POLITECNICO DI MILANO
School of Architecture, Urban Planning and Construction Engineering

PlayMaking for Cohabitation: Homi Danchi
A Model for Danchi Revitalization

Msc. in Architecture and Urban Design. 2024/2025

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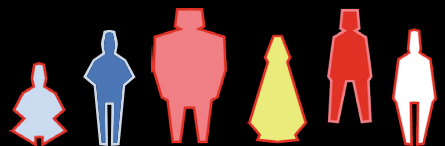
PlayMaking

for CoHabitation



Maria Gabriela Castro

Ismael Ryuhei Kagawa Suarez

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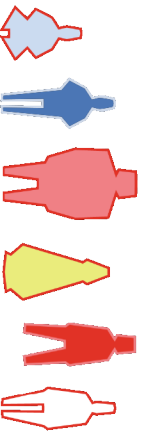

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By Gabi Castro

The realization of this thesis was made possible through the guidance, generosity, and support of many people, to whom I am deeply grateful.

First and foremost, I would like to express my sincere gratitude to my thesis advisor, Dr. Pierre-Alain Croset, whose thoughtful guidance, critical insight, and continuous encouragement were fundamental throughout the development of this research. His mentorship challenged me to think beyond limits and approach architecture with greater depth and responsibility.

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This experience profoundly reminded me of the warmth of people's hearts and the strength that emerges when kind individuals come together in pursuit of a better future.

By Ismael Kagawa

ABSTRACT

Designing a Group oriented Space for the sustainable development of Japan.

After the second world war, large swaths of the city of Tokyo were decimated, and Japan had to scramble to fulfill the immense housing needs of their citizens. Leadership designed large quick-fix housing projects which provided affordable housing and new transportation infrastructure to increase connectivity to the city center. In the case of Japan, these housing projects (popularly named "Danchi" or group-land) proposed a new participatory way of living, hybridizing the culture of the population. Now, the Danchi sit neglected and in poor conditions, many of their original residents having aged to the point of disability, and with no new tenants to fill the active roles this housing typology needs to be successful. Similarly, much of the older generation of Japan now rests isolated within these large scale housing projects, and are vulnerable to illness, disrepair, and worst of all - loneliness. Japan's strict immigration policies and cultural resistance to foreign workers have limited the country's ability to address its aging population and labor shortages effectively. This reluctance to fully integrate immigrants threatens long-term economic stability, as key industries like healthcare and construction face growing workforce gaps. This thesis explores communication tools that can aid towards filling gaps in the design process that would otherwise be impeding opportunities and progress. By using a similar approach found in disciplines such as computer science and culinary practices, Open Source Gameplay embodies open exchange, rapid prototyping, design transparency, and community-oriented development. The thesis focuses on the collective organization of a people towards design by using adaptive reuse techniques and an open-source methodology of making design decisions.

RIASSUNTO

Progettare uno spazio orientato al gruppo per lo sviluppo sostenibile del Giappone

Dopo la Seconda guerra mondiale, vaste porzioni della città di Tokyo furono devastate e il Giappone dovette affrontare con urgenza l'enorme necessità abitativa della popolazione. Le autorità progettarono grandi interventi residenziali rapidi, che offrivano alloggi accessibili e nuove infrastrutture di trasporto per migliorare la connessione con il centro urbano. Nel caso giapponese, questi complessi abitativi (popolarmente chiamati "Danchi", ovvero "terra di gruppo") proponevano un nuovo modo partecipativo di abitare, ibridando la cultura della popolazione.

Oggi i Danchi versano in condizioni di abbandono e degrado; molti dei loro residenti originari sono invecchiati fino a raggiungere condizioni di fragilità o disabilità, e mancano nuovi inquilini in grado di ricoprire i ruoli attivi di cui questa tipologia abitativa necessita per funzionare. Allo stesso modo, gran parte della popolazione anziana giapponese vive isolata all'interno di questi grandi complessi residenziali ed è vulnerabile a malattie, deterioramento degli edifici e, soprattutto, alla solitudine.

Le rigide politiche migratorie del Giappone e la resistenza culturale nei confronti dei lavoratori stranieri hanno limitato la capacità del Paese di affrontare efficacemente l'invecchiamento della popolazione e la carenza di manodopera. Questa riluttanza a integrare pienamente gli immigrati minaccia la stabilità economica a lungo termine, poiché settori chiave come la sanità e l'edilizia devono far fronte a crescenti carenze di forza lavoro.

Questa tesi esplora strumenti di comunicazione in grado di colmare le lacune nel processo progettuale che altrimenti ostacolerebbero opportunità e progresso. Ispirandosi a un approccio simile a quello adottato in discipline come l'informatica e le pratiche culinarie, l'"Open Source Gameplay" incarna lo scambio aperto, la prototipazione rapida, la trasparenza progettuale e lo sviluppo orientato alla comunità. La tesi si concentra sull'organizzazione collettiva di una comunità attorno al progetto, attraverso tecniche di riuso adattivo e una metodologia open-source nel processo decisionale progettuale.

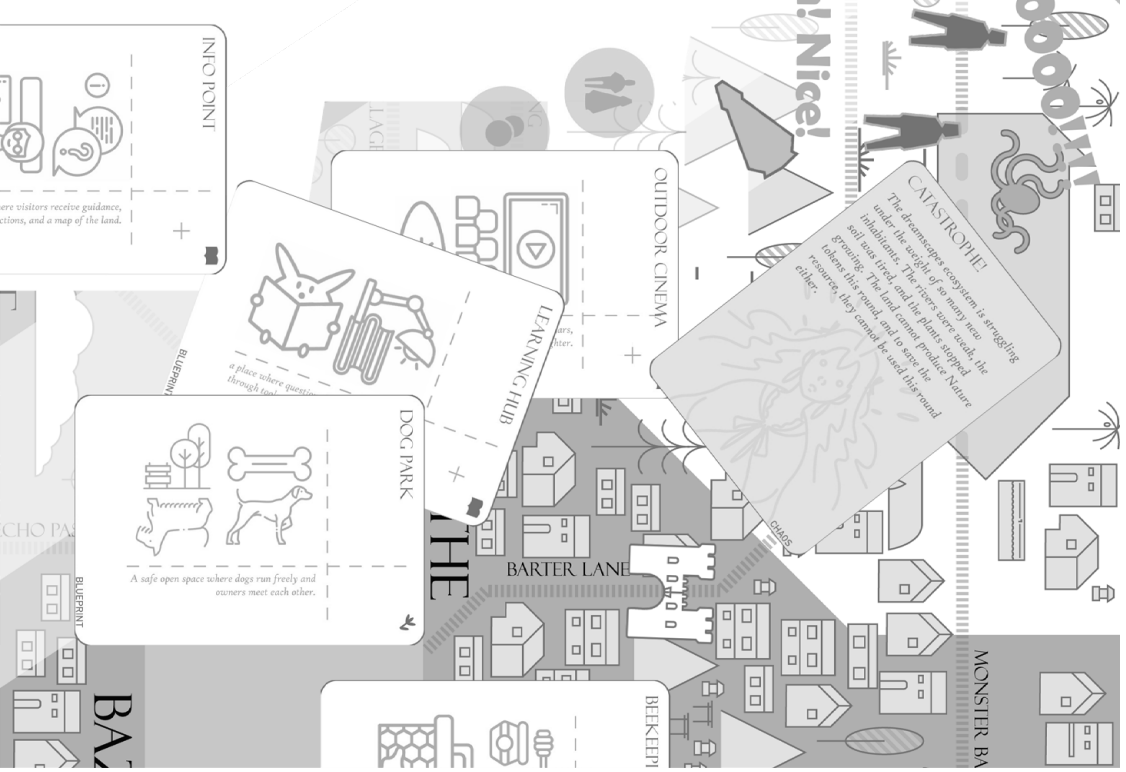


Figure 1.1 Collage of Game Assets Source: Authors

INTRODUCTION

Our research focuses on critical issues facing Japan today and offers possible solutions to complex quality-of-life issues. Our thesis specifically focuses on immigrants and needy locals living in difficult-to-change mass social and public housing throughout Japan. This topic has become quite relevant amid Japan's sudden depopulation, creating an aging society with little to no community support. It has created a paradox in which youngsters feel forced to move into denser urban areas to find employment, while communities in many rural areas are bearing the difficult side effects, such as high rates of lonely deaths and large numbers of buildings falling into desperate disrepair. If Japan does not find a solution soon, it will face a surge of new ghost towns across the country, and we may risk losing culture and communities altogether.

Our thesis is personal to both of us because we both come from countries where the disparity between those who can live comfortably and those who cannot is massive. Throughout our careers, we have witnessed how little architects are actually able to effect change—due to the relative alienation between architects and other industries, or simply because of the economic impact of actually hiring an architect. In searching for ways to massively impact communities and alleviate social and economic pressures, we realized that the open-source methodology is a great way to rapidly spread technology by making things transparent and quickly scalable.

Co-author Gabi Castro holds a degree in Architecture from Cornell University, with additional formal training in computer science through completion of the core undergraduate computer science curriculum outside of the design school, which strongly influenced her interest in systematic and optimization-based design thinking. This background directly informs the research's interdisciplinary nature.

Co-author Ismael R. Kagawa holds a degree in Architecture from the National University of Colombia. Born in Japan and raised in Colombia within a Japanese diaspora community, he has developed a strong interest in cultural coexistence and hybridity in dwelling. His cross-cultural experiences inform a critical understanding of the spatial and social challenges of multicultural societies, directly contributing to the research's focus on housing as a framework for identity, diversity, and collective life.

Our research is highly interdisciplinary. It draws heavily on computer science programming, is thought through in architecture and urban design, and is grounded in anthropological and sociological research, while involving participatory design, serious gaming design, and UI/UX to deliver a project that resolves critical issues in the political and governmental world.

We strongly believe that, as architects, we must actively draw from other fields—such as computer science—to channel some of their most effective methodologies in order to disperse design agency, rethink how decisions are made, and connect architecture more directly and meaningfully to the communities and people it is meant to serve.

Our research could be particularly useful for any international, heterogeneous community living in large social or public housing who wants to improve their living conditions.

Our main research question is:

"How can we activate a community to create higher-quality living conditions?"

Our main research question is: How can we engage people and enable them to work better together in the design process? Additionally, how can we foster interest in collaboration and design among diverse groups? Our research questions are solution-oriented, focusing on practical, feasible ways to generate change. We want to show that design can be feasible for anyone. We are questioning, above all, the population's supposed "inability" to make intelligent decisions about what to do with their space. We want to open an avenue for people to learn the tools to decide what they will and will not tolerate in their living situations. We hope that in doing so, we will return architecture and creative design to its people, and that we will not stop questioning where we can push the boundaries as citizens and as people.

Through this research, we hope to develop a prototype of a design tool that can be shared within an online community and to provide an example of what a full design process may look like using this tool. We will test our prototype with a selection of connections we made while in Japan that fit within each stakeholder field. This thesis will produce a cohesive set of user needs, offer programmatic solutions, provide insight into the community impact of those solutions, and, finally, a spatial layout of the given resources that could respond to the prompt. The proposal, an interactive board game, can be played amongst friends to start a conversation, can be played amongst homeowners looking to make small changes, and even amongst a stakeholder table looking to make major renovations to their living complexes. The game takes place in a single sitting, with various parts that can be removed or added depending on the needs of the specific group playing. It proposes projects that can be completed within a few months, a year, or longer, as well as more complex projects requiring construction and architectural documents. We hope that throughout the thesis, we will see that the profession of architecture can be shared with people in many different ways, and that new avenues for how our industry could look in the future become increasingly clear.

The project is thus carried out using various methods of information gathering, including personal interviews, firsthand surveys, passive anthropological studies, and gameplay testing sessions. Our work is highly collaborative and requires input from multiple different demographics, institutions, and communities. Thus, active social gatherings, participation, and workshops are our main method of collaborating. In our research, we are using cameras to visually document our process, digital note-taking tools such as Excel and AutoCAD to quantify and accurately represent on-site surveys, and visual design tools such as illustrations and printed prototyping to advance the project. We have collaborated with various organizations, such as our current thesis advisor, architect and author Pierre-Alain Croset; architecture professors such as Toshio Otsuki from the Department of Architecture of the University of Tokyo as our co-advisor and the urban planning laboratory led by him; Head of the Danchi Revitalization Support Association and Director of Kobe Design University, Matsumura Shuichi; anthropologist and founding member of the nonprofit organization JUNTOS, Hisafumi Saito; Member of the Planning Division of the Urban Renaissance Agency, Katsuya Matsuda; anthropologists and urban planners in South America such as Malena Reinaudo; and a series of students, residents, and organizations.

Our research is structured into 4 parts: context, specific research area, Our Conceptual Design, and Design Conclusions. These correspond to the 4 chapters of the text: Chapter 1: Contextual Overview; Chapter 2: The Site; Chapter 3: Participatory Games for Adaptation and Resilience; and Chapter 4: Design Together. In Chapter 1, we introduce the various crises that forced Japan into the situation it is in today, specifically focusing on

At the end of this paper, we hope to demonstrate that the architecture industry has everything it takes for a serious citizen revolution.

CHAPTER 1

CONTEXTUAL OVERVIEW

A Perfect Storm: Japan in Crisis

Japanese Mobility

The Housing Market & Residential Immobility

A Quick-Fix Solution: The Emergence of Danchi

Development of Danchi: A Brief History from 1950

Danchi as an Architectural Typology

Case Studies on Danchi Revitalization

A PERFECT STORM: JAPAN IN CRISIS

> *"The instant I instinctively lowered my head, a strange flash of light engulfed my whole body"*
>
> *Ryuji Ishigai*[1.1]

Our story begins at the height of the crisis in Japan. The country was forced to reconsider every belief it once upheld, without a sliver of doubt.

The atomic bombings of Hiroshima and Nagasaki capped the urban destruction of World War II. Japan was left in profound physical and societal ruin. Facing severe shortages, mass displacement, and economic collapse, millions lacked stable shelter in the immediate postwar years (Dower, 1999).[1.2]

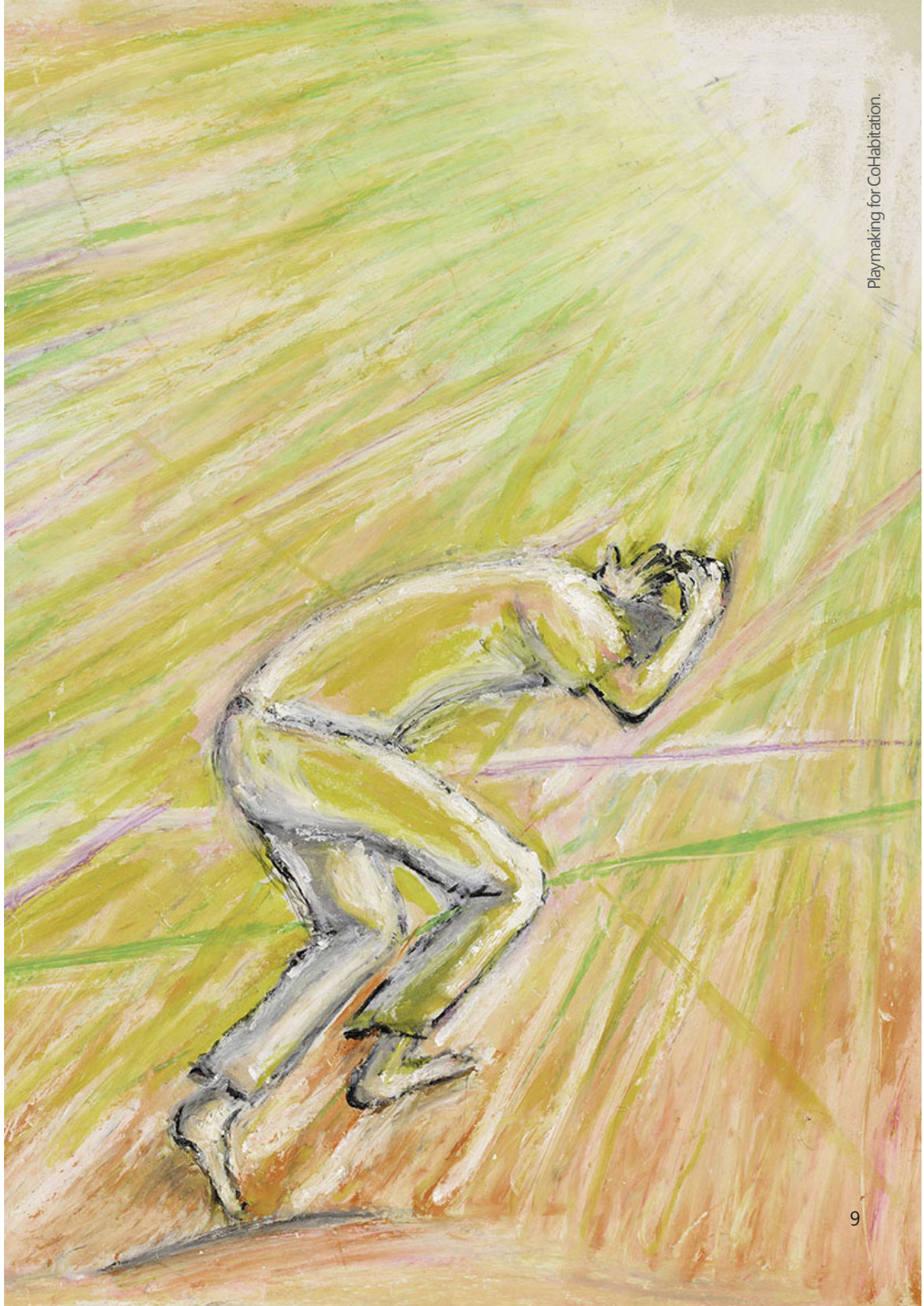
To address this crisis, the government focused on speed, affordability, and quantity in housing. Rapid reconstruction was valued over long-term durability or comfort. This pragmatic, quantitative approach shaped Japan's housing market for decades. Quick rebuilding led to faster depreciation cycles and a utilitarian approach to land use. Japan's post-war recovery created a fast-growing but fragile economy. It could surge during stable periods but stayed vulnerable to global fluctuations. Social pressures, long working hours, and shifting cultural expectations made it harder for many to start or raise a family. As the birth rate declined, Japan began facing a demographic crisis. In recent decades, the labor force has shrunk by about 1% per year, leading to fewer workers to support an aging population. This has caused economic challenges and required policy interventions.

Japan also faces immigration, inte-

1.1 Ryuji Ishigai, quoted on Hiroshima Peace Memorial Museum website, "A Strange Flash of Light," accessed February 11, 2026, https://hpmmuseum.jp/modules/exhibition/index.php?action=ItemView&item_id=106&lang=eng

1.2 Barshay, Andrew E. Journal of Japanese Studies 27, no. 1 (2001): 214–18. https://doi.org/10.2307/3591954.

Figure 1.2 A Strange Flash of Light, by Ryuji Ishigai, August 6, 1945. Drawing depicting the moment of the atomic bombing of Hiroshima Source: Hiroshima Peace Memorial Museum



gration, and subtle discrimination as it reconsiders its identity in a changing world.

As fertility rates declined, Japan entered a demographic crisis. Policymakers had to confront challenges with population aging, labor sustainability, immigration, social integration, and discrimination. This demographic shift led to a mismatch between housing and demographic needs. It affected residential mobility and strained social systems as the nation reconsidered its identity in a changing world.

Demographic Shift: An Aging Society

"Japan is standing on the verge of whether we can continue to function as a society."

-Prime Minister Fumio Kishida[1.3]

Japan is facing a unique crisis: its population is rapidly declining due to low fertility rates, leaving behind a substantial number of aging people. In effect, the responsibility of supporting the country and economy rests more heavily on the shoulders of the young generation, while the old generation lacks the resources and infrastructure for healthy retirement and elderly care. Although this phenomenon is not unheard of, it is happening at an alarming rate, and must be met with drastic measures.

In Japan, the population of citizens aged 80 or older exceeds ten percent (about 36.23 million). In fact, Japan has the world's oldest population by a substantial margin, surpassing Italy by 2%. This has become an increasingly worrying issue, as economists, politicians, and doctors alike recognize it as an unsustainable performance structure.

From a health and wellness perspective, an older population has a reciprocal relationship with age-related diseases. In Japan, about 20-22% of the elderly population will suffer from dementia. Given the proportion of older adults in the country, this could mean that 1 in every 16 people suffers from the debilitating disease. As a result, wayfinding and navigation infrastructure may need to be adapted to accommodate a growing population with cognitive impairments. For example, clearer signage with symbols or contrasting colors, simplified maps, dementia-friendly street design with more landmarks, or the use of digital navigation and voice-guidance options. Physical mobility and agility also suffer, which can crucially hinder the ability of the citizens to mobilize

1.3 MTV Lebanon, "'Japan is standing on the verge of whether we can continue to function as a society,'" MTV Lebanon (news article), https://www.mtv.com.lb/news/1337737#:~:text=%22Japan%20is%20standing%20on%20the,in%20population%20for%2060%20years

2021	
COUNTRY OR AREA	PERCENTAGE AGED 65 YEARS OR OVER
Japan	29.8
Italy	23.7
Finland	22.9
Portugal	22.6
Greece	22.5

Figure 1.3 Countries with Highest Elderly Population.
Source: UN

long distances between one task and another, coupled with dementia, and we have a group of people who isolate themselves from society due to the inaccessibility of their space. Further, the average age of people in different careers is also increasing, posing work-related risks to others: from farmers (69.5 years) to taxi drivers (60 years) and truck drivers (48 years) in 2020.

As of now, the "infrastructure" for old-age care, if we can call it that, has relied heavily on family dynamics, retirement savings, tax-allocated healthcare, and a few, but necessary, elderly homes. As we can see, however, demand for support is rapidly increasing, and reliance on family, taxpayers, or savings will not compensate for the serious gap between the elderly and the young.

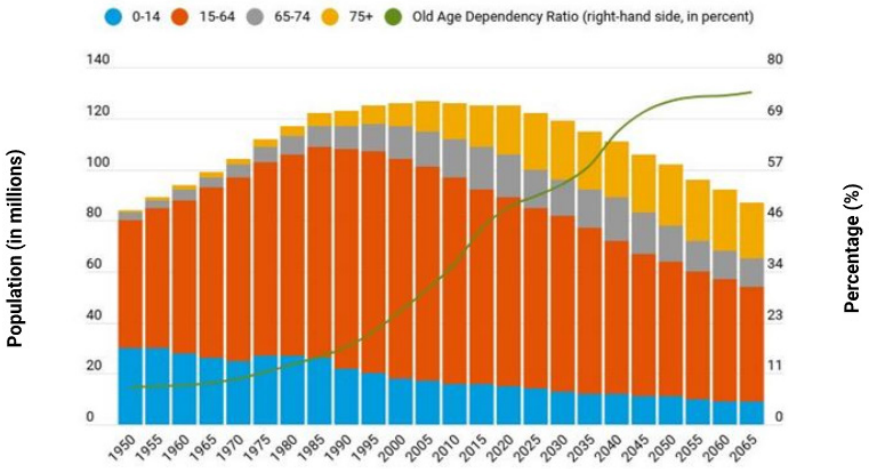


Figure 1.4 Old Age Dependency and Population Demographics. Source: Cabinet Office, White Paper on Aging 2017. IMF (International Monetary Fund)

The Old Age dependency Ratio in the figure above is the ratio of people aged 65 and over to those eligible to work. Although not all-encompassing, it is a useful tool for understanding the economic dynamics within a population.

Old Age Dependency Ratio = ("Pop. Aged 65+""Pop. Aged 15-64")100

The old-age dependency ratio is useful for conceptualizing the burden on the working-age population of supporting the elderly through taxes and other financial investments. We can see the ratio skyrocket between the 1970's till now, and projects only get worse.

"[In Japan] the aging and shrinking population will strain Japan's public finances, as age-related spending – such as on healthcare and pensions – rises while the tax base shrinks."

-International Monetary Fund[1.4]

It is clear that an "elderly-heavy" population creates a plethora of different issues for the economy: rising healthcare prices and other tax-related spending, and increasing depopulation in rural areas. It may even lead to the gradual neglect and abandonment of towns and settlements- severely impacting the housing market. This shift will pose a significant challenge to the building stock, lowering demand for new buildings, as buildings are already being abandoned due to obsolescence or poor living conditions.

More specifically, the quality and design of the housing stock do not align with the needs of their people. For example, due to population decline and deterioration, 13.6% of the apartments in historically densely populated Danchi complexes went vacant in 2018[1.5]. According to Satoh[1.6] (2018), the two main problems of Danchi are the lack of updates to the building to meet the contemporary needs of an aging population and the deterioration of their infrastructure. Many do not have elevators or ramps and have outdated electro-domestics installed. The apartments offer 50 sqm, which is not enough for a family by contemporary standards. Also, the lack of social cohesion has led to poor community-making and a lack of maintenance of these structures. One crucial aspect of Danchi's aging population is that the people who arrive here tend to be in the same age range, meaning that as they get older, the complex's population becomes older. Clearly, in a country where more than 28% of the population is 65 years and older, there should be solutions in place to address this significant misalignment between needs and supply. In this sense, it is important to diversify the typologies of constructed elements to attract people of different ages and living philosophies.

The shifting demographic also affects the workforce: Japan is facing a massive worker shortage of about 11 million employees. In the past, Japan found its niche in the global economy and come out ahead, bringing wealth and recognition to the country. Historically, Japan has excelled in lean production and precise manufacturing between the 70s and 80s. This led to great economic success in markets such as automobiles, semiconductors, and factory automation robotics. The quick expansions displaced many companies from Silicon Valley. A decade later, Silicon Valley began to specialize in integrating functional software, outsourcing manufacturing, and de facto standards for produc-

1.4 Cabinet Office, White Paper on Aging 2017. IMF (International Monetary Fund)

1.5 Iizuka, Nobuo. "What Is the Current State of Japan's Vacant House Issue?" Japan SPOTLIGHT, November/December 2024, 62–65.

1.6 Soichiro Sato (佐藤 聡一郎), Samazama na mondai ga kenzai-ka suru jūtaku danchi no saisei ni tsuite kangaeru (様々な問題が顕在化する住宅団地の再生について考える) (Mie: Sanjusan Research Institute, n.d.),

tion processes, commodifying the hardware Japan was producing and displacing many Japanese companies in turn. Following the 1990s, information technology took off, but expansion was sporadic and constantly changed direction - and it was difficult for Japan to achieve steady success in any of the branches of IT (broadband internet, digital audio video technology, and cell phones). The economy of Japan has never recovered from the quick directional changes of the software and technology industries, and is now weakened further by the shrinking population. Economists however are optimistic about the opportunities Japan can create from its misfortune. On the bright side, the population problem puts Japan in a position to become a perfect case study for augmentation and automation, streamlining processes that can allow a less populous workforce to achieve more with the efficient use of resources and the integration of "multi-tasking" at every level of the economy and lifestyle.

The "young" population carries increasingly heavy burdens to support the country's economy. At the same time, the elderly generation places a heavier burden on their predecessors, as they must be cared for, and many remain isolated or forgotten.

Figure 1.5 Image of Deteriorated Danchi Housing. Source: Ismael Kagawa, 2025

JAPANESE MOBILITY

In the face of rapid depopulation and increasing needy elderly population, welcoming young foreign people becomes more important than ever.

As the number of foreign nationals in Japan reach historic highs, demographic pressures expose structural limitations in institutional frameworks.[1.7] When looking at the pie chart of Foreign population in Japan by country, particularly notable is the significant presence of Brazilian nationals in Japan. Brazil may be 18000 km away, but it is also home to the world's largest Japanese enclave - and unsurprisingly, the geographic distance forshadows major cultural clashes.

The Ministerial Council on the Acceptance of Foreign Nationals created a report documenting tension between locals and international residents in Japan - among which three stood out. The first of which is lack of fluency in both language and societal norms due to insufficient institutional and educational infrastructure integration efforts. Second, governance mechanisms meant to control personal information are unable to acquire reliable data and thus information about immigration is unclear, undocumented, or easily misinterpreted by locals. And finally, the acquisition and use of land property by foreign nationals has raised concerns about rising real estate prices. Moving towards sustainable integration through "Orderly Coexistence" depends on continuous policy revisions, cooperation between national and local institutions, and mutual respect between Japanese and foreign residents.

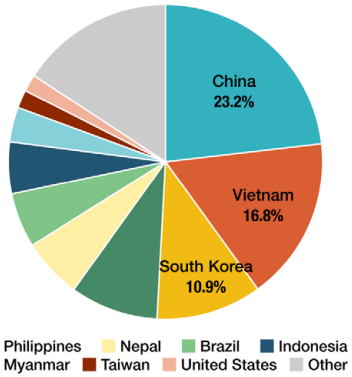


Figure 1.6 Distribution of foreign residents in Japan by nationality in 2024. Source: Nippon.com (Immigration Services Agency of Japan data)

1.7 Foreigners' Acceptance and Orderly Coexistence Social Realization Related Ministers' Meeting, Comprehensive Measures for the Acceptance of Foreign Nationals and the Realization of an Orderly Coexistence Society (January 23, 2026)

A Short History of the Japanese Diaspora: From the Meiji Restoration to the Dekassegui Movement

The history of modern Japanese emigration can be traced back to the 1800s, with the Meiji Restoration as the catalyst. Before 1866, during the Edo Period (1603-1868), Japan adhered to an isolationist foreign policy known as “Sakoku” or “Closed Country”[1.8]. This policy was originally meant for political consolidation and social governance. Following prolonged internal conflict, the Tokugawa regime sought to stabilize its authority by regulating foreign relations, suppressing Christianity, and preventing external forces associated with European colonial expansion. With measures such as banning overseas travel by Japanese subjects, restricting foreign trade to designated ports and intermediaries, and tightly supervising diplomatic exchanges, the shogunate aimed to preserve the existing social hierarchy and reinforce Neo-Confucian principles of order and loyalty.

However, this policy ended in July 1853 with the arrival of the US Navy, commanded by Matthew C. Perry, which forced Japan to open under the threat of military action. Soon after, Japan opened selected ports for trade and established diplomatic relations with Western society. This created social friction within the country, leading to a revolutionary war for Western-driven modernization - against the ruling Shogunate. In 1866, the Edo Shogunate reversed its policy of seclusion and allowed Japanese people to travel abroad. Two years later, in 1868, the Shogunate was overthrown, and the revolutionaries announced the reign of Emperor Meiji[1.9]. As historian Lone[1.10] suggests, what amazed the observers was the rapid commitment to a radical policy of developing export-centered industries and educating people in methods and manners of the industrialising West. The first small group of Japanese emigrants arose in 1868, initially heading to island societies with agrarian economies such as Hawaii and Guam for employment (although illegal). Within a matter of months, abuse from employers in Hawaii and friction with Guam had forced them back home.

1.9 Jansen, Marius B. The Making of Modern Japan. Cambridge, MA: Belknap Press of Harvard University Press, 2002.

1.10 Andrew Gordon, A Modern History of Japan, From Tokugawa Times to the Present (New York: Oxford University Press, 2003.)

1.11 Stewart Lone, The Japanese Community in Brazil, 1908–1940: Between Samurai and Carnival (Basingstoke: Palgrave Macmillan, 2002)

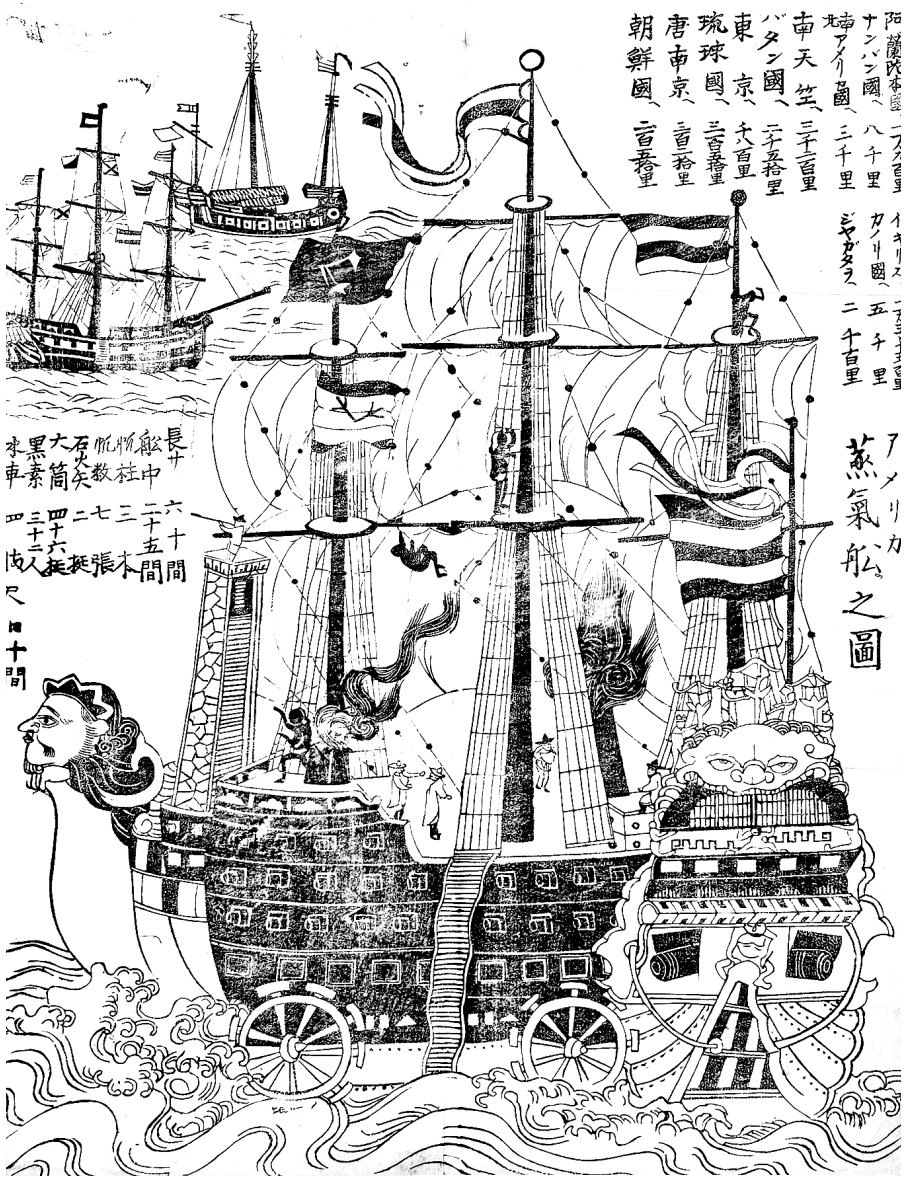


Figure 1.7 Ikoku Ōchōa Kago (Foreign Ship Illustration). Edo-period Japanese woodblock print depicting a Western-style sailing vessel Source; Edo Gallery.

