room, and there is a little chance of giving the occupants, especially children, protection from fires or stoves. Furthermore, house sites, structures, and surroundings increase the risk of bumps, scalds, cuts, bites, and injuries in and around the house. Although most of

⁸³ Kristen Magis, "Community Resilience: An Indicator Of Social Sustainability", *Society & Natural Resources* 23, no. 5 (2010): 401-416, doi:10.1080/08941920903305674.

kampung are now in poor condition physically, they are not necessarily slum, but a different appearance from the urban settlements in western cities. It is a community that has its own social system and values.



Figure 20: KIP Houses (Left) and the Street View. Surabaya, Indonesia.

Source: Ahmad Zaimul Haq (Left) and *Aga Khan Award for Architecture* (Right). Image, 2020.

Kampung in Surabaya have been transformed by the impact of KIP; however, KIP provides only such infrastructural facilities as footpaths, drainage, water supply, electricity and so on, but does not supply dwelling units. Therefore, it is indispensable to analyze the typology of kampung houses and discuss their transformation process to understand the kampung as a whole.

The studied Kampung houses are located in Sawahan, which is located in the center of Surabaya City. The study is the Kampung houses locate in Sawahan, which are in the center of Surabaya City. Kampung Sawahan is a typical and fully-grown kampung where one can find various house types. The population density of this Kampung is estimated to be 300 to 400 hectares. The history of settlements in this area can trace back to the Dutch colonial period, and these colonial houses can still find in some of the blocks today. ⁸⁴

⁸⁴ Shuji Funo, Naohiko Yamamoto and Johan Silas, "Typology Of Kampung Houses And Their Transformation Process: A Study On Urban Tissues Of An Indonesian City", *Journal Of Asian Architecture And Building Engineering*, 2018, doi:10.3130/jaabe.1.2_193.

- A Type Gable House (Tsuma-iri) with One Ridge: One unit
- B Type Gable House (Tsuma-iri) with Two Ridge: Two unit
- C Type Gable House (Tsuma-iri) with Three Ridge: Three unit
- D Type Gable House (Tsuma-iri) with Four Ridge: Four unit

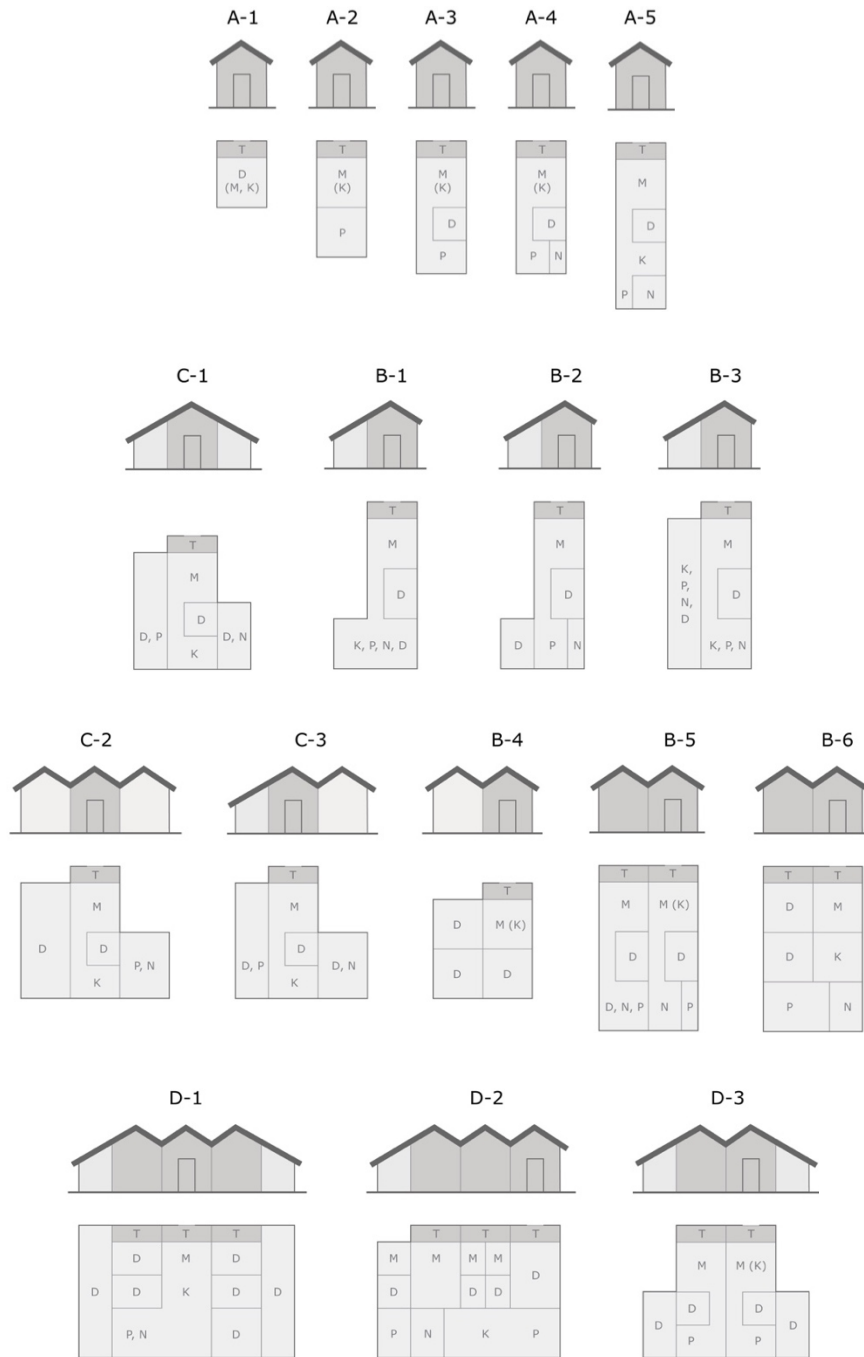


Figure 22: Kampung House Types and Their Variations.

Source: Based on Funo, Yamamoto and Silas, "Typology Of Kampung Houses And Their Transformation Process: A Study On Urban Tissues Of An Indonesian City." Remade by Author, 2021.

Further classification is desirable between the single story and the double or multi-story houses, as well as those which are built with open courtyards. However, are rare in the kampung Sawang.

Kampung houses have the common spatial units as described above. Basic spatial units of the dwelling are as follows: M (*Ruang Tamu*): guest room or living room; D (*Ruang Tidur*): bedroom; K (*Uang Makan*): dining room; P (*Dapur*): kitchen; N (*Kamar Mandi*): bathroom or toilet; and T (*Teras*): terrace.

The transformation process from A-1 and A-2 to A-4 is most usual in the kampungs. If the area of house lots has no room to carry extension at the back or the front, additions are then made bar-wise at the right angle to the existing longitudinal sequence of rooms. Inhabitants may expand in any direction when they have enough space in the lots. Also, house owners tend to build another span when the grown-up child needs another house to accommodate the new family or when the owner wants to build a rental house to make more income. If there is no more space to expand the ground floor's dwelling area, inhabitants may begin to add rooms on the second floor.

5.1.4. Upgrading Project Development

Kampung Improvement Program in Surabaya was established officially in 1969. The approach was funded by local, provincial and central governments; World Bank loans are channeled through the provincial government.⁸⁵ This program distinguishes itself by the community self-help emphasis, both in taking the initiative, planning, and

⁸⁵ Johan Silas, "Government-Community Partnerships In Kampung Improvement Programmes In Surabaya", *Environment And Urbanization* 4, no. 2 (1992): 33-41, doi:10.1177/095624789200400204.

implementation. In particular, the community was encouraged to construct access roads, paths, and other specific infrastructure in the kampungs.⁸⁶ Since 1976, KIP had increased in scale and scope to reach the lower income kampung communities and involve as a national program. Over 1.2 million people living in Surabaya have been affected by since KIP initiated, living in kampung's covering 3,008 hectares.⁸⁷

The program provides specific improvements at a neighborhood level such as: a limited number of access roads; footpaths with side drains; a water supply network with a water standpipe for each 25 to 35 families; sanitary facilities, consisting of public washing, bathing, and toilet facilities; solid waste management facilities, garbage carts, transfer stations; elementary schools; and public health centers.⁸⁸

According to Miller, the scope and content of the Surabaya government urban program through the 1970's and early 1980's included:⁸⁹

1. Kampung improvement: Provide low-cost infrastructure improvements, including upgrading small roads, footpaths, local drainages, water supply, community toilets, water facilities, garbage disposal, and in some cases, primary schools, local health clinics, and community market facilities.
2. Urban housing: Provide housing and housing finance for low and middle-income groups.
3. Water supply: Provide improved capacity of water supply.
4. Urban sanitation: Included drainage, human and solid waste disposal system.

The government was trying to gear the people towards building and developing their own houses and settlements under its guidance to enhance inhabitant's welfare.

⁸⁶ John F. C Turner and Colin Ward, *Housing By People* (New York: Marion Boyars, 2017).

⁸⁷ Johan Silas, *KIP Program Perbaikan Kampung Di Surabaya 1969-1982*, ebook (Surabaya, 1983).

⁸⁸ John F. C Turner and Colin Ward, *Housing By People* (New York: Marion Boyars, 2017).

⁸⁹ Michelle Ann Miller, "Decentralizing Indonesian City Spaces As New 'Centers'", *International Journal Of Urban And Regional Research* 37, no. 3 (2013): 834-848, doi:10.1111/j.1468-2427.2013.01209.x.

The significant implementation of the KIP program is to improve spatial connections with the addition of drainage systems, the impact of flooding during rainy episodes has reduced. The percentage of kampung affected by flooding decreased from 48.8 to 12.2%, demonstrating the effectiveness of the flooding resilience measures implemented by incorporating of drainage systems.⁹⁰

5.1.5. Results and Recommendations

Before Upgrade	After Upgrade
Slum Upgrading Characteristics	Slum Upgrading Characteristics
<input checked="" type="checkbox"/> Housing Improvement	<input type="checkbox"/> Housing Improvement
<input checked="" type="checkbox"/> Land Tenure	<input type="checkbox"/> Land Tenure
<input type="checkbox"/> Safety and Security	<input type="checkbox"/> Safety and Security
<input checked="" type="checkbox"/> Poverty Reduction	<input type="checkbox"/> Poverty Reduction
<input type="checkbox"/> Climate Change Resilience	<input type="checkbox"/> Climate Change Resilience
<input type="checkbox"/> Integration	<input type="checkbox"/> Integration
<input checked="" type="checkbox"/> Overcrowding	<input checked="" type="checkbox"/> Overcrowding
<input checked="" type="checkbox"/> Access to Infrastructure	<input type="checkbox"/> Access to Infrastructure

Figure 23: Kampung Improvement Program, To Do List Before and After Upgrade.
Source: Author, 2021.

In brief, the Kampung Improvement Program in Surabaya is a government-led, community-participate planning program that provides three fundamental infrastructures: paved access roads, bridges, and footpaths; water supply, sanitation, and drainage canals; schools and health clinics. These improvements thread along existing rights-of-way, with little disturbance to the existing housing. Although the program does not offer direct housing assistance, the improved access, flood control, and increased economic

⁹⁰ Johan Silas, *KIP Program Perbaikan Kampung Di Surabaya 1969-1982*, ebook (Surbaya, 1983).

activity within the kampungs have stimulated home improvement. There are several distinct characteristics of the KIP in Indonesia that can identify:

- KIPs started from local initiatives with no anticipation of outside funding.
- KIPs developed into full coverage because standards for improvement were set at low levels, which the local communities could afford.
- Institutionally the existing system of government structure was used, so a little extra budget expenditure was required.
- The land was provided “by the people,” not “to the people.” The land issue did not pose as many problems as in other countries.

Furthermore, this program is sustainable in the urban development context. The process of change in living conditions includes no displacement of the poor by the better off; positive effects on the city development; improvements on distributing city-wide services; better implications of the urban system without wasting financial costs, alternative housing option, equalized the benefits and program resources within areas, and so on. After almost 50 years, the KIP is still considered one of the most impactful informal settlements upgrading programs. As such, it has been replicated in Vietnam, Cambodia, Thailand and India⁹¹ to uplift the low-income sector of society and provide them with better living conditions. However, a detailed look into decades of KIP projects offers some interesting insights about the limitations of the program.

From the KIP experience, we learn that the mere implementation of physical upgrading projects and measures does not necessarily promote economic development automatically. As we have seen previously, the upgrading process is complex that requires incorporating other components. Therefore, on-site upgrading projects should

⁹¹ Shobhakar Dhakal, *Comprehensive Kampung Improvement As Model Of Community Participation: Successful And Transferable Practices (Surabaya, Indonesia)*, ebook (Indonesia: Institute for Global Environmental Strategies, 2003), <https://www.iges.or.jp/en/pub/comprehensive-kampung-improvement-model/en>.

take cost recovery as a guideline and a framework to follow, rather than a constraint in the upgrading process. Limitations for the sake of cost recovery should be minimized or avoided. We cannot forget these projects' primary objective is placing for human and meeting human needs; poverty alleviation is the core aim of pursuing global progress and equality. Adaptation to the new population requirements and societal demands were needed. The future approach may require strengthening the potential of community-based approaches and incorporating the social and economic dynamics.

5.2. Incremental Adjustment: Aranya Community

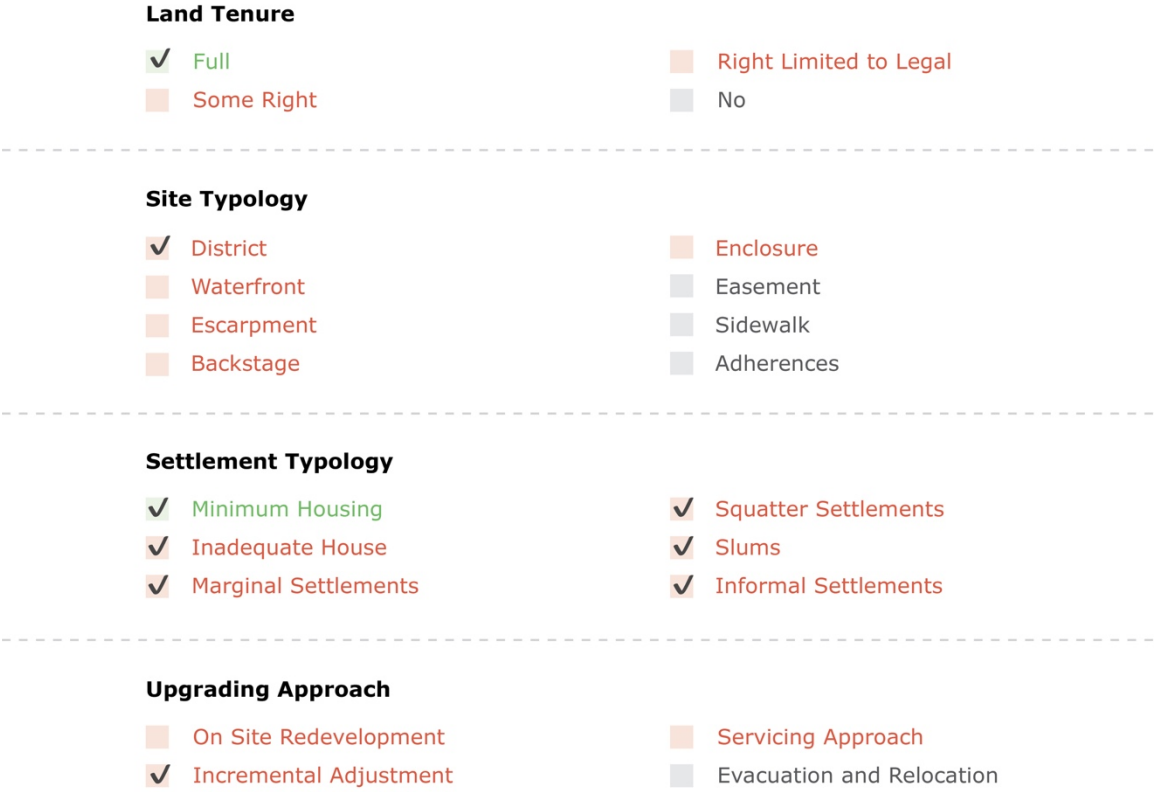


Figure 24: Characteristics of Ananya Community.

Source: Author, 2021.

This type of upgrading program has revealed that architects and planners are needed to play a central role in developing substandard neighborhoods more than ever. Architects and planners stand out in the earlier face of programming the community, in which the communities are built with minimal infrastructure and designed for future expansion by their inhabitants. In the minds of this intervention, all involving stakeholders should flourish over time. Priority interventions for national agencies may usually be infrastructure and roads and include educational, health, and other community facilities. Sectorial upgrading is not limited to service improvement or physical upgrading

alone. Donor agencies and NGOs target informal areas with socioeconomic programs such as micro-credit schemes, health awareness programs, etc.