Figure 1.8 Japanese Emigrants in 1898. Photograph by Dr. Mansarrat. Source: Bishop Museum exhibition.

1880-1890

By the mid-1800s, the majority of the rural population was suffering under the new tax system and deflationary monetary policies, which pushed rice prices back to those of a decade earlier. Japanese urban industries were still immature, concentrated in city centers, and unable to provide jobs for the massive number of farmers seeking better opportunities. Additionally, rural violence due to rebellions from ex-samurai created fear, making emigration a safety route within a society with rapid political, economic, and cultural changes. The concern of the Japanese government was that emigration might cause further diplomatic problems, being aware of the level of racism and abuse inflicted on Chinese migrants in North America and Australia; thus, the government opted to strictly control the migrants' business between 1883 and 1894.

1885

The first official dispatch of Japanese overseas contract laborers occurred in 1885, when they were called to work on sugar plantations in the then Kingdom of Hawaii. The initial demand from Hawaii was for a group of 28,000 people, and those who responded to the recruiting pamphlets were promised a paradise with gentle hosts, a pleasant climate, the possibility of accumulating great wealth, and the ease of speaking Japanese freely.[1.11] The Meiji government controlled and protected emigrants to avoid international friction or damage to Japan's reputation.[1.12]

1.12 Ibid.

1.13 National Diet Library. 100 Years of Japanese Emigration to Brazil. May 30, 2014. https://www.ndl.go.jp/brasil/e/s1/s1_1.html.

1890-1900

Upon the end of the contract with the Kingdom of Hawaii in 1896, the Immigration Protection Act took effect. In 1894, the main body for sending Japanese emigrants shifted from the Meiji government to private emigration companies, which had to pass through strict controls that ensured the proper establishment of the enterprise overseas with permission from the Home Ministry. This was a mechanism to protect overseas workers, giving "Human Security" while preserving national pride.[1.13] Under these guidelines, sixty emigration companies emerged, and emigration increased sharply. According to figures in the Japan Times, in 1896, there were a total of 21,299 Japanese workers overseas, up from 12,016 the year before. Their main destinations were Hawaii, Russian territories, Korea, the US, Australia, Canada, China, and Hong Kong. Later, the diplomatic and commercial reach will extend to Latin America, specifically Peru and Mexico.

1.14 Muto, Ako. Japanese Emigration, Nikkei Communities, and Forced Migration:(A Study from the Perspective of Human Security and International Cooperation. No. 28. November 2024)

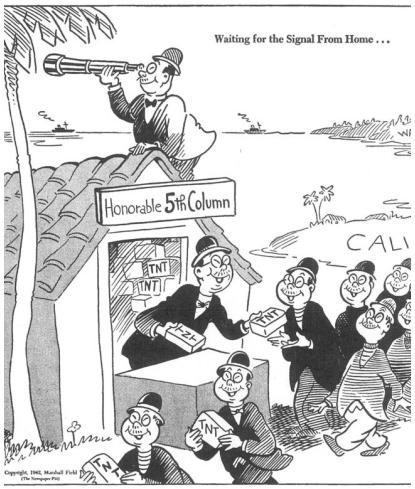
1900-1910

North America was one of the most popular destinations for commercial emigration due to higher salaries and better working conditions. At its peak, between 1900 and 1907, the continental US received nearly 80,000 Japanese immigrants who passed through Hawaii. However, they were not able to escape from the racist stereotyping and anti-Japanese movements. Accusations of immorality due to the small numbers of Japanese women immigrants, and the fact that the majority of them were prostitutes (Lone, 2002), plus the allegations that all Japanese immigrants were potentially fifth-columnists, created tension. This became stronger after a US senator was sent to investigate conditions in Hawaii in 1897, prior to its annexation. He warned about the Japanese on the island and its success in the war against China in 1894-85 and the annexation of Taiwan in 1895. Additionally, Japan's victory over Russia in 1905 created new levels of global hysteria that led to violent protests against Japanese migrants across the Pacific Northwest, Pacific South, and Australia. In 1907, President Theodore Roosevelt took action to prevent further backdoor immigration by Japanese from Hawaii. This sense of looming confrontation between the US and Japan, along with a loosely controlled emigration, created an opportunity for citizens to put the spotlight on migration to South America.

1890-1900

By the early 20th century, Japanese emigration had evolved from a response to a domestic crisis into a regulated strategy shaped by international politics, racial hierarchies, and economic necessity. While the US and the Pacific initially welcomed Japanese migrants, rising anti-Japanese discourse and restrictive immigration policies, amid increasing geopolitical tensions, constrained these routes. Since opportunities in North America and its territories, such as Hawaii, narrowed, the Japanese and private emigration companies began seeking alternative destinations that could absorb the surplus of rural labour while minimizing diplomatic friction. Within this context of exclusion, strategic redirection, and expanding global networks, South America emerged as a new frontier for Japanese migration, marking a decisive shift from early Pacific experimentation toward more permanent, agrarian-based settlement overseas.

Figure 1.9 Anti Japanese Propaganda Illustration by Dr. Seuss, c. 1942. Source: Hampton Roads Naval Museum, Anti-Japanese Propaganda, p. 2.



1700-1820

The Japanese Diaspora in Brazil: Arriving in South America

Brazil, a nation that began the 18th century as a Portuguese colony and gained independence in 1822, was a society based on agriculture and mining, particularly of export-oriented goods such as sugar and gold [1.14]. From the beginning of the colonial period, industry was run mainly by the exploitation of African and Indigenous slaves.

1.17 Schwarcz, Lilia M., and Heloisa M. Starling. Brazil: A Biography. London: Allen Lane, 2018. 9780141976198 (Paperback edition published by Penguin Books, 2019.)

1820-1880

By 1819, due to the demand for labour, the first Chinese immigrant workers arrived in Brazil to work alongside the African and Indigenous slaves. In a highly race-based society, such as the one in Brazil at that time, they were not welcomed; the aristocracy classified them as an "Inferior race," resulting in poor crop yields. Faced with this language and cultural barrier, Beijing imposed further restrictions on immigration to Brazil. This is a decrease in interest in seeking labour from Asia. This panorama changed in 1888, when the "Lei Aurea" was enacted, forced by the British government. The end of slavery brought a new wave of immigrants to Brazil to work the land[1.15].

1.18 Ransley, Joel. Making Host Home: A Design-Based Research Investigation into the Complex Relationship between Architecture, Community, and Culture for the Japanese-Brazilian Diaspora. Master's thesis, Politecnico di Milano, 2023.

1890

Within the context of an elite seeking a "whitening" of Brazilian society, they promoted European immigration. Italians were the latest European worker group to arrive; the number of Europeans arriving in Brazil was low. Also, European workers did not remain on those farms due to dissatisfaction with their working conditions, leading them to return or move to other nearby Latin American states. The harsh working conditions and unpaid wages forced the Italian government to ban subsidiary migration to Brazil with the Prinetti Decree, named after Giulio Nicolò Prinetti. Migration from Italy continued, though none of it could be pre-arranged or paid for by Brazilian recruiters. A serious setback for planters and other pro-immigration advocates[1.16].

1.19 José Juan Pérez Meléndez, Peopling for Profit in Imperial Brazil: Directed Migrations and the Business of Nineteenth-Century Colonization (Cambridge: Cambridge University Press, 2024).

1870-1900

1890-1900

The first commercial treaty between Japan and any South American State was signed with Peru in 1873, with the "Tratado de Paz, Amistad, Comercio y Navegación" (Treaty of peace, friendship, commerce, and navigation)[1.17], and was followed by Mexico, Brazil, Chile, and Argentina between 1873 and 1898. The government of Brazil had already established relations with Japan in 1895, following the relationships with plantation companies and state authorities. By 1897, a Japanese consulate was established in Petropolis, with a declaration of mutual trade and prosperity based on migration.

1897

This movement prompted Japanese businessmen to take an interest in commercial prospects, to the point that in 1897 the Morioka Trading Company sent a representative, Teikichi Tanaka, to investigate labour conditions in South America. From his perspective, Brazil was unsuited for Japanese workers. As reported in the Japan Times in 1898, Brazilian plantations were described as

> *"In the first place, almost all the Brazilian plantations are crowded with Italian labourers, who are given to all sorts of disreputable habits, while the plantation owners are not unfrequently unpunctual in the payment of wages, preferring to settle accounts after the harvest has been gathered in."*[1.18]

Suggesting that there was no market for Japanese migrants nor good treatment for them if dispatched to Brazil.

Figure 1.10 Japanese migrant agricultural workers in Peru, early 20th century. Source: Pontificia Universidad Católica del Perú (PUCP) , Memoria Nikkei: Indagando sobre la migración japonesa al Perú. Image credit: APJ.

1898

On the other hand, Tanaka presented a totally different idea of Peru. The president Alberto Fujimori, often described as a "Japanophile", loved and appreciated Japanese craft, even wanting to bring over craftsmen to build a model Japanese house. This positive image from the Peruvian government to the Japanese population led the republican assembly to vote unanimously for the support of contracting Japanese workers, and repealed a law that previously banned marriage of Peruvians with foreigners to encourage integration.

1899

However, this panorama did not last long. In April 1899, the first strike from Japanese labourers occurred. There were incidents of violence against Japanese migrants and increased levels of death from diseases. A lot of them wanted to go back; the spots for return were scarce, so the vast majority were forced to endure harsh labour conditions and harsh racial antagonism due to the global context. Still, successive waves of Japanese migrants arrived in Peru, and greater stability emerged as more wives and Japanese people integrated into Peruvian society.

1.15 Koratai. "Japoneses en Perú: La relación histórica entre Perú y Japón." Koratai, March 22, 2016. https://koratai.com/otras-paginas/japoneses-en-peru

1.16 Stewart Lone, The Japanese Community in Brazil, 1908–1940: Between Samurai and Carnival (Basingstoke: Palgrave Macmillan, 2002), chap. 1, quoting the Japan Times, 10 February 1898.

Figure 1.11 Visual propaganda framing Japanese agricultural migration to Brazil. Source: Cambridge University Press, The Making of Japanese Settler Colonialism.

1900-1905

1900-1905

1905-1920

1923

However, the bigger migration of Japanese citizens to Brazil started in the early 1900s. Even though Brazil was initially opposed to Asian immigration due to racial grounds and its past experience with China, Japanese immigrants started having a big appeal due to its victory against Russia in 1904-1905. This victory created an image of a "Japanese Spirit" that defeated what, on paper, was a nation vastly superior in numbers and resources. Lone[1.19] argues that this "Japanese Spirit" was the decisive factor, and that the Japanese were then respected and feared as a nation of Samurai. Brazil was then presented to prospective Japanese migrants as 'ideal, its climate pleasant, rice common as a diet, and both the government and people welcoming "The militarily victorious Japanese"'.

In 1907, driven by private companies, the Japanese and Brazilian governments signed an agreement welcoming Japanese migrants to Brazilian fields. Creating a diplomatic foundation for Japanese immigration. This treaty seemed beneficial for both sides because of the shortage of workers on coffee and cotton plantations in Brazil and Japan's rapid population growth. In 1908, a group of Japanese migrants arrived in Brazil as contract labourers on coffee plantations from the port of Kobe. Due to the Great Kansai Earthquake of 1923 and the US government's Asian Exclusion Act, this trend began to take hold. From this date until the beginning of the Pacific War in 1941, 188,985 Japanese people arrived in Brazil[1.20].

1.20 Stewart Lone, The Japanese Community in Brazil, 1908–1940: Between Samurai and Carnival (Basingstoke: Palgrave Macmillan, 2002)

1.21 Reichl, Christopher A. "Stages in the Historical Process of Ethnicity: The Japanese in Brazil, 1908–1988." Ethnohistory 42, no. 1 (1995)

During this time period, the Japanese society in Brazil started adapting itself and started forming communities inside the country, creating Japanese schools and inns in neighborhoods like Liberdade in São Paulo, for its central location and cheap rents that were accessible for urban migrants, where women usually worked as domestic servants while men worked in construction sites or as carpenters. One important aspect is the construction of Japanese schools meant to teach children of the time how to behave as a "Legitimate Japanese Subject," to continue the legacy of their culture, and avoid problems when returning to Japan.

1920-1930

However, it was in the 1930s that some members of the Japanese community in Brazil began to consider long-term settlement rather than a short-term approach of accumulating wealth and returning home. From this time, the local Japanese began to enjoy wealth, success, and comfort in themselves and their surroundings[1.21]. Now, the question of nationality and loyalty started to emerge within the community. The second generation expressed a "Double Layered Identity" in which ethnic Japanese youth are comfortable and confident within the multiethnic Brazilian Community. So much so that the first Japanese immigrant to qualify as a lawyer in Brazil, Cassio Kenro Shimomoto, wrote:

'We are the children of Japanese, but we are Brazilian and our responsibility is to the nation of Brazil ... Though our blood is that of the Japanese, our hearts are Brazilian. We can respect Japan as the country of ourfathers, but we cannot love them. Our homeland is Brazil."[1.22]

1930

1.22 Stewart Lone, The Japanese Community in Brazil, 1908–1940: Between Samurai and Carnival (Basingstoke: Palgrave Macmillan, 2002)

1.23 Maeyama Takashi, エスニシティとブラジル日系人：文化人類学的研究, 1 ed. (Tokyo: Ochanomizu Shobo, 1996), 354

War, Division, and Return: From National Suspicion to the Dekassegui Movement

1930-1945

In the late 1930s, when Japanese communities in Brazil had achieved relative economic success, the rise of global militarism and the intensification of Brazilian nationalism put an end to this. Former president Getúlio Vargas dictated the "Estado Novo (1937–1945), which pursued aggressive cultural homogenisation policies aimed at integrating immigrant populations into a singular Brazilian national identity. Japanese-language education was restricted, foreign-language publications were censored, and ethnic associations were placed under surveillance[1.23]. Adding to this, Brazil's declaration of war against the Axis powers in 1942 further intensified suspicion towards Japanese immigrants who were classified as the enemy. This led to the communities experiencing travel restrictions, closure of institutions, freezing of assets, and prohibition of public use of the Japanese language, creating a crisis of belonging among the Japanese community in Brazil.

Figure 1.12 Political rally during Brazil's Estado Novo under Getúlio Vargas. Source: Conhecimento Científico.

Figure 1.13 Members of Shindo Renmei. Source: BBC News Brasil.

1945-1947

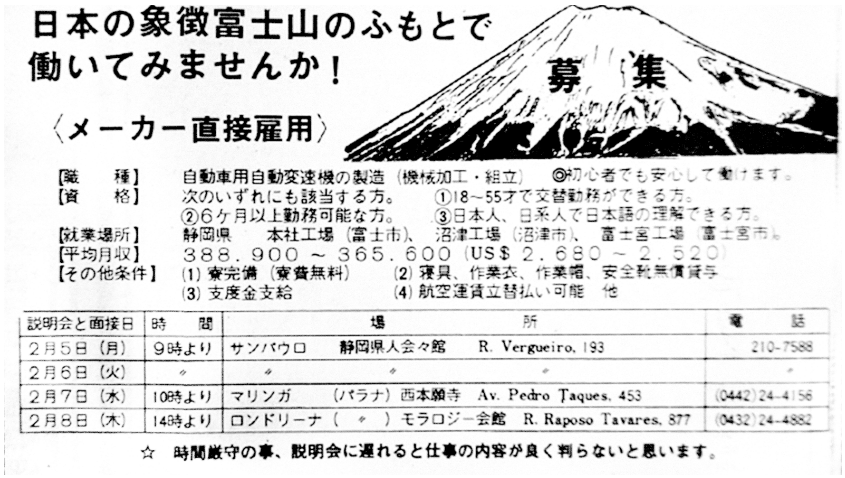
The end of the war in 1945 did not immediately restore stability; instead, it exposed deep fractures within the diaspora due to wartime censorship and the lack of reliable information. Some segments of the community were unable to accept Japan's defeat, and the nationalist organization Shindo Renmei emerged, calling those who acknowledged defeat "Makegumi" traitors. Those in Shindo Renmei called themselves "Kachigumi," the winners, and committed hundreds of assaults in the years after the war. This not only created rupture within the Japanese society in Brazil but also worsened the image of Japanese immigrants. By police intervention, the Shindo Renmei was dissolved in 1947[1.24].

1950-1970

Japanese migration to Brazil restarted in 1953 with the Treaty of San Francisco. From the 1950s to the 1970s, Japanese Brazilians consolidated their upward mobility in agriculture, commerce, and the professional sectors. Institutions like Sociedade Brasileira de Cultura Japonesa (Bunkyo) symbolised a transition from a temporary migrant society to recognition as part of Brazil's multicultural society. By the late 20th century, Brazil was home to the largest population of Japanese descendants outside Japan, and identification with Brazil among second- and third-generation Nikkei became predominant.

1.25 Stewart Lone, The Japanese Community in Brazil, 1908–1940: Between Samurai and Carnival (Basingstoke: Palgrave Macmillan, 2002)

1.26 Lesser et al., Searching for Home Abroad; Japanese Brazilians and Transnationalism



日本の象徴富士山のふもとで
働いてみませんか！

募集

〈メーカー直接雇用〉

【職　種】 自動車用自動変速機の製造（機械加工・組立）　◎初心者でも安心して働けます。
【資　格】 次のいずれにも該当する方。　①18～55才で交替勤務ができる方。
②6ケ月以上勤務可能な方。　③日本人、日系人で日本語の理解できる方。
【就業場所】 静岡県　本社工場（富士市）、沼津工場（沼津市）、富士宮工場（富士宮市）。
【平均月収】 388,900 ～ 365,600（US$ 2,680 ～ 2,520）
【その他条件】 (1) 寮完備（寮費無料）　(2) 寝具、作業衣、作業帽、安全靴無償貸与
(3) 支度金支給　(4) 航空運賃立替払い可能　他

説明会と面接日	時　間	場　所	電　話
2月5日（月）	9時より	サンパウロ　静岡県人会々館　R. Vergueiro, 193	210-7588
2月6日（火）	〃	〃　〃　〃	〃
2月7日（水）	10時より	マリンガ　（パラナ）西本願寺　Av. Pedro Taques, 453	(0442) 24-4156
2月8日（木）	14時より	ロンドリーナ（　〃　）モラロジー会館　R. Raposo Tavares, 877	(0432) 24-4882

☆　時間厳守の事、説明会に遅れると仕事の内容が良く判らないと思います。

Figure 1.14"Don't You Want to Work at the Foot of Mt. Fuji?" An Early Job Advertisement on the Japanese Newspaper in Brazil Feb. 1990" . Source: Sasaki Koji. 2009

Figure 1.15 Ethnic retail space serving the Brazilian migrant community in Oizumi City. Source: TripAdvisor (user-generated content).

1950-1970

In the 1980s, there was a major shift in Brazil, marked by a debt crisis, hyper-inflation, and industrial stagnation, which coincided with Japan's bubble economy and labour shortages. The national inflation rate in Brazil reached 110 percent in 1980, 224 percent in 1985, and an astonishing 1199 percent in 1990[1.25]. On the other hand, the Japanese economy was booming, so in the mid 1980s, some first- and second-generation Nikkei immigrants began visiting Japan to seek better employment, and Japanese firms that faced a labour shortage discovered Brazilian Nikkeijin as a "New Labor Reserve". Both Japanese firms and the Nikkei benefited from this "return migration".

1990

The number of entries to Japan from Brazil grew explosively after the Japanese Ministry of Justice implemented the new Immigration Control and Refugee Recognition Act in June 1990. That act provided for issuing "Long-term resident visas" to overseas Nikkeijins up to the third generation and to their spouses, regardless of their ethnicity, allowing them to engage in temporary unskilled work in Japan. This created a large-scale labour system that recruited thousands of Portuguese-speaking workers. People started calling these persons "Dekkasguis," meaning "from the Japanese," referring to persons who left their country for a time and, once their period of work is finished, will return to their home country.

2000-

The sudden increase in the number of Brazilian Nikkei and their families in Japan's industrial cities led to the emergence of a Portuguese-speaking community. Cities such as Toyota, Hamamatsu, and Oizumi are world-class centers of car and electronics factories. The Nikkei Brazilian residents concentrated in these cities, mostly in "3K" (Kiken, Kitanai, Kitsui - Dangerous, Dirty, Demanding) jobs. To live comfortably, they created Brazilian shops and schools to foster cohesion. Despite presumed cultural affinity, many encountered linguistic barriers, labour precarity, segregated housing in public Danchi complexes, and educational marginalisation among youth.

The postwar cycle produced a complex trans-national formation: descendants of emigrants who had integrated into Brazilian society now return to Japan not as co-nationals but as foreign labourers. This Dekassegui phenomenon complicates the linear narrative of migration and assimilation. What began in 1908 as agricultural migration to Brazil evolved into a reverse diaspora that continues to negotiate identity across two national contexts.

1.27 Koji Sasaki, "Between Emigration and Immigration: Japanese Emigrants to Brazil and Their Descendants in Japan," Senri Ethnological Reports 77 (2008): 53–66, https://doi.org/10.15021/00001269

THE HOUSING MARKET & RESIDENTIAL IMMOBILITY

Japan's housing market struggles to balance higher quality standards with other challenges that don't allow for a stable, prosperous market. Policy moved from mass-producing standardized units to units that offered better quality, choice, and livability, driven by economic growth, regulation, and lessons from disasters.[1.26] The national reckoning on safety and resilience, driven by the 1990s asset bubble collapse and the 2011 Great East Japan Earthquake, exposed the vulnerabilities of an aging housing stock and pressured for a new system. In a society with diminishing numbers of young residents, the lack of occupancy and renovation in housing stock created a fundamental mismatch: a high-capacity construction industry in a shrinking market, while creating a surplus of stock that depresses property values, undermines the economic rationale for new construction, and places increasing pressure on municipal finances.[1.27] The investment necessary to support higher-quality new builds and renovations is insufficient, and as a result, Japan continues to struggle to define a housing model that meets rising expectations for quality and standards while remaining financially viable in the long term.

Recourse System & Residential Mobility

Residential mobility refers to households' ability and flexibility to change living situations. It is a circulatory system that promotes change in housing systems, populations, and residents' community ties.[1.28] Residential mobility enables individuals and families to optimize housing for well-being and opportunity, allows the labor market to function efficiently, encourages the maintenance and modernization of the housing stock, and ensures that communities remain dynamic and responsive to change. A society with severely constrained mobility faces not just a housing problem but a broader socio-economic rigidity that affects growth, equity, and the quality of life. Shockingly, Japan has one of the lowest mobility rates among advanced industrialized nations.[1.29]

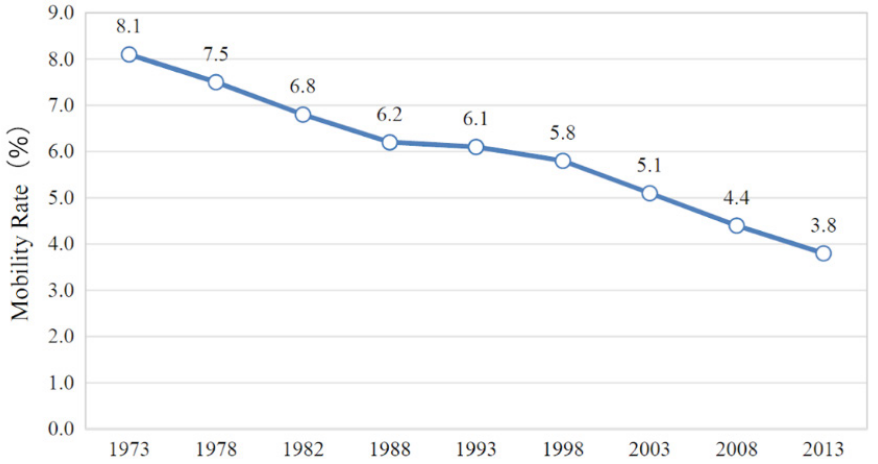


Figure 1.16 Author's calculation from "Housing and Land Survey of Japan" (Statistics Bureau), each edition.NOTE: The annual residential mobility rate is the average figure during 4 years and 9 months.

Japan's residential mobility rate has been declining steadily, as shown in both domestic and international data (OECD, 2020).[1.30] The systems and policies present in the housing market present limitations that prevent families from transitioning easily. Mobility is a structural market feature caused by Japan's recourse loan system, which imposes full personal liability on borrowers and makes it difficult for households to move during economic downturns.

This system financially traps homeowners, especially those in properties

1.28Yosuke Hirayama and Misa Izuhara, eds., Housing in Post-Growth Society: Japan on the Edge of Social Transition (London: Routledge, 2018).

1.29 Ibid.

1.30 Yasuhiro Kitagawa, "Japan's Housing Surplus Began in 1968—Despite Only 5% of Land Being Livable," Dovetail, February 20, 2025, https://dovetail.co.jp/en/japans-housing-surplus-began-in-1968-despite-only-5-of-land-being-livable/.

1.31 Statistics Bureau, Ministry of Internal Affairs and Communications (Japan), Population and Households of Japan 2020: Overview of the Results of the 2020 Population Census (Tokyo: Statistics Bureau, 2021), https://www.stat.go.jp/english/data/kokusei/2020/summary/pdf/all.pdf.

1.32 Yuko Hashimoto, Gee Hee Hong, and Xiaoxiao Zhang, "Demographics and the Housing Market: Japan's Disappearing Cities," IMF Working Paper WP/20/200 (International Monetary Fund, October 2020), https://www.imf.org/-/media/Files/Publications/WP/2020/English/wpiea2020200-print-pdf.ashx.

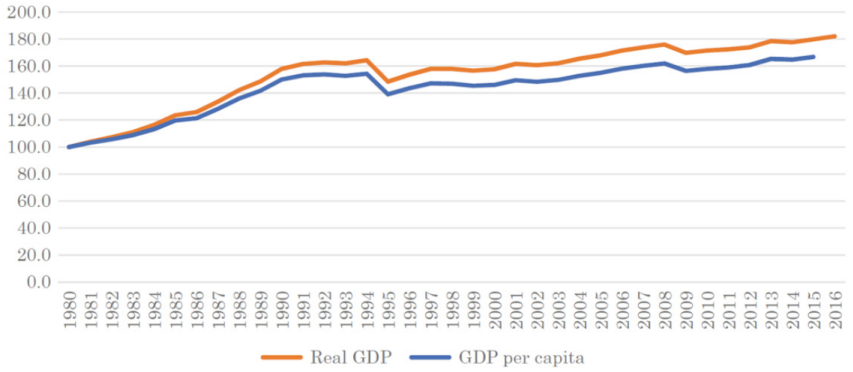


Figure 1.17 Trends in Real GDP and GDP per capita in Japan, 1980-2016. Source: "System of National Accounts," Cabinet Office. Note: Real GDP is calculated based on 93SNA (1980-94:2000 price 1994-2016:2011 price).

that are losing value. Under Japan's recourse loan system, borrowers are personally liable for more than just their mortgaged property. If a home is sold for less than the loan balance, the borrower must still pay the remaining debt out of other assets. This liability discourages homeowners from selling and moving because they cannot walk away from negative equity.[1.31] Research confirms that such equity constraints severely reduce residential mobility, leaving households financially "locked in," unable to move even when prices are falling or needs change.[1.32]

> *"Japan's recourse loan system holds borrowers liable beyond their mortgaged home, restricting mobility and limiting housing price declines. In contrast, non-recourse loans in the U.S. encourage strategic default when home values drop, increasing supply and further depressing prices." -Seko*[1.33]

1.33 M. Seko, K. Sumita, and M. Naoi, "Housing and Credit Markets in Japan: Recent Developments and Policy Issues," in The Future of Housing Finance, ed. B. Naert (Leuven: Center for Economic Studies, 2012), 121-150.

1.35 Jiro Yoshida, Tetsuya Yamasaki, and Hiroshi Kaneko, "The Rapid Economic Depreciation at an Early Stage of Building Life among Japanese Detached Houses," Habitat International 126 (August 2022): 102600, https://doi.org/10.1016/j.habitatint.2022.102600.

1.34 Ibid.

Segmentation in Japan's housing market highlights uncertainties in how different property types are valued and financed. The pricing system in Japan distinguishes "land," "structure," and "housing service" for pricing decisions. While in many Western markets, the land often maintains or gains value, and older homes appreciate through renovation, Japan's older houses depreciate to the point that detached homes after 30 years can reach zero value due to cultural preferences for newness and strict seismic code updates. This system has created a weak market for used homes viewed as "consumeable goods" and has allowed new housing to appreciate faster.[1.34]

Rising condo prices, for example, in cities like Tokyo show that new housing in metropolitan areas has generally been more resilient and, in some cases, has driven land prices higher. Official data also show that in 2025, residential prices, particularly for condominiums, rose faster than land values, with condominium price indices climbing more sharply than residential land indices.[1.35] National data show that condominium prices increased by about 23% since 2013, with Tokyo posting even stronger gains (about 45%), while land prices rose modestly across most locations.[1.36] This makes it harder for average households to afford homes and reflects a change in how housing is valued. In desirable areas, condo homes are now treated as speculative investments, while land has, especially in rural areas, become a slower-growing asset since the bubble burst.

> *"The JREI Existing Condominium Price Index, released by the Japan Real Estate Institute, reported a 10.47% year-on-year increase in the Tokyo metropolitan area as of July 2025. Within the region, Tokyo posted the steepest rise at 12.62%, followed by Chiba (7.55%), Kanagawa (6.58%), and Saitama (4.63%)."*[1.37]

The real estate market for buying or renting in Japan is difficult to navigate, while Japan's housing tenure worsens its core crises of mobility, demographic adaptation, and social equity. "The JREI Existing Condominium Price Index, released by the Japan Real Estate Institute, reported

1.39 Mitsuru Obe, "Vacant Homes and High-Rise Condos: Japan's Housing Dilemma," Nippon.com, November 7, 2022, https://www.nippon.com/en/in-depth/d00835/.

1.37 Tamila Nussupbekova, "Japan Residential Real Estate Market Analysis 2025," Global Property Guide, last updated October 1, 2025, https://www.globalpropertyguide.com/asia/japan/price-history.

1.36 Japan's Land Prices Rise at Strongest Pace in 34 Years," Reuters, March 18, 2025, https://www.reuters.com/markets/asia/japans-land-prices-rise-strongest-pace-34-years-2025-03-18/.

1.38 Tamila Nussupbekova, "Japan Residential Real Estate Market Analysis 2025," Global Property Guide, last updated October 1, 2025, https://www.globalpropertyguide.com/asia/japan/price-history

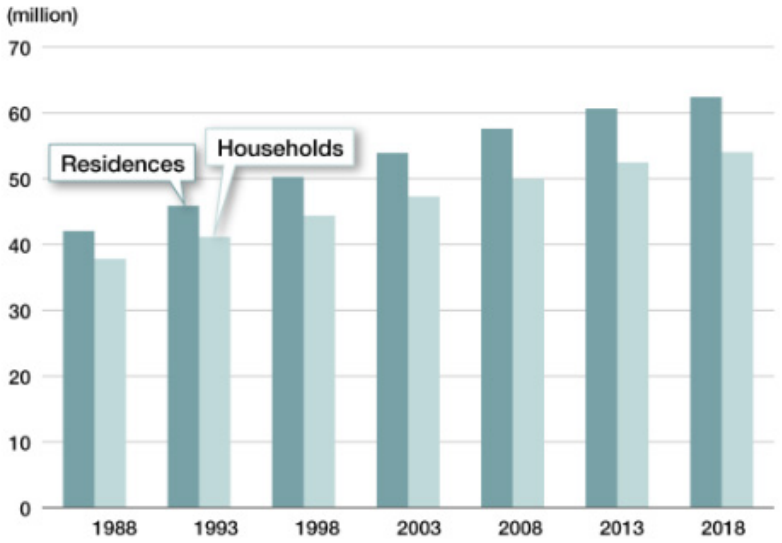


Figure 1.18 Housing Stock in Comparison to Households Source;; Nippon.com Data from MIC 2018 Housing and Land Survey

a 10.47% year-on-year increase in the Tokyo metropolitan area as of July 2025. Tokyo presented the steepest rise at 12.62%, followed by Chiba (7.55%), Kanagawa (6.58%), and Saitama (4.63%)." The contrasting trends in newly constructed prices, land values, and older housing reveal important insights into affordability, investment patterns, and the challenges facing shared housing. Although in most Japanese areas owner-occupancy remains the dominant form, accounting for about 62%, urban residents are more likely to rent due to high housing costs and limited space in cities like Tokyo. Although Tokyo offers better living and work conditions, it is impossible not to mention that 9 million vacant homes are estimated in rural areas, roughly 13.8% of the housing stock, coexisting with ongoing construction.[1.38] This situation reflects persistent mismatches between supply, demand, and location.