The idea that informal settlements should not be seen as a problem, but rather as a natural step toward forming. Over the years, architects have risen to the challenges and have led projects whose influence resonates in today's practitioners' work. The one initiative in India, B.V. Doshi's Aranya in Indore (1989), serves as an early example of the incremental housing program. The project successfully brings the attention and talents of a signature architect to bear on the problems of housing the poor and improving social harmony at a time of rising social strife.



Figure 25: Street View (Left) and Aerial View (Right) of Aranya Community Housing, Indore, India.
Source: *Aga Khan Award for Architecture*. Image, 2021. https://archnet.org/sites/870/media_contents/9616.

5.2.1. Study Area Profile



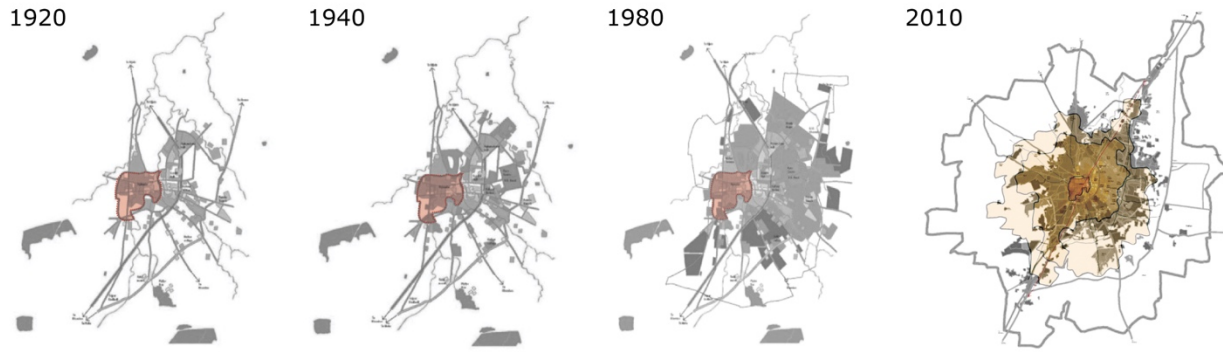


Figure 26: Indore City Extension.

Source: Based on Rizvi College of Architecture, Remade by Author, 2021.



Figure 27: Location of Aranya Community.

Source: Based on Mapbox Studio, Remade by Author 2021.

The historic city of Indore has a thriving trading hub between Delhi and Deccan since 16th Century. It has grown into an important industrial and commercial center since Independence. The urban area of Indore city is 214 kilometers with Ananya being 85 square kilometers. The Aranya township is situated on the Delhi-Bombay highway, approximately 6 kilometers from the city center of Indore. The site is suitable in terms of

linkages to the city, and to employment areas. There are large pockets of existing and proposed industrial areas within a radius 2 kilometers from the site.

The Aranya township is flat with no major physical features, except a natural rainwater channel that runs diagonally across the south-west corner. An accurate level survey shows a fall of 9 meters across the site's width of one kilometer, which gives a gradient of 1 in 110. Topography determined the orientation of the major infrastructure network and hence influenced the overall spatial organization of the township.

5.2.2. Cultural and Social Context

Indore, a historic Indian city with a hybrid indigenous culture, has seen vestiges of royalty, colonialism, and industrialization. Now with globalization, it has become the economic and industrial center of Madhya Pradesh. The impact of economic liberalization on the city's recurring process is working towards the current vision of being counted as a smart city. Being the business and trading capital of the state, it boasts of a Special Economic Zone near the Pithampur area, a developing IT sector. It acts as a nerve center for cotton textiles, iron, steel, chemical, and machine industries. Today Indore is an economically driven city, in many ways a representation of "impatient capital." and many take-ups pride in it being called a "Mini Mumbai."⁹²

5.2.3. Physical Building and Structure Analysis

Aranya township is a services project laid out in six sectors that converge on a central spine, known as the Central Business District. The plan was informal, imitating that of the slum settlements: the town center consists of four clusters of shopping,

⁹² Utpal Sharama and Bhaves Metha, *Aranya Township, Indore: India An Experiment On Sustainable Human Habitat*, ebook (Ahmedabad, India: CEPT University, 2007).

residential, and office complexes, and at the end of the central spine, two mixed-use clusters. Residential buildings that open onto a street comprise ten houses, each with a rear courtyard for play and service. Open spaces and pedestrian pathways intersect and connect the clusters to the central spine. Internal streets and squares are paved, and the major roads and arteries that link the town center to other parts of Aranya are tarred.

The Vastu-Shilpa Foundation used a computer-aided design program to create the most efficient, cost-effective, and low-maintenance technology for the utilities. Every 20 houses connect to one septic tank. Three reservoirs, each serving two sectors, were built at the high points of each and interconnected to provide water for the entire area. The electricity distributions are design overhead for the high and middle income groups, while the lower-income areas installed the network underground.

The site plan integrates a variety of income groups. The project focused on providing options of plot sizes of ranging affordability, suitable for the environmentally weaker sections (EWS), the low-income groups (LIG), the medium income groups (MIG), and the high-income groups (HIG). The poorest groups are locating in the middle of each sector; higher income plots arc along the periphery and the central spine of the settlement. A hierarchy of payment schemes reflects the income levels of the various groups. It makes the different available site and service options to accommodate such a diverse community's financial resources. The demonstration houses, designed by Balkrishna Doshi, illustrate the array of available options, from one-room shelters to more spacious houses, and emphasize a sense of family and neighborhood while striving to encourage adaptation and personalization to individual needs and resources.

For most income groups, only one type of house plot is design to sell. The lower-income groups were provided with various options, including a site and plinth, a service

core, and one room, depending on how much they could afford.⁹³ Owners were free to use any material for their house construction, and decoration, brick, stone, and cement are available locally. This participatory process satisfies users' priorities of house form while offering pleasing verities to street facades.

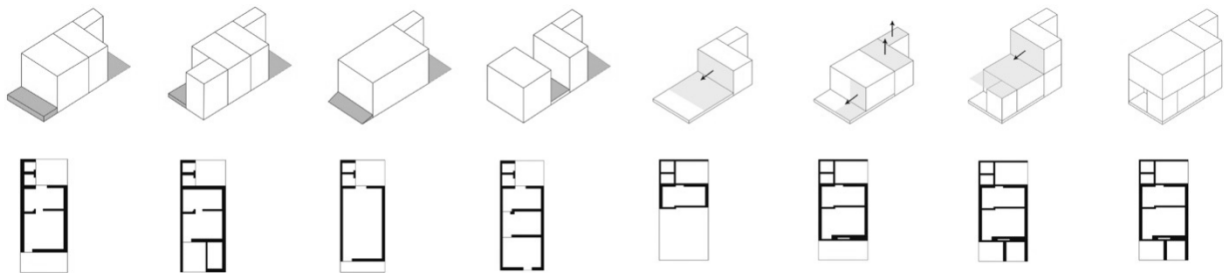


Figure 28: House Variation. Users decide how and how much to build.

Source: Based on Architect, Remade by Author 2021.

The loan pays monthly based on the family's average income, and monthly maintenance charges two rupees. The price is fixed for all plots owned by the lower-income groups. Eighty houses designed by Doshi and the streets that define those houses are noteworthy. Their owners have developed the remaining plots, built and embellished in a personal manner that does not follow Doshi's models. Many original owners have either sold their plots or are offering them for sale through a broker. The resale price of a 35-square-meter plot is currently 700 dollars, ten times its original price.

5.2.4. Upgrading Project Development

Indore was experiencing a housing shortage in the early 1980s. Around 51,000 people were homeless or forced to live in illegal settlements.⁹⁴ Therefore, the Indore

⁹³ Lailun Ekram, *Aranya Low-Cost Housing*, ebook (Indore, India, 1995).

⁹⁴ Lohita Turlapati, "AID-Aranya Housing Project", *Architectureindevelopment.Org*, 2021, <https://www.architectureindevelopment.org/project.php?id=401>.

Development Authority launched a housing project for 60,000 people that address the problem while remaining affordable to urban poor.⁹⁵ Previous efforts by the government to provide low-cost urban housing in India aim at supplying ready-built units. However, building a complete house took far too long, became extremely expensive for low-income families, and waste too many resources.

Aranya Township was planned as a site and services project lay out in six sectors with converge on a central spine.⁹⁶ A hierarchy of open spaces, including small front yard to be shared by three to four families, larger green spaces for each of the settlement's six sectors, and a central playground to serve the entire development, was one of Doshi's key design features. The clusters are linked to the central spine by open spaces and pedestrian paths. Each user has a variety of choices, ranging from one-room shelters to spacious homes. The emphasis is made on a sense of family and neighborhood while striving to encourage adaptation and personalization according to an individual's needs and resources.



Figure 29: Levels of Share Spaces Conducted on Site.
Based on Rizvi College of Architecture, Remade by Author, 2021.

The formal street network draws the vehicular traffic outward to the perimeter road while pedestrian traffic on informal pathways and open space networks flows in the

⁹⁵ Utpal Sharama and Bhaves Metha, *Aranya Township, Indore: India An Experiment On Sustainable Human Habitat*, ebook (Ahmedabad, India: CEPT University, 2007).

⁹⁶ Romi Khosla, *Aranya Low-Cost Housing*, ebook (Indore, India, 1995).

opposite direction achieving clear and safe segregation of slow and fast moving traffic. Nonrectilinear alignment of the street with varying width, bends, and widening, provide to accommodate spontaneous human activities. The hierarchy of commercial activities coincides with street hierarchy. Formal commercial outlets are along major arterial roads, while informal shopping areas occur along narrow streets and open spaces throughout the settlement.

The site's topography was an important determinant in planning roads and other service networks to maximize the use of gravity flow and minimize cut and fill with the land. Introduction of open slot around service core combines twice as much toilet per maintenance hole and cuts downpipe length to half, achieving economic efficiency without affecting its performance.⁹⁷ The service slot has been integrated as a design element, helping break the continuous built mass and becoming a useful play area for children with the platform for neighborly interaction.

A foster community feel and mutual interdependence various income groups have been combined and arranged in concentric rings of plots. Each dwelling has its own compound and territory which encourage social interaction and supports a way of life of the user group. A clear preference also shows in smaller open spaces that incorporate functions such as access, play area, income-generating activities, etc. Besides accommodating these activities, the spaces also provide identity to help defining areas. The nature and number of open spaces required at various levels were systematically identified and then summed up to arrive at the total requirement.

At the same time, the township blend within the urban fabric of Indore with a unique identity of its own, which promote social and economic activities in the area. The planning and design principles adopted generate a distinctive character for the settlement

⁹⁷ "Aranya" Low Coast House, Indore.

and reinforce the identity in its built form. This township model set a standard of balanced and harmonious habitat and has emulated other organizations engaged in the field of low-cost housing.



Figure 30: Service Plot (Left) and Streets with Hierarchy (Right).

Source: *Architecture in Development*. Image, 2020.

5.2.5. Results and Recommendations

Before Upgrade	After Upgrade
Slum Upgrading Characteristics	Slum Upgrading Characteristics
<input checked="" type="checkbox"/> Housing Improvement	<input type="checkbox"/> Housing Improvement
<input type="checkbox"/> Land Tenure	<input type="checkbox"/> Land Tenure
<input type="checkbox"/> Safety and Security	<input type="checkbox"/> Safety and Security
<input checked="" type="checkbox"/> Poverty Reduction	<input checked="" type="checkbox"/> Poverty Reduction
<input type="checkbox"/> Climate Change Resilience	<input type="checkbox"/> Climate Change Resilience
<input type="checkbox"/> Integration	<input type="checkbox"/> Integration
<input checked="" type="checkbox"/> Overcrowding	<input type="checkbox"/> Overcrowding
<input checked="" type="checkbox"/> Access to Infrastructure	<input type="checkbox"/> Access to Infrastructure

Figure 31: Aranya Community, To Do List Before and After Upgrade.

Source: Author, 2021.

The ideological basis for planning Aranya has been the followings: (1) Vitality, development to support socio-physical aspiration of the community. (2) Imageability,

built form to impart identity and inculcate a sense of belonging amongst the inhabitants. (3) Efficiency, to realize development that optimizes natural, material as well as human resources to the advantage of the user group. (4) Flexibility, to evolve framework that absorbs with ease the progressive change and growth as a part of natural development process. (5) Feasibility, to ensure development within given legal, fiscal and organization milieu.

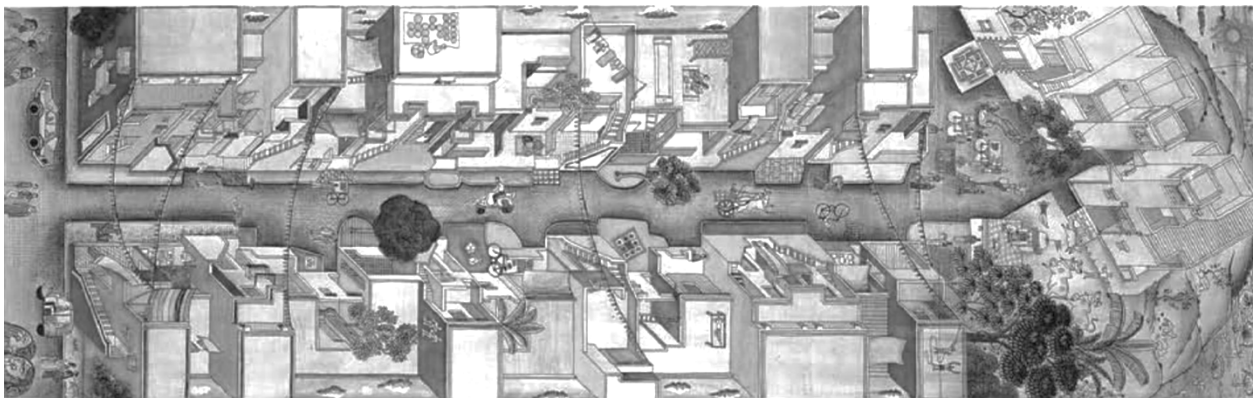


Figure 32: Aranya, A Way of Life: Cluster, Streets, Bazaars, Images, and People.

Source: VSF, March 1990.

The Aranya project is based on the good intentions in which the innocence of the professional designers is symbolized in the 80 demonstration houses. If only slum resettlement project were simply architecture problems capable of being overcome with good design. The river of poverty in India erodes such good intentions which do not safeguard the innovation with devices that take the project through one decade. Improving the human conditions in the slum requires long term professional stamina. It is rather difficult to sustain this effort in the heat and dust of a tree less 200-acre building site where water is available only half an hour a day.

Some of the more recent innovative housing construction approaches are smaller in scale, presumably to avoid political interference. Doshi's designs have been taken a step further by two recent models of incremental housing, one by Alejandro Aravena's

Chilean firm Elemental and the other by an international team of architects led by Stockholm-based Filipe Balestra and Sara Göransson. The houses come with minimum programmed space, allowing renters to expand in the future. This emulates the slow, organic construction process of families that do not have access to loans or mortgages. While Elemental's units are being used in orderly-looking government housing projects throughout Latin America, Balestra and Göransson's plan has been implemented in dense areas of Mumbai and Pune, India, in collaboration with the local NGO, and Mahila Milan, grassroots, women-run organization, managing credit and savings activities.

5.3. Servicing Approach: Occupy Madison Village



Figure 33: Characteristics of Occupy Madison Village.
 Source: Author, 2021.

The initial thoughts of servicing approach are providing makeshift places at least minimum level of human living conditions, including upgrading public services and infrastructure. Such initiatives may come from ministries, donor agencies, the private sector, or large NGOs. The physical upgrading is always needed to be satisfied first. Socio-economic development activities can then proceed afterward through local and national programs.



Figure 34: American Tiny House Villages
Source: Author, 2021

Tiny house villages have captured the attention of municipalities, faith-based organizations, and community organizers around the country because of their low-cost and self-sustaining features. Working alone or in partnerships, these groups are hatching ideas on new ways to use the small, inexpensive, mobile structures as part of a larger, supportive, housing-first, anti-homelessness strategy. Occupy Madison Village is selected as a case study of tiny house villages dealing with servicing approach makeshift places. The goal of Occupy Madison is to create safe, stable housing to those who need it most and to bridge the social gaps that isolate those experiencing homelessness from the resources and support of the broader community.

Figure 13 shows five established and functioning American tiny house villages for the homeless are far from isomorphic in nature. Tiny house villagers take pride in how unique their settlements are from any other, in great opposition to the monotonous, monolithic architecture and governance structure of many municipal housing projects for low-income residents.

5.3.1. Study Area Profile



Figure 35: Location of Occupy Madison’s Village. Madison, Wisconsin, US.
Source: Based on Mapbox Studio, Remade by Author, 2021.

The Occupy Madison Village, Wisconsin, is the first tiny house village to use the stewardship property tenure for permanent housing for homeless people. Occupy Madison, Inc.⁹⁸ (OMI) is a non-profit organization established by formerly homeless and housed people who were part of the Occupy Madison movement. Initially, the unincorporated association of

⁹⁸ Lisa Alexander, *Community In Property: Lessons From Tiny House Villages*, ebook (Texas: A&M University School of Law, 2019).

homeless and housed volunteers started a tent city for homeless people within Madison, Wisconsin. When the City of Madison shut down the initial encampment, the group shifted focus to identify a “legal” place for Madison’s homeless to reside.

OMI identified land on which a former gas station and auto-body shop were run as a possible site. They money through private donations to purchase the site, and the City of Madison’s Planning Commission zoned the site as a planned unit development (PDU).⁹⁹ The village finally settled down at 304 N Third St, a three-unit 17,492 square feet parcel of land in Madison’s Emerson East neighborhood. OMI purchased the land in 2012 for \$110,000. To add to their \$531 per month mortgage and \$200 in monthly utility expenses, they made a total of \$160,000 worth of renovations to comply with zoning regulations, building codes and, ADA standards.¹⁰⁰ They used the existing structure as a workshop to build tiny homes. The central woodworking shop, which used to be an old auto-repair shop, contains running water, toilets, and showers.¹⁰¹

The ultimate goal of Occupy Madison is to create safe, stable housing for those who need it most and to bridge the social gaps that isolate those experiencing homelessness from the resources and support of the broader community. There are currently at least nine people in the village, but the non-profit community hopes to expand to accommodate up to eleven people on the site. OMI owns the land and the PDU upon which OM Village sits. OMI also owns each tiny house created by or located in OM Village.¹⁰² Each tiny home is approximately ninety-eight square feet and contains a master bedroom with storage space. The homes have electricity and insulation but no running water. Each tiny home costs roughly \$5,000 to

⁹⁹ Lisa Alexander, *Community In Property: Lessons From Tiny House Villages*, ebook (Texas: A&M University School of Law, 2019).

¹⁰⁰ The city of Madison, WI dictates that minimum inhabitable unit size be no less than 150 sq. feet, less the kitchen, bathroom, and all closets. At 98 sq. feet the tiny homes are built on raised beds and classified as trailers, for which there is no minimum size. Wheels on the bottom of the trailer beds also facilitate unit mobility.

¹⁰¹ Catherine Mingoya, "Building Together. Tiny House Villages For The Homeless: A Comparative Case Study" (Master in City Planning, Massachusetts Institute of Technology, 2015).

¹⁰² *Occupy Madison Tiny Homes Village Looks To Expand*, ebook, 2017, https://madison.com/ct/news/local/city-life/occupy-madison-tiny-homes-village-looks-to-expand/Article_76697ab3-e175-59bb-8e59-dda685c7b684.html.

construct. OM Village operates exclusively on private donations through crowdfunding, auctions, and volunteer and in-kind contribution.¹⁰³

5.3.2. Cultural and Social Context

OM Village is in Madison, the capital city of Wisconsin. Madison is well known for its progressive political scene, with a robust left-leaning community that is vocal in typically divisive issues, such as public employee unions, LGBTQ rights, gun laws, racial matters, military action, and the separation of church and state. OM Village nestled between a light industrial district and a neighborhood of single-family homes where the median household income ranges from \$40,000-\$50,000. The majority of communities are white, with a low senior population at a mere 10%.¹⁰⁴ However, despite Madison's leftist, college-town reputation, there is resistance among residents and municipal officials regarding where and by whom, homeless services should be provided.¹⁰⁵

5.3.3. Physical Building and Structure Analysis

The OM Village is a primarily white community filled with yellow and powder blue, two-story, single-family homes. The village site once housed a gas station and then an auto repair shop that fell into disrepair. The fenced exterior residential area included nine 99 square foot houses centered on a shared courtyard with a communal area for socializing and gardening. The common interior amenities include a kitchen space

¹⁰³ Shelley Mesch, "Occupy Madison's Tiny House Village Seeks Funds To Expand Its Community With Fundraising Auction", *Wisconsin State Journal*, 2017, https://madison.com/wsj/news/local/occupy-madison-s-tiny-house-village-seeks-funds-to-expand/article_a45e29d6-900a-57dc-946e-a70ff634f7cf.html.

¹⁰⁴ "Dane County, WI", *Data USA*, 2021, <https://datausa.io/profile/geo/dane-county-wi>.

¹⁰⁵ Torrie Mueller, *Homeless Service System Data For Dane County* (Dane County: Homeless Services Consortium of Dane County, 2016), <https://trhome.org/wp-content/uploads/2018/02/COMPLETE-October-2015-to-September-2016-Annual-Report-002.pdf>.

consisting of a hot plate and microwave, three shared bathrooms, a woodwork shop with floor-to-ceiling windows, and storefront wood products.¹⁰⁶

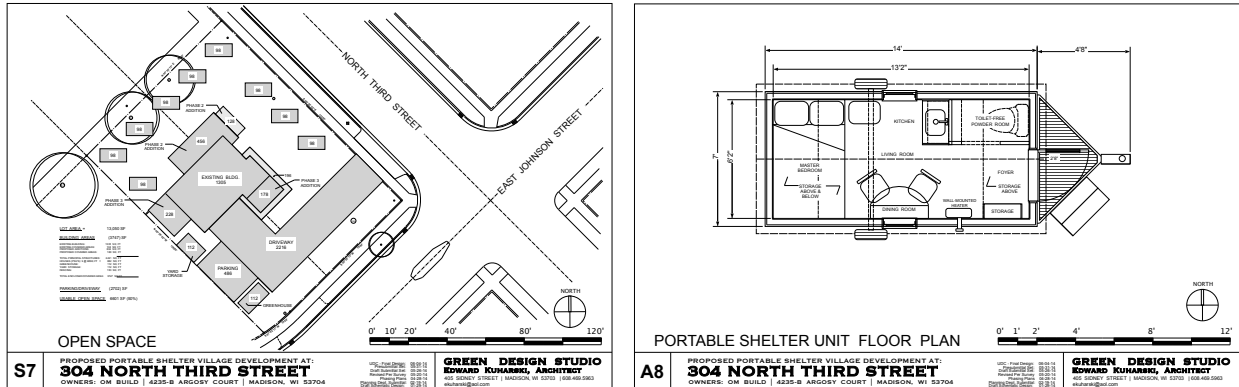


Figure 36: OM Village Site Plan (Left) and Floor Plan (Right).

Source: Green Design Studio, 2021.



Figure 37: Tiny Houses in the Courtyard (Left). The Tiny Home is Just Right for One Person (Right).

Source: Wisconsin State Journal, 2019.

The homes face the main office, creating a small courtyard filled with raised flowerbeds. Each house is unique with a personalized exterior and different colors painted; personal items such as potted plants, bicycles, and recycling containers are placed

¹⁰⁶ "Occupy Madison, Tiny Houses And More!", OM Village, accessed 10 February 2021, <https://occupymadisoninc.com>.

outside of the front porch. Behind the houses stands a tall, decorated wooden fence adorned with cut wooden figures of fleeing prisoners and classic cartoon characters. Only the upper third of the bright homes are visible from the street, lending privacy and piquing pedestrians' interest.

While OM Village residents can privately manage their spaces and have rooms in which to keep their possessions, living quarters are so tight that conflict and poor behavior become public issues. The courtyard shared space, and homes are all so close together that it is impossible to ignore visitors or pretend not to hear arguments.

5.3.4. Upgrading Project Development

The "Tiny House Contract" and the "OM Community Agreement" create the status and rights of "stewardship," which works on a model of "sweat equity." Future residents, or "stewards," must put 32 hours of work into the property through physical or clerical labor to move in.¹⁰⁷ Only homeless people or people facing housing insecurity can become stewards of a tiny home in the village. Anyone who owns or has rights to another residence cannot become a steward. A homeless person can only become a steward if they have amassed 500 sweat-equity work credits, but once a person attains 160 sweat equity hours, they will be on the list of applicants for a tiny home. Once residents "paid-off" their homes, they must still contribute 10-hours per week to the maintenance of the village in a little under a full year. The steward's payoff obligation is personal, and a steward cannot substitute money or sweat-equity credits from others to fulfill this obligation without OMI's consent.¹⁰⁸

¹⁰⁷ *A Tiny Contract For Tiny House, ebook (Madison, Wisconsin: Occupy Madison Inc, 2021), <https://occupymadisoninc.com/wp-content/uploads/2013/07/a-tiny-contract-for-a-tiny-house.pdf>.*

¹⁰⁸ Catherine Mingoya, "Building Together. Tiny House Villages For The Homeless: A Comparative Case Study" (Master in City Planning, Massachusetts Institute of Technology, 2015).

A steward can acquire sweat equity credits by providing labor to build their tiny home, build the tiny houses of other prospective residents, or from labor that benefits the general common interest community. Stewards are required to use sweat equity to obtain their home, but they are also required to use their sweat equity hours to help build others' homes and improve other parts of the village. Stewardship tenure in OMI is permanent once you pass a six-month probationary period unless you violate the community's rules and regulations, or three-quarters of the general membership present at a village meeting vote you out of the community.¹⁰⁹

Stewards must also become general members of OMI. OMI requires general members to attend a minimum of two general body meetings and provide services to the organization or the tiny house village. OM Village has an extensive organization and plan that offers many opportunities for stewards to serve the village. Stewards can run to become part of the board of directors or participate in one of three workgroups: (1) OM Build, the woodworking shop where the homeless and housed volunteers construct the tiny homes. (2) OM Village Store, where wood products and jewelry made on site are sold, and (3) OM Grow, the agricultural and gardening effort includes beekeeping and other beautification projects. These community service requirements connect formerly homeless people to a new community and a new beginning.¹¹⁰

OM Village's board of directors comprises volunteers with diverse professional backgrounds vital to the village's success. Non-resident board members shoulder the brunt of budget administration, volunteer coordination, fundraising, local compliance, and facilitating partnerships within the board and within the city. A lack of direct services at

¹⁰⁹ *A Tiny Contract For Tiny House, ebook (Madison, Wisconsin: Occupy Madison Inc, 2021), <https://occupymadisoninc.com/wp-content/uploads/2013/07/a-tiny-contract-for-a-tiny-house.pdf>.*

¹¹⁰ Lisa Alexander, *Community In Property: Lessons From Tiny House Villages*, ebook (Texas: A&M University School of Law, 2019).

the site allows villagers to spend their time improving necessary structural and common-space improvements but does little to encourage or provide direct job training or off-site employment.

The unpaid domestic and structural labor contributed by the villagers should not underestimate in its value. Still, one should also note the limits of entirely throwing oneself into a single project. Villagers have a voice but are not as intimately familiar with the village's financial and legal details as other members may be. The board of directors is composed of 13 volunteers, including two of OMV's residents.¹¹¹ The mix of residents and non-residents on the board of directors is potent; residents may meaningfully participate without the overwhelming pressure to handle circumstances and responsibilities outside of their capacity or experience level. A composite panel allows for increased accountability: embezzlement is much easier if your neighbor minds the coffers and much harder if outside entities double-check the books. Additionally, integrating skills into the board from a well-established, local, professional class provides unique and diverse capacity, allowing the village to take on a range of complicated projects from legal battles to campaigns. Overall, the social relationships between many of the board members and residents are healthy and mutual. However, nonresident board members are not always aware of or willing to explore the differences in power they hold due to their wealth, employment, experience, and their choices in their participation in OM Village.

Other interesting fact about OM village is they always sees its independence as a key to maintain the dignity and empowerment that arises from a self-government community. They tend to keep their distance from the government to avoid following

¹¹¹ Catherine Mingoya, "Building Together. Tiny House Villages For The Homeless: A Comparative Case Study" (Master in City Planning, Massachusetts Institute of Technology, 2015).

stringent regulations that may force the village to stray from their vision of a permanent, intentional community constructed on a chile. OM board members were adamant that they do not want to seek government funding.

The idea behind self-governance is to empower homeless residents to make their own decisions and gain back strength and confidence through helping themselves and each other. The village's day-to-day operations are attended to by whichever resident is interested in or feels the need to maintain shared facilities. At the same time, this system generally works well does leads to an unequal distribution of labor. More complex tasks, such as paying the mortgage, collecting donations, and ensuring compliance with city code, are handled by non-resident board members.

OM Village's purpose is to provide housing; it is the housing first model without the option of on-site medical care or counseling. OM Village does not have social service provision as part of its model or its budget. However, if this reductionist goal, to provide housing, were the limit of OMV's perceptions and intentions, the system would be nonfunctional. To build and offer to the house at all is founded on a series of ideal and methods. OMV has a series of competing visions and frameworks, which impact everything from their financing to their conflict resolution strategies. Each board member's individuality paired with the village's consensus-building model means lots of face time and lots of conversation. Occasionally, more complex topics are put off until the group has the time and emotional bandwidth to find a solution.

5.3.5. Results and Recommendations

A key element of Occupy Madison's success has been its ability to keep both homeless with comparative political, social, and financial privilege involved in the village's development. The mixed composition of the Occupy Madison Board, which includes

residents and non-residents, imbues the village with the technical capacity and power legitimacy to the outside world that the homeless alone cannot establish. Without relationships with expertise in construction, community organization, and local politics, Occupy Madison would have faced much more significant opposition. Furthermore, board members' distance from the village's day-to-day allows them to have a more objective eye towards the relationships and conflicts to better structure and define the village's existence.

Before Upgrade	After Upgrade
Slum Upgrading Characteristics	Slum Upgrading Characteristics
<input type="checkbox"/> Housing Improvement	<input type="checkbox"/> Housing Improvement
<input type="checkbox"/> Land Tenure	<input type="checkbox"/> Land Tenure
<input checked="" type="checkbox"/> Safety and Security	<input type="checkbox"/> Safety and Security
<input checked="" type="checkbox"/> Poverty Reduction	<input checked="" type="checkbox"/> Poverty Reduction
<input type="checkbox"/> Climate Change Resilience	<input type="checkbox"/> Climate Change Resilience
<input checked="" type="checkbox"/> Integration	<input type="checkbox"/> Integration
<input type="checkbox"/> Overcrowding	<input type="checkbox"/> Overcrowding
<input type="checkbox"/> Access to Infrastructure	<input type="checkbox"/> Access to Infrastructure

Figure 38: Occupy Madison Village, To Do List Before and After Upgrade.
Source, Author, 2021.

As compared to villages such as Dignity Village in Portland and Opportunity Village in Eugene, Occupy Madison's was carefully and homogenously designed to be safe, visually appealing and well-constructed. For example, Quixote Village in Washington, has undergone a stringent legislative process through the municipality and has invested more than \$18,000 per unit to get the buildings up to standards. Far from the \$3,000-\$8,000 needed to build a basic tiny house, and less environmentally friendly.¹¹² On the other

¹¹² Catherine Mingoya, "Building Together. Tiny House Villages For The Homeless: A Comparative Case Study" (Master in City Planning, Massachusetts Institute of Technology, 2015).

hand, Occupy Madison was able to build high-quality homes through the construction expertise of their board members. Intentional and pre-planned usage of recycled, donated, and purchased materials have cost about \$3,000 each unit without losing aesthetics, safety or warmth. It may slow down the building process, but with better quality and less likely to suffer from mold and mildew effects and survive in the harsh winter. Although this will keep homeless people on the streets longer, they will enter a safer and healthier environment when they arrive home.

Occupy Madison Village, once faced tremendous opposition from neighborhood residents, now has a harmonious relationship with them and has turned a blighted property into an attractive and progressive place for social good. The attractive construction and design of the tiny house village provide an endearing structural centerpiece and the potential to intentionally integrate the wider community. The community gardens in the villages' courtyards is a shared space use for neighborhood meetings, and organize social events on the village property. These all offer a great opportunity to bring higher-income residents into positive contact with those who have experienced homelessness. In addition, gives the neighborhood the inside access needed to become comfortable with the village's presence and develop empathy towards the villagers while still preserving resident privacy. Residents and non-residents may interact to break the social bonds and moving out from deep poverty.

Furthermore, municipalities and private entities have access to some plots of land that are currently underutilized. The rolling lawns of churches, public housing developments, and even municipal parallel parking spaces can provide enough land for tiny homes to develop. Even though purchasing a lot to build a traditional house may cost a lot in land-poor cities, tiny houses are small enough to fit into parking spots, which may be easier than purchase traditional plots. Alleyways, municipal easements, and

abandoned lots all provide the opportunity to build high-quality, inexpensive, mobile housing for the homeless. If the public procedures are well organized, and the architecture is aesthetically pleasing, the public may be more likely to accept the construction of tiny houses in their community. Participating in social justice issues and anti-homelessness is made more comfortable and more fashionable when centered around beautifully designed tiny houses.