Language barriers, guarantor requirements, and upfront costs contribute to restricting access to quality rental housing. Structural pressure toward ownership and poor rental situations creates far-reaching social consequences, disproportionately affecting

1.40 Statistics Bureau, Ministry of Internal Affairs and Communications (Japan), 2018 Housing and Land Survey (Tokyo: Statistics Bureau, 2018), https://www.stat.go.jp/english/data/jyutaku/index.html

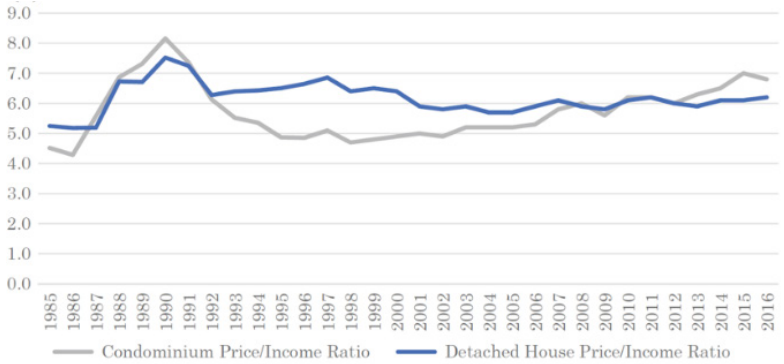


Figure 1.19 Price Income Ratio for Condominium and built for sale houses in Tokyo Metropolitan Area. 1985-2016. Source: "Housing Economy Databook" Housing Industry Newspaper Company

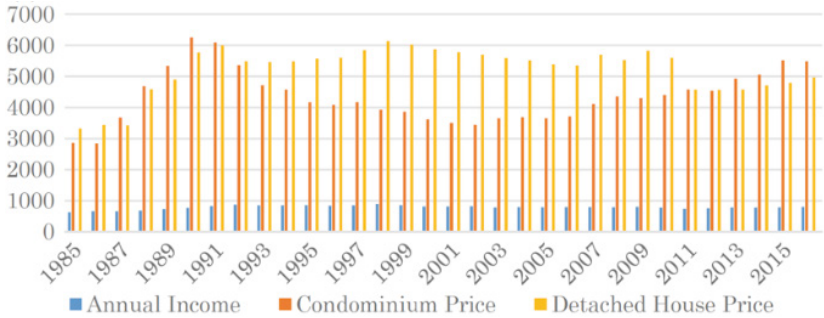


Figure 1.20 Annual Income & Condominium and detached house prices in Tokyo Metropolitan area, 1985-2016. Source: "Housing Economy Databook." Housing Industry Newspaper company. 2017

Figure 1.21 Condominium prices and residential land prices in Tokyo Metropolitan area, 1975-2016. Source "Housing Economy Databook" Housing Industry Newspaper Company.

two key demographics: the aging domestic population and the growing immigrant workforce. Affordable rental housing in Japan is limited in size and quality, and the rental process is restrictive as well.

Owned homes and condominiums, by contrast, offer more living space; the national average for owned housing is 122.32 m², compared to just 44.39 m² for private rentals[1.39] and they offer much better quality and security. Most families prefer homeownership to achieve satisfactory modern living standards, even when it is financially precarious. A prestigious real estate website, "A-Realty", shows that to afford homes, most Japanese households typically self-finance 20-30% of the purchase price,[1.40] largely from personal savings, while taking out loans to cover the remaining amount. Household owners assume significant debt, particularly in metropolitan areas where condominium prices rise sharply. Elderly homeowners have no other choice but to remain "locked in" oversized or difficult-to-maintain homes, contributing to the rising stock of vacant properties and limiting labor mobility as residents age in place. Furthermore, rental markets can be unwelcoming or difficult to access for immigrants, who numbered over 3.4 million by the end of 2023 and are essential for Japan's labor force.[1.41]

The Japanese housing model creates major social injustices by restricting labor mobility, burdening the young with debt for depreciating assets, forcing an unfit lifestyle for the elderly, and excluding immigrants from access to high-quality living.[1.42]

Offered Solutions to Market Conditions

Possible solutions to the housing market can be multi-scalar – first seen through the top-down policy and lawmaking lens, and second through a bottom-up architectural design premise.

Changing the current housing market from homes that are considered depreciating liabilities to one that prioritizes durable, flexible assets will require policy changes and support.

1.41 Statistics Bureau, Ministry of Internal Affairs and Communications (Japan), 2018 Housing and Land Survey (Tokyo: Statistics Bureau, 2018), https://www.stat.go.jp/english/data/jyutaku/index.html.

1.40 Statistics Bureau, Ministry of Internal Affairs and Communications (Japan), 2018 Housing and Land Survey (Tokyo: Statistics Bureau, 2018), https://www.stat.go.jp/english/data/jyutaku/index.html

1.43 Eiji Kawano, Yusuke Kida, and Ken Harada, "'Neighborhood Effects' and Cities in Japan," Public Policy Review 18, no. 40 (2022): 1-7, https://doi.org/10.1111/j.1467-971X.2022.01777.x.

1.42 The Policy Circle, "Housing and Investment: A Comprehensive Guide," accessed April 9, 2025, https://www.thepolicycircle.org/briefs/housing/.

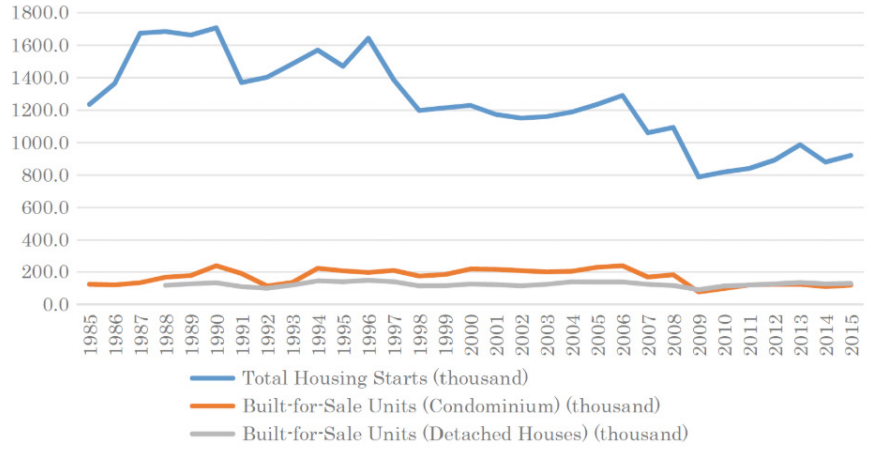


Figure 1.22 Housing starts in Japan, 1985-2015. Source: "Japanese Real Estate Statistics" Mitsui Fudosan Co. Ltd. Mitsui Fudosan. 2018.

Seko argues that adopting "limited- or non-recourse loan mechanisms during periods of economic stress" enables market prices to adjust while reducing mobility constraints caused by negative equity.[1.43]

In that case, the asset value would be linked primarily to the property rather than to the homeowner's personal assets, while promoting reinvestment, maintenance, and long-term protection of the housing stock. Ronald and Hirayama (2020)[1.44] similarly highlight the significance of "subsidies and tax incentives" for refurbishment instead of demolition, as well as the development of new rental and community-based housing models that can repurpose surplus stock for aging populations and other types of families and life conditions. Renovation subsidies, tax incentives, and standardized inspection and certification systems could, for example, reduce uncertainty about quality and encourage the expansion of the secondhand housing market. When combined with credit reforms that alleviate the burden of negative equity, the potential to enhance housing mobility, improve market liquidity, and foster a more resilient and sustainable housing system opens up systems that can be effective in the context of Japan's housing needs and legacy.

Japanese owners hoping to sell older

1.48 M. Seko, K. Sumita, and M. Naoi, "Housing and Credit Markets in Japan: Recent Developments and Policy Issues," in The Future of Housing Finance, ed. B. Naert (Leuven: Center for Economic Studies, 2012), 121-150.

1.49 Richard Ronald and Yosuke Hirayama, Housing in Post-Growth Society: Japan on the Edge of Social Transformation (London: Routledge, 2020)..

homes independently must either face rapid depreciation and out-of-date seismic certifications or, more commonly, demolish their property.[1.45] Municipalities should create incentives to foster a more vibrant secondhand housing market, which has remained underdeveloped compared to other advanced economies, where a robust secondhand property market exists. A strong consumer preference for new construction, indeed, had limited market turnover.[1.46] The proliferation of vacant homes (Akiya), officially estimated at 8.49 million units, or 13.6% of the housing stock, reflects and reinforces weak demand for existing properties.[1.47] The share of transactions involving pre-owned homes in Japan was only 14.7% in 2013, far below the 80% or more typical in the United States or the United Kingdom.[1.48]

Also, relocating in Japan is financially or structurally impossible; therefore, it is essential to prioritize adaptation over demolition. By promoting reuse and refurbishment rather than replacement, housing systems can be reimagined, and houses could be seen as flexible, long-term assets that respond to changing household needs of a rapidly aging population.[1.49] This approach requires reframing housing as municipality-wide social infrastructure rather than merely a private economic commodity. While these challenges are difficult to face alone, designers, policymakers, and institutions have an opportunity to improve quality of life through thoughtful, organized interventions that support livability, community vitality, and local economic circulation. Well-maintained and adaptable housing can strengthen neighborhoods, support aging populations, and reinforce Japan's attractiveness as a place to live and work.

1.46 Jiro Yoshida, Tetsuya Yamasaki, and Hiroshi Kaneko, "The Rapid Economic Depreciation at an Early Stage of Building Life among Japanese Detached Houses," Habitat International 126 (August 2022): 102600, https://doi.org/10.1016/j.habitatint.2022.102600.

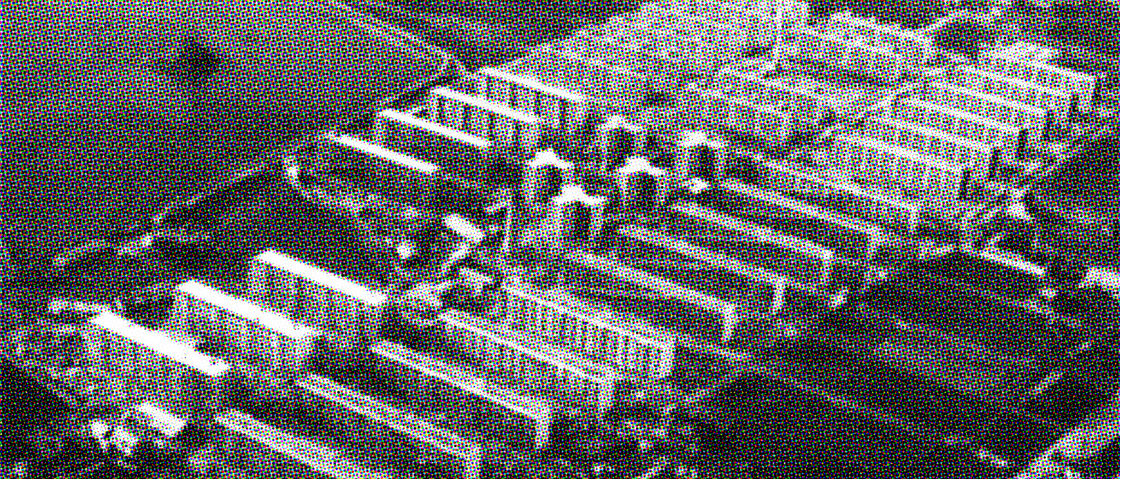
1.44 Richard Ronald and Yosuke Hirayama, Housing in Post-Growth Society: Japan on the Edge of Social Transformation (London: Routledge, 2020)..

1.47 Statistics Bureau of Japan, 2018

1.45 M. Seko, K. Sumita, and M. Naoi, "Housing and Credit Markets in Japan: Recent Developments and Policy Issues," in The Future of Housing Finance, ed. B. Naert (Leuven: Center for Economic Studies, 2012), 121-150.

1.50 Ministry of Land, Infrastructure, Transport and Tourism (Japan), White Paper on Land, Infrastructure, Transport and Tourism in Japan (Tokyo: Government of Japan, 2024), https://www.mlit.go.jp/common/001269888.pdf.

Figure 1.23 Picture of Homi Danchi. Aichi Prefecture
Source: Ismael Kagawa, 2025



A QUICK-FIX SOLUTION: EMERGENCE OF DANCHI

In the late 1950s through the early 1970s, Japan faced a severe post-war housing shortage that required fast, large-scale solutions. A response was the construction of massive, affordable housing complexes that offered strong connectivity to city centers. In Japan, this crisis led to the creation of the Danchi: large-scale, state-led housing projects designed to shelter the urban population.

Historically, Japanese housing was individually built by homeowners using wood and other natural materials. The only recognized form of collective dwelling prior to the modern era was the single-family rowhouses known as Nagaya, dating back to the Edo period (1603–1868). This tradition emphasized craftsmanship and flexible spatial use rather than standardization.

Two major catastrophic events dramatically shifted Japanese perceptions of housing construction and urban form. The first was the Great Kantō Earthquake of 1923, which exposed the vulnerability of traditional wooden housing. In response, reinforced concrete began to be adopted to improve structural resistance to oscillation and instability. Early apartment buildings using this system, known as Dojunkai, were built under strong European social-housing influence. However, these projects remained limited in scale and

Figure 1.24 Kanaoka Danchi (aerial view). Source: Urban Renaissance Agency (UR), Uchi-machi Danchi Special Site.

Figure 1.25 From The Sixty-Nine Stations of the Kisokaidō: Moriyama (木曽海道六拾九次之内 守山), ukiyo-e print. Source: Japaan Magazine, accessed February 15, 2026,

Figure 1.26 Dojunkai Harajuku Apartments, Tokyo (c. 1920s–30s). Source: Wikimedia Commons

accessibility and were not widely available to the general population.[1.50]

The second turning point was World War II. After a large percentage of urban areas were destroyed, the need for housing and new planning policies became urgent. In response, the Japanese Housing Corporation was founded in 1955 to re-establish an adequate housing supply through legislation. Most importantly, the Corporation implemented the "five-year housing policy," which enabled local governments to build public rental housing for low-income populations, promote collective housing construction, and supply large-scale residential land. As a result, housing stock exceeded the number of households by 1968.[1.51] The Danchi housing project emerged as a direct outcome of these policies. Beyond addressing quantity, Danchi proposed a new way of living that hybridized traditional Japanese domestic culture with Westernized spatial models. These housing complexes symbolized the "modern house" for the "modern family" and became emblematic of post-war optimism and modernization. Over time, Danchi entered the collective memory of post-war Japan as both a social and spatial experiment.

However, the iconic middle-class lifestyle of Danchi complexes became victims of aging. Today, numerous complexes suffer from abandonment or poor conditions due to weakened social structures, including population aging, depopulation, and declining neighborhood relationships. Limited accessibility infrastructure, such as the absence of elevators and the degradation of basic building systems, has further reduced their appeal. Moreover, the efficiency-driven development of Danchi resulted in highly placeless homogeneous forms, often lacking individual or local identity.[1.52]

> *"This is why I like Tokyo. Buildings can be built according to each person's taste on each piece of land. This is exactly the 'Landscape of Democracy.'"*
>
> *-Shuichi Matsumura, 2019*[1.53]

According to Matsumura, Danchi complexes are the antithesis of Tokyo's "democratic landscape," characterized by individual expression and architectural diversity. Since the 1970s, architectural movements such as Open Architecture have emerged in Japan as a response to standardized housing forms, advocating for adaptability, resilience, and user-driven modification. By understanding these principles and analyzing Danchi as a historical product of modernization, this research seeks to explore strategies for its revitalization in response to contemporary social challenges, such as depopulation and an aging society; issues that are not unique to the Japanese context.

1.51 Fukao, Seiichi. "The History of Developments toward Open Building in Japan." In CIB W104 Open Building Conference Proceedings

1.52 Kobayashi, Masahiro. The Housing Market and Housing Policies in Japan. ADBI Working Paper 558. Tokyo: Asian Development Bank Institute, March 2016.

1.53 Soma, Hanae. "Place Identities of Japanese Social Housing." In Space for Species: Redefining Spatial Justice – Book of Proceedings, vol. 34, no. 2, 2022

1.54 Matsumura, Shuichi. Open Architecture for the People. London: Routledge, 2019. https://doi.org/10.4324/9781351116107

Figure 1.27 Aerial View of Tokyo Urban Landscape. Photograph by Max Zaharenkov.

DEVELOPMENT OF DANCHI: A BRIEF HISTORY FROM 1950

The historical development across successive decades, each expressing changing social, economic, and architectural priorities.

Showa 30s (1955-1964): The Birth of Danchi: Modern Living, Rapid Growth and Social Reform

The period between 1955 and 1964 marks the foundational phase of Japanese public housing development under the Japan Housing Corporation (JHC). During these years, fast urbanization and industrial expansion in major metropolitan areas following World War II resulted in a significant housing shortage, requiring the rapid provision of large numbers of residential units. In response, housing policy and architectural production during this phase prioritized efficiency, speed, and scalability, establishing the conditions for the emergence of large-scale housing complexes or Danchi.[1.54] By 1983, approximately 1.13 million units had been constructed, building upon the foundation laid in the initial 1955–1964 period.[1.55]

Architectural design operated within a limited set of standardized building types, allowing for efficient construction and cost control. By arranging such standard designs, such as flat-plate, medium-rise apartment houses, starhouses, and terrace houses, diverse housing complexes were created depending on its geography and living flow (for further details, see subchapter: Danchi as an Architectural Typology: A Catalogue of The Standardized Danchi of Showa 30s).

The most revolutionary spatial innovation was the Dining Kitchen or DK. The 1955 "55-4N2DK" standard plan institutionalized the DK as a modern lifestyle device that promoted table-based dining and the nuclear-family ideal. Danchi then became a symbol of modern living and recovery from war. Through media and governmental promotion, young salaryman families would temporarily rent Danchi before purchasing their homes.[1.56]

To ensure good-quality living and the best daylight exposure, the blocks were organized in parallel, facing south, with a space between 1.8 times the building height or 2.5 in the case of terrace houses. Open spaces such as parks and playlots created communities.

1.55 Urban Renaissance Agency. 100 Housing Complexes: Danchi 100. Yokohama: Technology and Cost Management Division, Design and Planning Team, Urban Renaissance Agency, March 2007.

1.56 Tatiana Knoroz, Dissecting the Danchi: Inside Japan's Largest Postwar Housing Experiment (Singapore: Palgrave Macmillan, 2022

Figure 1.28 Aerial view of Kanaoka Danchi, 1956. Organized Parallelly Source: Urban Renaissance Agency (UR), Uchi-machi Danchi Special Site, accessed February 15, 2026, https://uchi-machi-danchi.ur-net.go.jp/ours/showa42-06

Architectural Characteristics:

- 4-5 story walk-up staircase blocks (N- and S-type access)
- Introduction of the 2DK unit type
-Reinforced concrete structures
- Emphasis on south-facing orientation
- Separation of eating and sleeping spaces (shoku-shin bunri)

1.57 Urban Renaissance Agency. UR Housing Report: "Ju" (住). First edition. Yokohama: Technology and Cost Management Department, Urban Renaissance Agency, October 2022.

SHOWA 30s

54-4N-2DK

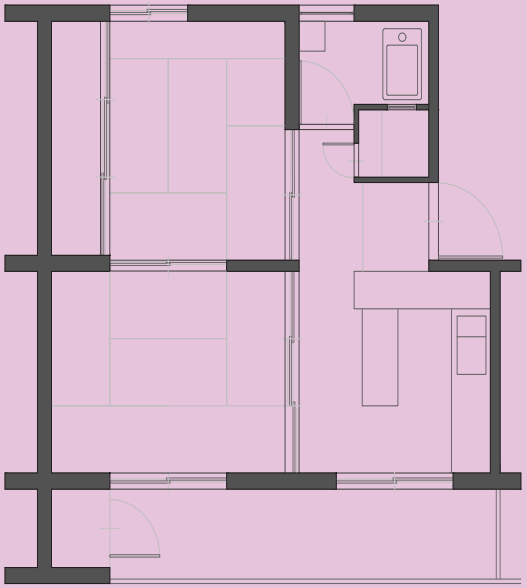
The early era of standarization and mass production

IDEAL FOR

Young couple

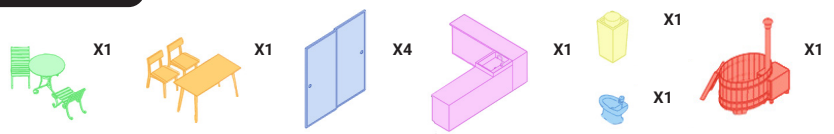
Small family

FLOOR PLAN



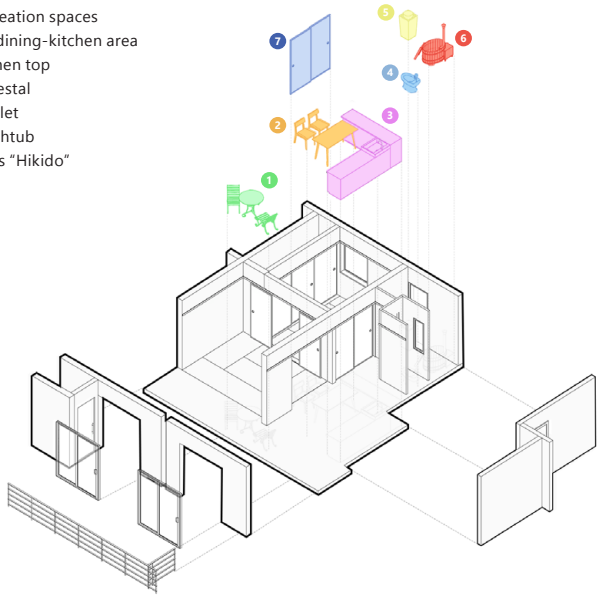
Entrance
Dining
Kitchen
Room 1
Room 2
Toilet
Shower room
Balcony

YOU WILL NEED

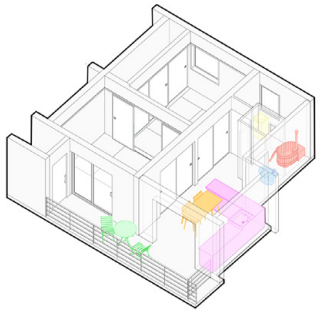


ASSEMBLE THE PIECES

1. Balcony recreation spaces
2. Creation of dining-kitchen area
3. Granite kitchen top
4. Sink on pedestal
5. Japanese toilet
6. Wooden bathtub
7. Sliding doors “Hikido”



COMPLETE VIEW



This is one of the “standard designs” developed in November, and is a 2DK for a four-story north-facing stairwell-type residential building . In the “Collection of Standard Design Drawings for Apartment Buildings,” it is described as “the standard model for the size of various housing types constructed by the Corporation”.

Figure 1.29 Schemes of Showa 30s Danchi Source: Authors

Showa 40s (1965- 1974): Mass Production and Urban Growth

During this period of high economic growth, Danchi production intensified, and the spatial scale expanded. The development of these housing complexes increased burdens on local governments, creating conflicts with residents and neighboring areas. To integrate neighboring areas, planners designed more public facilities - such as parks. These spaces are more spatially demanding, and thus high-rise and mid-rise buildings were a better fit to accommodate new demands[1.57].

The Showa 40s style buildings are characterized by parallel blocks, standardized and mass-produced, combined with identifiable landscaping, breaking the monotonous array of previous years. These danchi became more popular among families, so bigger units such as 3DK and LDK layouts became the standard. Some authors describe this Danchi movement as the "New Middle Class Identity."[1.58]

Showa 40s represent a growing typology that is beginning to face a quality assessment from its users. The typology is portrayed in films and media as cramped and psychologically restrictive. The architectural uniformity that once symbolized progress began to signify monotony. [1.59]

Architectural Charasterics:
- Introduction of skip-corridor (CS-type) 11-story buildings (1971)
- Increased use of elevators
- Transition toward 3DK and LDK layouts
- Development of large-scale new towns (Senri, Tama)

1.57 Urban Renaissance Agency. 100 Housing Complexes: Danchi 100. Yokohama: Technology and Cost Management Division, Design and Planning Team, Urban Renaissance Agency, March 2007.

1.58 Tatiana Knoroz, Dissecting the Danchi: Inside Japan's Largest Postwar Housing Experiment (Singapore: Palgrave Macmillan, 2022

1.59 Ibid.

Figure 1.30 Site Plan for Nishi Ageo Daiichi Danchi, 1968. Organized angled in order to create clusters and public spaces.,
Source: Map by Authors

Figure 1.31 Internal view of Nishi Ageo Daiichi Danchi. Creating Parks inbetween blocks.
Source: Codan Boy, accessed February 15, 2026, https://codan.boy.jp/danchi/saitama/nishiageo/index2.htm

SHOWA 40s

71-11CS-2DK

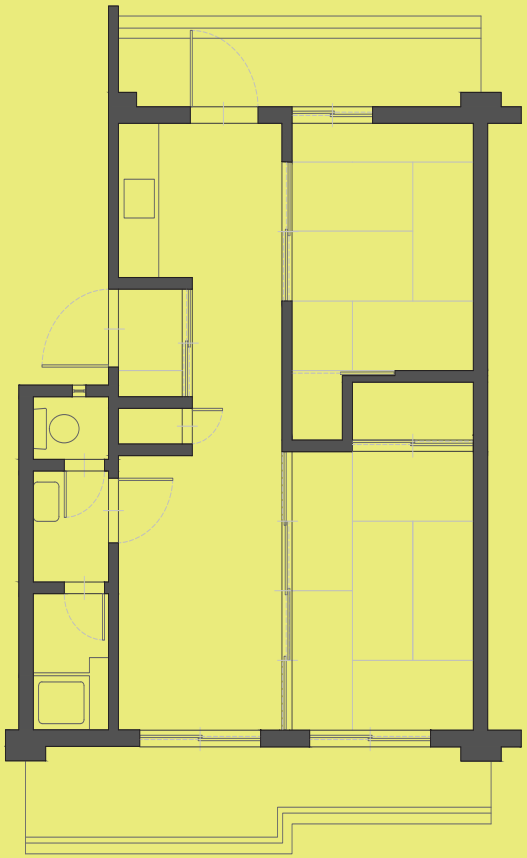
The early era of standarization and mass production (late period)

IDEAL FOR

Young couple

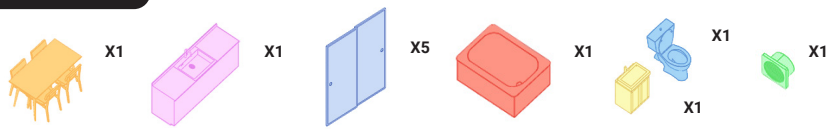
Small family

FLOOR PLAN



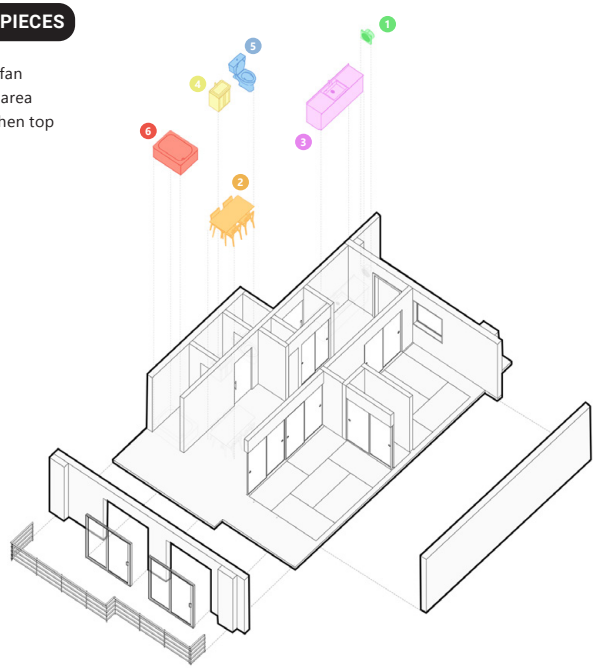
Entrance
Dining
Kitchen
Room 1
Room 2
Toilet
Shower room
Balcony

YOU WILL NEED

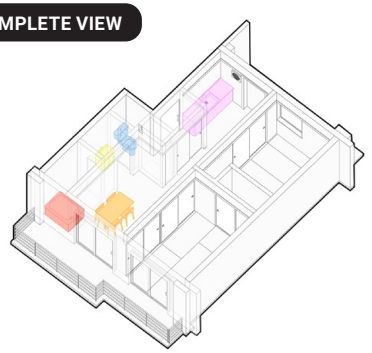


ASSEMBLE THE PIECES

1. Kitchen extractor fan
2. "Western" Dining area
3. Stainless iron kitchen top
4. Ceramic sink
5. Toilet
6. Ceramic bathtub



COMPLETE VIEW



In response to the demand for higher-rise and higher-density housing , a "standard design" was created for an 11- story, skip-corridor (CS) residential building. This is a 2DK plan on a floor without a common corridor, and the design intent is to ensure the same level of privacy as a mid-rise stairwell residential building

Figure 1.32 Schemes of Showa 40s Danchi Source: Authors

Showa 50s (1975-1984): Humanization and Diversification

The Showa 50s were a turbulent period for the Japanese housing industry. Mass housing supply is criticized for being expensive, inconveniently located, and small. Vacant housing units increase due to a shift in users' belief in quality over quantity. Design during this period shifted towards responding to site- and resident-specific conditions, resulting in a greater variety of layouts aimed at enriching everyday life. Hanyo Sekkei, an editable generic floor layout was introduced as a guideline for housing units. The layout was flexible enough to be rearranged depending on user needs.[1.60]

Various efforts to boost demand were made, including more traditional townhouse-like layouts and other single-story house types. Additionally, large-scale urban infrastructure and ecological redevelopment were included, such as tennis courts, parking lots, and gardens. In one example, Kawaguchi Shibazono Danchi, the urban layout was designed to minimize risks in case of fire, a novel foresight of the time.

Custom designs for housing blocks, buildings, and units; integrated private and public vehicular flows demonstrated an era of transition from standardization to diversification toward more flexible, context-sensitive design strategies. Open Building strategies, flexible and open-ended solutions, such as KEP (Kodan Housing Experimental Project) or catalogue-custom houses, were also seen at this time. During this time, private homeownership became more accessible, taking away the Danchi's status as a symbol of progress.

Architectural Characteristics:
- Introduction of "generic design" (han'yō sekkei) in early 1980s
- Larger floor areas (3LDK predominance)
- Adaptation to site-specific conditions
- Emphasis on individuality within standardized frameworks

1.61 Urban Renaissance Agency. 100 Housing Complexes: Danchi 100. Yokohama: Technology and Cost Management Division, Design and Planning Team, Urban Renaissance Agency, March 2007.

Figure 1.33 Site Plan for Kawaguchi Shibazono Danchi, 1978. It has its shape to act as a firewall to protect the city in the west side from the noise of the railways. This becomes an icon by itself. Source: Map by Authors

SHOWA 50s

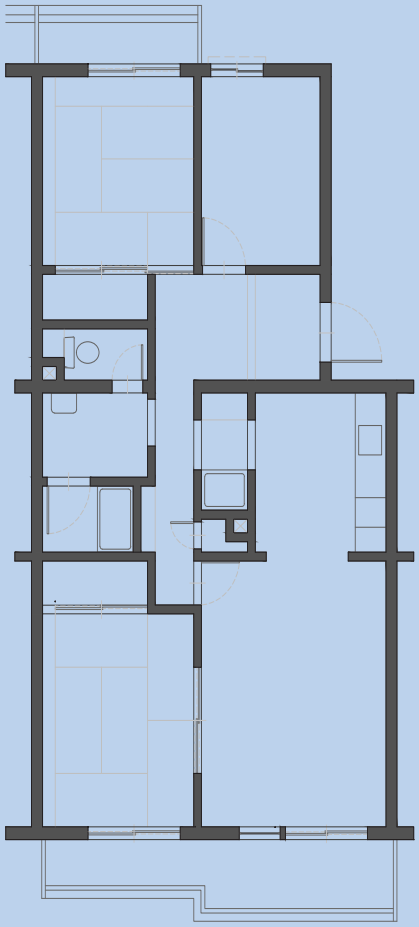
81-5N-3LDK

An era of diversity and abundance

IDEAL FOR

A family

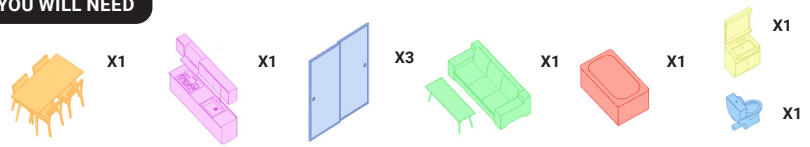
FLOOR PLAN



Entrance
Dining
Kitchen
Room 1
Room 2
Toilet
Shower room
Balcony

Gabi Castro & Ismael Kagawa

YOU WILL NEED



ASSEMBLE THE PIECES

1. Living room
2. "Western" Dining area
3. Kitchen with extractor hood
4. Ceramic sink with mirror
5. Toilet
6. Ceramic bathtub

COMPLETE VIEW

In the early 1980s , a "general-purpose design" was developed to outline the basic design concepts. These housing complexes are being constructed in suburban new towns and other areas, with the aim of expanding the area of residential units and increasing the density of housing complexes.

Figure 1.34 Schemes of Showa 50s Danchi Source: Authors

Showa 60s (1985-1994): Stagnation and Structural Reassessment

The late Showa era coincided with the economic bubble and its collapse in 1991. While construction of Danchi continued, the typology lost all cultural prestige. The demographic and economic changes destabilized Danchi's social model (originally designed for postwar nuclear families). Now Danchi housed aging residents and lower-income households, including young Dekassegui foreigners who occupied those units. Danchi were originally designed as temporary housing stepping stones into better living situations; now they have become long-term residences for economically vulnerable populations.

Architecturally, the period was marked by refinements in structural and technical design, parting from the typological inventions. Structural experimentation focused on reinforced concrete frame systems, including the development of WR construction (wall-frame reinforced concrete) to improve seismic performance and greater internal flexibility compared to earlier load-bearing wall configurations. These structural adjustments indicate a growing awareness that Danchi buildings would remain in use longer than originally anticipated.