5.4. Evacuation and Relocation: Chennai Resettlement

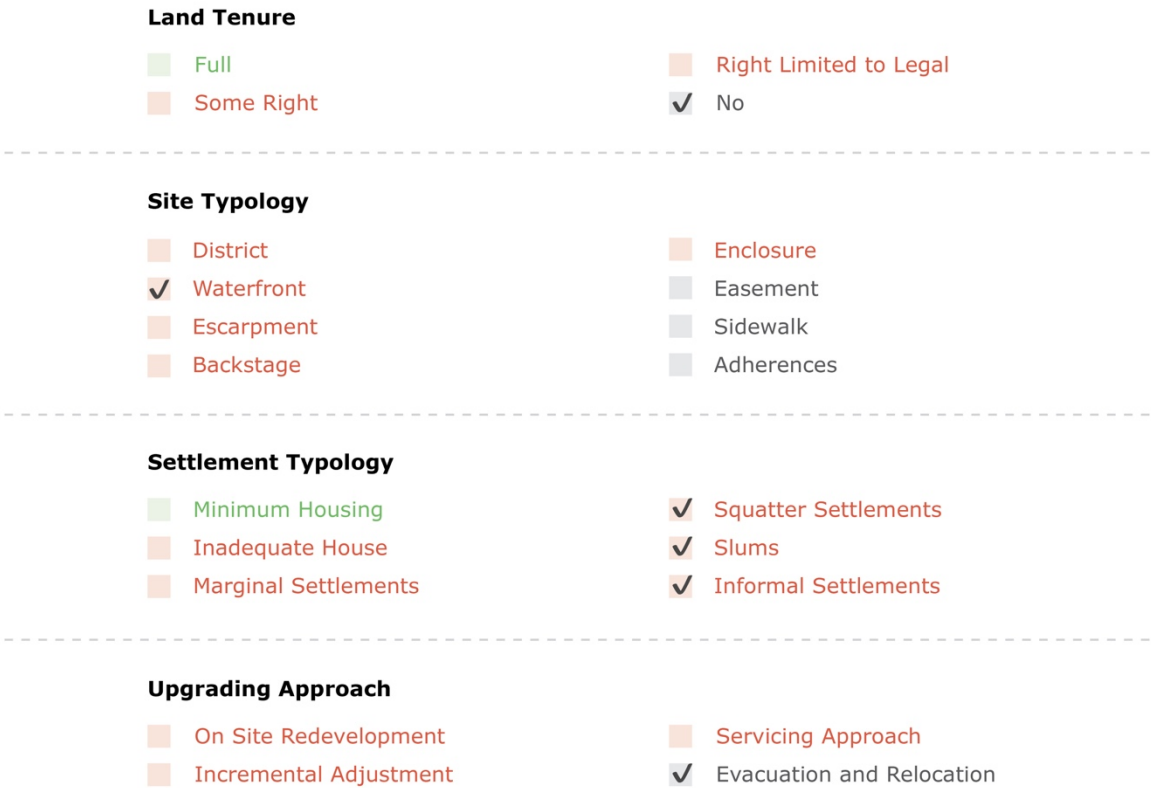


Figure 39: Characteristic of Chennai Resettlement.
 Source: Author, 2021.

Evictions must only be used as after all feasible alternatives explore already. Evacuation of areas and buildings are suitable for where there is an imminent danger to lives. This intervention is the most drastic one. It entails not only a complete demolition but also the relocation of residents. They often move into new social housing developments at the fringes of the city or in new cities. This mode mainly applies to slums in prime locations targeted for redevelopment with a commercial interest to sell part of the high-value land or use it for real estate investment.

The Perumbakkam resettlement site is the most recent of three colonies built by Tamil Nadu over nearly two decades to accommodate slum dwellers and those affected

by the Indian Ocean tsunami of 2004 and the 2015 Chennai floods. As slums demolish to make way for roads and flyovers, the municipal relocates more than 52,000 families to the outskirts of Chennai. Perumbakkam is the biggest with almost 24,000 units.¹¹³

Residents have complained about the evictions' unexpectedness and lack of compensation. Their new homes contain problems from leaky pipes and faulty electrical fixtures to a lack of public transport, schools, and hospitals, but the city officials say there was no option but to evict them and acknowledge shortcomings in the new sites.¹¹⁴

5.4.1. Study Area Profile

Starting from the 1990s, the concept of "ecological value" began to figure in Chennai official planning documents and increasingly to overlap with commercial value. More attention to flood alleviation, harvesting, and rainwater conservation through water body reclamation and restoration began to articulate. Chennai Metropolitan Water Supply and Sewerage Board also note planning in Chennai's Second Master Plan (2007), both discursively and in funding schemes, between these flood mitigation/water harvesting program. These policies also see the new master plan as opportunities to clear the poor out of the city, increasingly forcefully articulated visions of a "slum-free Chennai."¹¹⁵

Since 2000, the Government of Tamil Nadu (GoTN) has launch over 50,000 resettlement tenements in Chennai's southern outskirts. The resettlement tenements include buildings in Kannagi Nagar, Perumbakkam, and Semmencherry. By late 2015,

¹¹³ Kannagi Nagar Pothu Nalla Sangam, *From Deluge To Displacement: The Impact Of Post-Flood Evictions And Resettlement In Chennai* (New Delhi: Housing and Land Rights Network, 2017).

¹¹⁴ Rina Chandran, "Chennai Slum Dwellers Pushed To City Fringes Face Leaking Pipes, Lost Jobs", *Reuters*, 2017, <https://www.reuters.com/article/india-landrights-slums-idINKBN14T1IX>.

¹¹⁵ Karen Coelho and Nithya Raman, *Salvaging And Scapegoating: Slum Evictions On Chennai's Waterways*, ebook, 2010, https://www.researchgate.net/publication/265625289_Salvaging_and_Scapegoating_Slum_Evictions_on_Chennai's_Waterways.

many of these housing units were still empty, awaiting eviction of slum dwellers from the city.¹¹⁶

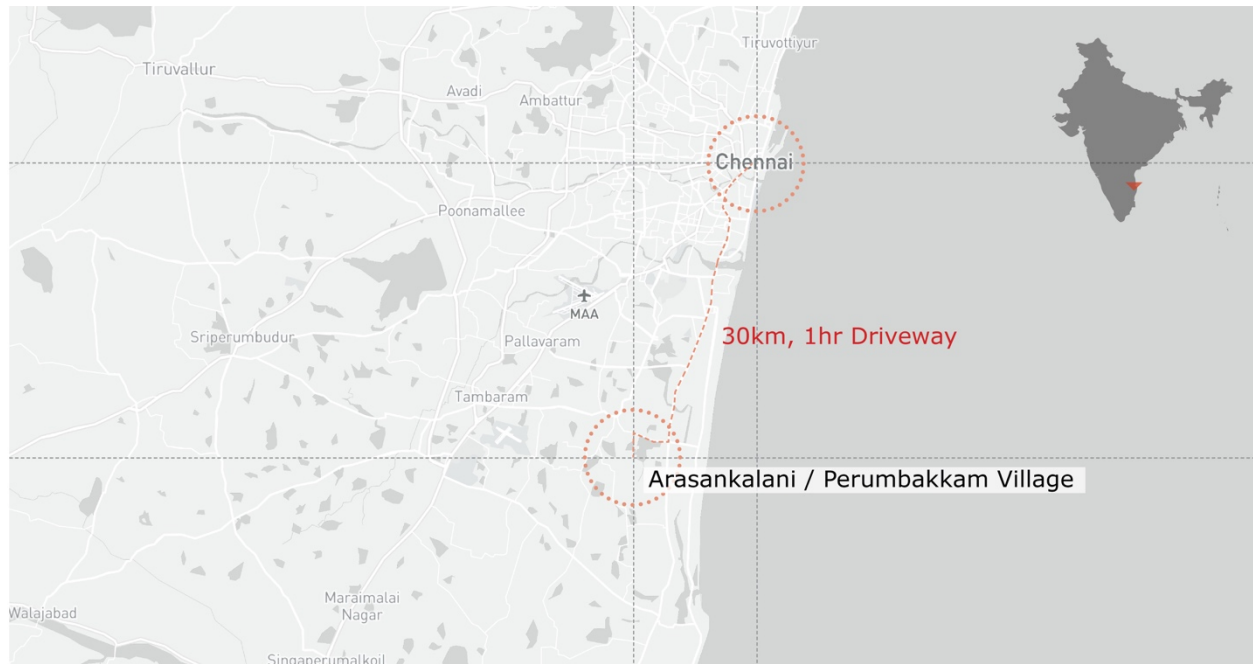


Figure 40: Location of Resettlement in Chennai, India.

Source: Based on Mapbox Studio, Remade by Author, 2021.

Discussions with communities reveal that the water bodies surround the site keep Perumbakkam flooded. The area where the site locates used to be where excess water from the nearby lakes drained during monsoons. The residents pointed out that the purpose of resettlement is restoring a water body and preventing flooding and damage, but the spot they shifted to is just equally ecologically sensitive. The state, however, has only targeted homes and small enterprises and shops of the urban poor and not cleared large commercial establishments and water bodies. This bringing into question the rationale of disaster protection, for which they were allegedly relocated.

¹¹⁶ Garima Jain, Chandni Singh and Teja Malladi, *Rethinking Post-Disaster Relocation In Urban India*, ebook (India: Brieding, 2017), <http://pubs.iied.org/17430IIED>.

5.4.2. Cultural and Social Context



Figure 41: Repartition of Slum Population in Chennai (Left), and Slum Location in Chennai (Right).

Source: Census of India, Remade by Author, 2021.

Chennai is the capital of the Indian state of Tamil Nadu, formerly known as Madras. It is the fourth largest city in India and one of south India's largest cultural, economic, and educational centers.¹¹⁷ The majority of the Chennai population is Tamilian, and Tamil is the primary language spoken, even if English is widely using in business and education. The presence of industries in Chennai, with a broad industrial base in the automobile, technology, software services, hardware manufacturing, healthcare, and financial services industries, has attracted a large number of migrants from other parts of Tamil Nadu and the rest of the country, and also the increasing number of makeshift places.¹¹⁸

The growth and economic development of Chennai and the growth of slums have ignored the need for urban social spaces of excellent and adequate quality within the urban fabric. The right to live, such as built and open, good environment, quality air,

¹¹⁷ "Chennai District", *Government Of Tamil Nadu*, 2021, <https://chennai.nic.in/>.

¹¹⁸ Karine Hochart, *Perspective Of Slums And Resettlement Policies In India, The Case Of Kannagi Nagar Resettlement Colony, Chennai*, ebook, 2014.

safety and security, are all the fundamental provisions for a people, including people who live in slums. The neglect of the public realm in Chennai promoted healthy social groupings and development. Slums in the city are indeed a manifestation of such negligence by the planners, policymakers, and the local government.

Referred to locally as *cheri* or *kuppam*, the Chennai slums usually consists of self-built huts, made of mud wall and thatched roof. These constructions reflect the traditional habitat found in the villages of Tamil Nadu. "The *tamil* word *kuppam* itself, meaning a village initially, has been given a pejorative direction and is nowadays commonly used to designate a slum."¹¹⁹

A study on Chennai slums realized in 1966 revealed that 79% of the slum houses were huts made of cheap materials: thatched roof and mud walls or poles and kerosene tins and canisters beaten flat nailed across. The places constitute only one dark room, and the roof was from 4 to 10 ft in height, meaning that the people couldn't stand erect but had to crawl.¹²⁰ According to a 2008 report, 67% of the households in slums live in one-room tenements. One characteristic feature of the kutcha house is the temporary aspect and renewal of the thatch. Over time, the type of the house tends to evolve in a permanent structure. According to the 2001 census, around 65% of the houses alone in slums are pucca houses, while semi-permanent and temporary dwellings take an equal share of 17% each.¹²¹

The followings are three types of houses commonly identified India, according to the materials used for construction:

¹¹⁹ A. Srivathsan, "An Example Of How Not To Design", *The Hindu*, 2014, <https://www.thehindu.com/news/cities/chennai/chen-columns/An-example-of-how-not-to-design/article12059020.ece>.

¹²⁰ Nambiar, *Slums Of Madras City*.

¹²¹ Chandramouli, "Slums In Chennai: A Profile."

- Katcha House: Traditional house made of mud or dried brick used for walls and/or dry-stone masonry. The roof is usually built with thatch leaves. 80% of the katcha houses have timber frame (columns and beams). If both walls and roof are made of katcha materials, the house is classified as katcha.
- Semi-Pucca House: Houses without reinforce frame, columns, beams, but good masonry work with cement mortar and reinforce cement concrete or corrugated galvanized iron roof. There is no universal agreement of what is the percentage of the material that could define semi-pucca.
- Pucca House: Consolidated house made up of cement, bricks, wood, iron rods and steel. Such houses are also called permanent houses.

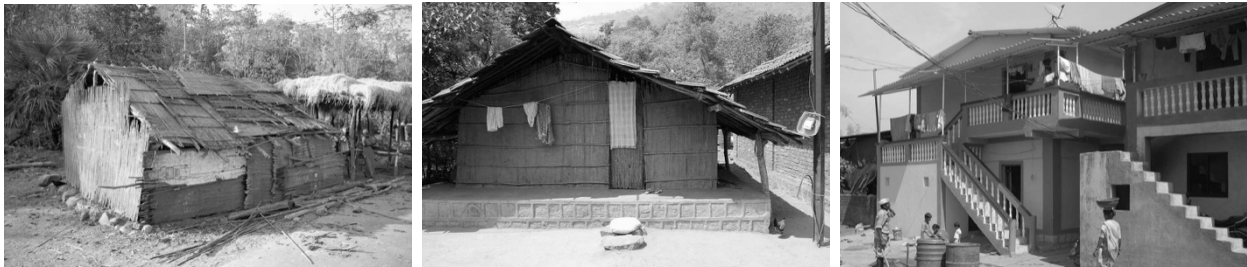


Figure 42: The Example of Katcha House (Left), Semi Pucca (Middle), and Pucca House (Right).

Source: The Perfect Slum.

The slum development in the Chennai area can date back to the beginning of the 20th century, before Independence in 1947. Until the 1960s, the location of slums still mostly confined to areas of employment opportunities. Therefore, most of the slums were found located near industrial zones.¹²² Since the squatters take to lands of least resistance, the peripheral areas were attracting new slums, which continued until 1971 near the industrial zones.

¹²² Vedamuthu Rane, "Urban Housing Project: Vaikundapuram, Kuyavar House, Madras Design Project" (Master of Architecture, Anna University, 1988).

In 1970, only one-fifth of the slums of the city located on the seashore and banks of watercourses. However, the lack of further industrial growth during 1971-1981 and the rapid development of South Madras, through the acquisition of land by the Tamil Nadu Housing Board (TNHB) and other institutions gave a flip to the growth of slums in South Madras.¹²³ Consequently, low-lying lands, river margins, road margins, and some of the lands along railway lines close to transportation corridors were areas sought by the squatters.¹²⁴

These open defecation areas are lack drainage, garbage collection, widespread, and environmental awareness. Illegal access to electricity for many households frequently results in fire accidents, sometimes fatal to most people and their shelters in the slums. Primary education and public healthcare are free. Unfortunately, many public schools are in deplorable condition, and the quality of teaching is questionable. Moreover, government hospitals do not guarantee professional medical treatment. They are also crowded, and the poorest sometimes have to wait for long hours to receive medical care.

5.4.3. Physical Building and Structure Analysis

Slum-dwellers evicted from the Adyar and Cooum rivers banks in Chennai are currently residing in Perumbakkam. Perumbakkam is a suburb of the southern Indian city of Chennai in the Chengalpattu district. TNSCB has initiated the Perumbakkam Housing Scheme to resettle residents from Chennai District to Kanchipuram District. One of the locations within the Perumbakkam relocation site is also named Ezhil Nagar.¹²⁵

¹²³ Karine Hochart, *Perspective Of Slums And Resettlement Policies In India, The Case Of Kannagi Nagar Resettlement Colony, Chennai*, ebook, 2014.

¹²⁴ Marie-Caroline Saglio-Yatzimirsky and Frédéric Landy, *Megacity Slums, Social Exclusion, Space And Urban Policies In Brazil And India*, 1st ed. (London: Imperial Collega Press, 2014).

¹²⁵ Shorthand Abraham, "Slum Resettlement And Rehabilitation", *Shorthand*, 2021, <https://social.shorthand.com/thekorahabraham/j2tvbD1fYi/slum-resettlement-and-rehabilitation>.

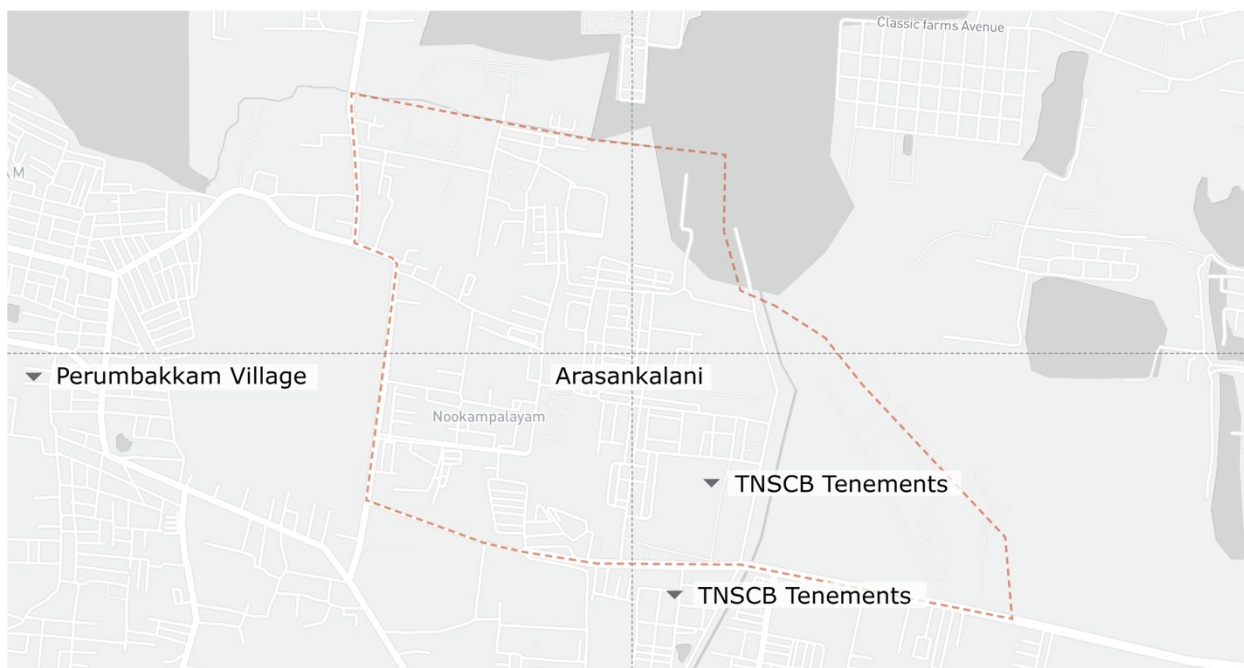


Figure 43: Location of Tamilnadu Slum Clearance Board (TNSCB) Tenements in Perumbakkam.

Source: Based on Mapbox Studio, Remade by Author, 2021.

The Government of Tamil Nadu provided free houses for those affected by the 2004 tsunami and the 2015 floods.¹²⁶ Although the government provided these houses free of cost, TNSCB has not issued sale deeds for the tenements. Instead, the disaster-affected families have only issue allotment orders that do not provide them with tenure security.

TNSCB has not taken any efforts to ensure housing accessibility and provide a “barrier-free environment” for persons with disabilities. Housing design, especially in terms of toilets and other facilities, is not disability-friendly; neither does it accommodate older persons' needs. The houses constructed in Perumbakkam have poor lighting and ventilation. Even during the day, houses and corridors are dark. The open-to-sky spaces were introduced in the second design faces to improve the ventilation and lighting, but

¹²⁶ Kannagi Nagar Pothu Nalla Sangam, *From Deluge To Displacement: The Impact Of Post-Flood Evictions And Resettlement In Chennai* (New Delhi: Housing and Land Rights Network, 2017).

there has been no significant improvement. Rains, flooding and broken sewage system are also issues. Residents of Perumbakkam see varying degrees of floods in every rainy season. The water stagnation from rains mixing with sewage from damaged pipes, which the residents claim has never repair despite pleas.¹²⁷



Figure 44: Aerial View of Perumbakkam Tenements (Left), and Lack of Natural Lighting (Right).

Source: TNSCB (Left) and Laasya Shekhar (Right).

According to The National Building Code of India (NBC), a housing project's density shall not exceed 150 dwelling units per hectare of land. Hence, the Perumbakkam project sited over 81.2 hectares can house only 12,180 dwelling units. However, 23,864 dwelling units were approved to construct at the site, with a density of 294 dwelling units per hectare.¹²⁸ The number of lifts is inadequate, and staircases too narrow for the residents to exit in an emergency. There are two types of TNSCB tenements in Perumbakkam; however, neither of these tenements existing in the colony meets the Fire and Life Safety provisions of the National Building Code of India (2005). In type A tenements, which have 192 units per building and a total of 32 blocks; and type B, with 96 units per block in 156 blocks, were all found to have inadequate width of exit on the ground floor, insufficient

¹²⁷ Aruna Natarajan, *PM Modi Just Promised Perumbakkam 1000+ New Houses. Who Will Solve The Woes Of The Existing Ones?*, Light House Project In Perumbakkam (Chennai, India: Citizen Matters, 2021), <https://chennai.citizenmatters.in/chennai-perumbakkam-resettlement-light-house-project-23160>.

¹²⁸ "Rapid Urbanization And It'S Challenges", *The New School*, 2018, <https://medium.com/urban-history-lab-fall-2016/rapid-urbanization-and-its-challenges-9a44da46a827>.

width of exit on the stairway and no emergency escape routes other than standard stairways for all residents.¹²⁹ The minimal space between the various blocks of housing development creates a series of problems in terms of the tenements' safety and livability.

5.4.4. Upgrading Project Development

The 1971 Tamil Nadu Slum Clearance Act regulated the slum upgrading in Madras: slum dwellers who had been living in Madras before 1971 were in principle granted against eviction, they would eventually be given the ownership deed of their plot, and the basic infrastructure of the slum would be installed or improved. However, slum dwellers living in "objectionable" slums wherein dangerous or flood-prone areas need to be relocated to other sites or tenements.¹³⁰ TNSCB aimed to clear the city of slums fully, prevent new slums from taking shape, and provide basic amenities for slum-dwellers to replace their huts with tenements.

Recently, the TNSCB argued facing issues in implementing in situ development and reconstruction schemes because of the lack of adequate open space in the urban areas for planned housing initiatives. It also states that in the event of in situ development and situ reconstruction, the TNSCB cannot claim the houses at alternative locations as holistic rehabilitation because these sites lack space to establish public and social infrastructure.

The city development agencies treat slums as an eyesore and relocate them around 30km from the city, where the neighborhoods do not exist yet. The slum dwellers have no choice but to move out of the center of economic activity that has attracted the

¹²⁹ Aruna Natarajan, *PM Modi Just Promised Perumbakkam 1000+ New Houses. Who Will Solve The Woes Of The Existing Ones?*, Light House Project In Perumbakkam (Chennai, India: Citizen Matters, 2021), <https://chennai.citizenmatters.in/chennai-perumbakkam-resettlement-light-house-project-23160>.

¹³⁰ Véronique Dupont and R. Dhanalakshmi, *Settlement Field Report In Chennai, India* (EADI, 2013).

population, promising better living conditions, over wastelands (undocumented land)/ watersheds/ drainage catchment areas. These locations, in fact, usually lack any civic amenities such as water supply, sewage and waste management, connectivity to the urban centers through a public transportation facility, opportunities for economic growth and sustainability, educational institutions, places of worship, community building, playgrounds, parks, congregational spaces, etc.

The massive housing plans of the TNSCB at alternative locations are Perumbakkam. For the estimated number of 7600 families in Perumbakkam, there is only one Public Distribution System (PDS) center, and these too often report a scarcity of provisions. Each family is entitled to 30 kg of rice per month, but they never received it even once during their two-year stay at the resettlement.

Furthermore, the flood-affected families have to pay Rs 750 per month for their tenements in Perumbakkam. This payment is being levied based on a temporary allotment order issued to each family, which states that Rs 750, Rs 700 is the maintenance cost. However, more than half of the families in Perumbakkam have an income below Rs 3000 a month.¹³¹ The payment of monthly installments for their homes is thus a financial burden for the families.

Slums do not exist for no reason. There is a need to assess why the slums have come up in the locations and context. They have sprouted over time, at a particular place and context, owing to the promise of income generation for the unskilled labor force and the subsequent use of this income to sustain themselves by the consumption of amenities that the urban centers of today require of us, to lead a comfortable life.

¹³¹ Kannagi Nagar Pothu Nalla Sangam, *From Deluge To Displacement: The Impact Of Post-Flood Evictions And Resettlement In Chennai* (New Delhi: Housing and Land Rights Network, 2017).

5.4.5. Results and Recommendations

Before Upgrade	After Upgrade
Slum Upgrading Characteristics	Slum Upgrading Characteristics
<input checked="" type="checkbox"/> Housing Improvement	<input type="checkbox"/> Housing Improvement
<input checked="" type="checkbox"/> Land Tenure	<input type="checkbox"/> Land Tenure
<input type="checkbox"/> Safety and Security	<input type="checkbox"/> Safety and Security
<input checked="" type="checkbox"/> Poverty Reduction	<input type="checkbox"/> Poverty Reduction
<input type="checkbox"/> Climate Change Resilience	<input type="checkbox"/> Climate Change Resilience
<input type="checkbox"/> Integration	<input type="checkbox"/> Integration
<input checked="" type="checkbox"/> Overcrowding	<input checked="" type="checkbox"/> Overcrowding
<input checked="" type="checkbox"/> Access to Infrastructure	<input type="checkbox"/> Access to Infrastructure

Figure 45: Chennai Resettlement, To Do List Before and After Upgrade.

Source, Author, 2021.

This case study highlighted various reasons for the resettlement project's failure, from the location to the planning and housing design of the site. Unless the implementation is genuinely inclusive and approaches integrally, slum clearance policies will remain limited to eradicating housing poverty symptoms in the most visible urban spaces without reducing urban poverty.

One reason for the failure of the project is the recognition of slums by planning authorities, in particular their attitude toward the inhabitants. They perceived this slum dwellers as poor, non-educated, and unworthy to any project implementation or investigation. "Why should we spend time and money for these poor people?" are asking by lacking a participatory approach and time spend on studies. Besides lack of feedback from the resettlement project, absence of inquiry on the implemented project, and blame of the beneficiaries in case of dissatisfaction refer to the idea that "people should be satisfied with the project because it is free provided." Finally, lack of follow-up the study and the diversity of agencies responsible for some parts of the project lead to a denial of government responsibility.

The existing problems in these tenements have been well-documented but remain unaddressed. Residents have protested and petitioned authorities at every level to get some of the facilities repaired and have new ones in place. At this juncture, the addition of more houses could only make the situation worse for those who already live here and the new residents who will move in, in the coming years.

The followings are the bullet points in the sum of suggestions:

Demands from communities:

- Government to take up action to ensure prevention of flooding in the site
- Effective stormwater drains to ensure that the water does not stagnate in the site
- Some designing to ensure that during rains the water does not stagnate in the corridors on all floors

Improvements from building construction:

- Link "water as leverage program" in Perumbakkam for effective water management planning and implementation
- Technical audits to assess the stability of housing
- Technical designs to ensure that the houses are disaster resilient and can implement to reduce the risks in these sites
- Emergency exits are required for evacuation during earthquakes or fire accidents.

6. IMPROVING THE IMPERFECT

The final segment serves as an experimental conclusion. It synthesizes some of the lessons learned from the study of previous case studies and the literature review on the built form and environment of informal settlements. It is obvious that the large-scale global issues of urban informality and the world's social-political context maintain a high level of inequality. The future without informal settlements in the housing market is not soon feasible yet.

Today most of the informal urban development encroaches on-site without a legal approach. It is important to establish a building guideline that protects these vulnerable populations while at the same time providing a solution to the social and physical conditions within the existing informal land-appropriation strategies. While multiple national pedagogies have been released, it remains unclear the extent to which these so-called “best practices” are adequate or possible for the unique challenges faced by individuals living in self-built, urban poor settlements. It brings me an idea of thinking what kind of improvements are legitimately helpful? What are the changes that can make by design?

I, therefore, propose a new adaptive framework within the planning, urbanism, architecture, and the characteristics of self-help urban poor communities. The sections, for the guidelines, served as an ideal configuration to bring all stakeholders from various backgrounds, including academics, community leaders, residents of the settlements, public officials, and NGO staff, to work together. The design solutions still require all local expertise involved depend on the actual site content. For demonstration, the vignettes take an example in Kaka’ako Makai Gateway Park.

6.1. Stakeholders

Almost any individuals or organizations with an interest in a project can be termed a stakeholder. Each project has its own unique set of stakeholders. A great project manager should appreciate all types and interest of stakeholders to enable greatest benefit of the project. It is essential to delight stakeholders to motivate project teams, and to build long-lasting relationships among them. The core of stakeholder theory is the normative approach, which means that organizations should understand the validity of diverse stakeholder expectations and strive to respond to them within a mutually supportive framework. The only obligation for stakeholders is to create as much value as possible through the assessment of the situation and balance the demands to meet success.

Whether project success or failure were closely related to all participants' perceptions of the value created by the project and their relationship with the team. Poor stakeholder participation in the process of informal settlement upgrade or regularization will limited development practice. Thus, delivering value requires managing the relationship of the project and ensuring that all participants have perceptions of what is being delivered, when and how.¹³² The needs of all stakeholders should be assessed during the execution of the project; in order to achieve a satisfactory and realistic solution to the problem being discussed. Although the interest of stakeholders is to work together, organizations should find out if their goals are moving in the same direction. It is therefore essential for us to carries out a stakeholder analysis to list, classify and assess the

¹³² Lynda Bourne and Derek H.T. Walker, "Project Relationship Management And The Stakeholder Circle™", *International Journal Of Managing Projects In Business* 1, no. 1 (2008): 125-130, doi:10.1108/17538370810846450.

influence of each stakeholder. The following table identify two types of stakeholders that involved in the process of informal settlement upgrading and regulation:

Primary Stakeholders	
Renters and Squatter	Those who are living in informal settlements with many folds' informality.
Neighbors	The communities which are adjacent to the informal settlements and share the amenities together.
Landowners	Agencies or individuals hold the legal land rights, where informal settlements take places.
Municipal Local Governments	Agencies responsible for city administration, basic services, provision, urban development planning and managements.
Regional Development Agencies	Agencies responsible for planning as well as development control.
Local Elected Representatives	The elected representatives by the public voting process.
Secondary Stakeholders	
Working NGOs	The indivisible part of any type of development as a private sector.
The Public Agencies under Central Government	The responsible government department that have no direct interest in informal settlement regularization process but they have indirect roles for facilitating the whole process.
Local Politician	Leaders of different parties and their followers who take informal settlement as a political agenda during the crisis period.
Local Elites	Those are getting indirect benefits by providing some illegal or informal services i.e. electricity; and also benefiting through social crimes.
Donor	Agencies that are providing funds and technical support.

Table 8: List of Stakeholders

Reference: Sikder et al., "Stakeholders Participation For Urban Climate Resilience: A Case Of Informal Settlements Regularization In Khulna City, Bangladesh."

There are several ways to understand the term participation. For example, *Participation as a Tool* aims to achieve a satisfactory outcome, while *Participation as a*

Process is to complete the capacity of individuals to improve on their living environment and facilitate social progress in line with the advantages or disadvantages of marginalized groups.¹³³ The shortfall in the approach of *Participation as Tool* is that participation is arbitrary in the whole program. It uses to gain acknowledgment for an already assembled package rather than to achieve expected outcomes.¹³⁴ On the other hand, *Participation as a Process* guarantees the consistency and quality of achievements through beneficiaries' ownership and contribution. Beneficiaries are likely to provide an overall conclusion of their efforts and are motivated to entrust their thought and energy to the long-term development process. This indicates an alliance inclined more to select a "Process" than a "Tool."¹³⁵

The discourse on effective methods of participatory growth introduces a technical-based participatory orthodoxy that fails to discuss inter-linkages in social reality, such as individual and institutional, both horizontal and vertical, and the distribution of authority, information and other resources throughout the community. When participation transform into an exercise based on toolboxes of protocols and strategies, the risk of simplified solutions that disregard of different social groups becomes a reality.¹³⁶ In order to prevent failures in participatory development, a better understanding of the complexities of informal dwellers' live is important. Failures are often noted to be foreseen during the promotion of the enrollment. For example, the term community is often mistakenly identified as a homogenous entity bound by natural, social and administrative

¹³³ Frances Cleaver, "Paradoxes Of Participation: Questioning Participatory Approaches To Development", *Journal Of International Development* 11, no. 4 (1999): 597-612, doi:10.1002/(sici)1099-1328(199906)11:4<597::aid-jid610>3.0.co;2-q.

¹³⁴ Lucius Botes and Dingie Rensburg, "Community Participation In Development: Nine Plagues And Twelve Commandments", *Community Development Journal* 35, no. 1 (2000): 41-58, doi:10.1093/cdj/35.1.41.

¹³⁵ Sujit Kumar Sikder et al., "Stakeholders Participation For Urban Climate Resilience: A Case Of Informal Settlements Regularization In Khulna City, Bangladesh", *Journal Of Urban And Regional Analysis* 7, no. 1 (2020), doi:10.37043/jura.2015.7.1.1.