Architectural Characteristics:
-Reinforced concrete frame systems (WR structures)
-Emerging barrier-free considerations

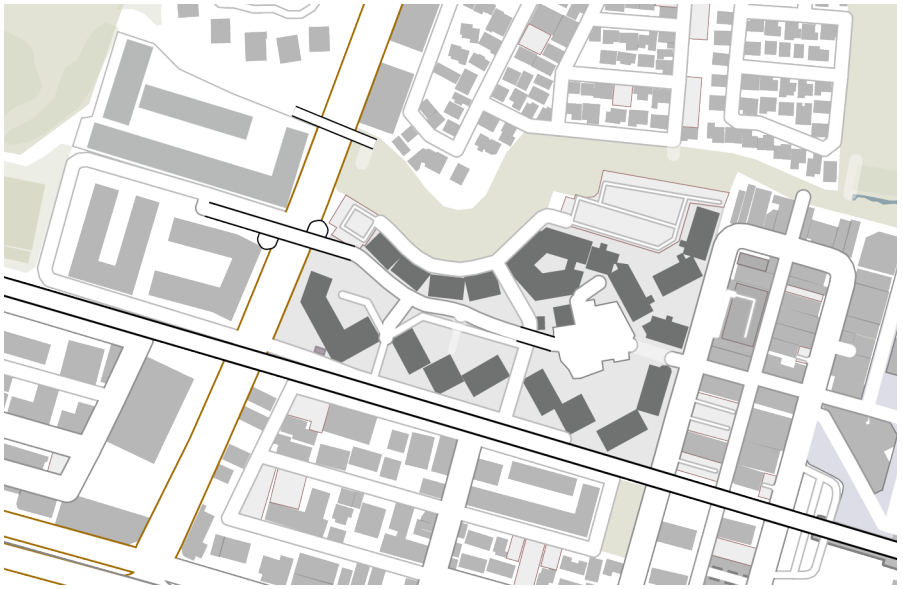


Figure 1.35 Site Plan for Bonage Yokohama, 1995. Creates a core center axis for residents to iteract with each other. Within the complex several typologies and mix of use is proposed with barrier free designs. Source: Map by Authors

Figure 1.36 Public Space for Bonage Yokohama, 1995. Creates iteractive spine for public life with urban furniture and active frontades. Source: Source: Urban Renaissance Agency (UR), Bonage Yokohama brochure, March 2007

HEISEI 00-10s

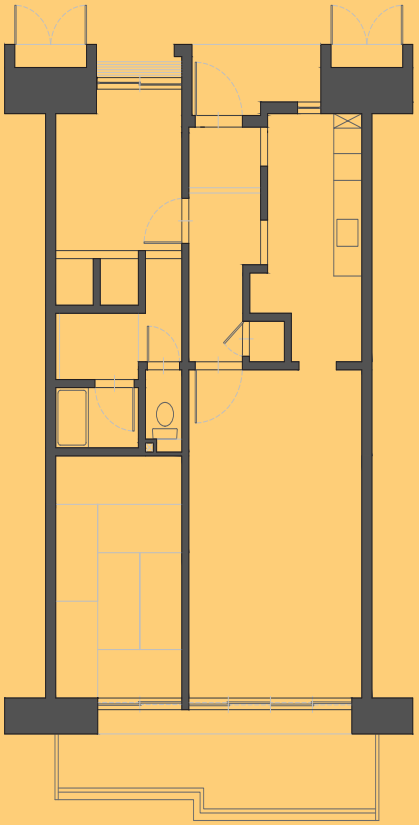
96-11C-2LDK

The era of revitalization and utilization

IDEAL FOR

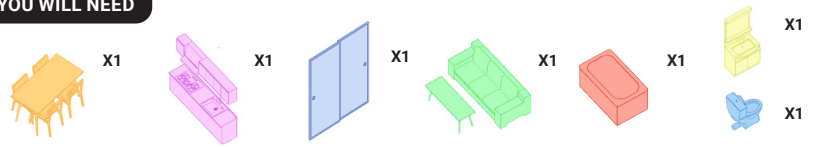
A family

FLOOR PLAN



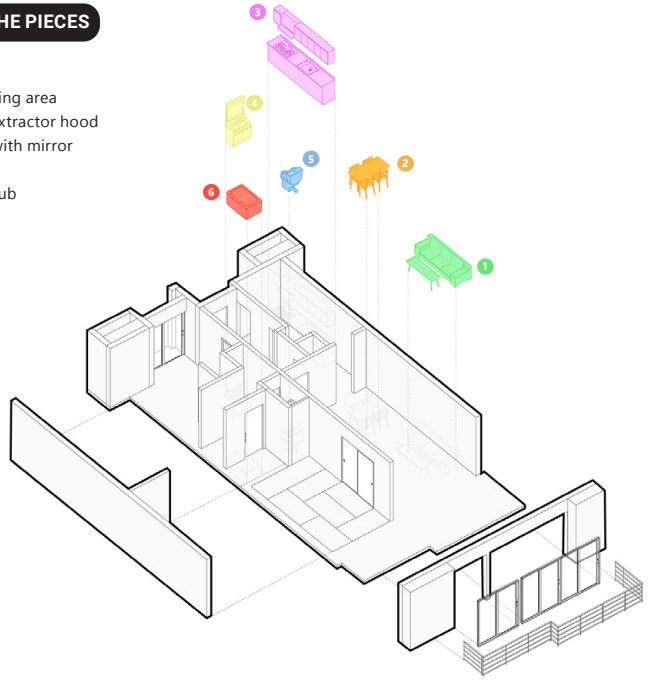
Entrance
Dining
Kitchen
Room 1
Room 2
Toilet
Shower room
Balcony

YOU WILL NEED

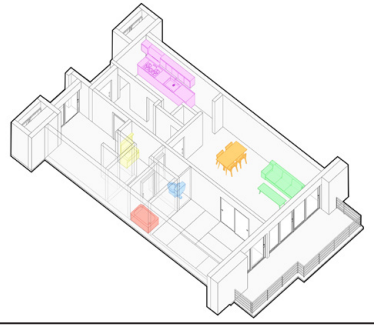


ASSEMBLE THE PIECES

1. Living room
2. "Western" Dining area
3. Kitchen with extractor hood
4. Ceramic sink with mirror
5. Toilet
6. Ceramic bathtub



COMPLETE VIEW



This is a "general-purpose design" that was developed in 1996, and is an 11-story building.

It is a two-bedroom, one-hallway residential building with two living rooms and a kitchen. It is designed to address new challenges, such as improving livability through barrier-free access.

Figure 1.37 Schemes of Heisei 00-10s Danchi Source: Authors

Heisei Period (1995-2014) : Stigma, Aging, Early Regeneration, and Urban Integration

During the Heisei Period, Japan experienced demographic contraction and rapid aging. Danchi estates faced vacancy, deterioration, and increasing social stigma. Elderly residents and foreign tenants were concentrated in Danchi, while increased media awareness of isolation and "lonely deaths" was reported.

Within this context, the new challenge for Danchi became navigating diverse living conditions and creating sustainable environments. Housing shifted away from the 2DK layout, and efforts were made to regenerate diverse housing stocks in line with local conditions. Revitalization projects of buildings from the 60s aimed to improve interiors with minimal structural changes. Reprogramming of the buildings included: SOHO houses (live-work housing), pet-friendly accommodations, and co-living.

Due to the aging population, the government also pushed for housing that helped residents to age in place. Barrier-free homes were created to accommodate elderly physical limitations, such as step-free entrances, wider doorways and hallways, and grab rails in bathrooms and kitchens, lower switches and controls, and non-slip flooring.

Additionally, KSI housing (Kodan Skeleton and Infill Housing) - similar to Habraken Support infill (see chapter on participatory design)- was another attempt at flexible, highly customizable design units, attractive to highly diverse demographics.[1.61]

Architectural Characteristics :
- Promotion of Barrier Free Environment
- Promotion of Vegetation on Rooftops
- Supply of more durable housing
- Co-construction of welfare facilities
- IT promotion.

For the refurbishment of housing complexes, workshops with residents became important to foster social cohesion. And with the motto of "Development of a beautiful, sage, and comfortable town," the Urban Renaissance Agency was established in 2004.[1.62]

1.62 Urban Renaissance Agency. 100 Housing Complexes: Danchi 100. Yokohama: Technology and Cost Management Division, Design and Planning Team, Urban Renaissance Agency, March 2007.

1.63 Urban Renaissance Agency. UR Housing Report: "Ju" (住). First edition. Yokohama: Technology and Cost Management Department, Urban Renaissance Agency, October 2022.

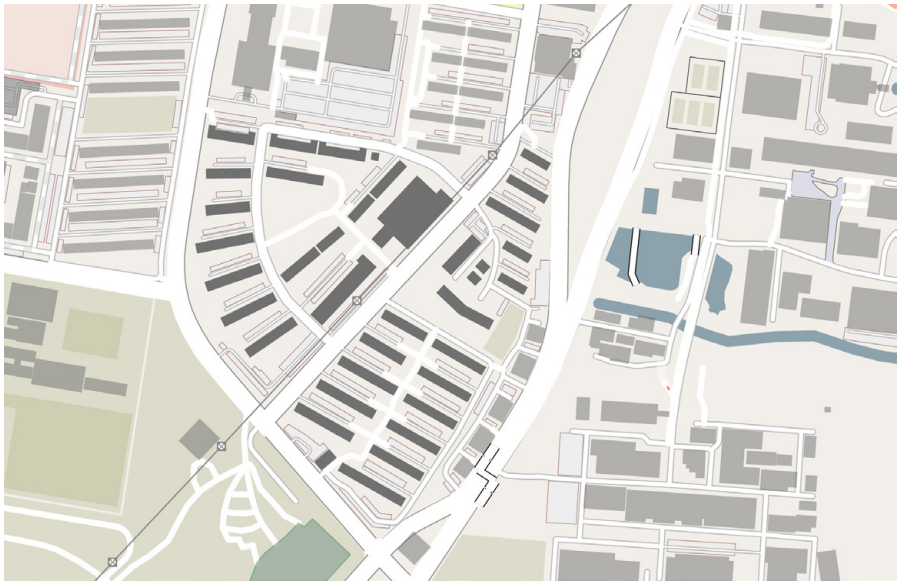


Figure 1.38 Site Plan for Confort Wako Nishiyamato, 2015s. The project is a revitalization of the area for an already existing Danchi. Some buildings were rebuild with emphasize in variety and accessibility. Source: Map by Authors

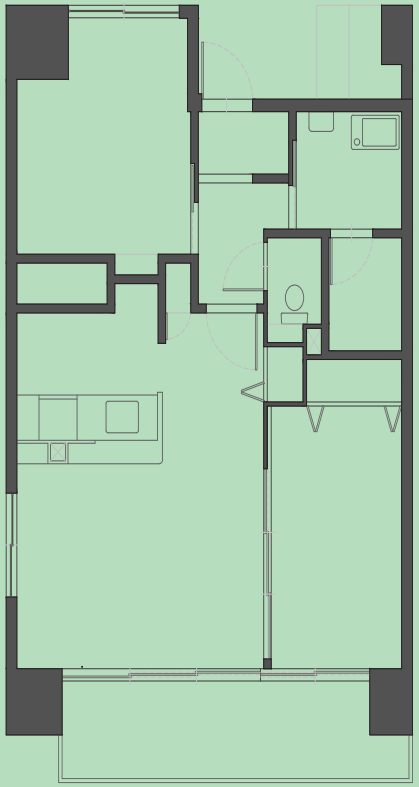
Figure 1.39 Confort Wako Nishiyamato III, courtyard and residential block. Source: Urban Life Construction Co., Ltd., accessed February 15, 2026, https://www.u-lec.com/works/rental-apartment/confort_wako_nishiyamato3

16-11C-2LDK
In the future

IDEAL FOR

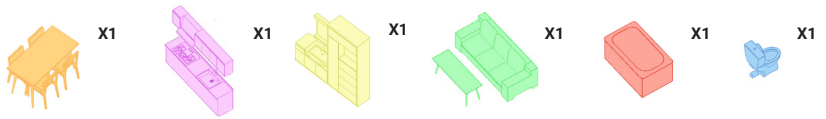
A family

FLOOR PLAN



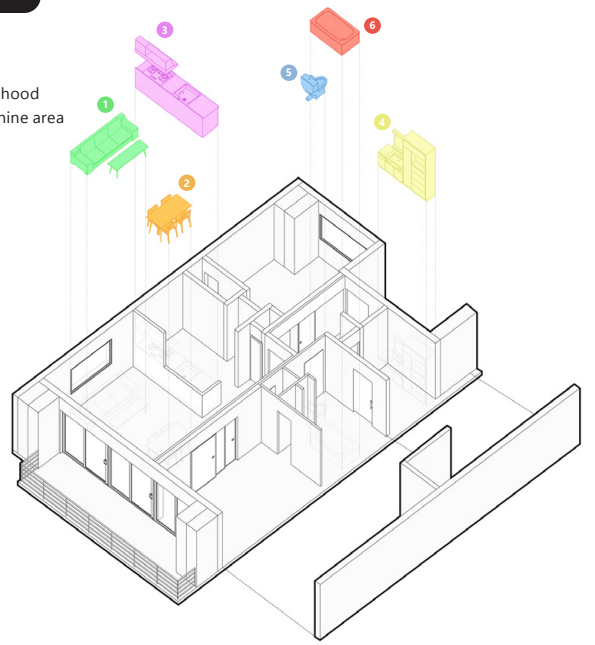
Entrance
Dining
Kitchen
Room 1
Room 2
Toilet
Shower room
Balcony

YOU WILL NEED



ASSEMBLE THE PIECES

1. Living room
2. "Western" Dining area
3. Kitchen with extractor hood
4. Sink and washing machine area
5. Toilet
6. Ceramic bathtub



COMPLETE VIEW

As housing complex reconstruction projects become the mainstream in residential design, this "general-purpose design" was developed in 2016 .

It is an 11-story, single-corridor, 2LDK house. Despite its compact size, the house is designed to be healthy and comfortable.

Figure 1.40 Schemes of Heisei 20s Danchi Source: Authors

Figure 1.41 Aerial view of iconic Star Houses. Source: MUJI House, "Danchi Column," February 16, 2021, https://house.muji.com/life/clmn/danchi/danchi_210216/

DANCHI LAYOUT TYPOLOGIES

The "n-DK" and "LDK" labels describe Danchi floor layouts' featured programs. In this system, "n" refers to the number of rooms, "D" to dining, "K" to kitchen, and "L" to living room. This strong separation of activities marked a significant departure from traditional Japanese domestic life, where eating, sleeping, and social activities occurred within a single multifunctional tatami room. The introduction of fixed furniture such as chairs and tables, reinforced this shift toward a Westernized lifestyle and separated room logic. Further, key aspects of traditional Japanese living, such as layered transitions between interior and exterior spaces, nuanced privacy controls, and strong connections to nature, were erased. Danchi apartments rely on a single light source and shared balconies, with little environmental responsiveness and domestic intimacy. However, its interior spaces retained traditional Japanese architectural elements such as sliding fusuma doors and tatami flooring. Danchi represents Western living standards articulated through traditional Japanese architectural aesthetics.This guide to Danchi Floor Layout typologies, based on Shinozawa and Yoshinaga's book: Danchi Zukai (Visual Guide of Danchi, 2017), offers in depth analysis of key discoveries and innovations in floor layouts.[1.63]

1.67 Shinozawa, Kenta, and Kenichi Yoshinaga. Danchi Zukai: Interpreting Site Topography, Earthwork, Landscape, Building Blocks, and Floor Plans — Design Thinking. Kyoto: Gakugei Shuppansha, 2017. ISBN 4761532351.

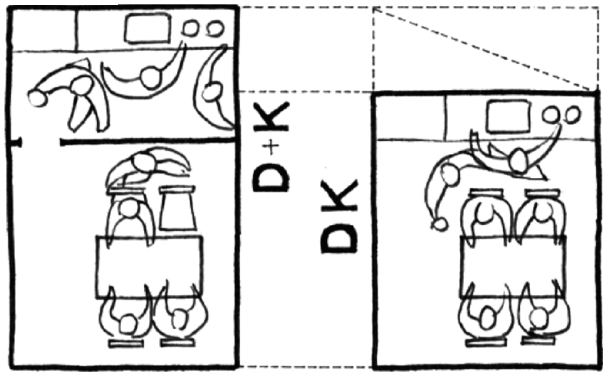


Figure 1.42 DK diagram by Uzō Nishiyama. Source: Courtesy of Uzō Nishiyama Memorial Library.

The following codes were used to categorize the basic properties of the housing building in which:

(XX-YN-ZDK)

Where .... XX: Year of Design, Y: Number of Floors, N: Orientation, can be N for North, S for South, E for East, W for West, Z: Number of Bedrooms, D: Dining, K: Kitchen

Figure 1.43 Exterior view of Harumi Apartments, Tokyo. Source: Architectuul, accessed February 15, 2026, https://architectuul.com/architecture/harumi-apartments/media/57ece5d3-d0b0-4094-a543-76496d7b5e1b

Figure 1.44 Interior view of Harumi Apartments, Tokyo. Source: Architectuul, accessed February 15, 2026, https://architectuul.com/architecture/harumi-apartments/media/57ece5d3-d0b0-4094-a543-76496d7b5e1b

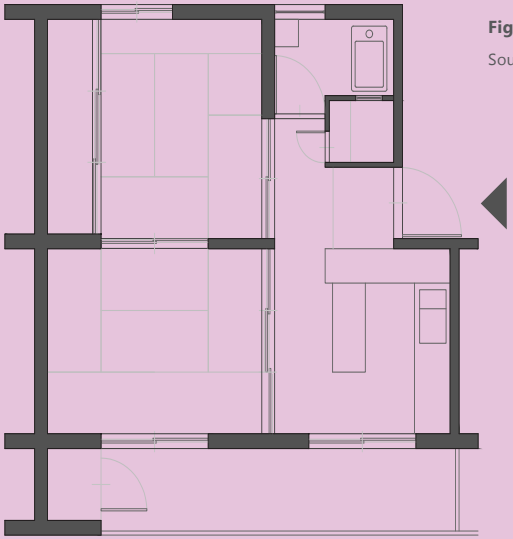


Figure 1.45 Plan of Kodan 2DK (55-4N-2DK) Typology.
Source: Authors

51C and Kodan 2DK (55-4N-2DK)

Considered one of the most iconic spatial typologies of Danchi, the 公営住宅 (Kouei Jutaku) or Public Housing 51C became the first "標準設計 (Hyojun Sekkei)" or "Standarized Design" for Danchi typologies. Proposed by Yasumi Yoshitake's Lab at Tokyo University and detailed by Gonkuro Kume, it was born in 1951, as the type C prototype of the Standardized Design, hence its name. Japan Housing Corporation (JHC, 1981) was developed by various stakeholders in the early 1950s to industrialize and standardize housing units, effectively forbidding changes to this typology. (In the 1970s, the lack of diversity that resulted from strict standardization caused the laws passed by the JHC to be reversed.) This typology is still one of the most recognised and well-known.

The Kodan 2DK type (Hasune Danchi,1959)

The first Kodan 2DK was made by the Japan Housing Corporation, also known as Kodan. It is characterized by rooms divided by optional Fusuma panels, which give the apartment cell-like flexibility. Though the dining area is fixed, the two Tatami Rooms are flexible and can be used as bedrooms or living rooms by playing with the open or closed fusama panels. Also notable is the division of sleeping & dining spaces (食寝分離-Shokushin Bunri) - atypical of Japanee Housing of the time. The apartment included a sink, a counter, a pantry, and a dining table. To ensure natural light, all rooms had windows to the outdoors when possible. The dining-kitchen space was oriented south to maximize natural lighting.

Comparison between 51C and Kodan 2DK.

Similarities:

-Both have their dining-kitchen facing the southern facade for better illumination.

- The interior of the dining-kitchen area is designed so that the movement when doing house chores (cooking, laundry, and drying) is easy and efficient.

- Each one of the rooms has a window that, in addition to the fact that each apartment block is separated from the others, guarantees a good flow of air and light.

Differences:

-The Kodan 2DK is 1 Tsubo (3.3 sqm) larger than the 51C.

- 51C uses walls to divide rooms; Kodan 2DK uses movable Fusuma panels.

- Solid walls in 51C create privacy between spaces, but reduce flexibility and ventilation.

- Kodan 2DK's Fusuma panels improve flexibility, ventilation, and light, but reduce privacy compared to 51C.

The main differences between these two first prototypes are flexibility and privacy. While the 51C model proposed a new way of living that Japanese society had not yet experienced, 2Dk Kodan reintroduced the Japanese Fusama Panels, previously discarded as "outdated," into the revolutionary layout of the 51C. The simple addition of the traditional Fusama doors allowed residents to use the space in more creative ways or close off areas for privacy.

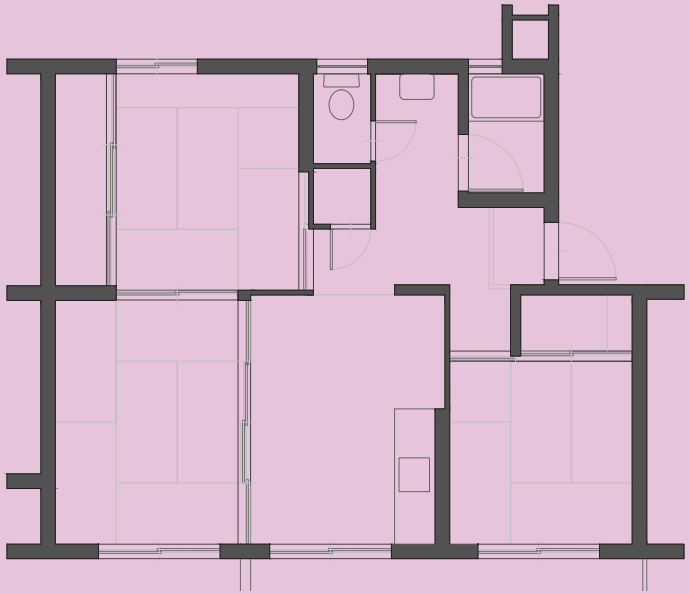


Figure 1.46 Plan of Kodan 3DK House (63-5N-3DK) Typology. Source: Authors

Kodan 3DK House (63-5N-3DK) - Shin Kanaoka Dai-ichi Danchi

Developed in the 1960s, it was conceived as a "Standardized Design" typology for families. It integrates a 6 Jo (tatami modules) room into the existing 2DK Kodan house. It features Fusuma panel dividers for flexibility, an efficient cross-ventilation system, and natural light. The private bedroom, uncommon in traditional Japanese housing, provides a new level of privacy previously unheard of. Spatial rearrangements allow the inner spaces to receive direct sunlight, improving the environment for inhabitants. The layout features a larger Dining-Kitchen area, and if needed, a larger social area (by removing one storage area).

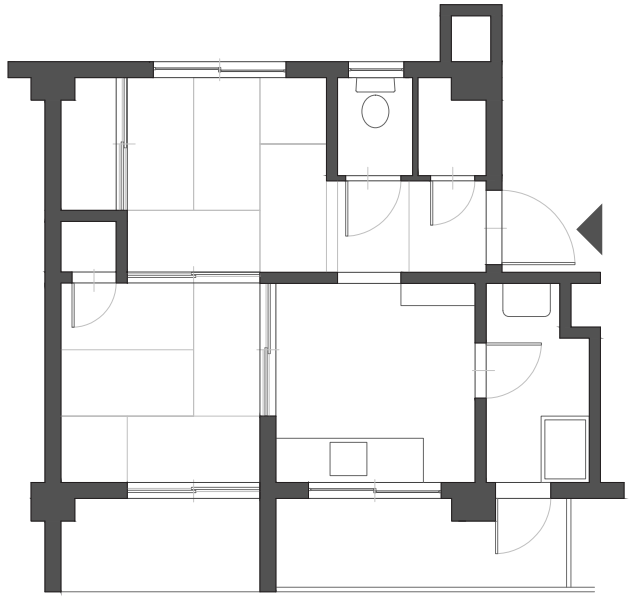


Figure 1.47 Plan of Sunroom Typology (560-5N-2DK) Typology. Source: Authors

Sunroom Typology (560-5N-2DK) - Nigawa Danchi

Developed in the late 1950s in the Kansai area, this 2DK typology is the first to incorporate a sunroom. Notably, this typology simplifies habitability by efficient design that reduces cleaning and organization. The kitchen in this typology is more compact than the 55-4N3DK and was marketed as easier to keep tidy and less effort to clean. Building on this, the sunroom further enhances functionality.

The sunroom, located on the balcony and open from floor to ceiling, is clad with Hana Blocks (perforated concrete bricks). This space adapts to seasonal needs: in summer, users can open the windows to create an outdoor terrace, while in winter, it serves as a greenhouse for warmth. It is commonly used for air-drying clothing, making it an efficient use of space.

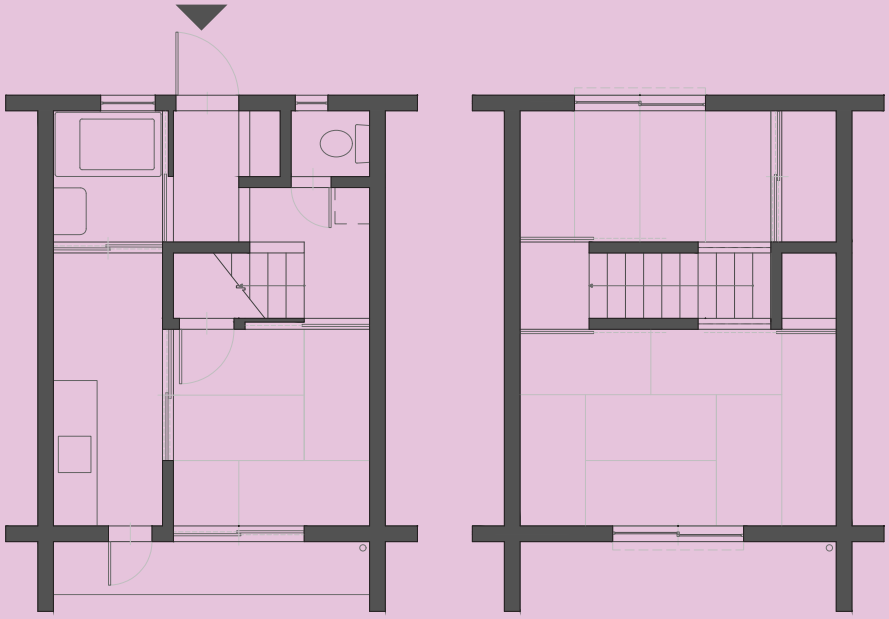


Figure 1.48 Plan of Terrace House (57-TN-3K-2-C) Typology. Source: Authors

Terrace House (57-TN-3K-2-C) – Tama Daira Danchi

Developed in the late 1950s, this typology is a duplex rowhouse, quite typical for Japan. It is generous in size compared to other floor plans in this period. In more urban settings, it may be featured in mid-rise housing complexes, but it focuses on a more grounded lifestyle, with units offering terraces for residents to step out onto and a private front garden. On the first floor, there is a kitchen and dining space, and either a private or a Japanese-style room. Bedrooms are located on the second floor, and this vertical separation clearly distinguishes monofunctional spaces

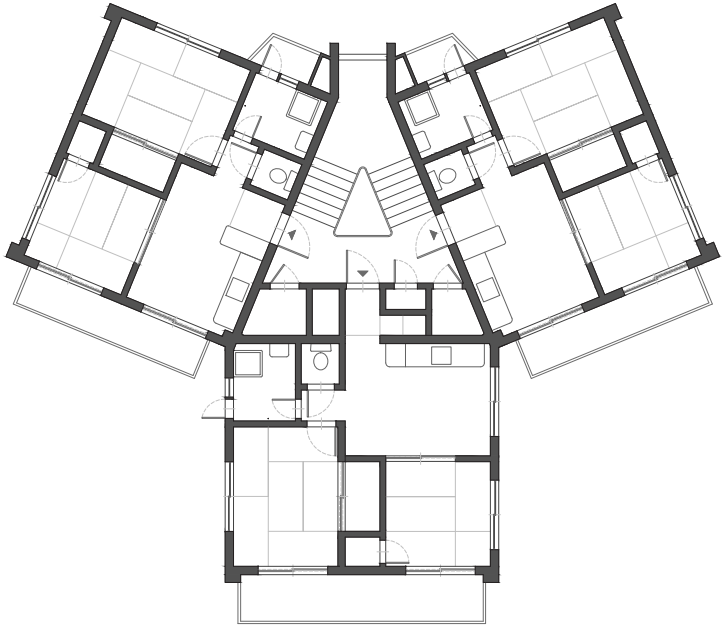


Figure 1.49 Plan and Voumetric Axonometry of Point House - Star House (57-4P-3K) Typology. Source: Authors

Point House - Star House (57-4P-3K) - Nigawa Danchi

In contrast to the elongated, rectangular apartment blocks with narrow floor plans, this housing type features more compact Y-shaped plans. This typology was designed by Koichi Miura and used as a visual accent in larger housing complexes to break the monotonous repetition. A Y-shaped floor plan has three independent dwelling units protruding from a central circulation core. Its compactness offered advantages for construction on sloped sites or on narrow, irregular plots. The star shape increases surface area, thereby maximizing natural light and improving ventilation. Windows for bathrooms, which were difficult to incorporate into flat-type blocks (because most apartments do not span wall to wall in rectangular buildings), could now be realized. Because the exterior walls consisted largely of windows, it was challenging to place furniture, and it would soon be replaced by the box house.

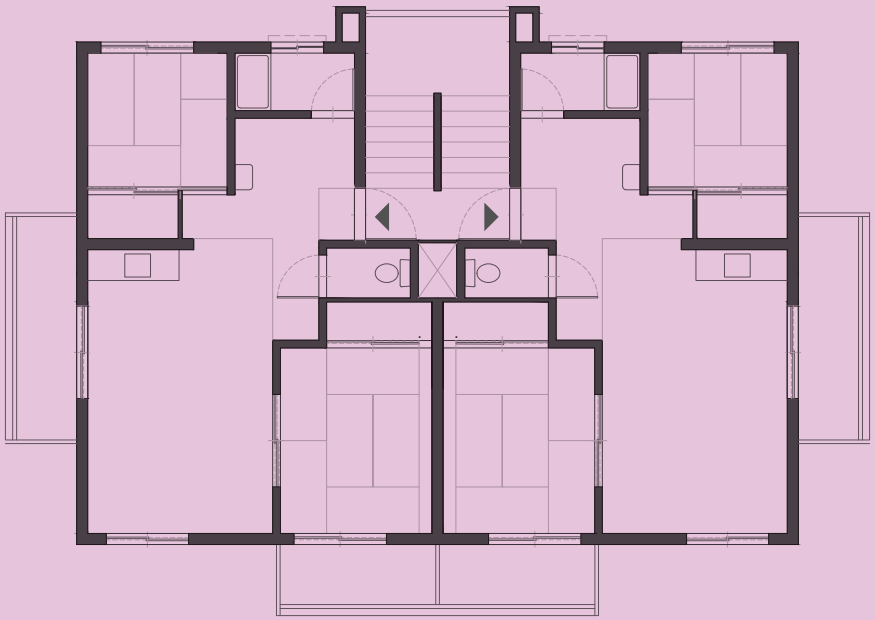


Figure 1.50 Plan and Voumetric Point House - Box House (63-5B-3K) Typology. Source: Authors

Point House - Box House (63-5B-3K) - Chiba Tsudanuma Danchi

From around 1964, the iconic star house typology became inefficient as a design; it was difficult to densify and, since it was not orthogonal, harder to build. As a result, the box-type housing replaced the star house, offering just two units per floor. Like the star house, the box type was adopted to address uneven terrain and to provide visual accents within the landscape. In addition, the box typology is easy to orient to improve ventilation and sunlight exposure in all rooms.

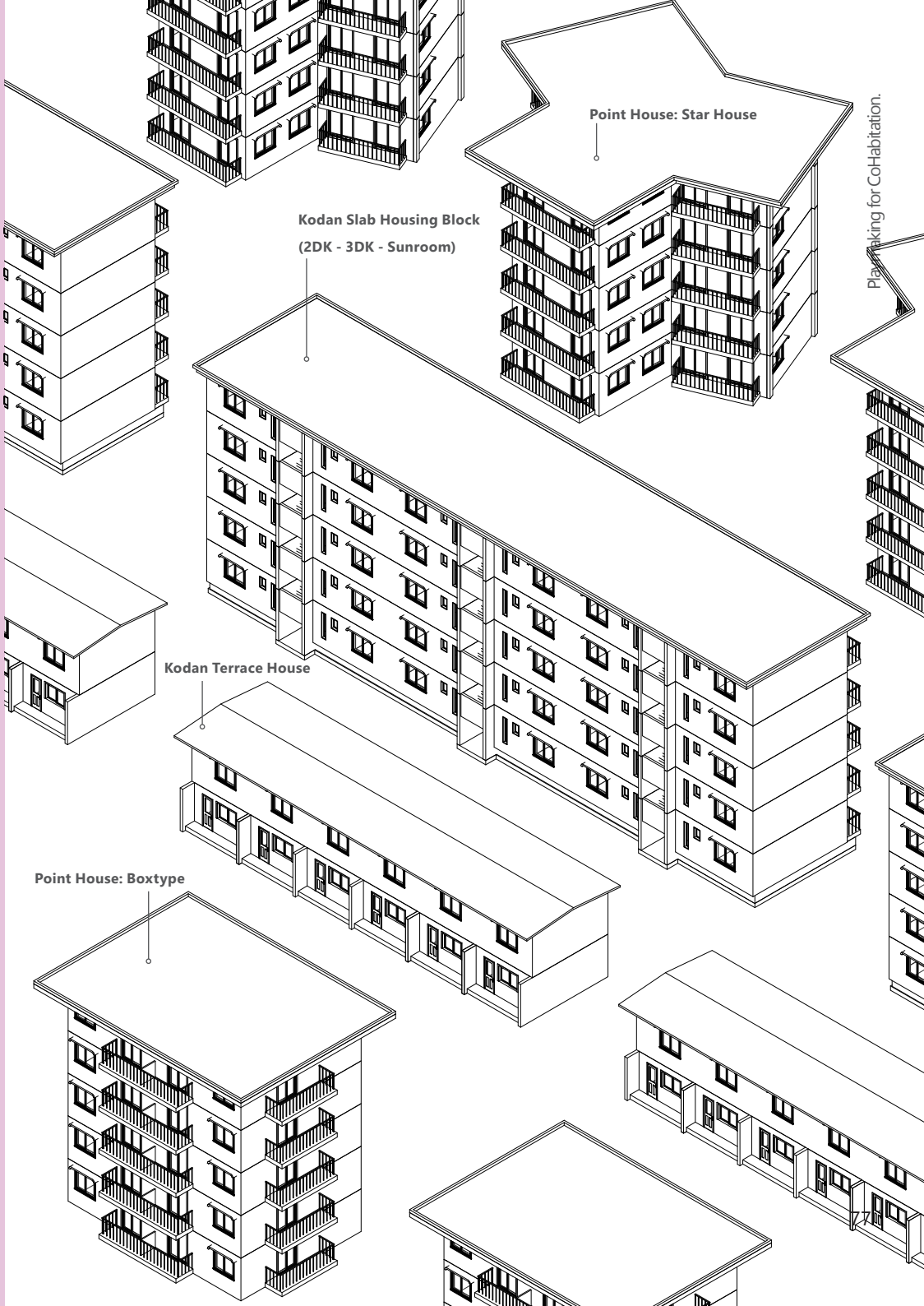


Figure 1.51 Voumetric Axonometry of Basic Danchi Typologies Source: Authors

CASE STUDIES ON DANCHI REVITALIZAION

From now to the Future (2015-): Regeneration, Flexibility, and Reinterpretation

The mid-2010s marked a turning point for the Danchi. While depopulation, societal aging, and soaring vacancy rates had increasingly discouraged younger generations and immigrants from moving into these complexes, Danchi are seen today as a housing option, with new initiatives rehabilitating and reimaging these abandoned buildings.