¹³⁶ Frances Cleaver, "Paradoxes Of Participation: Questioning Participatory Approaches To Development", *Journal Of International Development* 11, no. 4 (1999): 597-612, doi:10.1002/(sici)1099-1328(199906)11:4<597::aid-jid610>3.0.co;2-q.

barriers; yet, it is equally necessary not to describe it as a heterogeneous social system by simplified categorization of roles such as women, leaders, poor, etc. Oversimplified perceptions of the informal community will lead to many conflicts between residents when involved in the development process.

To better determine the effects of stakeholders' participation in implementation of project in the informal settlements, the following paragraphs will be further discussing three primary stakeholders including renters and squatters, landowners, community, and local authority. The positive and significant predictive impacts on community engagement of each participant will be clarify.

6.1.1. Renters and Squatters

As tenure security is accessible to the landlords, they may use land ownership as a way for the development and improvement of living conditions. However, in terms of access to infrastructure facilities, residents, mainly renters, have high levels of deprivation, insufficient education levels, and a low accommodation standard. The majority of absentee landlords have built housing of low quality and have not provided essential services. Landlords should be instrumental in providing basic service, and the related ministries should collaborate with local governments in implementing the policies with all stakeholders. The relationship between landlords and tenants is also critical, as it has implications on the sustainability of services.

6.1.2. Landowners

Different approached have been used to describe the relationship between landowner and the informal occupancy. If the landowners are private individual or groups, they often consider the residents of informal settlers as temporary squatting. Therefore,

they do not maintain any database and they have no legal provision or interest to work in the favor of informal settlers. On the contrary, they initiate eviction measures to clear their land from illegal occupancy and want to lease the land for commercial or agricultural purposes. They have the possibility to share or lease their additional vacant land with the settlers or development agencies. However, if the government or public agency owns the lands, their attitudes to informal settlements may range from opposition and eviction to reluctant tolerance, or even support for legalization and upgrading.

6.1.3. Community

Community participation has been promoted in all kinds of urban policy over the last few decades. However, in most situations, it has not been able to permeate all types of decision-making yet. The communities themselves are trying to encourage more engagement due to the failures housing policy from government. Their involvement could be more noteworthy if they advocated from the bottom up than if it is appointed from the top down.

There are a lot of external and internal problems facing community participation. External challenges are often demonstrated as technical approaches for improvements to informal settlements likely to be driven from top to down, while internal challenges are the main thematic topics for assessing the involvement of informal residents. The differences here is not between formality and informality but rather a distinction within informality.

An informal settlement consists of different interest groups and people of various social, cultural, religious, political interests, and backgrounds, and all livelihood activities need to be fulfilled. Their perceptions of community actions and the common goods differ in hand with their role in the community. New inhabitants in informal settlements may

live with old-timers, owners with tenants, employed with the unemployed, legal workers with the informally self-employed, dwellers of different generations, ages, sexes, education levels, characteristics, etc. It reports that the informal settlements are often less likely to participate due to their divisions of language, tenure, income, gender, age or politics, than in less diverse communities, however, if the residents have the chance to input their decision-making process together, they tend to be more supportive of the project and to each other's.¹³⁷

Community development requires the involvement and participation of local residents in identifying their idea of homeland. Participation is developmental, educative, integrative, and a means of the preservation of rights. Also, local residents probably have a better knowledge about the assets and needs of the community. Finally, public participation is considered the centerpiece of the democratic process. One of the distinguishing characteristics of community development is that it involves creating local organizations (CBOs) to help build assets. These organizations offer several advantages for carrying out place-based programs as they have extensive contacts and information about the neighborhood.¹³⁸ Every stakeholder should notice that these are control by the local residents.¹³⁹

Public engagement enables communities to resolve conflict and allows for different perspectives to be heard. This way promotes people to learn and help themselves. Community participation contributes to community empowerment, which also helps individuals develop a critical understanding of their circumstances and social reality. Communities will assess their situation, organize themselves as a powerful group, work

¹³⁷ Lucius Botes and Dingie Rensburg, "Community Participation In Development: Nine Plagues And Twelve Commandments", *Community Development Journal* 35, no. 1 (2000): 41-58, doi:10.1093/cdj/35.1.41.

¹³⁸ Gary P Green and Anna Haines, *Asset Building And Community Development*, 2nd ed. (Los Angeles: Sage Publications, 2008).

¹³⁹ David I Cleland and Lewis R Ireland, *Project Management*, 5th ed. (New York: McGraw-Hill, 2007).

creatively towards changing society, and build up a new world. These increased capacities of individuals allow communities to mobilize and help themselves minimize dependence on the state and lead to a bottom-up approach. This is essential for project implementation. Besides, the community's participation in development projects leads to capacity building, which enables the community to be more effective and efficient in identifying, implementing, monitoring, and evaluating development projects.¹⁴⁰ The increasing capability of the community to fulfill their own needs and maintain the benefit of the project also contributes to eradicating poverty and hunger in the long-term.

Continuous efforts should be made to upgrade through community participation and enabling strategies. Mansuri and Rao show that community participation leads to development projects are more responsive to the needs of the poor, easier delivery of public goods and services, better maintenance of community assets, and a more informed and involved citizenry.¹⁴¹ Perhaps most significantly, the opportunities to develop informal settlements align with their incorporation into formal planning and organizational processes. The governments and authorities are responsible for providing and supporting basic needs and safe livelihoods to their citizens, whether they are formal or informal urban inhabitants. If our cities are to remain engines of development and improvement, they must find a way that makes such development sustainable and equal for everyone.

6.1.4. Local Authority

The local representatives play an important role due to the persistence interests of their local political. The municipal councilor retains up-to-date records on informal

¹⁴⁰ Ismail Davids, Kealeboga Maphunye and F Theron, *Participatory Development In South Africa*, 2nd ed. (Pretoria: Van Schaik, 2012).

¹⁴¹ Ghazala Mansuri and Vijayendra Rao, "Community Based (And Driven) Development: A Critical Review", *SSRN Electronic Journal*, 2004, doi:10.2139/ssrn.501663.

settlements, build infrastructure with personal budgetary allocations, and protests against forced evictions. The local leaders have the ability to smoothen the way forward due to the system of local power and better linkage with main public-private sector actors.

Settlers are often involved with political associations and are also active in land management and infrastructure maintenance. Among other stakeholders, the private sector agency was confronted with serious difficulties at earlier stages in convincing the settlers to take part in regularization initiatives. The settlers, however, feel under pressure and lack of confidence due to tenure insecurity and frequent threats of eviction. Much of the informal settlements are highly dependent on local government officials for their potential improvement.

The government plays a vital role in financing, initiating, executing and managing community development projects. It offers an enabling policy and legal environment which regulate economic, resources, job opportunities, and services. NGOs than carry out their activities through legal mechanisms devised by the government.

There is need for the governments to create and participate in informal sharing platforms to discuss progression in their communities, so the collaborations will keep watch of each other's performance and accountability in community development programs. Ideally, the local governments need to demand CBOs and NGOs accountability and set up their efforts to monitor NGOs' implementation on project as well.

This policy framework provides local authorities with an incentive to take the lead in stimulating technological advancement by collaborating with local associations and encourage a shift from individuals and household to collective, community action. These innovations are likely to be a significant success, alongside enable a more influential role for local authorities in improving projects efficiency within their area.

In the delivery of public projects, both politicians and bureaucrats regard as critically important agents. Politicians are elected by citizens to decide public policy, including the execution of public projects, while governments hire bureaucrats to implement these policies. When facing high levels of political competition in their constituencies, politicians may be motivated to increase the efficiency of potentially vote-winning public projects. As a result, they may seek to overcome barriers such as bureaucrats', inertia or corruption. Current research shows that democratic rivalry will enhance public service execution. Typically, politicians do not under-take public projects themselves but must delegate these tasks to bureaucrats.¹⁴²

The decision-making at the community-level may falls into the hands of a small and self-perpetuating clique, which act in its interests with disregard for the wider community. If this case, the disabled, poorest, in-debt, or similarly disregarded informal dwellers benefit the least. The most vulnerable groups are internally excluded from amplifying their voice to the public and making their choice. The so-called community leaders are often internally blocking the intervening agency to prevent a social status loss or gain more support from the bottom. Thus, informal dwellers are becoming reluctant to participate in the development programs. The city administration's political interest is slowly fading, driving informal communities to go further to the margins.

Political representatives who may influence officials to implement upgrading projects in a particular informal settlement just before an election will take advantage of the communities and entice them to vote for their representatives. Unfortunately, the politicians' promises are rarely fulfilled and often leave informal dwellers without any choice but to do what they say, which drags down the expectation from people living in

¹⁴² Lakshmi Iyer and Anandi Mani, "Traveling Agents: Political Change And Bureaucratic Turnover In India", *Review Of Economics And Statistics* 94, no. 3 (2012): 723-739, doi:10.1162/rest_a_00183.

makeshift places. Informal dwellers' memories count, and, as mentioned before, their willingness for participation is always conditioned. Process without outcomes leaves the community convinced that the promised improvement would never happen, but wastes the communities' social energy.

Government has a role in ensuring the success of the public projects in terms of infrastructure development, provision of the legal framework, and guarantees of developers. Pugh argues that the failure of the capability of government will affect the success of housing sector development.¹⁴³ Resolving the problems from the dwellers of informal settlements should be seen as imperative for the future since they are likely to constitute the next few decades' primary human habitats. Many informal inhabitants live in substandard conditions, but they have experiences, aspirations, and a great creative mind that cannot be disregarded. Their potential can be activated by overcoming prejudices and depreciatory attitudes. Developing their engagement on social and cultural patterns through community participation holds many promises for themselves and the greater urbanities in where they reside.

¹⁴³ Cedric Pugh, "The Theory And Practice Of Housing Sector Development For Developing Countries, 1950-99", *Housing Studies* 16, no. 4 (2001): 399-423, doi:10.1080/02673030120066527.

6.2. Conceptual Framework

In her research of Settlement Patterns in Unplanned Areas, Maria del Carmen Portela proposes a typology of planned urban patterns in the first stage of consolidation of informal settlements. The major implication is that these settlements will progressively produce housing areas with similar spatial characteristics to those of proposed low-income developments for comparable income groups.¹⁴⁴ Christian Werthmann also offers an environmental perspective on such forecasting of future informal settlements in his work on Sao Paulo and Medellin.¹⁴⁵ He explores ways in which municipalities can create models for communities that predict the intersection of urban informality and environmental risk, introducing projects that will discourage urbanization in these regions. Invaded territories are typically found at the intersections of ecologically endangered zones, interstitial spaces of infrastructure, and sites without clear ownership. We may produce predictive maps of potential informality using these indicators and categorize the probability of occupations and prioritize for developing the new strategies.

6.2.1. Organization of Basic Units

The basic element to be used within this set of models is the 12 by 12 foot cube. This generative module accommodates 1-2 people, which, when combined, form larger structures. For ADA and family users, two units combine together into one with restrooms or stairs in the middle. This project has all the characteristics of a boundless, cost-effective system. It offers one possible answer to the chronic problem of vulnerable

¹⁴⁴ María del Carmen Portela, "Settlement Patterns In Unplanned Areas: Case Study San José De Chirica, Ciudad Guayana, Venezuela" (Degree of Master of Architecture, McGill University, 1992).

¹⁴⁵ Peter Hofmann, Hannes Taubenbock and Christian Werthmann, "Monitoring And Modelling Of Informal Settlements - A Review On Recent Developments And Challenges", *2015 Joint Urban Remote Sensing Event (JURSE)*, 2015, doi:10.1109/jurse.2015.7120513.

groups and the rapid growth population in both developed and developing cities throughout the world.

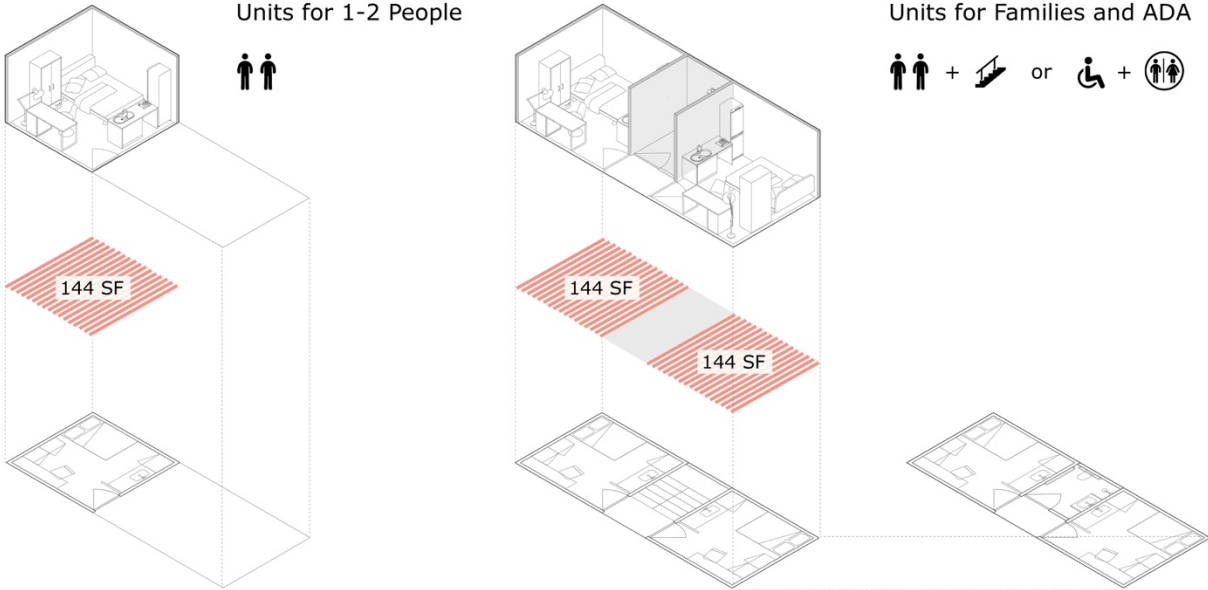


Figure 46: Organization of Basic Units. Units for 1-2 People (Left), and Units for Families and ADA (Right).
Source: Author, 2021.

These construction guidelines offer only a canvas, a spatial system and functional infrastructure the welcomes a wide range of formal possibilities and material.

6.2.2. Modular Typology

The flexible properties of the basic unit allows communities and planners to explore alternative sites within the city. It can be used to extend the capacity of existing refuge encampments, a placed within open land, scattered or grouping together horizontally or vertically, or build upon a vacant urban block. The design also promotes opportunities for social integration in urban and suburban locations. This structure suggests the creation

of public and community buildings, accommodating newcomers, established immigrants, and local communities in living together.

Besides residential housing, the flexible tectonics of these basic units allow planners to envision housing constructed within existing buildings, such as repurposed gymnasiums, warehouses, or factories. In the event of a natural disaster, this unit can be quickly installed inside the structure to provide safe and private temporary shelters for victims. Used as shared offices is recommended in megacities, too. With increasing land scarcity and high rental prices in the urban centers, these modules can divide space more precisely and provide more affordable choices for micro-business individuals. Communities can construct these facilities as a social exercise in citizen collaboration to reduce cost.

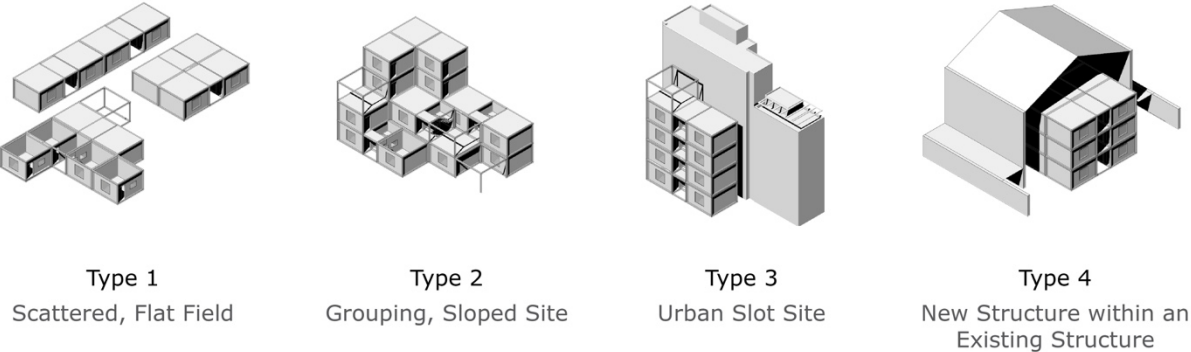


Figure 47: Modular Typologies Adapting to the Existing City.
Source: Author, 2021.

6.2.3. Typological Forms and Patterns

Fieldwork and research yield several important building typologies that help better plan habitable environments for vulnerable communities. The following forms and patterns demonstrate the potential of environmental design and architecture to address

diverse context and situations by addressing safety, security, and identify, with the potential to reduce suffering associated with homelessness and social disenfranchisement.