The UR took it upon themselves to rebrand outdated housing.[1.64] UR's approach demonstrates a shift from housing provision to community infrastructure management across multiple scales: interior design, architecture, and urban planning. In response to ever-changing social needs, UR has been offering unit refurbishment in collaboration with universities and local companies, such as Muji and IKEA, since 2011.[1.65] They offered interior design packages as marketing tools to promote their brands.

1.64 Urban Renaissance Agency. UR Housing Report: "Ju" (住). First edition. Yokohama: Technology and Cost Management Department, Urban Renaissance Agency, October 2022.

1.63 Ibid.

Figure 1.52 Yokodai Danchi, Revitalization. Photograph by Ismael Kagawa

Theme	Main Keywords
Enhancing attractiveness to promote residency	Renovation of facilities and public spaces; Equipment upgrades (e.g., elevators)
Utilizing vacant units/shops for community building	Resident-led initiatives; Gathering spaces; Learning environments; Hobby groups; Meeting places
Providing vacant spaces for new activities	Spaces for artists; Trial residency; University collaboration; Cultural revitalization; Cafés; Community hubs
Activating public spaces inside and around the danchi	Public space utilization; Event organization; Shared gardens; Resident participation; Community hubs
Securing and fostering key persons	Resident collaboration; Leadership development; SNS/blog outreach; Resident organizations; New community actors
Creating places for children	After-school spaces; Terakoya; Children's cafeterias; Intergenerational exchange
Supporting child-rearing environments	Parenting support; Childcare consultation; Nurseries; Kids' rooms; Family-oriented renovation
Leveraging youth and students	Student residency promotion; University collaboration; Rent subsidies; Youth-oriented design; Student–resident exchange
Supporting active aging	Mobility support; Health consultation; Shopping assistance; Elderly monitoring; Local business collaboration
Creating inclusive living environments	Multicultural coexistence; Disability employment spaces; Life-stage adaptation; Aging-in-place; Intergenerational living

Figure 1.53 Table of Danchi Revitalization Strategies. Table by Authors Source by Kanagawa Prefecture

Beyond interior design, UR leverages the architectural potential of these deteriorating housing complexes by retrofitting diverse architectural floor plans that can be used by people of all ages. At the urban planning level, UR efforts include refreshing shared public spaces through modern signage, aesthetic refreshes, and landscaping initiatives (among other examples). Finally, public relations initiatives use the media to re-envision Danchi as valuable Real Estate. Through these multi-scalar strategies, UR aims to expand its user base to include new demographics, particularly younger generations who have until now shown little interest in housing complexes.[1.66]

Urban Renaissance Agency (UR) offers guided tours, organized in collaboration with the Danchi Revitalization Association and led by Professor Shuichi Matsumura. This chapter focuses on three case studies presented during these tours and the different approaches utilized in each: name-brand renovations of vacant units, starchitect interventions to landscaping and public space, and a complete adaptive reuse flip of structures.

1.68 Kanagawa Prefecture, Handbook for Promoting Multigenerational Residential Communities: Case Studies of Danchi Regeneration (Kanagawa: Kanagawa Prefecture, March 2020)

Hanamigawa Danchi

Located approximately one hour from Tokyo Station, Hanamigawa Danchi was inaugurated in 1968. Its proximity to the capital makes the Danchi attractive for working young families. Now, with more than 7,230 housing units and 60 rented shops, it is the third-largest Danchi in Japan. It features parallel rows of buildings, generous green open space, standardized 2DK and 3DK layouts, and a central shopping and circulation axis.

Originally designed for middle-income nuclear families, Hanamigawa today faces aging infrastructure and demographic decline, prompting recent revitalization efforts led by UR in collaboration with private partners, including MUJI.

Figure 1.54 Key Plan of Hanamigawa Danchi. Source: Authors

Figure 1.55 Hanamigawa Danchi Central Commerce Spine Revitalization. Source: Gabi Castro

Figure 1.56 Hanamigawa Commercial Spine Shop Source: Ismael Kagawa

Figure 1.57 Hanamigawa Danchi Community Exchange Hub in unit. Source: Ismael Kagawa

Commercial Street Renovation (Hard + Soft Regeneration)

Physical upgrades (façades, interiors, public space improvements) were combined with programmatic activation. MUJI-affiliated spaces link renovations with economic and social revitalization.

Community Exchange Hub Creation

Vacant retail units were converted into semi-public facilities (stores, cafés, community rooms, model units). These spaces foster interaction and community by integrating commercial and civic functions.

Figure 1.58 Hanamigawa Danchi Bicicle Taxi for Elderly to Move inside Danchi. Source:UR Chintai College, April 2017, https://www.ur-net.go.jp/chintai/college/201704/000061.html

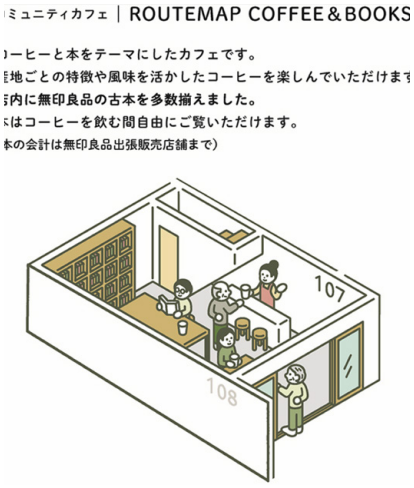


Figure 1.59 Residential housing turned into a Cafe Source: MUJI House Life Column, accessed February 19, 2026, https://house.muji.com/ur-hanamigawa/h250430/

Mobility and Accessibility Improvements

Elevators, barrier-free upgrades, and pilot mobility systems improved inclusivity and addressed an aging population.

Residential Unit Renovation (MUJI × UR Reformation Units)

Existing 3DK units (~56 m²) were transformed into flexible 2LDK layouts by removing partitions and introducing adaptable systems. The units function as an "open system," updating living patterns while retaining structural frameworks.

Multi-Stakeholder Governance Framework

A formal revitalization council (municipality, residents' associations, private partners, UR) institutionalized collaboration, shifting regeneration from a one-time intervention to a long-term management strategy.

Event-Based Activation & Place Branding

Regular markets, festivals, and workshops generated a local identity that allows for reactivating public spaces, not only extending the danchi's urban improvement but also its social influence.

Figure 1.60 Interior renovation of UR Hanamigawa housing unit by MUJI, showing contemporary partition system and light wood finish. Source: MUJI Renovation, UR.net

Hanamigawa's revitalization project is an example of avoiding demolition while favoring community-based urban networks that use existing assets, open space, modular units, and commercial strips to welcome new social infrastructures. The project demonstrates that successful Danchi regeneration can focus on thoughtful changes of existing interiors rather than tabula rasa redevelopment. In this sense, Hanamigawa is a prototype for aging suburban Danchi, showing how architectural intervention, commercial revitalization, and social programming can form a resilient, multi-generational neighborhood ecosystem.

Figure 1.62 Yokodai Danchi, Revitalization by Consolidation of Public Space. Source: Ismael Kagawa

Yokodai Danchi

Located in Yokohama, 20 minutes from Yokohama station, one of Japan's biggest hubs, and about 50 minutes from Tokyo, Yokodai Danchi was developed in 1971 through a land readjustment project by the former Japanese Housing Corporation (now UR). More than 50 years after its initial construction, Yokodai faced typical Danchi challenges: aging buildings, demographic decline, and an increasingly elderly population. In response, UR initiated a long-term revitalization strategy, the "Future of Housing Complex Project" (団地の未来プロジェクト). Yokodai remade the urban fabric anew through a masterplan which reimagined the complex as a town with courtyards and plazas. Today, the area comprises approximately 13,000 households (24,000 residents) and around 3,300 UR rental units.

Figure 1.61 Key Plan of Yokodai Danchi.
Source: Authors

Participatory Governance & Area Management (2011–)

Regeneration began with governance reform, including advisory and area-management meetings (UR, Yokohama City, Kanagawa Prefecture, residents, experts) rather than construction. This strategy established structured dialogue and moved the estate to a suburban regeneration pilot. By 2015, this evolved into a long-term strategic framework, shifting from top-down modernization to collaborative area management.

Programming & Seasonal Events (2014–)

Through recurring festivals, disaster-prevention workshops, and intergenerational markets, open spaces were activated, and local identity was reinforced. In this way, events repositioned the Danchi from a purely residential enclave to an active civic platform.

Figure 1.63 Community event at UR Yōkōdai Danchi, Yokohama, organized as part of the "Touch in Yōkōdai" initiative.
Source: Urban Renaissance Agency (UR), "Touch in Yōkōdai" (June 17, 2022), ur.net

Figure 1.64 Community workshop space CC Lab. Source: Urban Renaissance Agency (UR), "Special Feature 1," Web UR Press 46, "Touch in Yōkōdai" (June 17, 2022), ur-net.go.jp

Creation of Community Hubs (2014–)

Dedicated bases such as CC Lab (2014) and Machimado (2019) encouraged resident-led initiatives, workshops, and daily consultation. These hubs made social infrastructure spatially visible, strengthened community connections, kept residents involved, and emphasized the need for renewal.

Spatial Regeneration of Open Spaces (2018–2025):

2018-2025 Landscape became the primary catalyst for renewal.

2018 Central Plaza: Reconfigured, brighter, event-ready public core.

2020 Lawn Plaza: Asphalt removal and soft commons creation (iF Design Award 2022), enabling flexible everyday use.

2020 Community Center & Sunken Garden: Indoor–outdoor continuity with café and stepped seating for cultural programming.

2025- Pedestrian Network: Improved lighting, clarity, and child-friendly design enhanced safety and walkability.

Figure 1.65 Yokodai Sunken Plaza. Photograph by Takumi Ota. Source: Kashiwasato.com

Figure 1.66 Yokodai Urban Furniture for Enhancing Walkability. Photograph by Takumi Ota. Source: Kashiwasato.com

Yokodai shows that suburban Danchi can be revitalized without large-scale demolition by reusing existing buildings and open spaces as flexible assets. Intelligent spatial planning, architectural adaptive reuse, and governance reforms are the ways to ensure long-term sustainability. Also, by attracting younger residents while still supporting the elderly, Yokodai offers a model for creating successful multigenerational spaces.

Figure 1.68 [LEFT] Aerial view Akabanedai Danchi
Source: Good Design Award (G-Mark), "Winner Gallery," https://www.g-mark.org/gallery/winners/9d8dd506-803d-11ed-862b-0242ac130002

Figure 1.70 Akabanedai Danchi Refurbished next to Toyo University reinforcing Mixed use Development.
Source: Ismael Kagawa

Akabanedai Danchi

Located in Kita Ward, Tokyo, Akabanedai Danchi was originally developed in 1962 by the former Japan Housing Corporation (now UR) as part of the first wave of Danchi – Japan's large-scale postwar public housing program. Built on a former military site, the complex embodied the modernist Danchi model: rectangular slab blocks arranged in parallel grid, generous open space between buildings, and standardized dwelling units targeting nuclear families. Over time, the project evolved into Nouveau Akabane-dai, a phased redevelopment that retains much of the original Danchi buildings but integrates new housing typologies, increased community infrastructure, smart landscaping and facade design, and disaster-resilient planning.

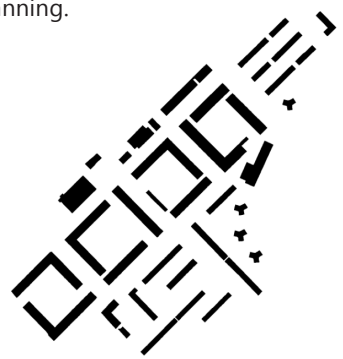


Figure 1.67 Akabanedai Danchi Now.
Source: Authors

Figure 1.69 Akabanedai Danchi in 1962.
Source: Authors

Layered Urban Regeneration Strategy

Rather than erasing the 1960s modernist layout, the project overlays new mid- and high-rise buildings onto the existing framework. Selective densification preserves green corridors and spatial continuity, enabling phased transformation while retaining the estate's structural logic.

Phased Reconstruction & Resident Continuity

Incremental redevelopment allowed residents to relocate within the estate during construction. This minimized displacement and maintained social networks, marking a shift from earlier renewal models that fragmented communities.

Figure 1.71 Akabanedai Danchi. Photograph by Ismael Kagawa.

Mixed-Use Development
The masterplan introduces commercial, welfare, childcare, medical, and community facilities within walking distance of each other. The estate evolves from a mono-functional bedroom suburb into a more self-sufficient urban node responsive to aging and dual-income households.

Landscape as Social & Ecological Infrastructure

Reinforced green axes organize pedestrian movement, while plazas and topography-based public spaces foster everyday interaction. Open space is designed as an adaptive social landscape, supporting a wide range of uses rather than acting as a residual void.

Figure 1.72 UR Museum in Akabanedai Danchi. Photograph by Ismael Kagawa.

Disaster Resilience Integration

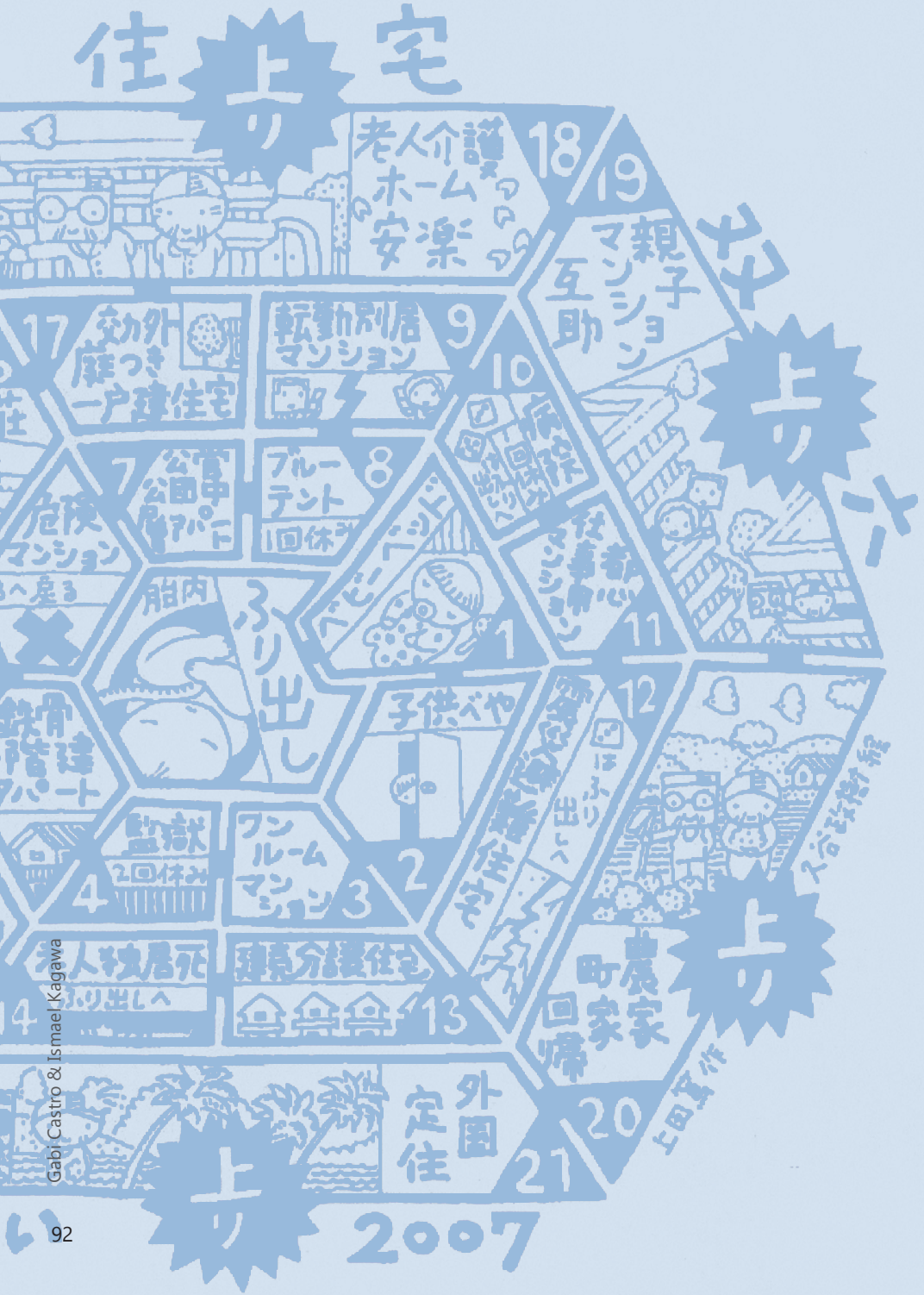
Evacuation routes, accessible circulation, and multifunctional plazas embed seismic preparedness into the spatial structure, aligning resilience with daily urban use.

Architectural Reinterpretation of the Danchi Typology

New buildings maintain rational grids but introduce articulated façades, varied heights, barrier-free access, and flexible layouts, updating the slab typology to contemporary standards.

Akabanedai Danchi demonstrates effective design interventions that maintain historical continuity while focusing on large-scale changes to public space and the spatial relationships between buildings and their accessibility.

Akabane stands as a model for additive adaptive reuse. Rather than deep diving into massive restructuring of aging buildings, this Danchi illustrates how environments can evolve into resilient, mixed, and socially embedded urban ecosystems.



Gabi Castro & Ismael Kagawa

CHAPTER 2

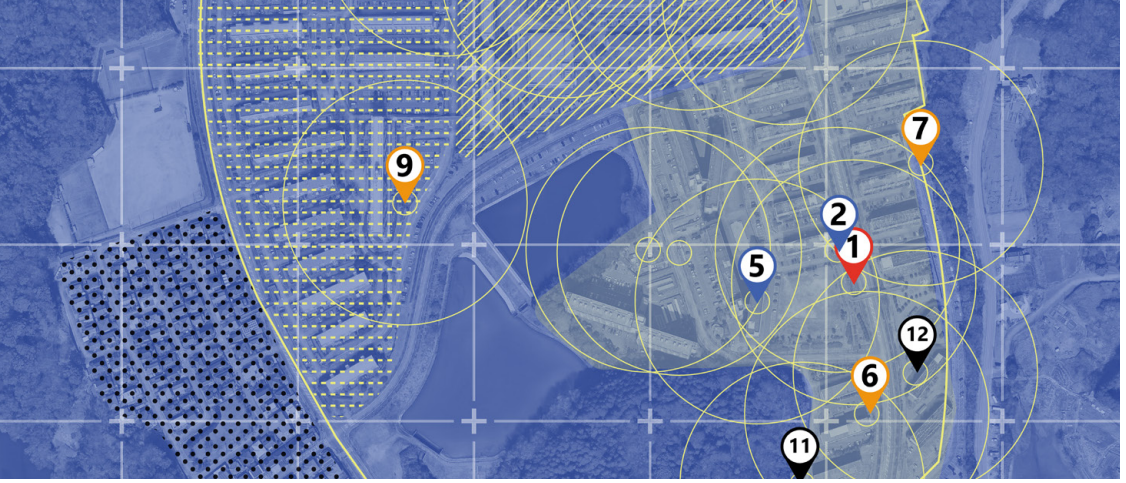
Site: Origin Story

Environmental Data

Public Spaces

Catalogue of Reuseable Materials

Contemporary Problems



ORIGIN STORY: HOMI DANCHI

Figure 2.1 Homi Danchi autonomous associations and government administrative areas. Diagram by authors.

Nikkei Brazilian Enclaves in Japan

Today, Japan is home to more than 200,000 Brazilians from different backgrounds. The "Dekassegui" migration, which started as a short-term labour strategy, became a long-term condition for them, creating enclaves characterized by spatial concentration, economic drive, and partial social integration. Nowadays, a lot of those enclaves face different challenges, from difficulties in language that lead to a lack of social integration to identity tensions due to their mixed heritage.

According to data from the National Statistical Center of Japan for 2020, Aichi Prefecture hosts the largest Brazilian population, with 61,599 Brazilian inhabitants, due to its strategic location as an industrial hub in the automotive industry (Sasaki, 2008). Other important enclaves are located in Shizuoka, Gifu, Mie, and Gunma prefectures, which also correspond to the country's industrial belts. As we can see from the map, the number of Brazilians in each prefecture varies, suggesting the creation of concentrated communities across the country. However, why do they start creating concentrated communities in Japan?

The migration of Brazilians to Japan has followed patterns, driven largely by economic motivations and aspirations for social stability. Many migrants arrive with the intention of returning to Brazil after saving money. Due to their social conditions, their

Prefecture	Brazilian Inhabitants	Total Foreign Inhabitants
Total	211,178	2,885,904
Hokkaido	160	40,047
Aomori	30	6,314
Iwate	71	8,071
Miyagi	248	23,110
Akita	14	4,366
Yamagata	75	8,065
Fukushima	194	15,411
Ibaraki	6,220	70,806
Tochigi	4,289	44,074
Gunma	13,252	62,539
Saitama	7,590	196,537
Chiba	3,775	167,220
Tokyo	3,888	568,665
Kanagawa	9,438	235,369
Niigata	294	18,309
Toyama	2,699	19,480
Ishikawa	1,418	16,173
Fukui	4,332	16,234
Yamanashi	2,812	17,129
Nagano	5,187	37,752
Gifu	12,376	59,741
Shizuoka	31,153	100,237
Aichi	61,599	276,282
Mie	14,047	56,288
Shiga	9,693	33,963
Kyoto	600	62,510
Osaka	2,813	253,303
Hyogo	2,771	114,927
Nara	344	13,908
Wakayama	130	7,148
Tottori	83	4,991
Shimane	3,755	9,441
Okayama	1,270	31,020
Hiroshima	2,500	56,229
Yamaguchi	171	17,427
Tokushima	39	6,658
Kagawa	201	14,208
Ehime	327	13,630
Kochi	23	4,798
Fukuoka	341	81,556
Saga	30	7,110
Nagasaki	47	10,448
Kumamoto	51	17,803
Oita	55	13,735
Miyazaki	70	7,699
Kagoshima	127	12,241
Okinawa	536	20,591
Unspecified / Unknown	40	2,341

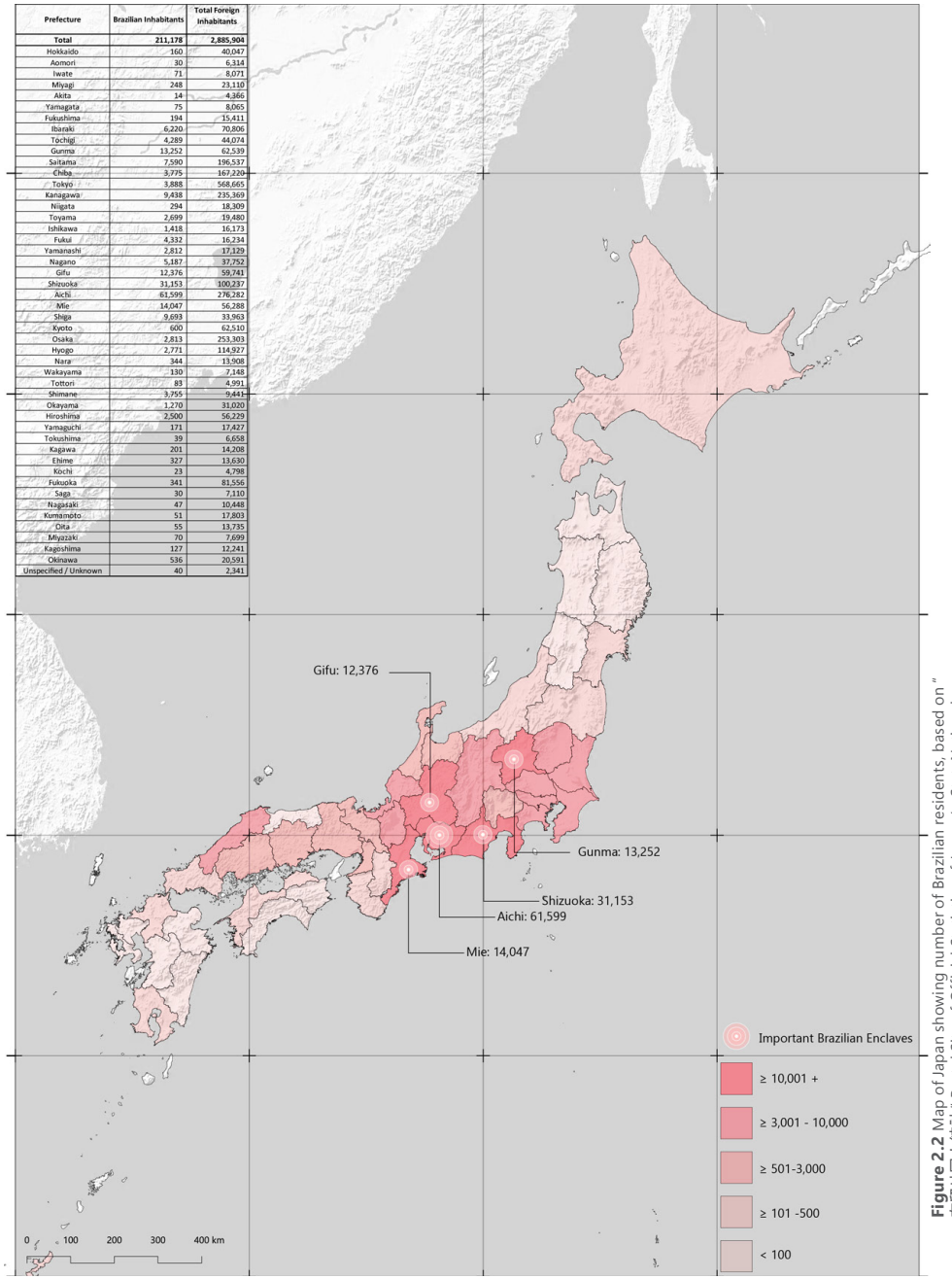


Figure 2.2 Map of Japan showing number of Brazilian residents, based on "在留外国人統計," Portal Site of Official Statistics of Japan (e-Stat: National Statistics Center), 2020. Map created by authors using QGIS.

work has been heavily concentrated in manufacturing sectors that are susceptible to economic ups and downs.[3.1] This leads to repeated movements of people between Japan and Brazil due to economic instabilities in both countries. Despite the Japaese stereotype of low-skilled migration, 40% of Nikkei Brazilians in Japan possess university degrees (Lesser et al., 2003),meaning they originate from Brazil's middle class that aspires to hold white-collar positions. Owing to Brazil's economic stress, the decision to move to Japan was an attempt to prevent a decline in social conditions. However, in Japan, migrants are often forced into physically demanding blue-collar work due to the country's limited opportunities. This produced persistent class and identity tensions: while Nikkei Brazilians in Brazil were often viewed as successful, in Japan, they were frequently perceived as foreign and socially marginal, symbolizing an "image" of a past, poor Japan (Lesser et al., 2003).

Language barriers present a significant challenge for Brazilians in Japan, affecting integration and access to opportunities. The first Brazilian migrants, many of whom held Japanese citizenship, were proficient in Japanese. With the legislative reforms in 1990, the profile of those migrants shifted, appealing to a wider, younger age group of distant generations of Japanese descendants. Many of those came from rural regions of Brazil and arrived with little to no knowledge of the language. As Brazilian enclaves expanded, the need to learn Japanese also diminished. In these areas with Brazilian supermarkets, restaurants, media outlets, services, and even Brazilian schools, Portuguese was predominant. According to a study by Chiryu City (2022)[3.2], one of the most prominent enclaves of Brazilians in Japan in 2021, 40.4% of its foreign population speaks poor Japanese or does not speak Japanese at all. The consequences of this linguistic exclusion are deep, restricting access to better employment and political structures, and complicating everyday interactions. This inherently leads to minimal everyday contact with local Japanese residents.

Political underrepresentation is another central issue facing Nikkei-Brazilians in Japan. Naturalized foreign-born citizens and Japanese nationals of foreign descent are usually absent from political institutions, and, due to citizenship restrictions, most of these Brazilian Nikkei are unable to naturalize and thus vote or stand for office. They end up staying in the status of political "guests."[3.3]

1 Lesser, Jeffrey, ed. Searching for Home Abroad: Japanese Brazilians and Transnationalism. Durham, NC: Duke University Press, 2003.

2 Chiryū City (知立市). 知立市多文化共生推進プラン 2022–2026 [Chiryū City Multicultural Coexistence Promotion Plan 2022–2026]. Chiryūロ Japan: Chiryū City, 2022.

3 "The Japanese Diaspora in Japan." Kyoto Journal, 2024. https://kyotojournal.org/culture-arts/diaspora-in-japan/. Accessed February 14, 2026.

Figure 2.3 Brazilian school in Homigaoka, Aichi Prefecture, photographs by Gabi Castro.

As the Japanese population ages, the Brazilian Dekassegui population is aging as well, creating new structural challenges. Due to the physically demanding nature of industrial labour, aging workers face greater health risks associated with employment instability. Also, the exclusion of a big part of this population from the Japanese public pension system, which usually requires 25 years of contributions, forces them to keep working into their sixties or seventies or rely financially on their children. Language barriers also led to some nursing homes refusing non-Japanese speakers, highlighting the absence of long-term care strategies for the aging migrant population, making them even more vulnerable in the current context. From this session, it is possible to understand that Brazilian society in Japan is characterized by its spatial concentration in industrial regions of the country, economic instability, cultural resilience and a lack of integration.

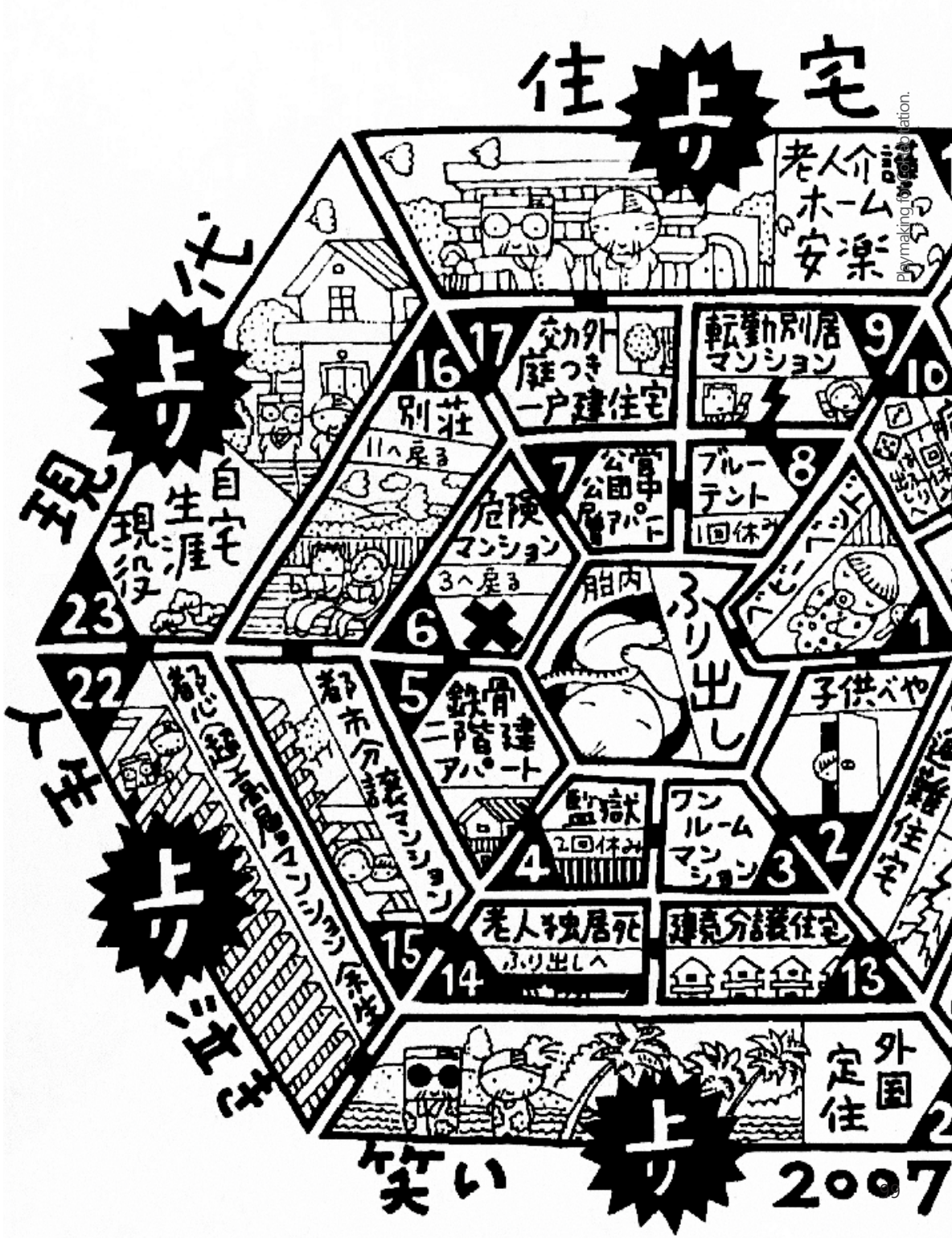
Danchi : Nikkei-Latin American Identity in Japanese Public Housing

Locations such as Aichi Prefecture, home to the largest number of Brazilians in Japan, as well as other cultures, were the perfect example of how the coexistence of diverse cultures and age groups in the Danchis is not easy. An article from Tokai TV featured on September 11, 2024, clearly presents the situation:

"Once called a 'garbage danchi'... Aichi's Homi Danchi, where more than half of the residents are foreigners, moves toward coexistence with Japanese residents and becomes a 'hometown'—while new challenges also emerge." (Tokai TV, 2024)

The article also narrated the story of Homi Danchi, which in 2024 had 6,564 inhabitants, of whom 3,793 were originally from foreign countries. In this context, with roughly 58%[3,4] of the total population from diverse cultures, different challenges arise, from social isolation to aging.