Compound plots have equivalent dimensions of 12 x 30 feet. They can be arranged and occupied based on the need of inhabitants. Plot typologies are adaptable: programs on each plot can match, combine, or function independently; the system accumulates incremental development and rapid modification.

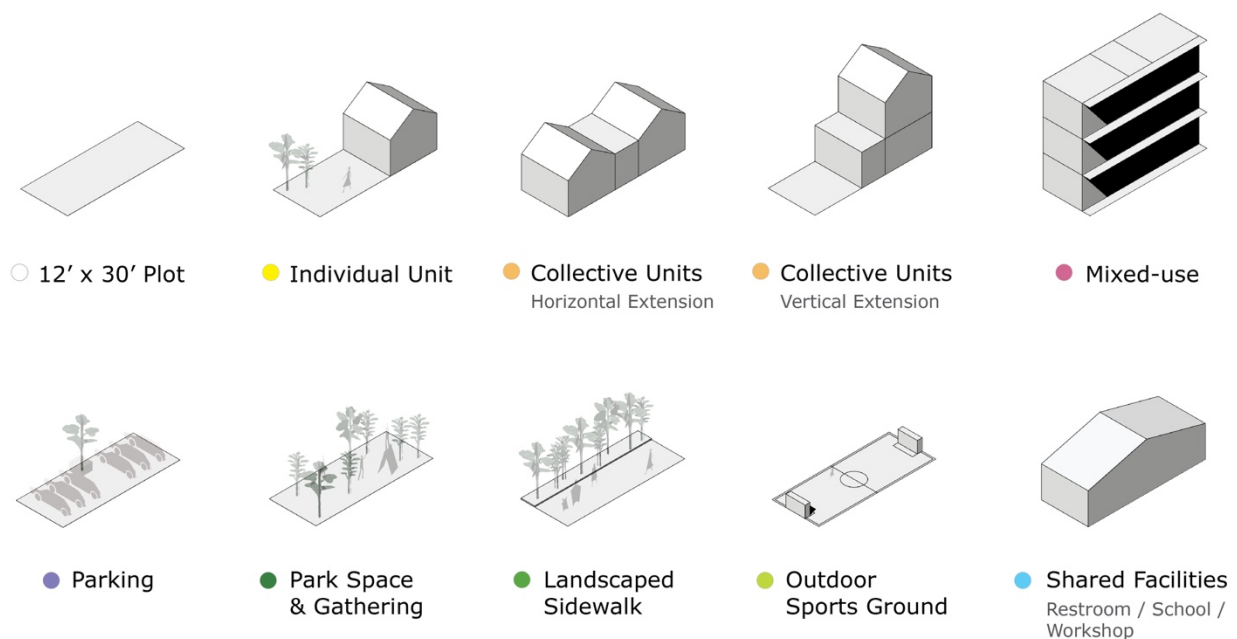


Figure 48: Typological Forma and Patterns.

Source: Author, 2021.

Since it is impossible to conceptualize informality as a single entity, by customizing the functions and programs of these plots, architects and planners can tailor unit configurations and site plans to meet the physical, social, and economic need of the community.

6.2.4. Planning Scenarios

The following planning scenarios suggest sample typological variations. All scenarios are designed for different purposes and functions to meet the needs of the targeted site quickly. For example, plots in the heart of the block can build shared gardens and parks that make the city more attractive and advance social well-being. Outdoor sports areas can connect community residents with city recreation departments or schools. The composition of residential units also helps ensure the best fit for the population, and the optimization of public amenities. Conceptual scenarios include:



Figure 49: Planning Scenarios.

Source: Author, 2021.

– Scenario 1: Park

The medium density, park-type scenario presents central park space surrounded by individual housing aligned with the street. Landscaped green space is open and accessible to the public which also benefiting resident's area.

– Scenario 2: Increasing Housing

This scenario explores higher densities where the city has a larger demand for housing. The heart of the block offers a landscaped sidewalk serving collective unit. This configuration is suitable the middle of the city, where the population is growing and does not have much space for landscape. The qualitative sale of this is collective housing plan presupposes government or non-profit funding models.

– Scenario 3: Mixed-use

This mixed-use scenario accommodates all types of businesses and services, providing job opportunities and social support. The plan features mixed-use office and retail programming.

– Scenario 4: Parking

This scenario proposes parking lots within landscaped sidewalks on the outskirts of the site. The plan integrates public parking of potential benefit to the city.

– Scenario 5: Sports Department

The multi-use scenario features a community sports complex and small multi-use equipment and space to outdoor sports and recreation. It promotes physical activity, which is an essential public health benefit. Collective housing community frames anchor sports and recreation to create a vibrant.

– Scenario 6: Multi-function

This multi-use scenario is almost entirely dedicated to all user groups, including school, major facilities, and government office. The housing plot is surrounded by landscaping and trees that help define and soften new public space.

6.3. Vignette: Kaka’ako Transition Village

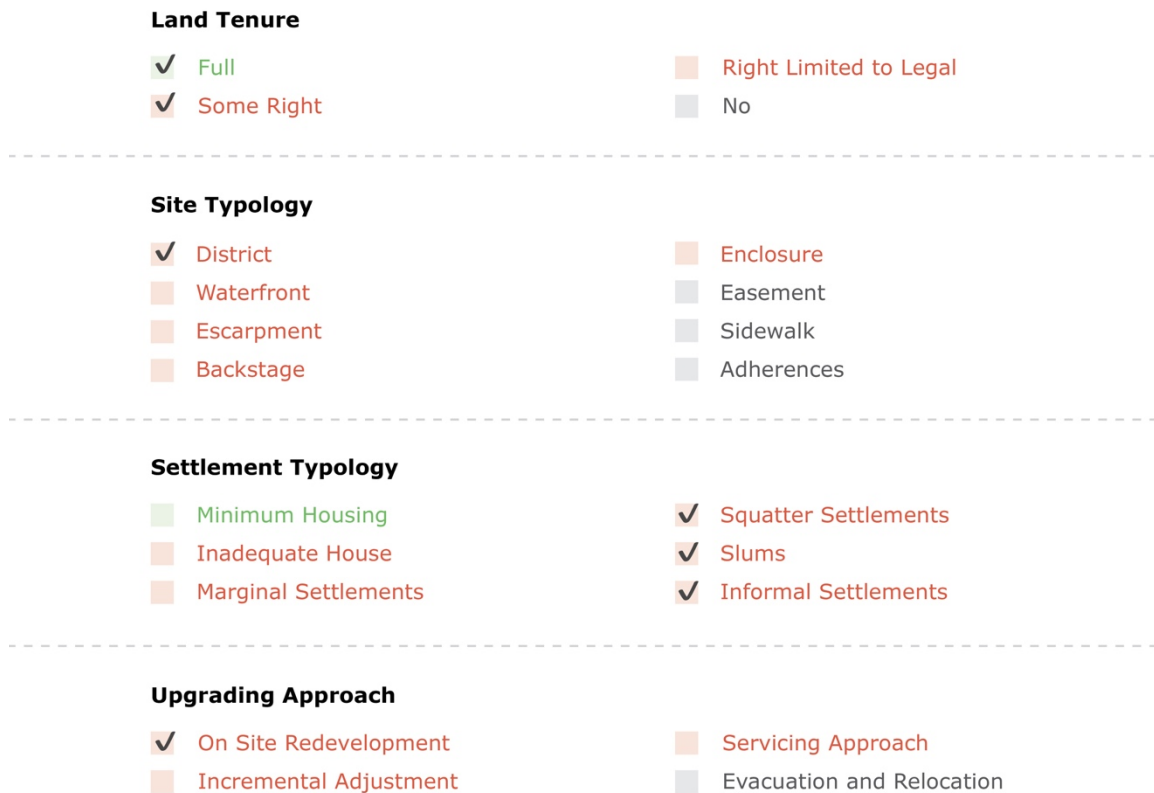


Figure 50: Characteristic of Kaka’ako Transition Village.
Source: Author, 2021.

Hawaii, the paradise state—renowned for its gorgeous scenery, aloha spirit, stunning beaches, and fusion of East and West that earns the state rating as a top vacation destination—generates an \$80,212—average household income (8.2 times more than the global average), yet is also a nationally known hub of homelessness.¹⁴⁶ According to the State of Hawaii’s annual *O’ahu Point in Time (PIT) Count (2020)* of homelessness, 4,478 people suffered homelessness on O’ahu on the night of January 22,

¹⁴⁶ Department of Business, Economic Development & Tourism, *Hawaii Data Profiles* (Honolulu: The Hawaii State Data Center, 2018).

2020. Forty-seven percent (2,102) were sheltered, and 53percent (2,346) were living on the streets or in other places not meant for human habitation.¹⁴⁷ Hawaii provides the following three major types of homeless shelter:

Emergency Shelter	Transitional Housing	Safe Haven
Short-term accommodation providing shelter to families and individuals.	Mid-term accommodations, designed to provide housing and supportive services to clients to facilitate movement to independent living.	A form of supportive housing that serves hard to reach homeless people with severe mental illness.

Table 9: Major Types of Homeless Shelters in Hawaii.

References: O'ahu's Continuum of Care, *2020 O'Ahū Point In Time Count* (Honolulu: U.S. Department of Housing and Urban Development, 2020).

People who experience homelessness are not distinct and separate from the rest of the population. In fact, the line between being housed and unhoused is quite fluid. Sometimes events come up in life that cannot be planned, such as illness, the death of a primary income earner, divorce, disability, or the loss of a job. The pathways into and out of homelessness are neither linear nor uniform, and many are involuntary.

Homeless Characteristics	Individuals Percentage/ Count
Chronically Homeless Individuals ¹⁴⁸	24% (881)
Repeaters ¹⁴⁹	27% (1,197)
Veterans	10% (356)
Unaccompanied Minors	4% (30)
Mental Health Problem	25% (912)
Physical or Developmental Disability	28% (1,051)
Substance Use Problem	18% (683)

¹⁴⁷ O'ahu's Continuum of Care, *2020 O'Ahū Point In Time Count* (Honolulu: U.S. Department of Housing and Urban Development, 2020).

¹⁴⁸ Chronically homeless refers to individuals, often with disabling conditions, who are currently homeless and have been homeless for over a year or have at least spent more than 12 months cumulative nights in a shelter or place not fit for human habitat in the past 3 years.

¹⁴⁹ Persons who have been counted in PIT Counts 2017, 2018, or 2019.

HIV/ AIDS	1% (41)
Over 60 Years Old	12% (460)
Survivor of Domestic Violence	13% (501)
Fleeing from Domestic Violence	4% (155)

Table 10: Homeless Characteristics in Honolulu.

References: O'ahu's Continuum of Care, *2020 O'Ahū Point In Time Count* (Honolulu: U.S. Department of Housing and Urban Development, 2020).

People sprawling on benches and sidewalks, panhandling, guarding piles of tents and clothes, sleeping in doorways, and moving around aimlessly: although city government passed a law ridding sidewalks, streets, and parks of homeless persons—and although these alternatives carry informal criminal penalties in Waikiki, the tourist district, and Chinatown—informal settlement and homeless outposts can still be found in all other places in the city, including Kakaako Gateway Park.



Figure 51: Homeless Encampment along Kaka'ako Mauka Gateway Park.

Source: Honolulu Civic Beats.

Kakaako Gateway Park consists of two open grass fields situated between Kakaako Waterfront Park and Ala Moana Boulevard. Cooke Street binds the fields to the west (Ewa) and Ohe Street to the east (Diamond Head). Ilalo Street bisects the fields. The most consistent users of this area have been homeless people, ensconced in transient

encampments around the edges of the Kaka'ako Mauka Gateway Park. This community choose to inhabit the borders of the park, not its central area. This compromises the comfort and incommodes pedestrians walking by. The HCDA has been trying to clear this and all encampments; it expends considerable resources to keep the transient population from camping in the parks. For example, Waikiki Health's "Next Step" shelter is open along Keawe Street. The site selected here is makai of the encampment, an open field often used for field sports and picnicking.



Figure 52: Location of Kaka'ako Makai Gateway Park.
Source: Based on *Mapbox Studio*, Remade by Author, 2021.

Waikiki Health's Next Step shelters are accessible through the gate to the Re-Use Hawaii parking lot at the end of Keawe Street, near the UH School of Medicine. The front door to the shelter locates on the Ewa side of the property. The shelter is inside a

warehouse building, with cardboard cubicles covered by a thin layer of cotton “roof.” Although the purpose of this shelter is a derivative of a concept known as “Housing First,” which prioritizes moving homeless people straight from the streets into permanent and supportive housing, there is no privacy or dignity for families living in this environment. In addition to a long waiting list, “Next Ste” also charges a \$60 to \$90 program fee for those who wish to get in.



Figure 53: Waikiki Health’s Next Stem Shelters.
Source: Honolulu Star-Advertiser, 2016.

6.3.1. Planning Objectives

Instead of attempting to formalize the informal, these guidelines suggest a flexible grammar for intermediate urban development. This framework intentionally leaves spatial configuration open to interpretation by the planners, designers, and residents. The following diagrammatic scenario demonstrate how Kaka’ako Makai Gateway Park might accommodate this framework.

The key to creating a successful design system is to move in small steps that demonstrate values and motivate institutional change. Thus, instead of offering a fully developed design, this proposal begins with dots and grids, which provide a fast and easy way to view and organize the site plan and engage stakeholders. Each dot represents a

spatial functional; each grid represents 12 by 30 feet. The following diagrams show how dots and grids describe the distribution of program element for small communities. The larger block employs planning scenarios described in the previous chapter. Both approaches require further development by planners, designers, and stakeholders. Details vary by site condition.

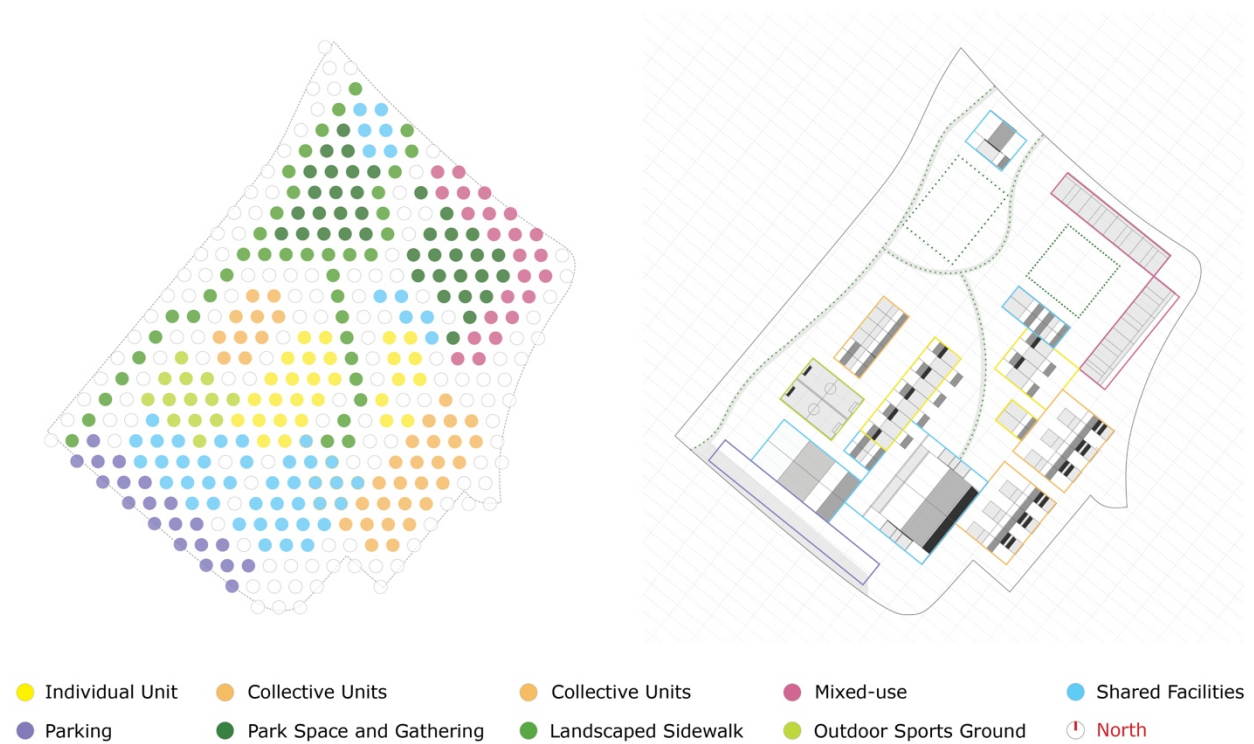


Figure 54: Kaka’ako Transition Village. Activity Plan (Left) and Site Plan (Right).
Source: Author, 2021.