Danchis also appeared in board games. The Housing Snakes and Ladders Board Game follows characters as they upgrade their lifestyle, and effectively ranks the six most desired housing types: the single-family house, the retirement home, an apartment building shared with one's adult children, a farmhouse, a house in a foreign country, and a luxurious city-center tower. Originally, Danchi were the winning step in the game, but given the rising low-occupancy rate in Danchi, the state began welcoming low-income residents and long-term visa



Playmaking Workshop Foundation.

Figure 2.4 Diagrammatic representation of residential life stages and housing types in Japan. Source: Okuta Co., Ltd.、 from Sakai、 Yūzō、 "住宅すごろく「上がり」は6つに、" Okuta Blog.

4 "Immigration and Aging in Japan's Public Housing Projects." Nippon.com, June 14, 2017. https://www.nippon.com/en/in-depth/d00502/immigration-and-aging-in-japan%E2%80%99s-public-housing-projects.html

Figure 2.5 Playsson, "HOMI" (feat. Marley) Music Video, single, 2021.

holders into these empty units.[3.5] Over the years, game creators demoted the Danchi from winning status, and it became more a stepping stone than an end goal.

In an article by Olsen (2004) recounting the effects of cultural diaspora, Olsen argues that concepts of cultural and communicative memory persisted among Japanese immigrants settling in Latin America, as seen through music.[3.6] A number of Nikkei-Latin Americans began creating songs from these Danchi experiences as part of a cultural production.[3.7] However, when their descendants returned to Japan as Nikkei-Latin Americans, we could say that music began to operate in reverse. Rather than incorporating Japanese music, danchi-based Nikkei-Latin American musicians use their music to assert a hybrid identity that negotiates the tension of being neither fully Latin American nor fully accepted as Japanese. Hip-hop, in particular, became a vehicle for voicing their reality.

Lyrics from bands such as Green Kids or Playsson describe Danchi's life as shaped by early exposure to poverty, violence, and limited opportunities. Living in a Danchi means growing up in a dense socio-spatial environment where hardship is normalized, resilience is learned early, and community becomes both a constraint and a source of belonging and ironically creativity.

5 Chiavacci, David. "Dam Break in Japan's Immigration Policy: The 2018 Reform in a Long-Term Perspective." Social Science Japan Journal 28, no. 1 (2025): 1–20. https://doi.org/10.1093/ssjj/jyae033. Accessed February 14, 2026.

6 Olsen, Dale A. The Chrysanthemum and the Song: Music, Memory, and Identity in the South American Japanese Diaspora. New World Diasporas Series. Gainesville, FL: University Press of Florida, 2004.

7 Hirabayashi, Lane R., James A. Hirabayashi, and Akemi Kikumura-Yano. New Worlds, New Lives: Globalization and People of Japanese Descent in the Americas and from Latin America in Japan. Stanford, CA: Stanford University Press, 2002.

In a song about Homi Danchi by the group Playsson, we see:
"俺らやっと団地から出た
今までの苦労の結果
もう今更止まらねぇし気にしてられんそこらのヘイター
ダチ皆持ってる前科
街に出りゃすぐ喧嘩
俺は何も言えんわ皆同じ
もうしょうがないこれが保見団地育ち
成り上がるのに方法絶対ないよ他に
くそみてぇな生活のままなら死んだ方がいい

金稼ぐために捌く音楽かコカイン"

or
"We finally made it out of the Danchi
The result of all the struggle so far.
It's too late to stop now, I don't care about the haters.
All my friends have criminal records,
step into the city and a fight breaks out.
I can't say anything — we're all the same.
That's just how it is, growing up in Homi Danchi.
There's no other way to rise up.
Staying in that shitty life would've been worse than dying.
To make money, it was either music or cocaine."
Playsson, "HOMI" (feat. Marley), single, 2021.

Figure 2.6 Prefectural Homi Danchi, photograph by Ismael Kagawa.

Homi Danchi: Urban Setting

Located in Aichi prefecture and constructed in 1972, the gates of Homi Danchi were opened 8km away from the city of Toyota, formerly known as Koromo. Toyota is an industrial city connected to Japan's third-largest city, Nagoya. Since the 1930s, the city's economy has grown exponentially due to its shift to the automobile industry, introduced mainly by Toyota Motor Co, Ltd. Manufacturing still accounts for almost 40% of jobs in the area. To meet the housing needs of workers at more than 860 factories across the city, several satellite suburbs with high-density housing complexes were built, including Homi Danchi.

Located in Aichi prefecture and constructed in 1972, the gates of Homi Danchi were opened 8km away from the city of Toyota, formerly known as Koromo. Toyota is an industrial city connected to Japan's third-largest city, Nagoya. Since the 1930s, the city's economy has grown exponentially due to its shift to the automobile industry, introduced mainly by Toyota Motor Co, Ltd. Manufacturing still accounts for almost 40% of jobs in the area. To meet the housing needs of workers at more than 860 factories across the city, several satellite suburbs with high-density housing complexes were built, including Homi Danchi.

This mammoth-like complex, organized as a horseshoe pattern, was home to more than 13,000 people, and it is composed of 67 apartment blocks and 4,000 housing units, of which, those leased by the Aichi Prefectural Housing unit are 25 buildings, and 19 buildings for the Urban Renaissance Agency (UR), and those sold are 23 blocks by the Urban Renaissance Agency.

At first, the closest train station was Toyota Station, 8km from the complex. At that time, access to the city was poor, so having a car was a must, and even the citizens of

Figure 2.7 Map of Japan highlighting the prefecture of Aichi, map created by authors using QGIS

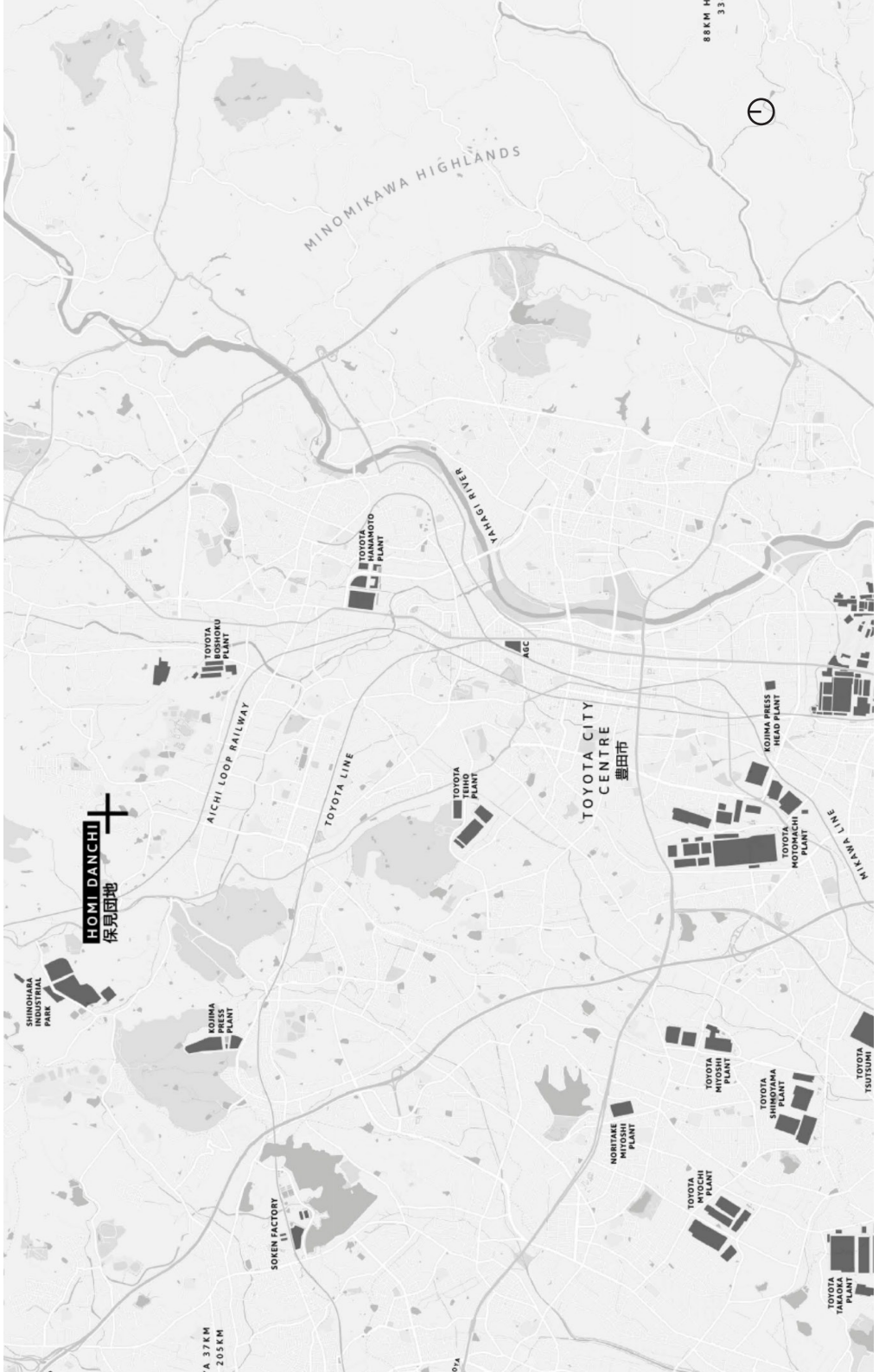


Figure 2.8 Territorial context of Homi Danchi within Toyota City and the surrounding industrial landscape. Source: Joel Paul Thomas Ransley. Making Host Home: A Design-Based Research Investigation into the Complex Relationship Between Architecture, Community, and Culture for the Japanese-Brazilian Diaspora (2023).

Toyota city considered it an inconvenient area.[3.8] According to Saito (2025), the industrial structure at that time was changing so drastically that they decided to build this complex on an "isolated island of land". Once agriculture and coal mines were no longer viable, the automobile industry was introduced to the region. The same could be said for the Nikkei population, who entered the country in 1990.

After the immigration law was revised, they became the main powerhouse of these industries. Homi Danchi became home to many Brazilian-Nikkei due to the Urban Renaissance Agency (UR) leasing apartments to these new companies. Those who moved into these units were rented as dormitories by staffing agencies, and when they decided to "live in Japan with their family", they moved into the housing managed by the prefecture. From being a temporary solution, Danchi became the permanent solution for housing this population. While Japanese policy and public sentiment appear hesitant to fully welcome foreigners into society, the country's demographic and economic realities increasingly depend on them.

Between 1997 and 1999, the four neighborhood associations within Homi Danchi collaborated to submit petitions to Toyota City Hall and the Aichi Prefectural Government, seeking solutions to the social challenges associated with migration. Institutional support, however, remained limited, leading to the former borough mayor being sent to represent the issue at the Toyota City Council. This situation shifted dramatically after a pivotal incident in 1999 (Saito, 2021), when a right-wing propaganda vehicle promoting xenophobic speech was set on fire, prompting the intervention of riot police and instilling fear among residents. This event reinforced the public perception of Homi Danchi as an "unsafe place" and marked a turning point in the area's social trajectory.[3.9]

In response, the Toyota City International Exchange Association trained Japanese language teachers and established Homiguria, a Japanese language classroom within Homi Danchi. However, due to restrictions on operating as a public institution, the volunteers reorganized as non-profit organizations. Between 2001 and 2004, four organizations were created, transforming Homi Danchi not only into the public housing complex with the highest percentage of foreign residents, but also into the one with the largest number of citizen-led organizations.[3.10]

However, there was significant pressure from the 自治区 (Autonomous region) on the 愛知県県営住宅供給公社 (Aichi Prefec-

8 Tsuzuki, Kurumi. 2000. "Nikkei Brazilians and Local Residents: A Study of the H Housing Complex in Toyota City", Asian and Pacific Migration Journal 9 (3): 327–42.

9 Handbook: The Foreign Laborer and the Social Integration Policy of Japan. Tokyo: Japan Foundation, 2024.

10 Handbook: The Foreign Laborer and the Social Integration Policy of Japan. Tokyo: Japan Foundation, 2024.

tural Housing Supply Corporation) to limit the number of foreign residents. As a result, tenant restrictions were implemented from 2000 onward. Although the complex opened for new residents three times a year, a lottery system limited occupancy to only ten units per round, regardless of demand. This policy led to an increase in vacant units and a steady decline in the overall population.[3.11]

In 2005, the complex's central shopping facility, Meitetsu Palais, was removed, and in 2006 it was replaced by Fox Town, a small-scale shopping mall intended as a symbol of renewal. Fox Town included a medium-sized supermarket, training center, clothing store, restaurants and bars, an elderly care center, and classrooms for community workshops. Although currently in a state of disrepair, the market continues to function as a crucial social hub, allowing residents to access familiar foods, engage in collective activities, and maintain networks of mutual care. *The main Meitetsu Department Store building is scheduled to close permanently in February 2026; however, due to delays in Toyota City's redevelopment plan, demolition has been postponed. In the meantime, Meitetsu intends to keep parts of the ground floor and basement in operation to preserve a sense of activity and vitality while the long-term future of the site remains undecided.

In 2011, the Care Center Homi was established by the Aichi Prefecture Senior Citizens' Cooperative. Its initial purpose was to provide nursing care training for foreign residents who had lost their jobs following the Lehman Shock of 2008. This global financial crisis disproportionately affected migrant workers, leading many to seek new forms of employment. The care center created a new labor mechanism in which foreign residents became caregivers for elderly Japanese citizens. Given Japan's rapidly aging population, this facility has become increasingly significant, positioning migrant labor as essential to sustaining the national care infrastructure.

By 2017, foreign residents accounted for 55% of Homi Danchi's population, with Brazilians making up the majority. From 2019 onward, multiple initiatives were introduced to strengthen social cohesion and improve the area's image. Homi Danchi can be said to be a revelation of persistent challenges rooted in multicultural coexistence and the social biases associated with it.

11 Johnston, Eric. "Foreigners Find Public Housing Off-Limits." Japan Times, July 20, 2002. https://www.japantimes.co.jp/news/2002/07/20/national/foreigners-find-public-housing-off-limits/

Figure 2.9 Fox Town Homi (フォックスタウン保見)、October 15日 2016. Author: Abasaa (あばさー).

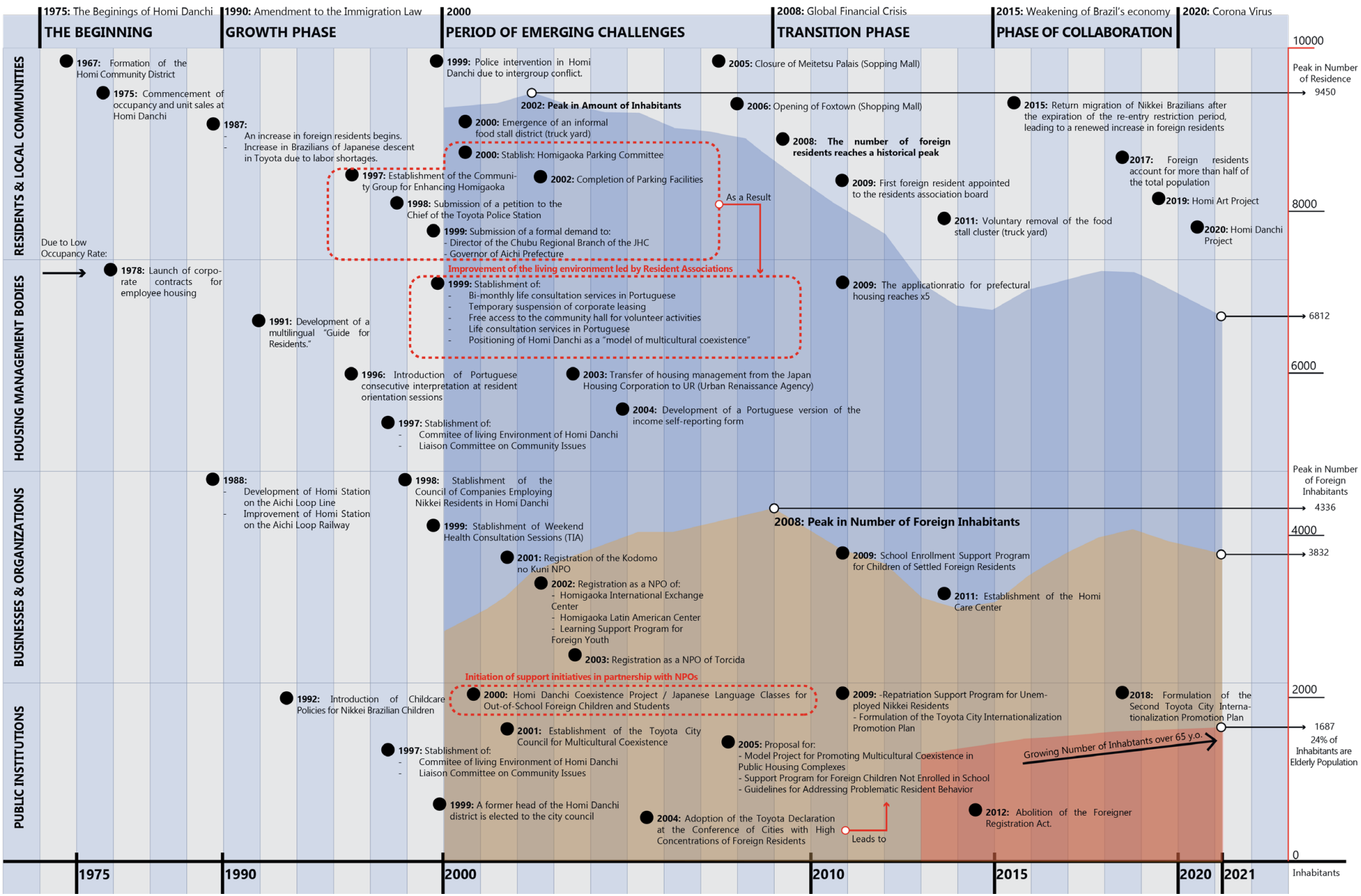


Figure 2.10 Plotted timeline of the history of Homi Danchi. Source: Projeto Homi. 保見団地ビジョンブック [Homi Danchi Vision Book], redrawn by authors.

Gabi Castro & Ismael Kagawa

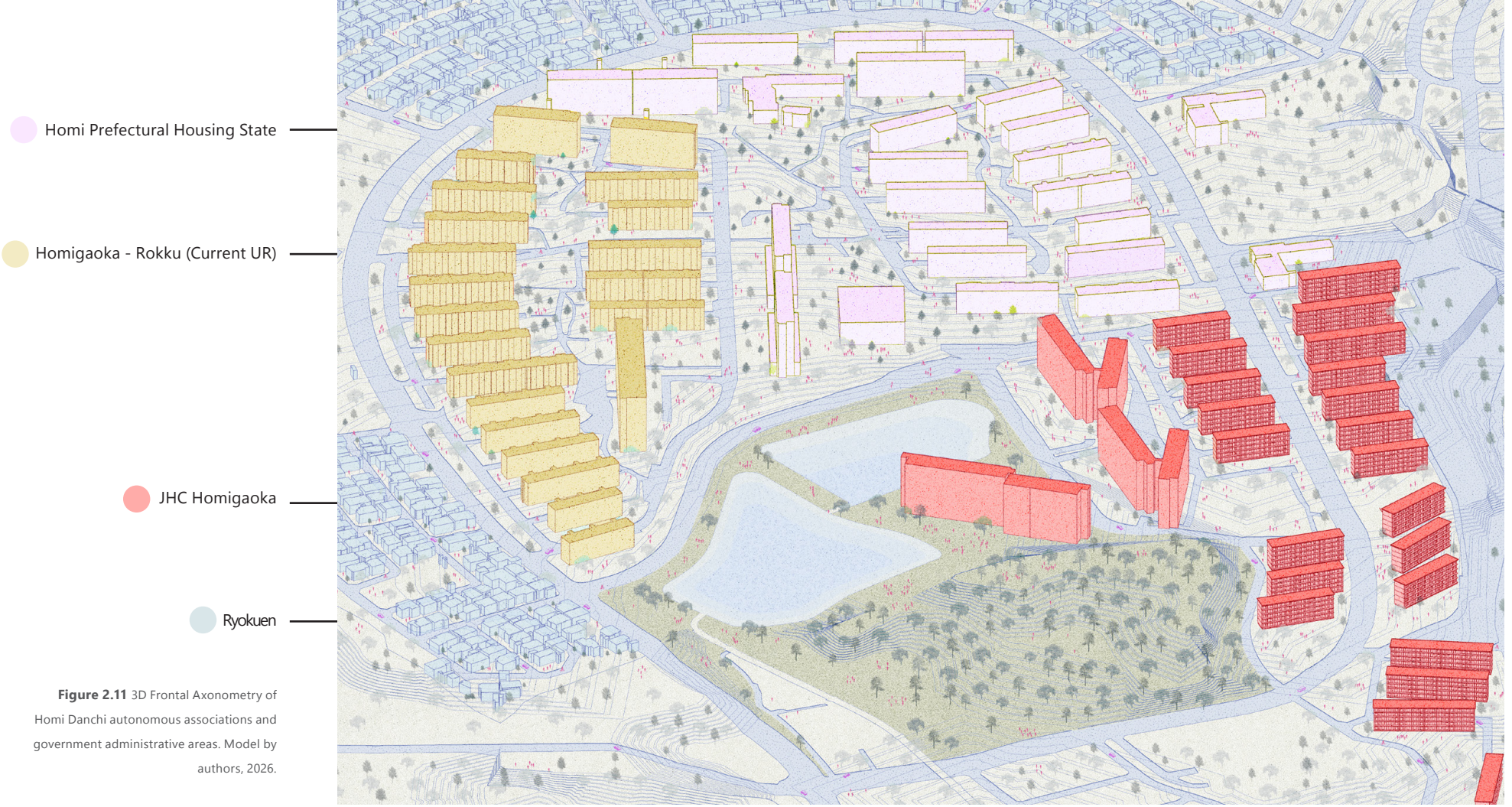


Figure 2.11 3D Frontal Axonometry of Homi Danchi autonomous associations and government administrative areas. Model by authors, 2026.

Management System in Homi Danchi

As previously stated, Homi Danchi has undergone various adjustments, with efforts to foster social cohesion among its multicultural, diverse population. The Homi area itself works in cooperation with 4 autonomous associations that also correspond to its governance and ownership model.

The four autonomous associations are: Homi Prefectural Housing State (Prefectural Homi Danchi), which is managed by the prefectural public authority. The Japanese Housing Corporation (JHC / Current UR) Homigaoka and Homigaoka - Rokku, both managed by the semi-private authority Urban Renaissance Agency. And finally, Ryokuen, composed of the association of self-owned individual housing in the area.

These different ownerships also reflect differences in their built environments and public spaces. In an interview with Kanamaru Yoshihiro, head of the Danchi Revitalization Business Cooperative (2025), the different ownerships of a building can affect spatial qualities and decision-making in the context of mass-built housing. For example, in this case, JHC Homi and Homi Rokku are both managed by the Urban Renaissance Agency (UR). In this case, they have two kinds of ownership: Lease and Sell. Since they are both managed by the UR, they have institutional mechanisms for bringing ideas or needs into action without the agreement of all the inhabitants of the block. In the case of the lease Danchi, it is evident that the ease of creating variety in use, changes in infrastructure, ease of maintenance, and the

Figure 2.12 Individual housing present in the Homi area. Photograph by Ismael Kagawa.

Figure 2.13 UR housing state vs. prefectural housing state. Photograph by Ismael Kagawa.

ability to gather people. However, when in sale, the internal management of the building block has to convince every household to do any of those.

> *"It is difficult to convince someone that lives in the first floor to pay for an elevator the they will never use"* [3.12]

The leadership style translates visibly into architecture. UR housing are usually larger homes, inhabited by a wealthier population. Residents follow and respect garbage rules. The apartment walls are clean and sealed against decay. Public Spaces in this area are well maintained and cleaned.

UR management, a semi-private organization, prioritizes cash flow in the area, rendering those apartment stocks valuable assets is important to them, even though the buildings were built almost 50 years ago. Thus, these homes also feature an active commercial ground floor with public programs: classrooms, restaurants, markets, adding to the social fabric of this community.

On the other hand, the Prefectural units are considered social housing, they are offered a low-maintenance budget - which is not enough to maintain the quality of the apartments. Gardens are plagued by overgrown weeds, walls are peeling, and metal is rusted beyond repair.

These social and spatial differences create tension and biases between groups, segregating the community and creating friction within public institutions where all area residents interact, such as public schools.

12 Ibid.

Figure 2.14 [LEFT] UR-managed park at Homi Danchi. Photograph by Ismael Kagawa.

Figure 2.15 [RIGHT] Prefecture-managed park at Homi Danchi. Photograph by Ismael Kagawa.

Current Efforts for Social Cohesion for Homi Danchi

Within a landscape of social tension, various Non-Profit Organizations have been working alongside autonomous associations to improve the situation, trying to find solutions to the growing number of foreign residents and the police intervention at Homi Danchi in 1999. In 1997, the community enhancement group for Homigaoke submitted a formal demand to the directors of the Chubu region and the Governor of Aichi. This helped establish various activities and NPOs, such as Torcida in 2003, which offered language courses and health assistance. In 2019, a tripartite initiative, the "Homi Art Project" was organized by the Cabinet Office, Toyota City Hall, and Chukyo University. The project sought to integrate inhabitants through collaboration between local residents and artists, centering on the arts as a tool for community engagement among residents of various nationalities. They used murals and collaborative art events to bring people together and create shared experiences, fostering mutual understanding and coexistence across diverse residents.

By transforming neglected or negatively perceived community environments into positive gathering spaces, they create a sense of belonging and pride in place. All of this was through workshops that promoted creative participatory approaches rather than language-based solutions.

"Homi Art Project" focused on a series of diffused interventions throughout the complex.

The first space was a community gathering spot. The walls appear to celebrate multicultural identity. A joyful dance, embrace, and interaction across tropical festive imagery deeply connected to Brazilian or Latin American cultures, while bringing a sense of warmth and vitality.. Now, this space has become symbolic of a shared identity.

As Saitoh says:

"This project demonstrates that beautiful and meaningful spaces can stay clean at least for 6 years as you can see. "[3.13]

A space that was once considered underused and poorly maintained, has become an icon of art and expression, that transformed the abandoned, vandalized walls into a colorful cultural expression.

The project was a great success because of the use of imagery instead of language as a tool for social cohesion that helps overcome the language barrier and solve problems such as littering in the area.

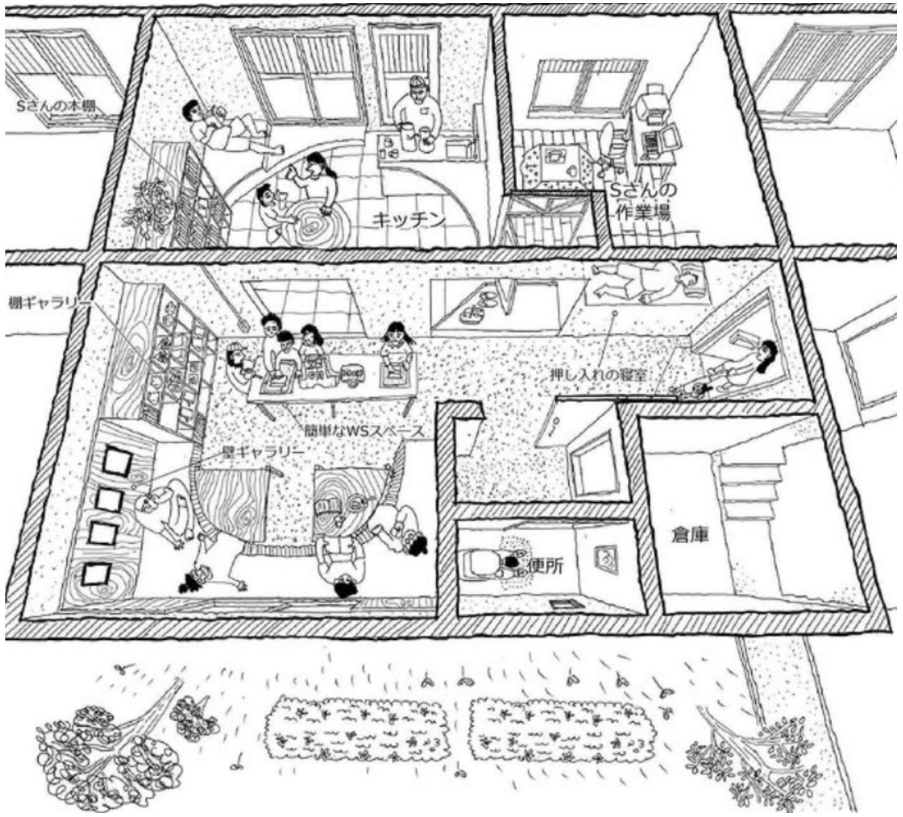
13 Homi Art Project. "About." Accessed February 14, 2026. https://homi-ap.com/about

Figure 2.16 Close-up of the gathering space as part of the Homi Art Project. Photograph by Gabriela Castro.

Another major intervention of the Homi Project is room 104: a single house unit leased from the Aichi Prefectural Housing State in Homi to Chukyo University. As part of the Homi Project, alongside architect Shin Tsutsui, they created a communal space for people to gather and relax. The Lounge was designed using recycled waste and furniture that inhabitants illegally throw into the complex. People can get together to discuss Homi Danchi's history and challenges while engaging with others who pass by the room. It is a space for sharing and caring, where people can even sell small crafts they make.

Figure 2.17 Room 104, Prefectural Homi Danchi, interior. Photograph by Gabriela Castro.

Figure 2.18 Illustrated sectional perspective of refurbished Room 104 for semi-public use. Source: Asado Tsutsui-shin (Instagram).



From the Homi Art Project emerged "A Multicultural and Diverse Community that Shines" in 2020. This new initiative, which ran until March 2023, produced a vision book outlining a future-oriented perspective for Homi Danchi in the future. As part of this process, a youth organization called JUNTOS was established in 2020 and continues to play an active role in the social integration of Danchi residents. Since June 2021, the organization has offered Saturday classes, which later expanded to include afternoon and adult programs. In addition, JUNTOS helped establish a semi-public cultural space within the housing complex in a resident lounge, despite the area being officially designated for residential use only. Monthly tea gatherings and regular visits are also organized, providing informal opportunities for social interaction and community building.

JUNTOS and Torcida organize after-school classes that aim to help kids with their homework, reinforce their knowledge from school, and provide activities to help them get to know each other. This is also a way to take care of kids while their parents are working, so they have company during this time and reduce their parents' stress.

Figure 2.19 After-school class at UR Homi Danchi with authors. Photograph by Hisafumi Saitoh.

Although not part of the Homi Danchi Complex, The Toyota Cultural Center, (5 minute drive) serves as a key intercultural hub in the district, hosting language classes, workshops, and educational programs that support both Japanese and foreign residents.

In an exchange-based educational program in which Japanese and Nikkei-Brazilian volunteers jointly taught children how to cook traditional Japanese dishes, using Japanese as the primary language of instruction. The activity functioned not only as a culinary workshop but also as a form of informal language immersion and cultural learning.

The program specifically targeted children of diverse national backgrounds. In many cases, language barriers, institutional rigidity, or socio-economic constraints prevented their full participation in formal education and full time enrollment in school. The Homi Danchi Center operates as an educational intermediary, creating a safe space where children can improve their language skills, social confidence, and cultural familiarity. This role is particularly significant in the Japanese context, where foreign children are not legally guaranteed access to education.

Figure 2.20 Volunteers jointly teach children how to cook traditional Japanese dishes, using Japanese as the primary language of instruction. Photograph by Ismael Kagawa.

Homi Danchi:Contemporary Problems

"The wall of the language", "The wall of the law", and the "wall of the heart".

According to the Toyota City Government, due to the rising number of foreigners in the area, metaphorical walls have created division among the community. Due to a lack of Japanese language skills, most young people struggle to integrate themselves in a public Japanese school. Private education on the other hand is too expensive, and not an option for many Danchi residents creating a domino effect on their everyday lives. Their lack of education forces people to take jobs as "Haken" or dispatch labor, where their income tends to be unstable. According to the Homi Project Survey, 17% of children living at Homi Danchi work currently.

Foreigners often have issues understanding Japan's health policies. Numerous foreign citizens do not apply for social insurance, and only go to the hospital for serious complications. As a result, many people in these circumstances cannot pay their bills, creating debt and hindering healthcare access. Further, organized preparations are difficult to attend without understanding of local practices. Approximately 30% of people participate in disaster prevention drills. In the event of an emergency, approximately 20% of respondents said they could not call the police themselves.

Another main issue in the Danchi is a deeper disconnect among residents, also due to the lack of physical interaction. According to the Homi Danchi Project survey, only 17% of residents are active community members, while the other 83 percent are not. This means that for every ten people at Homi Danchi, only about 2 people would be active in a social activity. This issue compounds when we look at the main problems residents have with their living situation, where the most critical issue Danchi-wide is a lack of connection with their neighbors.

In this survey, we can see that the lack of relationships with neighbors accounts for 50% of all problems in Homi Danchi. Further, it is clear that while the Brazilian population is one of the main groups in this category, the Japanese are also quite concerned not only with their relationships with neighbors, but also with the language barrier, cultural differences, and the lack of rule-following. Although we can stipulate the kinds of cultural bias and predisposition that may have influenced how the survey was filled out, it is also clear that the needs of these two different cultural groups are quite different, and it is complex to understand what architectural response could be made to an asymmetric problem of this sort.

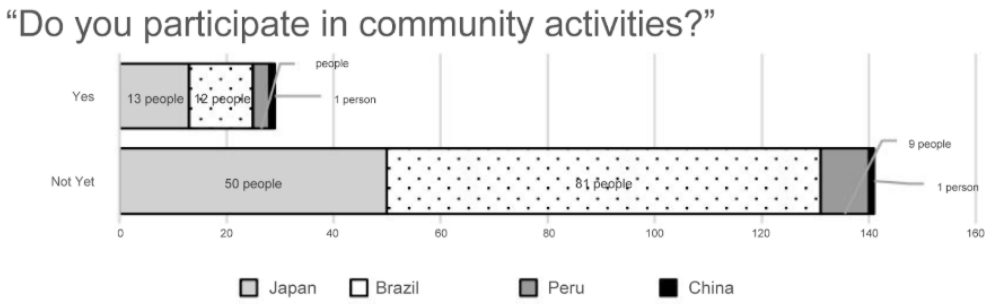


Figure 2.21 Homi Danchi Project: survey results for community participation, May 2021. Source: Homi Danchi Project.

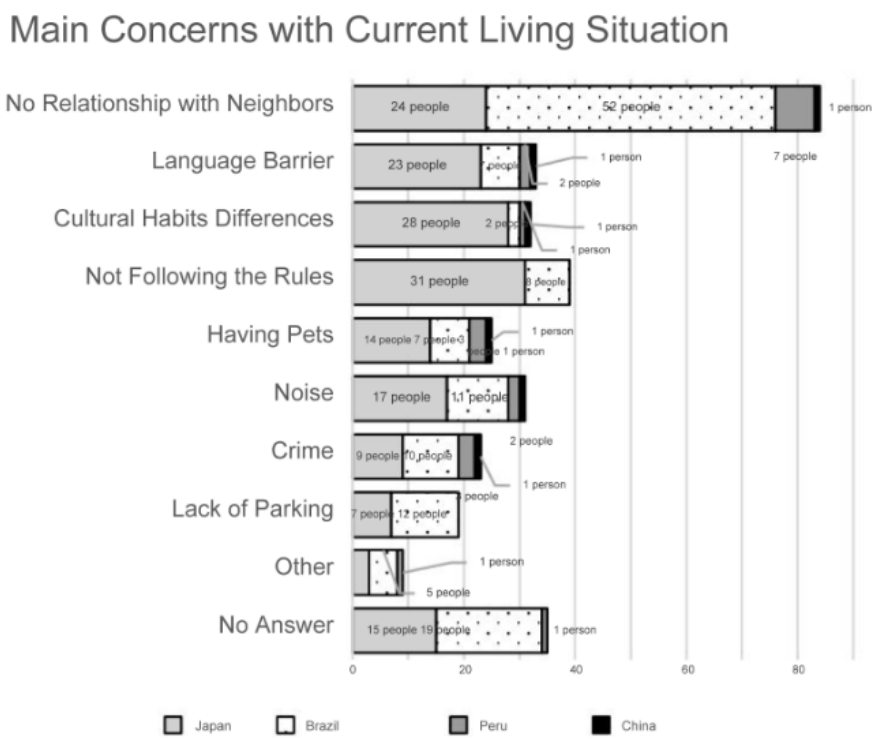


Figure 2.22 Main concerns with current living conditions. May, 2021. Source: Homi Danchi Project.

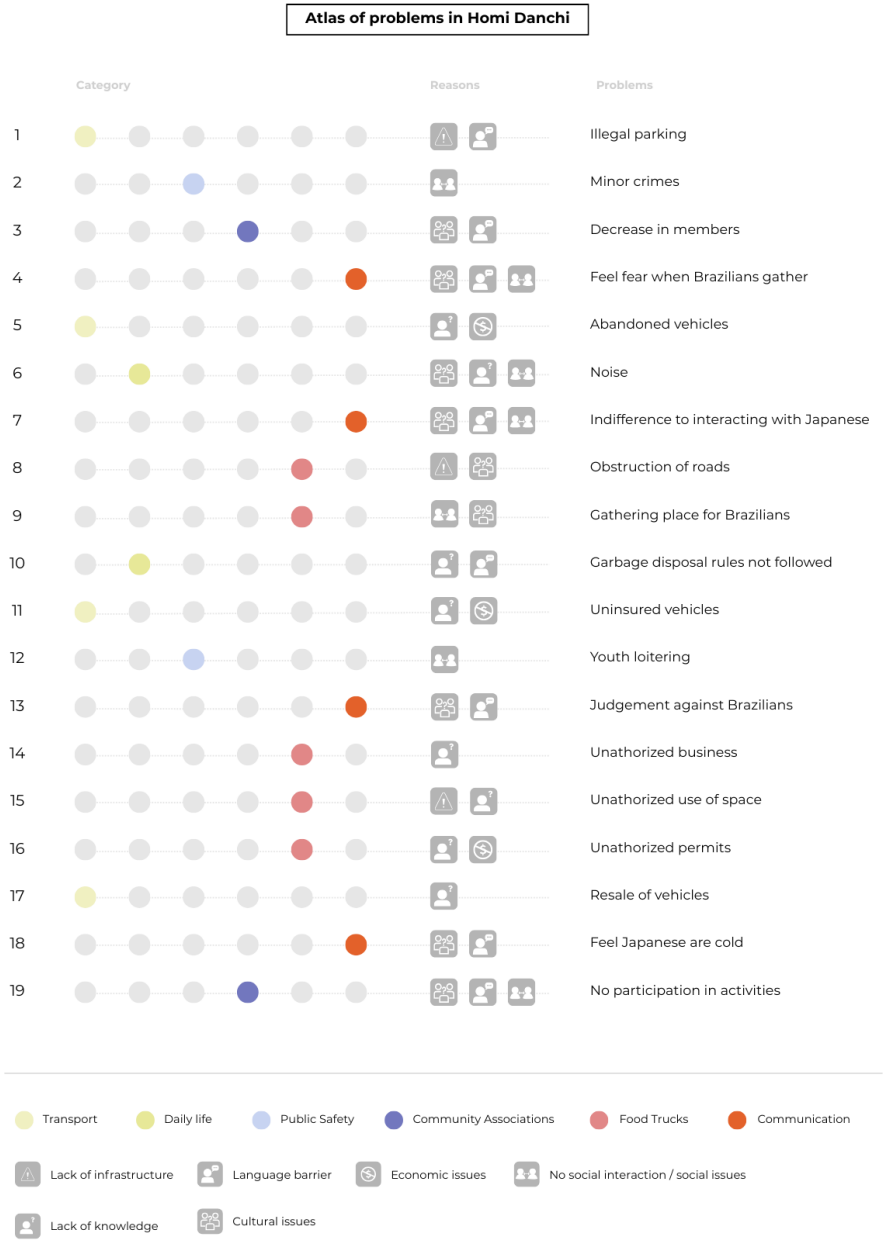


Figure 2.23 Atlas of Problems in Homi Danchi. Diagram by authors with reference to: Organized issues and countermeasures in Homi Danchi. From "Multicultural Coexistence and Foreign Residents (Section 3-4-1)," Mie University Regional Collaboration Program, translated by authors, accessed December 27, 2025.

Figure 2.24 Prefectural Homi Danchi. Photograph by Ismael Kagawa.

ENVIRONMENT

Japan has some of the most intense humidity and tropical heat in the world, and the architecture that responds to these conditions has to be delicately designed to withstand them against all odds. Or, alternatively, it should be designed to be deconstructed, cleaned, or repaired. Our Site is located in Aichi Prefecture, neighboring major cities such as Toyota and Nagoya.

Toyota City was selected as a proxy for local climatic conditions due to its geographical proximity to Homi Danchi (approximately a 30-minute drive), placing both locations within the same regional climatic zone of central Aichi Prefecture. Toyota city is a vast, largely industrial area, even though 70% of its land is still covered by forest and rice fields. [3.14]

Toyota City transformed from an agricultural settlement into an industrial center. The city, originally called Koromo, once had vast open flat lands and an abundance of water. (Smith, Eng, and Lundy 1977)[3.15] These conditions were ideal for farming rice and other crops. Over the years, and through the Industrial Revolution, Japan specialized in mechanical manufacturing, achieving incredible international success with companies such as Mitsubishi and Toyota. Toyota chose Koromo to develop its factories because it had the perfect conditions to maximize profits, and soon it also became home to some of the company's most important factories, ultima-

14 City of Toyota, "Toyota City Voluntary Local Review 2022: Toward the Realization of a 'Smart City that Connects Everyone to the Future'" (Voluntary Local Review, Toyota City, June 2022), 1, https://unhabitat.org/sites/default/files/2022/08/toyota_2022_en-optimized.pdf.

15 Smith, Thomas C., with Robert Y. Eng and Robert T. Lundy. Family Farming and Population in a Japanese Village, 1717–1830. Stanford, CA: Stanford University Press, 1977.

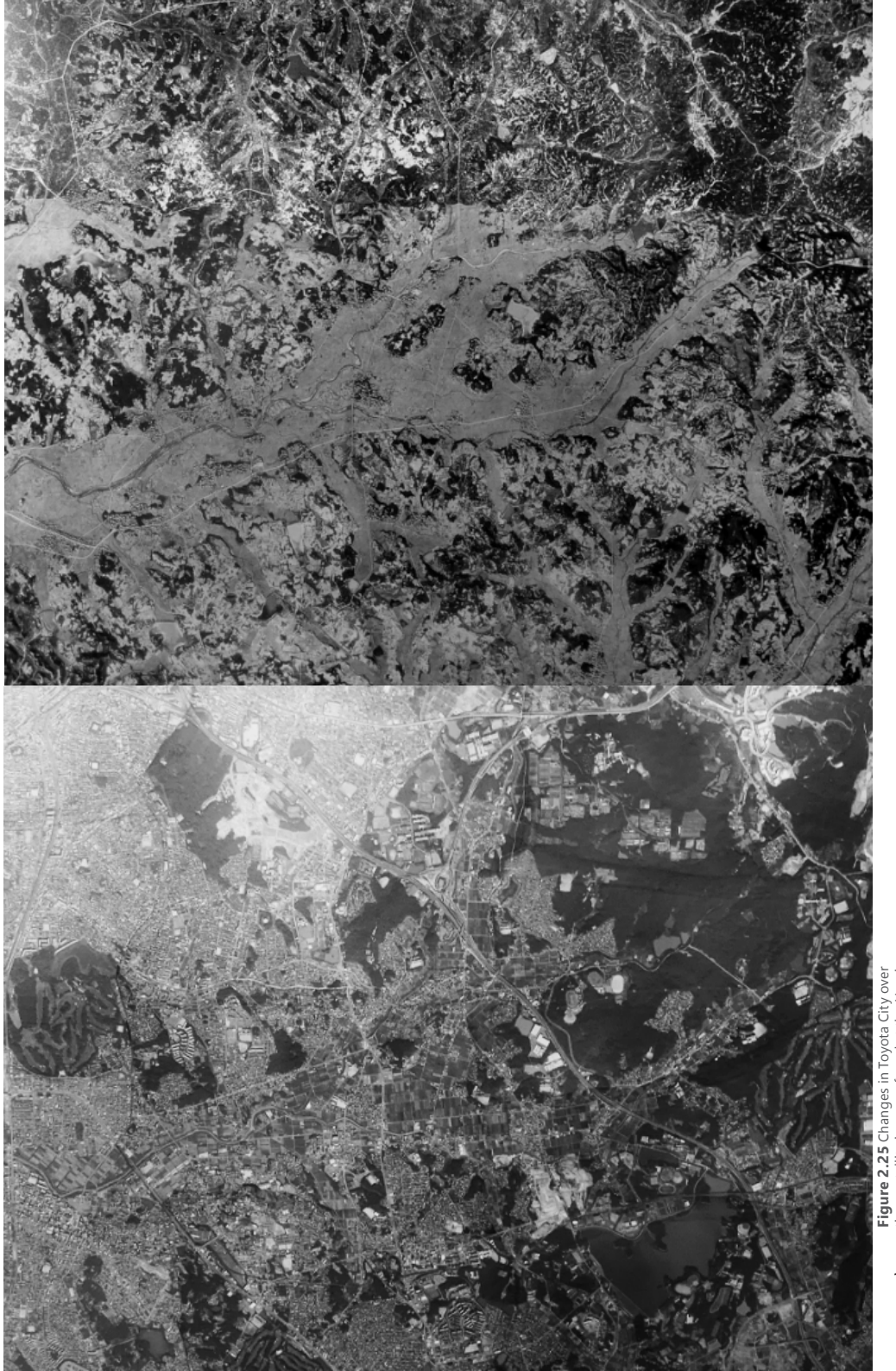


Figure 2.25 Changes in Toyota City over time: satellite imagery found at the Homi Municipality Building. Photograph by Gabriela Castro.

Figure 2.26 Homi Danchi: view from Higashihomikodomoen Mae Bridge. Photograph by authors.

tely gaining so much traction that the city was renamed in honor of Toyota in 1959. It has evolved significantly since industrialization, but its roots as a farming region remain strong.

In 2009, the city was designated as one of Japan's 23 Eco-Model Cities (a national initiative to promote low-carbon urban development) because of Toyota's combination between industrial advancements and abundant farmlands. More recently, in 2022, Toyota City was also selected as one of 124 municipalities worldwide to be designated as an SDG Future City, a program that supports local governments in advancing the United Nations' Sustainable Development Goals through integrated urban policies.[3.16]

Following the Eco-Model City designation, Toyota City established Ecoful Town, a public pavilion that showcases the city's environmental strategies and serves as a platform for citizen engagement on sustainability. The city also implemented extensive public awareness campaigns, distributing informational materials to approximately 70 % of households and producing educational resources, including children's concept books, to communicate its environmental policies and

16 Ito, Hiroko. "Toyota as an Environmental Model City: Is Its Eco-policy Recognized?" Journal of Sustainable Development 7, no. 2 (2014): 70–77. https://doi.org/10.5539/jsd.v7n2p70

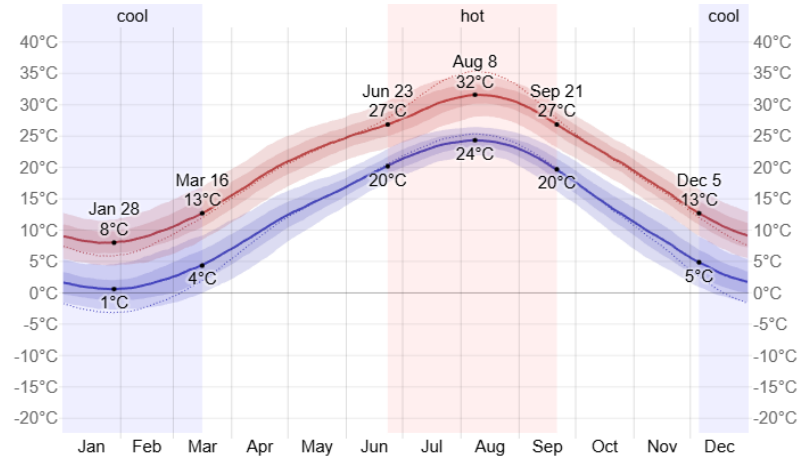


Figure 2.27 WeatherSpark: Toyota Data: Average Yearly Temperature. Source: WeatherSpark.

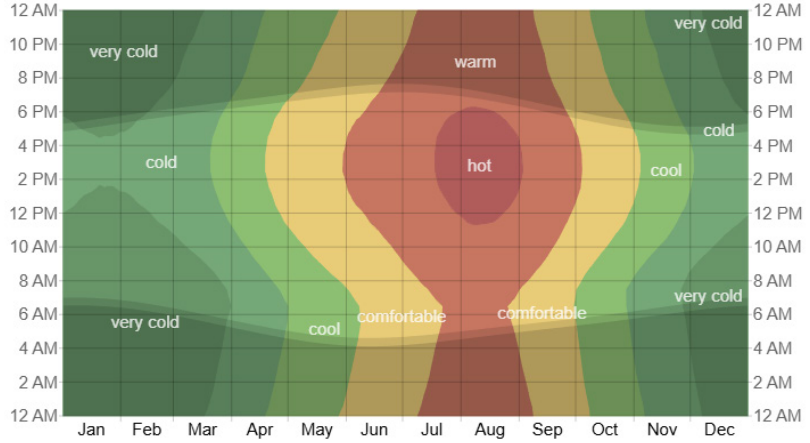


Figure 2.28 WeatherSpark: Toyota Weather Data: Average Hourly Temperature. Source: WeatherSpark.

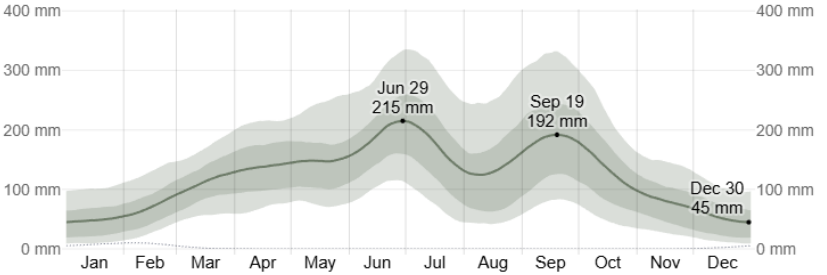


Figure 2.29 WeatherSpark: Toyota Average Monthly Rainfall. Source: WeatherSpark. Source: WeatherSpark.

Figure 2.30 Homi Danchi: deterioration of mosaic. Photograph by Gabriela Castro.

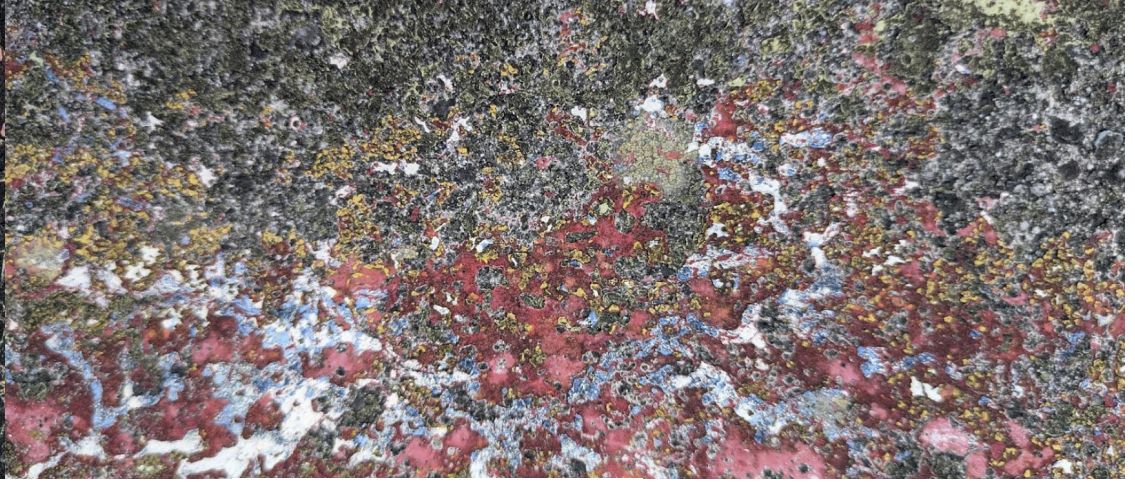


Figure 2.31 Homi Danchi: concrete seal, material deterioration. Photograph by Gabi Castro.

foster ecological awareness from an early age.[3.17]

Despite these sustainability ambitions, Toyota City does not escape the difficult conditions it shares with much of central Japan. The region is characterized by high humidity and seasonal heavy rainfall, conditions that constrain thermal comfort, building performance, and everyday urban life. As the following weather data analysis illustrates, these environmental factors remain critical variables in evaluating the lived conditions within housing developments such as Homi Danchi.[3.18]

Home Danchi- like most of Japan is exposed to extreme tropical weather, which makes the country notably difficult to design for, given the high humidity levels are a perfect breeding ground for fungus, mold, and other biological colonization commonly present in buildings exposed to the elements. The rainy season, known as Tsuyu, typically occurs from June to mid-July. During this period, high temperatures combine with near-constant rain, creating the conditions for mold that is not only found in exteriors but also inside homes. As presented in a study by the University of Tokyo, thermal comfort analyses of Japanese dwellings during summer are important for addressing the challenges of maintaining comfort in dwellings. [3.19]

In the images above, we can see that the mosaic from the southern entrance to the Danchi complexes has developed biological colonization, with strong black coloration on the tiles, while the concrete surfaces that have been clearly repainted multiple times are worn and still exposed to the elements. These observations reflect a broader tendency in contemporary Japanese housing policy to prioritize monolithic and permanent construction systems, particularly reinforced concrete, combined with repetitive surface treatments such as cleaning and repainting.[3.20]

The high humidity levels also promote the overgrowth of many public spaces in the project, and combined with a lack of maintenance, repair becomes unmanageable.

It is important to understand that in the true nature of adaptive design, more temporary solutions may be deconstructed, cleaned, repaired, or replaced. As witnessed, some Danchi with neglected exterior surfaces showed accelerated interior decay, affecting walls, ceilings, and communal spaces, and ultimately shaping residents' everyday experiences of comfort and care.

17 Ito, Hiroko. "Toyota as an Environmental Model City: Is Its Eco-policy Recognized?" Journal of Sustainable Development 7, no. 2 (2014): 70–77. https://doi.org/10.5539/jsd.v7n2p70

18 Mizutani, N., H. B. Rijal, N. Aqilah, and S. Khadka. "Thermal Environment and Comfort in Japanese Dwellings During Summer." Atmosphere 16, no. 2 (2025). https://doi.org/10.3390/atmos16020157

19 Mizutani, N., H. B. Rijal, N. Aqilah, and S. Khadka. "Thermal Environment and Comfort in Japanese Dwellings During Summer." Atmosphere 16, no. 2 (2025). https://doi.org/10.3390/atmos16020157

20 Flexcrete. "Repair and Waterproofing of Japan's Concrete Highways." 2009. https://flexcrete.com/waterproofing-concrete-structures-japan-highways/.

Figure 2.32 Homi Danchi: playground rusting.
Photograph by Gabriela Castro.

Figure 2.33 Homi Danchi: overgrowing stairs.
Photograph by Gabriela Castro.

Figure 2.34 Homi Danchi: Nikkei gardening crew and author weeding. Photograph by Ismael Kagawa.

Figure 2.35 Homi Danchi: Nikkei gardening crew at lunch break with author. Photograph by Gabriela Castro.

PUBLIC SPACE

Public spaces at Homi Danchi fail to wide, flat, and largely abandoned, fail to serve their original purpose. Despite occasional signs of life and intentional effort, neglect and exposure to the elements dominate. A sign found in a public park says (in Japanese and Portuguese):

> *"We received this cherry tree in 2022. This cherry tree was a gift from Toyota city councilman, Mr. Fukuoka. The Residents' Association of our neighborhood replanted it so that, in the future, its beauty can be admired by all residents of the area — both Japanese and foreigners from many countries — bringing even more joy to the landscape of our condominium. We are going to preserve and take care of our condominium, so all will be proud of living here in Homi Ken-ei Jūtaku."*
>
> *September 1, 2022*
>
> -Residents' Association of Ken-ei

As of our site visit, however, the cherry tree was no longer present, highlighting a gap between the symbolic intention expressed in the sign and the current material reality of the space.

Homi Danchi's public spaces are clearly a victim of bureaucracy and a low-effort, where neglect has pushed them to a state of nearly irreparable decline. Given their age and the region's harsh climate, which only worsens the situation, both the buildings and public spaces have become increasingly vulnerable. The less they are cared for, the more they fall into disrepair, and the less inviting and usable they become. Residents, constrained by limited funding and resources, are unable to improve these spaces without risking personal debt.

Originally, the municipality offered funding for resident programs, and associations such as the JUNTOS created an initiative that organized elderly residents to help clean and maintain public spaces and gardens. However, once it became clear that municipal funds were being distributed to participants as wages, the program was canceled immediately. Local governments avoid legal risks and administrative complexity, including insurance, tax obligations, and liability frameworks. Since then, members are only permitted to clean or improve land outside the boundaries of our site.

Still, the way that the government restricts the payment is a cause of frustration that the people who were working shared during the visit in a local baseball field.

Understanding the residents' experiences, the significance these public areas hold within everyday social life became clear, as well as to the structural irony of what might be described as a form of institutionally enforced neglect. While the municipality promotes community engagement and care, regulatory and financial constraints effectively limit residents' capacity to maintain and transform their own environment.

Residents explained that any form of paid work carried out by them within their own housing in the Danchi would be considered illegal under current regulations, even when the intention is to reinvest those funds into collective maintenance.

Due to the relatively constrained budgets of mass public housing projects, public spaces in Danchi Complexes tend to be designed as simple and minimal interventions, most often constructed in concrete, the same material used for the buildings themselves, and consequently limited in spatial and experiential quality.

Figure 2.36 Public residential complex gathering place—Yokohama's Yokodai public housing complex, 2026. Photograph by The Future of Housing Complex Project website.

In contrast, the UR (Urban Renaissance Agency) Managed Danchi allows for a real estate investment with the institutional mission to experiment with large-scale, high-profile regeneration projects and presenting themselves as the future of redesigned Danchi, the goal is to address the decline of these communities by transforming them into more attractive, sustainable living environments.

Yokodai Danchi in Yokohama, Kanagawa Prefecture, serves as an important case of Danchi intervention, demonstrating how prioritizing public spaces can transform urban environments. High-profile designers like Kengo Kuma and creative director Kashiwa Sato were tasked with softening the monotonous, concrete appearance of older buildings using organic winding wood and aluminum interventions, and integrating natural topography and landscape. This project serves as a benchmark for future urban renewal aimed at enhancing livability and community well-being.[3.21]

Unfortunately, the Homi Danchi has not undergone such a transformation. The residents are forced to inhabit spaces that visually and materially communicate their neglect. To better understand these dynamics, we conducted a multi-qualitative analysis of each public space, extending our observations into adjacent neighborhoods for comparative reference. Our main objective was to identify what makes each space distinct, how it is currently used, and what latent social or spatial potential it may contain.

The systematic field observations consisted of 15 minutes in each selected space, recording patterns of use and spatial behavior. The analysis was structured across three interrelated dimensions: (1) anthropological aspects, including social interactions and presence or absence of users; (2) spatial and aesthetic qualities, such as material conditions, layout, and visual coherence; and (3) intangible sensory dimensions, including soundscapes, odors, and atmospheric conditions. This multi-layered approach allowed us to capture not only the physical state of public space, but also its lived and experiential qualities. We focused on 6 sites, each a different subtype of public spaces in the project, trying to encapsulate the character of each one.

Site A is the main plaza of the project, with the most activity due to its central location between the residential and the small commercial center. We can see on the left is Fox Town, the local commercial hub of the project.

Site B is a large plinth area located between the wings of building 22. It is quite famous within the Danchi because one of the lead actors of the series Familia directed by Narushima Izuru was pictured sitting here during an iconic scene. The plinth is a concrete platform, with different colored pavements in a diamond like pattern. It is all non permeable

Figure 2.37 Public spaces: routing. Diagram by authors.

21 Sato, Kashiwa. "The Future of Housing Complex Project (Project 12008)." Kashiwa Sato Official Website, 2026. https://kashiwasato.com/project/12008. Accessed February 15, 2026

pavement and concrete.

Site C is the main community center, along one of the main roads connecting Fox Town to the social housing side. The street is quiet and empty, and according to Saitoh San, the community center is too small and is most of the time closed to residents, so it is a highly dysfunctional space. It is also directly in front of one of the main trash collection points, and is littered with trash.

Site D is a large public playground area with a small slide, concrete stepping stools, and a small garden. Large enough to hold any large gathering - such as a market, a celebration or a sports game. The ground was originally sand but overgrown with weeds, and surrounded on all sides by fences, so that there are only 3 access points to the field.

Site E is a nice secluded playground. It is located between Danchi houses in a small gap where buildings were slightly pushed apart. The park is accessible from a bridge connecting east and west of the Danchi over a main road, and from the sidewalk, though with a hidden entrance under the bridge. Although it was empty when I visited, there were many signs of occupation, such as new toys lying about and recently discarded trash. There are other playgrounds of this type.

Site F is an overgrown playground that connects Danchi to a small park and forest, as well as to a local shrine and small cemetery. It is incredibly overgrown and seems almost unusable, with the grass so tall. It has multiple metal playground sets for kids to climb and a swing. It is also plagued with wasps.

Site G is a more formal, landscaped public area with a trellis for seating and picnic tables, along with a more elaborate playground. It was quite active, as it connects two different apartments and touches parking on both sides, so there is a lot of through traffic.

Spatial and Aesthetic Qualities

Building on our multi-qualitative approach to public space, we adopted a sensory-mapping technique inspired by methods outlined in Sandra Barclay's Atlas Sensible. This approach emphasizes documenting lived experience beyond purely visual or quantitative analysis. For each site, we recorded visual imagery from our visit on the right-hand side of the page while simultaneously noting sounds, smells, and atmospheric conditions on the left-hand side.

During each 15-minute observation interval, we began to sketch key features that emerged as iconographic representations of the space. These included elements that felt out of the ordinary, unexpected, particularly beautiful, or, conversely, degraded and unsettling. Rather than producing literal drawings, these features were amalgamated into a composite image: elements were placed according to their approximate spatial locations but selectively enlarged, shifted, or layered to convey multiple sensory and spatial conditions within a single frame.

This method allowed us to translate subjective experience into a visual-analytical tool, revealing how material decay, environmental conditions, and everyday objects collectively shape the aesthetic and emotional character of public space in Homi Danchi. In this sense, the drawings function not only as representations but as interpretive instruments that expose the often invisible relationships between space, perception, and social use.

Figure 2.38 Site A: sketch. Drawing by Gabriela Castro.

It's actually quite loud here; lots of kids are yelling at each other on bikes. One of them appears to be called Cristiano. A lady opens a window on a third-floor balcony and yells, "Cristiano!!!" We can see them all reunite with what appears to be his grandma. This is cicada season, and one particular cicada is dead or dying, buzzing all over the floor.

Figure 2.39 Site B: sketch. Drawing by Gabriela Castro.

"Car loaded and unloaded, and then a runner. Loud, really loud music. Child Complaining, wheels grinding on pavement. Plastic clattering on the floor."

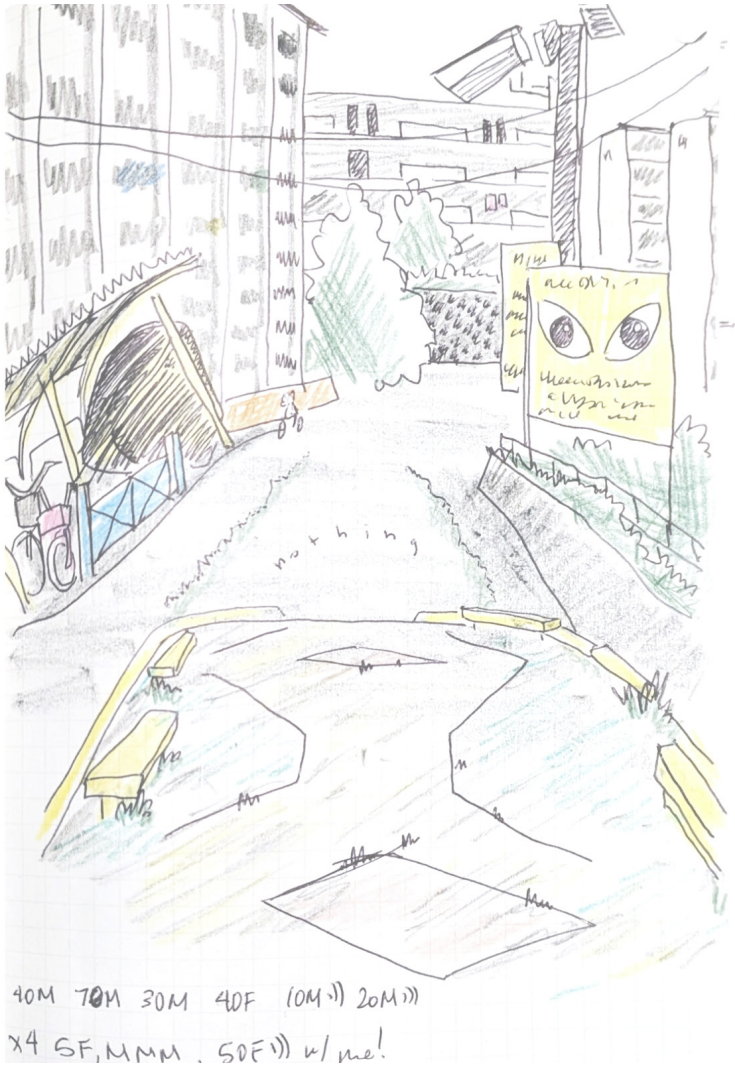


Figure 2.40 Site C: sketch. Drawing by Gabriela Castro.