The socio-spatial organization of the site provides a framework that promotes community interaction. Mixed-use programming and shared facilities along the edge of the site increase what Jane Jacobs famously called “eyes on the street”: people’s “eyes” get stronger when they engage a range of activities on the street. Shops and offices suggest a good strategy to maintain neighborhood safety. People present in a public space wideness its perimeter of security and inspires social cohesion. Even though it is a

homeless transition village, a very well-used street can make the adjacent community felt safer to walking by daily. The site configuration features example outdoor sports grounds, parks, and gathering spaces. The greater the activity in the area, the greater its vibrancy.

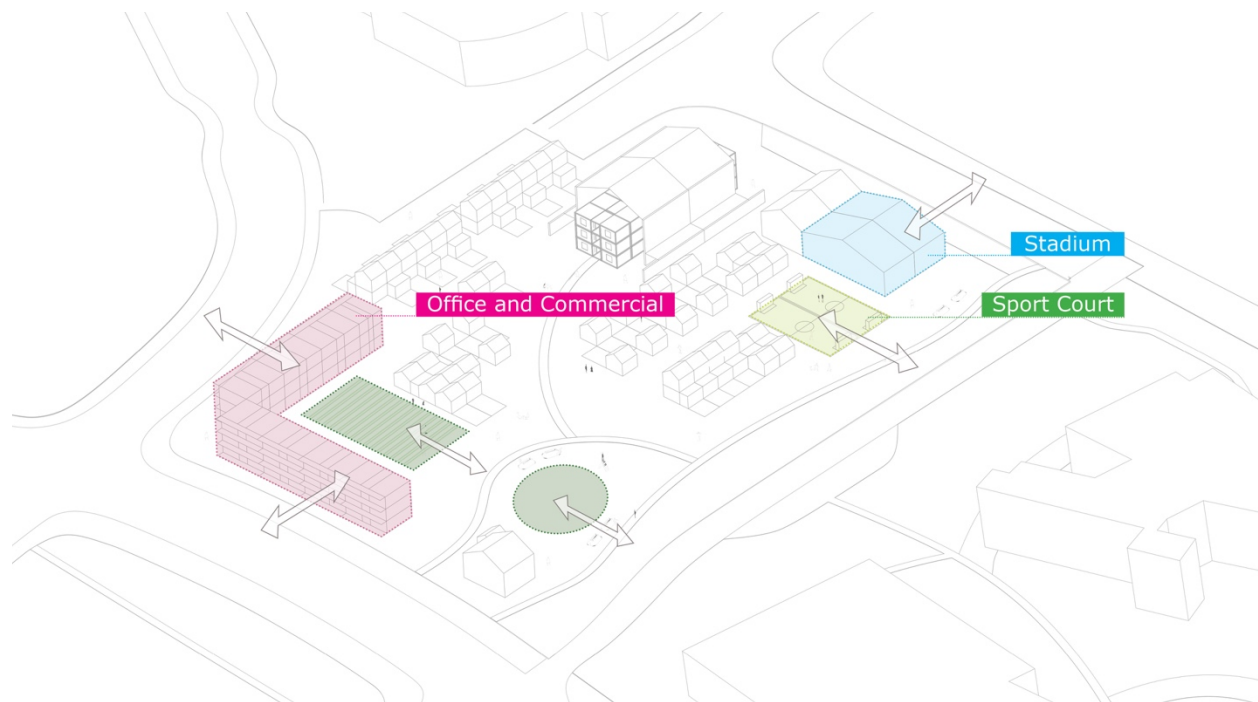


Figure 55: Kaka'ako Transition Village: Interaction on Site.

Source: Author, 2021.

Community parks and open spaces offer a well-established, effective means for creating community. People have been gathering in public spaces for centuries. While design cannot force people to connect, it can optimize circulation, remove barriers, and create healthy meeting places. The location of residential units increases the social character of public space and makes more convenient for people to get to know each other. The composition of open space attracts citizens of all ages and diverse interest. Intergenerational living helps engender social cohesion among different groups and promote community formation. The spatial organization of the site sparks chance

encounters, encourage communication, promotes interaction, and positive identity. As planners, we can take a more active role in providing healthy settings for social dialogue and growth.

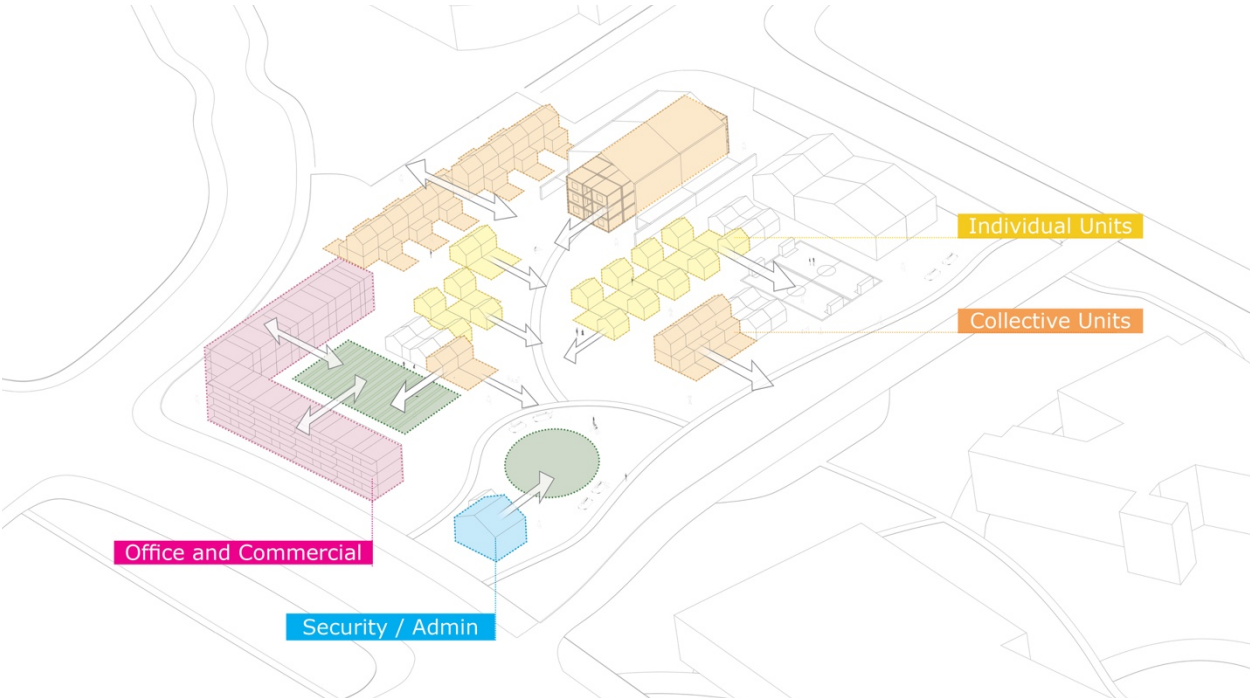


Figure 56: Kaka'ako Transition Village: Eyes on the Street.
Source: Author, 2021.

6.3.2. Implementation

Communities are always evolving, constituted of homes inhabited by people who develop relationships amidst constantly changing everyday experiences. The public spaces that serve communities are primarily central to the dynamics of city life. People perceive the quality of their physical and social environment in part based on how nearby public spaces come to life; and the quality of the surrounding environment helps shape how people use them. If they are accessible, attractive, clean, and safe, they inspire

more uses and activities; however, if public spaces are abandoned or neglected, people may not feel safe to using them.

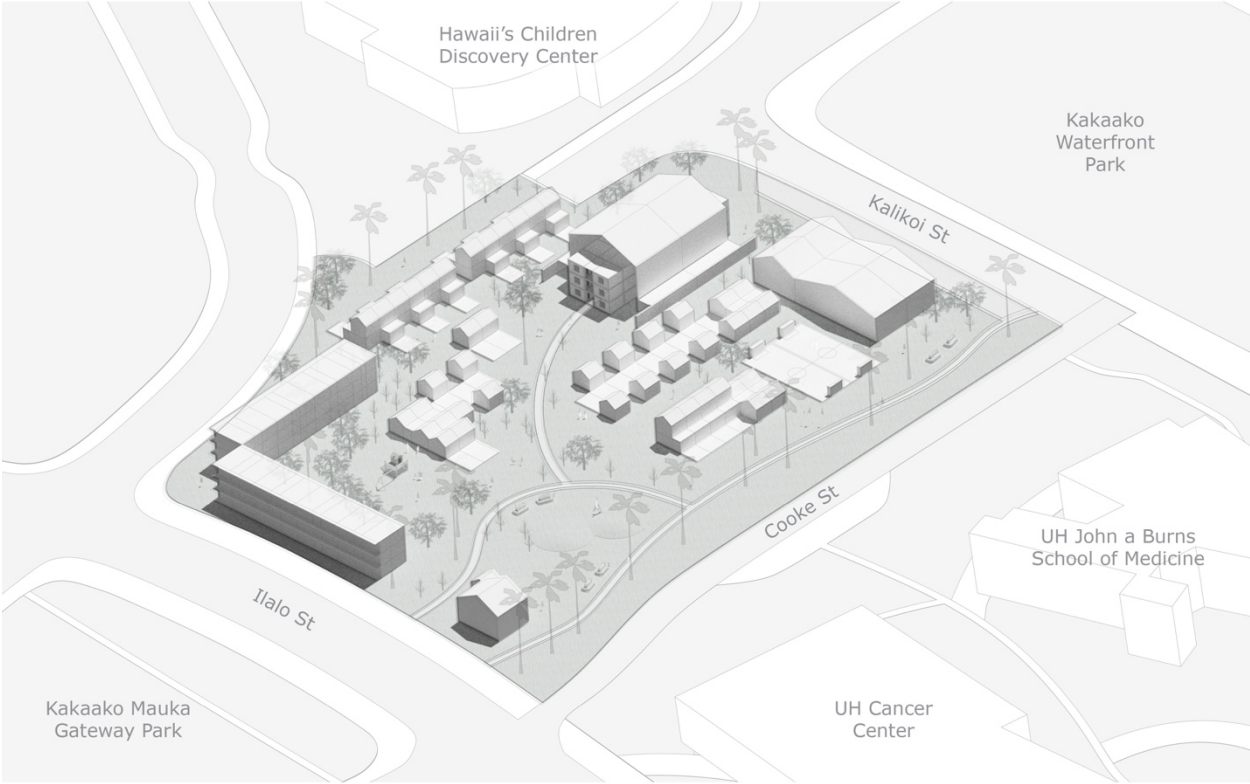


Figure 57: Kaka'ako Transition Village, Perspective.
Source: Author, 2021.

The inhabitants of makeshift settlements most likely seek to maximize their safety and security. Living close to relatives, maintaining social networks with other districts, working together in the family business, and sharing the suffering and indignity of homelessness likewise influence the formation of close-knit communities, which is in many cases initiate dangers that threaten their existence. What they value most is: steady employment; secure tenure rights, home ownership; access to resources; and continuous relationships and associations with their relatives and the places they come from. Thus, among all upgrading systems, on-site redevelopment is always the priority, especially where cultural factors are concerned. The land itself strengthens the efficiency

of open-ended, intermediate formal systems. Migrants from rural areas carry rural lifestyle with them to the city, which shapes adaptation to the contemporary urban context.

The following table presents a number of common themes that appear to arise in slum upgrading programs. It covers diverse issues, including integration, partnership, networking, promotion of co-operation, and others, described greater as follows:

Do	Don't
Promote good urban governance systems.	Assume that slum will disappear automatically with economic growth.
Establishing enabling institutional frameworks involving all partners.	Underestimate the role of local authorities, landowners, community leaders and residents.
Implement and monitor pro-poor city development strategies.	Separate upgrading from investment planning and urban management.
Encourage initiative of slum dwellers and recognize the roles of all.	Ignore the specific needs and contributions of vulnerable groups.
Ensure secure tenure, consolidate occupancy rights and regularize informal settlements.	Carry out unlawful forced evictions.
Involve tenants and owners in finding solutions that prioritize collective interests.	Discriminate against rental housing or promote a single tenure option
Adopt and incremental approach to upgrading.	Impose unrealistic standard and regulations.
Associate municipal finance, cross-subsidies and beneficiary contributions to ensure financial viability.	Rely on governmental subsidies or on full-cost recovery from slum dwellers.
Design and negotiate relocation plan only when absolutely necessary.	Invest public resources in massive social housing schemes.
Combine slum upgrading with employment generation and local economic development.	Consider slum upgrading solely as a social issue.
Develop new urban areas by making land and trunk infrastructure available.	Provide unaffordable infrastructure and services.

Table 11: The Does and Don'ts of Slum Upgrading

6.4. Conclusion

Before Upgrade	After Upgrade
Slum Upgrading Characteristics	Slum Upgrading Characteristics
<input checked="" type="checkbox"/> Housing Improvement	<input type="checkbox"/> Housing Improvement
<input checked="" type="checkbox"/> Land Tenure	<input type="checkbox"/> Land Tenure
<input checked="" type="checkbox"/> Safety and Security	<input type="checkbox"/> Safety and Security
<input checked="" type="checkbox"/> Poverty Reduction	<input checked="" type="checkbox"/> Poverty Reduction
<input type="checkbox"/> Climate Change Resilience	<input type="checkbox"/> Climate Change Resilience
<input checked="" type="checkbox"/> Integration	<input type="checkbox"/> Integration
<input type="checkbox"/> Overcrowding	<input type="checkbox"/> Overcrowding
<input checked="" type="checkbox"/> Access to Infrastructure	<input type="checkbox"/> Access to Infrastructure

Figure 58: Kaka'ako Transition Village, To Do List Before and After Upgrade.

Source, Author, 2021.

Makeshift places are like people, affected by their surrounding environments. They embody political awareness, everyday life, social interaction and identity, and cultural exchange. These places gain vitality from their inhabitants, the same as the cities. Thriving urban spaces transcend their physical walls and barriers.

The social realm and its issues are always complicated. This diagrammatic scenario aims to use companionate design help build a more cohesive society. Kaka'ako Transition Village anticipates the importance of chance encounters, communication, interaction, and the evolution of community identity through a framework of spatial relationships. Furthermore, this speculative design scheme seeks to engender the symbiosis of residential and mixed-use environments suitable for every stage of life. Gathering spaces, parks, stores, offices, shared recreational facilities, and other essential urban amenities offers those lacking housing a beneficial and supportive milieu designed for everyone—open ended, inclusive, and humane.

CONCLUSION

Although the generative elements of informal settlements vary substantially from place to place, this study aims to better understanding the urban design and architecture of informal settlement. The study begins by researching informality at a conceptual scale, unpacking the meaning of the term and its overall potential as an alternative method of creating urban form. I have distilled this research into an applicable lexicon of informal terms, which in turn drives a framework of informal process and architectural grammars. I use diagrams and definitions to mark the first step in trying to articulate how informality may potentially define a new type of architecture. Chapters 4 and 5 introduce basic issues and methods in informal upgrades, especially through self-help organizations. I present a catalogue of precedents by architect who have attempted to apply lessons derived from informal settlements within their own culture and urban context, personal experience related to informality. Finally, I recount personal experiences related to informality, and heuristically apply these process and shape grammars to the Kaka'ako Gateway Park, which I selected to demonstrate on incremental approach to improving makeshift places.

Against the odds, informal settlements are sources of unforeseen innovation, diversity, and inclusion. They embody innovative architectural, social, cultural, and economic patterns that cannot be found elsewhere. They deserve critical analysis and understanding. Informal settlements and their inhabitants have something important to offer architecture and urban design they are more than merely being passive beneficiaries of aids. Architects should learn how to engage and listen to the inhabitants of informal communities. Exchanging information and building trust is a highly important part of the process. Self-help housing with stakeholder involvement further, strategically connects people who might otherwise find themselves disenfranchised.

While connecting closely with makeshift communities and collaborating with them on small-scale solutions, architects can also challenge the failure of large-scale models and top-down institutions. Architecture is the key from generating process that connects space and program in built environments. When operating in a complexly built environment, architects must first read the situation and think about the ways political engagement, architectural ideas, planning strategies, urban practices, and cultural values converge and disseminate in collaboration with society. Architectural practices manifest as spatial agency. The architect's job is not all about solving problems, but sometimes also about posing problems, so that all involved actors can fully develop their capacity to critically improve their built environment. In this process, architecture becomes a mediator between the people living in informal settlements and the institutions that are making the conditions for informality in the first place. Architects can help balance all the forces that influence urban development—social, political, economic, environmental and cultural.

In conclusion, this research addresses the translation between formal and informal frameworks. The idea is to generate new forms of sociability and community formation by giving people the support, tools, and resources to drive their ideas and control their urban habitat. My aim has been to create broader pictures and a more flexible tools for understanding and engaging makeshift places. At the beginning of this paper, I saw these uncontrolled encampments already taking form in my own neighborhood, so I decided to commit myself understanding them. Makeshift places are vital socio-political territories. I hope more people will pay attention to the city's natural processes; view informality as a local dynamic; recognize makeshift development as a collective form of creative urbanism; and work together to improve trust, mutual support, and care for the future of all urban communities.

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