"Jingles. Dragging Feet. Phone Volume on High. Ballad music in the distance. Phone music is so loud. Stomping flip flops walk by. One huge, guttural SPIT. Car starting, chugging. Cat crying, bird screeching. Wheels grinding on pavement. The family opens doors, and keys jangle. The metal door creaks. Ringing bike. Motorcycle and crickets together. Honestly, no one comes near the piazza. A Development! 4 little kids circling on bikes. It seems bikes are the main form of entertainment here…"

Figure 2.41 Site D: sketch. Drawing by Gabriela Castro.

"Bird SWOOPED at me but gawked when he realized I was sitting there. I find it odd that the field's main playground objects are around the periphery. It makes sense when there are events, but at the same time, in a space as unused as this one, it is quite eerie to be staring at an open untended field. More cicadas chirping. Children's voices far away."

Figure 2.42 Site E: sketch. Drawing by Gabriela Castro.

As time passes, I am quite tired, but we have to keep going. Distant footsteps. Child's voice in the far distance. Lots of cicadas and one pesky mosquito I caught in the act. It's weirdly my favorite park, and no one is here. Only cicadas and the occasional door creaking. I can still hear the road, but visually I feel secluded. It is really quite nice. I know that this park has signs of life because, unlike the other one, the swing has all the grass scratched away from under the seats, revealing dirt. I found a small children 's-sized and quite new mask on the floor. But still, again, it is closed on all sides by a rail and the only entrance is technically under an overpass on a tiny, hidden sidewalk. It smells strongly of fish here. I didn't see a single soul while I stopped here."

Figure 2.43 Site F: sketch. Drawing by Gabriela Castro.

There is almost too much nature. Wildlife here, and I feel threatened. One distant squeal. Wasps buzz around, and there aren't that many places I can step on without feeling like I will get bitten or stung. Crackling pebbles and the deafening screech of cicadas."

Figure 2.44 Site F: sketch. Drawing by Gabriela Castro.

"Exhaustion has struck. The combination of heat, and emotional drain from note taking all day. This place was so quiet, and so calm. I stayed here for quite a while."

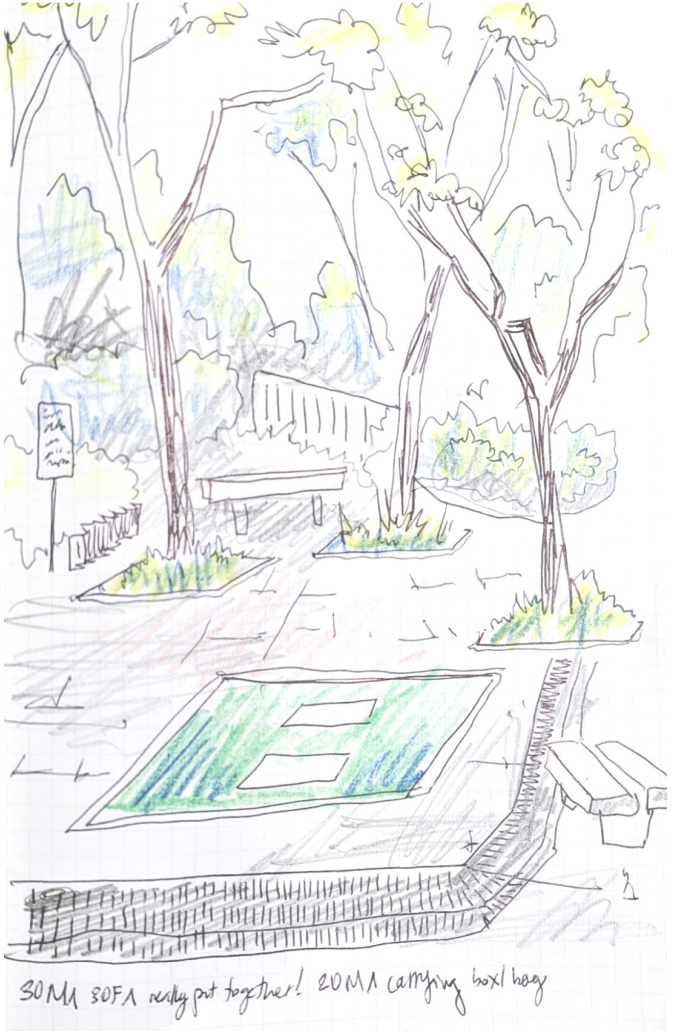
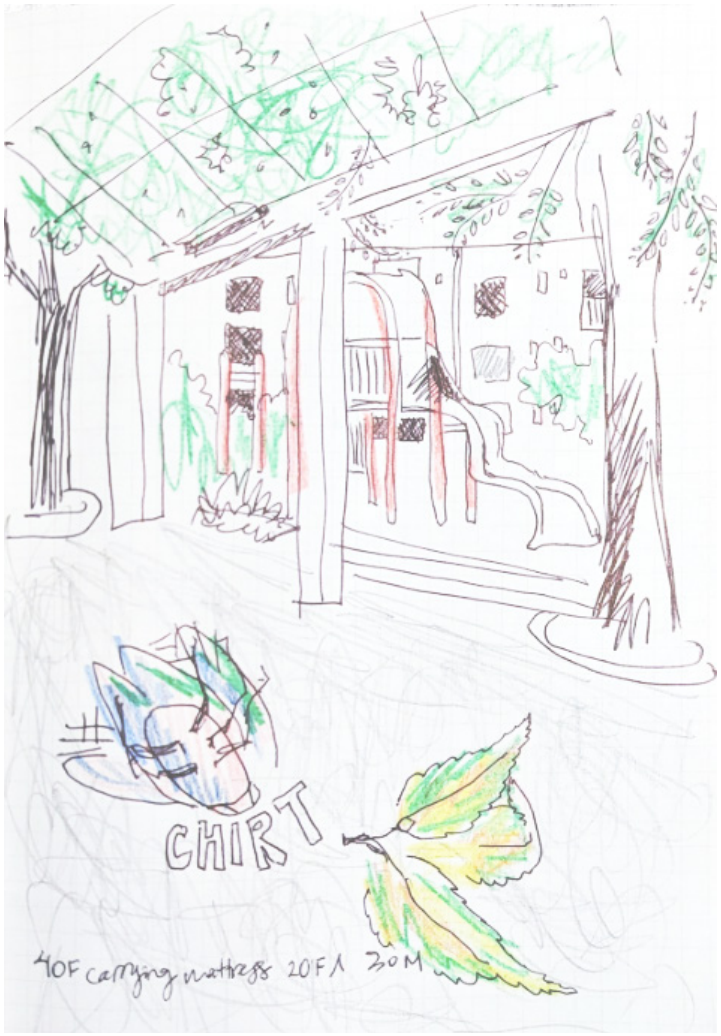


Figure 2.45 Site G: sketch. Drawing by Gabriela Castro.

"People are moving out of a house it seems, or at least changing the furniture. Car doors are opening and closing. Again car doors open and close. Voices and a VROOM of cars in the far distance. Really Loud Cicadas now. Dragging noises, cars, and more cars. Closing the door. Engine humming."



"Car Door Slams, this time I hear speaking. The little girl squeals at something and Dad laughs. Loud talking, Then I hear a slap. I actually managed to cool down here. There is a strong breeze from the wind tunnel, underground passage and buildings form a wind corridor. Bugs are still very present."

Figure 2.46 Site G: sketch. Drawing by Gabriela Castro.

Spatial Intent and Lived Experience in Homi Danchi

The site relies on simple and often iconographic gestures to articulate and occupy large, otherwise empty spaces. Homi Danchi is only one example among many housing projects of its era whose original vision was ambitious, socially driven, and spatially optimistic. When observing what remains today, the initial intent is legible; an atmosphere of quiet, almost eerie optimism persists within the built environment, revealing both the aspirations of the original design and the tensions produced by time, neglect, and changing social realities.

Powerful gestures.

Overcome by loneliness.

Swallowed by nature.

Figure 2.47 Site G: Homi Danchi—Concrete Fuji playground. Photograph by Gabriela Castro.

Figure 2.48 Site G: Homi Danchi—Concrete Mushroom. Photograph by Gabriela Castro.

Figure 2.49 Homi Danchi: on the edge of nature—access to the Danchi and Public Space. Photograph by Gabriela Castro.

Figure 2.50 Homi Danchi: overgrown nature.
Photograph by Gabriela Castro.

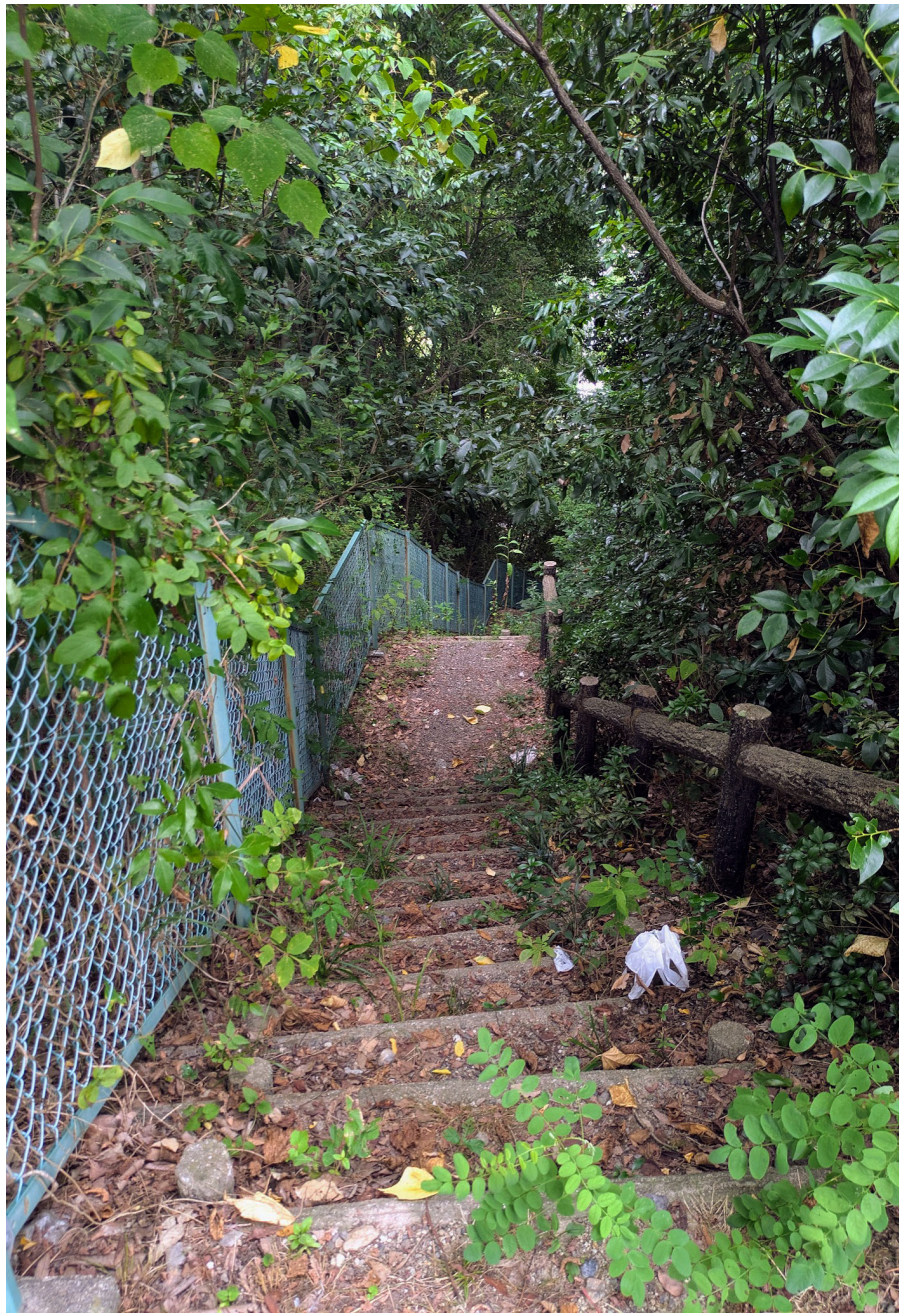


Figure 2.51 Homi Danchi: "Down the Rabbit Hole Stairs."
Photograph by Gabriela Castro.

Figure 2.52 Above: The Chronicles of Kyoto—JR photorealistic montage. Source: Artist JR.

Antrhopological Research.

An anthropological study was conducted focused on answering the following questions: who uses public spaces, and how is the public space used? Our goal was to understand the quality of public space and the quality of community interactions found in these spaces. Our key reference was an article by three postgraduate students from the University of Alicante on the quality of public spaces. The paper clearly demonstrates quantitative measures for determining the quality of public space:

> *...three aspects that are crucial for the success of public spaces: (1) the functional diversity of the urban environment, which allows different human activities to coexist; (2) the continuous presence of people, which promotes the perception of liveable and safe environments; and (3) the urban and architectural elements relevant for the construction of a collective image.*
>
> *-Quality of Public Spaces: University of Alicante*[3.22]

In this section, we will focus on the first and second to understand whether there is diversity in the types of activities or interactions, and to understand the types of people present in their public spaces. During an interview with Colombian Anthropologist and Urban Planner, Malena Rinaudo,[3.23] recommended a silent observation approach - which required passive note taking of: relative age, sex, interaction with fellow inhabitants, and activity.

Our note taking method was the following:

"20F Λ" → *20s female, walking.*

"40M Λ◁" → *40s male, walking, eye contact*

"50F ○○ ↔60M ○○" → *50 female and 60 male cycling together*

The study was conducted over a five-hour period from 11-14:00 on a weekday, along a main route in our project, with stops every 10 minutes. The study focused on:

Who can be seen at this Danchi?

Who is most likely to interact?

What is the percentage of people using public space?

Which Danchi present traits of a high-quality, functioning public space?

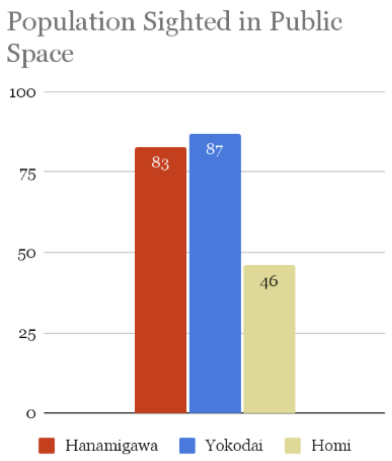
The following Data was created for case studies: Homi Danchi, along with Hanamigawa and Yokodai as controls (two successful Danchi renovation projects).

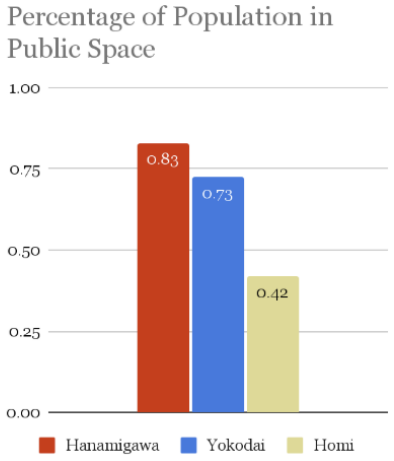
22 Bernabeu-Bautista, Álvaro, Leticia Serrano-Estrada, and Pablo Martí. "The Role of Successful Public Spaces in Historic Centres: Insights from Social Media Data." Cities 96 (2020): 102442. https://doi.org/10.1016/j.cities.2019.102442.

23 Rinaudo, Malena. Interview by authors. July 15, 2025.

Figure 2.53 Below: Homi Danchi: Art from Map Sign. Photograph by Gabi Castro.

Figure 2.54 Left: population sighted in public space. Right: percentage of population sighted in public space. By authors.





In the graphic on the left, we see the total number of sighted people in public areas during our survey. To contextualize these quantities, we used this formula to obtain a percentage of the population.

% Population PS = Population PS Population 100

**Note: local population of ~ 10,000 for Hanamigawa, ~ 12,000 for Yokodai, and ~ 10,000 for Homi.*

In contrast to the successful examples Hanamigawa and Yokodai, Homi Danchi is lacking more than half the population expected to be present in public spaces.

High Quality Use of Public Space

High quality use of public space is defined as a productive use of public space that can include but not limited to social exchange, intellectual activities, or personal development.

Our data was categorized into two types: interaction and activity. The study divided different information into two groups, the first, interaction focused on social exchange, and the second, on physical activity.

Interaction refers to any social or mental exchange. Examples include:

None refers to no eye contact or no social interaction in any way.

Look refers to someone who made eye contact.

Talk refers to anyone verbally communicating with other people, including regular talking, whispering, yelling, and even gesturing.

Play refers to the creative use of space or interaction with nonanimate objects for entertainment.

Concentration is characterized as anyone who is reading, studying, working, or doing any static activity that requires mental focus. The second data point collected was activity. There are four action categories defined as such:

Idle refers to the action of waiting or standing.

Walk refers to the action of walking at a normal pace.

Bike refers to the action of cycling.

Run refers to running, whether for sport or play.

The survey mapped the percentage of people sighted using public spaces effectively. In other words, understanding the relationships that exist between those who use the public space for transit or for idling, and the relationship between those who have no interaction and those who do.

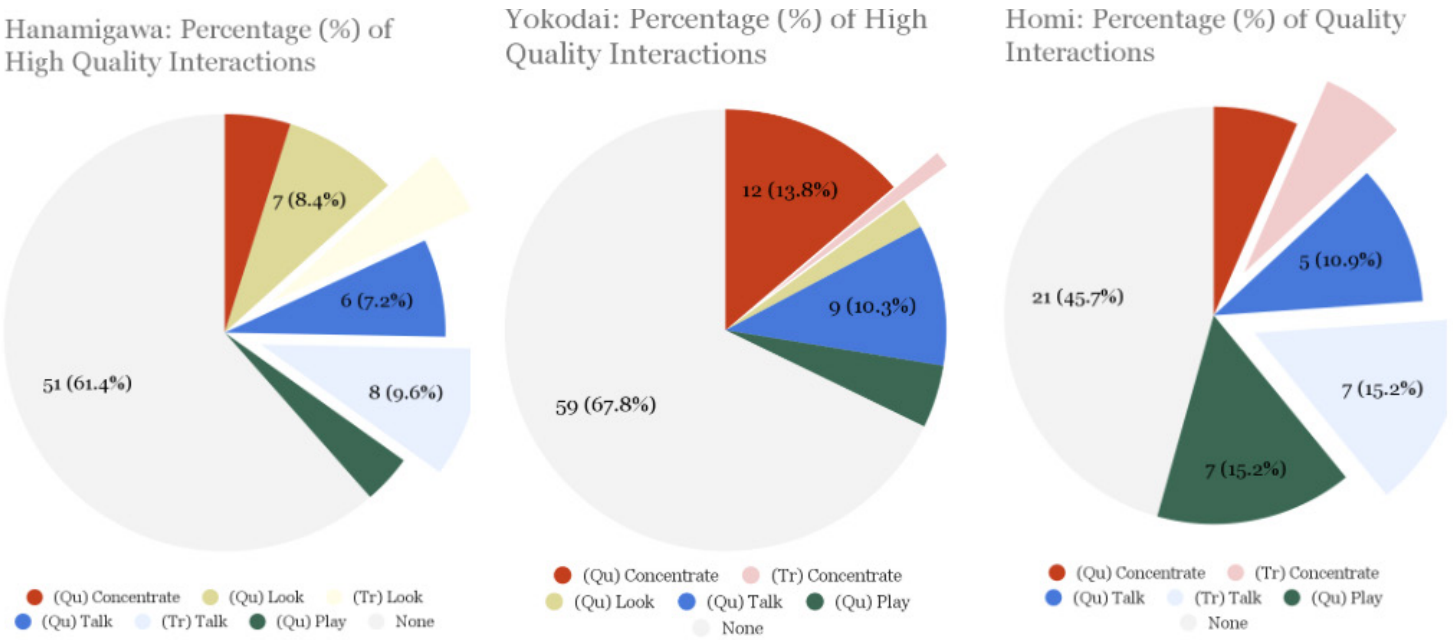


Figure 2.55 Pie charts of quality interaction survey results. By authors.

High-quality interactions are defined as those involving people who are physically idle and interacting with others, playing, or engaging in a productive activity. Conversely, low-quality interactions are defined as people who are passing through the space and not contributing socially.

The analysis focuses on the proportion of high quality to low quality interactions. Users in public spaces who are not interacting at all, or who have an interaction type labeled 'none'. Users who are using the space primarily as a transitional space, identified by the interaction subtype (Tr), transitional. Users with high quality interaction have labels (Qu).

For clarity in the graphic, higher-quality users are highlighted using more intense colors. People with no interaction are considered low-quality public space users. These users are represented in grey and labeled as none (*see above for the definition of none). For example, both Hanamigawa and Yokodai had approximately 60–70% of people in public spaces not interacting, while in Homi Danchi, only 45% of users were not interacting. This lower percentage in Homi Danchi represents a positive outcome.

People using the space as a transition are also lower-quality users of public space (people just passing through). People using the public space purely as a transitional space are shown in lighter tones of their respective interaction type and are visually pulled out from the rest of the graphic.

Removing transitional users from the percentage of high-quality public space users from above, then about 21% of the interacting population of Homi Danchi are transitional users. In Hanamigawa, 15% of users are using public spaces as transitional spaces. In Yokodai, however, only 2% of users are using public spaces as transitional spaces. What does this mean? This means that, among all the people featured in the public space, those actually using the space in a productive and purposeful way are about 1 in 4 in Hanamigawa, about 1 in 3 in Yokodai, and about 1 in 3 in Homi Danchi.

One important note, however, is that the transitory nature of a space also depends heavily on its actual design. For example, to their advantage, Hanamigawa has created its main public square as the main corridor of circulation between public facilities, stimulating more daily interactions among residents.

In conclusion, Homi Danchi appears to have more "high-quality" public space interactions and, aside from the lower total number of people sighted, fares quite well compared to the other case studies. However, we theorize that their relative activeness may also be linked to the types of people living in the Danchi. Unlike most of Japan, Homi Danchi is known as a landing point for a diverse group of working-class immigrants hoping to find a better life. In other words, Homi Danchi is home to a high quantity of young families working towards better conditions.

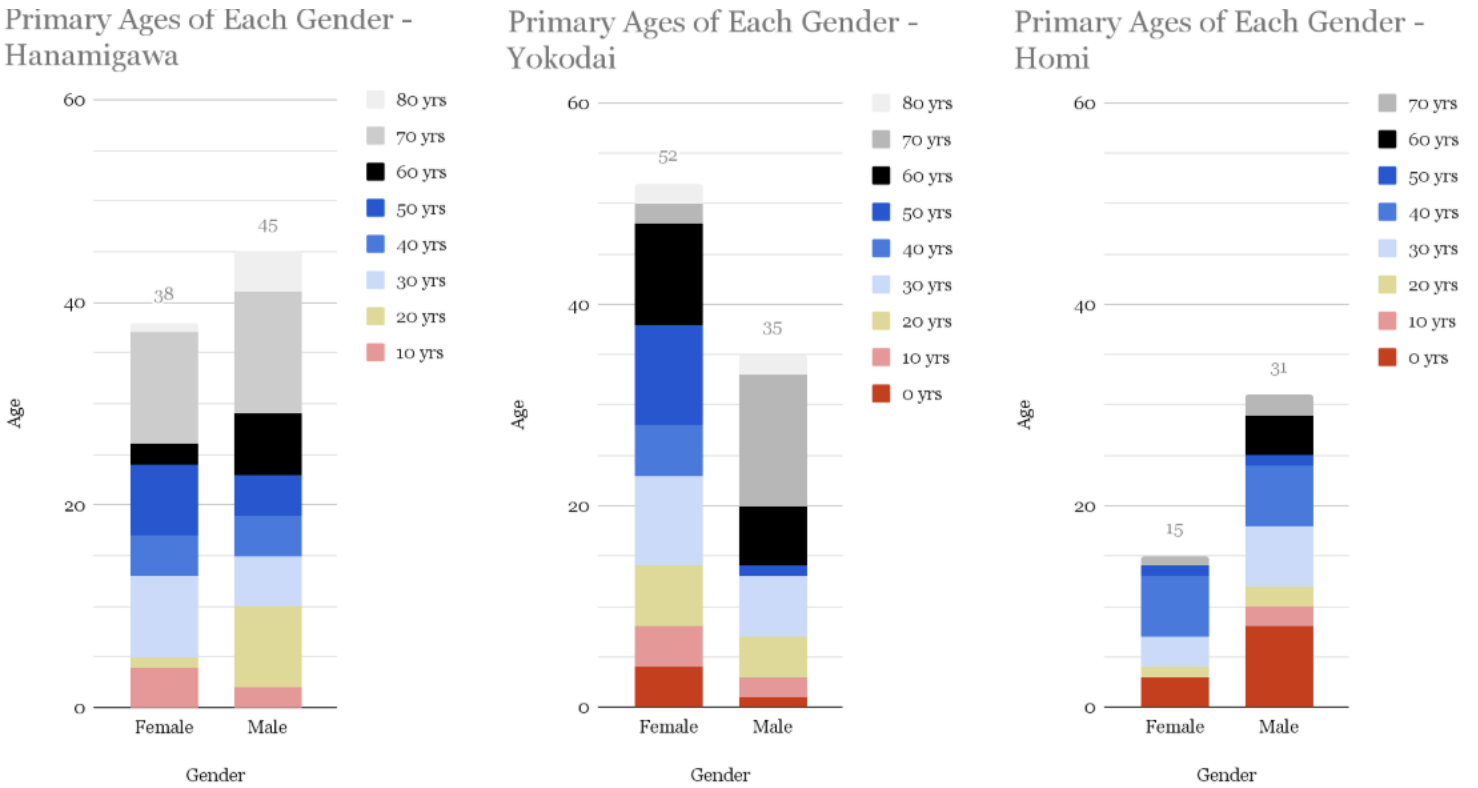


Figure 2.56 Columns: demographic analysis—age and gender distribution in each Danchi. By authors.

Public Space Demographic

The last analysis is focused on the type of user found in public spaces. Specifically, gender, age, and social groups.

Age distributions are quite uneven in Homi Danchi compared to those in other Danchis in this study. Multiple publications cite that having an uneven and undiverse demographic in public spaces actually weakens the quality of social interactions, leading to social isolation and a lack of community resilience. The network of residents living in a certain area who do not consistently interact with others in their area may result in a lack of empathy towards their neighbors and emotional or physical struggle as side effects of social isolation. It is important that public spaces provide resources and values for all walks of life to ensure that people using these spaces also have the opportunity to make important connections with others.

Imbalances between genders and age groups can be seen as weaknesses in the social fabric of the public space. On the other hand, a generally smooth, symmetrical graph indicates that the demographic is quite evenly distributed. With this information, two important trends were identified. Firstly, Hanamigawa has the most evenly distributed demographic in public space. This information was backed by a site visit, where high diversity of users were noted.

The second case study Yokodai had an un-even distribution of ages but a much higher population of women, which psychologically translates into a safer and more accessible space.

Homi Danchi, however, is dense, sparse, or sporadic. The main demographics seen are families: adults around 40-50, and most likely their young children. This result is backed by the history of Homi Danchi, where immigrant families moved in to establish roots in Japan. The case studies Hanamigawa and Yokodai have a higher percentage of Japanese residents, and subsequently the effects of an aging population are visible, with a high proportion of elderly people. In Homi Danchi, however, aging Japanese residents are few and far between the dozens of Brazilian Nikkei now living there, transforming the makeup of the population sample.

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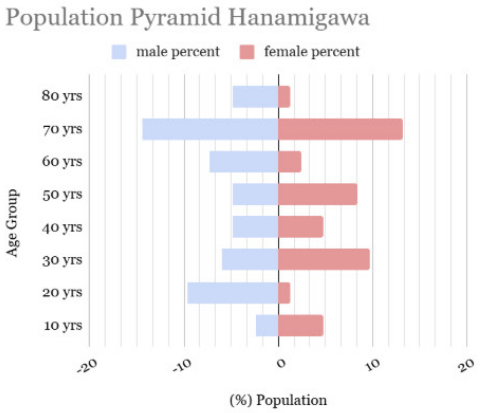
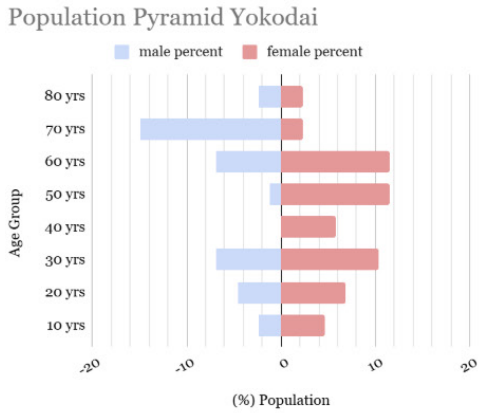
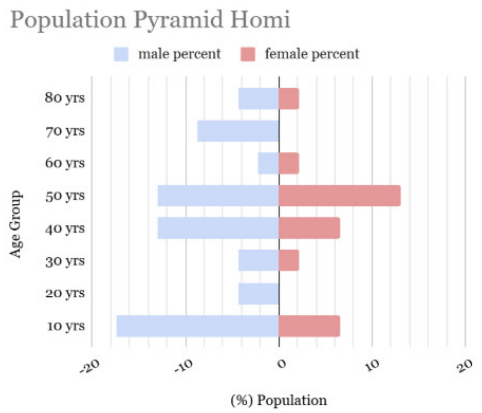






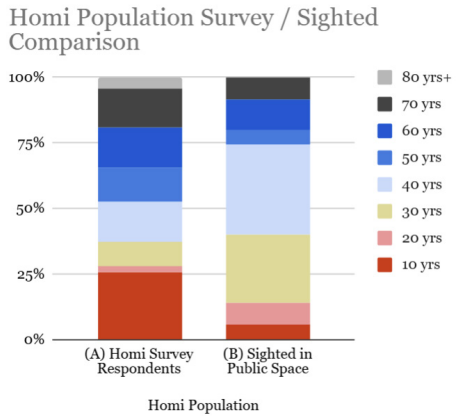


Figure 2.57 [LEFT] Bars: demographic analysis—Population Pyramids in each Danchi. By authors

Figure 2.58 [RIGHT] Columns: local resident survey comparison. By authors.

important connections with others. Imbalances between genders and age groups can be seen as weaknesses in the social fabric of the public space. On the other hand, a generally smooth, symmetrical graph indicates that the demographic is quite evenly distributed. With this information, two important trends were identified. Firstly, Hanamigawa has the most evenly distributed demographic in public space. This information was backed by a site visit, where high diversity of users were noted. The second case study Yokodai had an un-even distribution of ages but a much higher population of women, which psychologically translates into a safer and more accessible space.

Homi Danchi, however, is dense, sparse, or sporadic. The main demographics seen are families: adults around 40-50, and most likely their young children. This result is backed by the history of Homi Danchi, where immigrant families moved in to establish roots in Japan. The case studies Hanamigawa and Yokodai have a higher percentage of Japanese residents, and subsequently the effects of an aging population are visible, with a high proportion of elderly people. In Homi Danchi, however, aging Japanese residents are few and far between the dozens of Brazilian Nikkei now living there, transforming the makeup of the population sample.

The graph maps a local resident survey from the Homi Danchi Project (A) displays an estimate of local population age percentages of respondents as compared to (B) age percentages of population sighted in public space during the visit. There is a disproportionate representation of the older and younger generations: 50-, 60-, and 70-year-olds, and toddlers to teens ages 0-20. The prevalence of adults ages 30-40 could point to a more pragmatic nature of the use of the space - such as groceries and errands. The results highlight a larger dysfunction where designs could discourage multigenerational use.

An important discovery is that Homi Danchi currently represents the demographic originally intended when Danchis were designed post war, when young families were displaced and in need of rehabilitation.

What does this mean in terms of public space design for Homi Danchi? This indicates significant opportunities to reactivate the community. The project has a strong base population with young families who are far more likely to be active participants in public space. Children bring energy and joy, while parents bring strength and structure. The project would like to emphasize generational diversity 20-30, and elderly 70-80+ by creating spaces designed to welcome the needs of these demographics.

*It is important to note that Chukyo University (the most prestigious university for students pursuing sports), is only a 3-minute drive - and a 5-minute bike ride away from Homi Danchi, and designing student study spaces and residences is a future opportunity.

CATALOGUE OF REUSEABLE MATERIALS

A catalogue of reusable materials is useful for designers to have an archive of possibilities or variables in the design process. In the following map, different main infrastructural elements are highlighted and the amount of reusable resources at each are counted. However, the vast majority of elements discarded informally were located near the apartments' common spaces and the trash collection areas. Discarded materials were highly concentrated in the area of the renters living in the Prefectural Public Housing Homi, rather than in the homeowners living in the housing units managed by the UR (Urban Renaissance Housing Agency).

AI was used to facilitate the cataloguing of the pieces found to reconstruct those elements in new condition and generate measured drawings. The proposed methodology enables the systematic development of a catalogue of reusable materials, designed to facilitate and standardize their integration into future planning and design processes. Situated within the framework of 0 km architecture, this approach promotes the structured identification and revalorization of locally available resources. To give a more humane approach to the elements, they have been drawn in frontal axonometric form, to be more accessible in the participatory design process in later stages of design.

The waste found in Danchi should be catalogued for future reuse, repair and recycling to promote a net 0 goal - typical of 0 km design philosophy. By prioritizing local materials, proximity-based economies, and long-lasting spatial strategies with the waste found on site, the danchi's could achieve a solution to the cycle of waste.

Figure 2.60 Bus stop with improvised seating from waste. Photograph by Ismael Kagawa.

Figure 2.59 Garden used to disposed Furniture and other waste, Photograph by Gabi Castro

Figure 2.61 Location of discarded reusable materials, 2026. Photograph by authors.

Figure 2.62 Souring Diagram: of reusable materials. By authors.

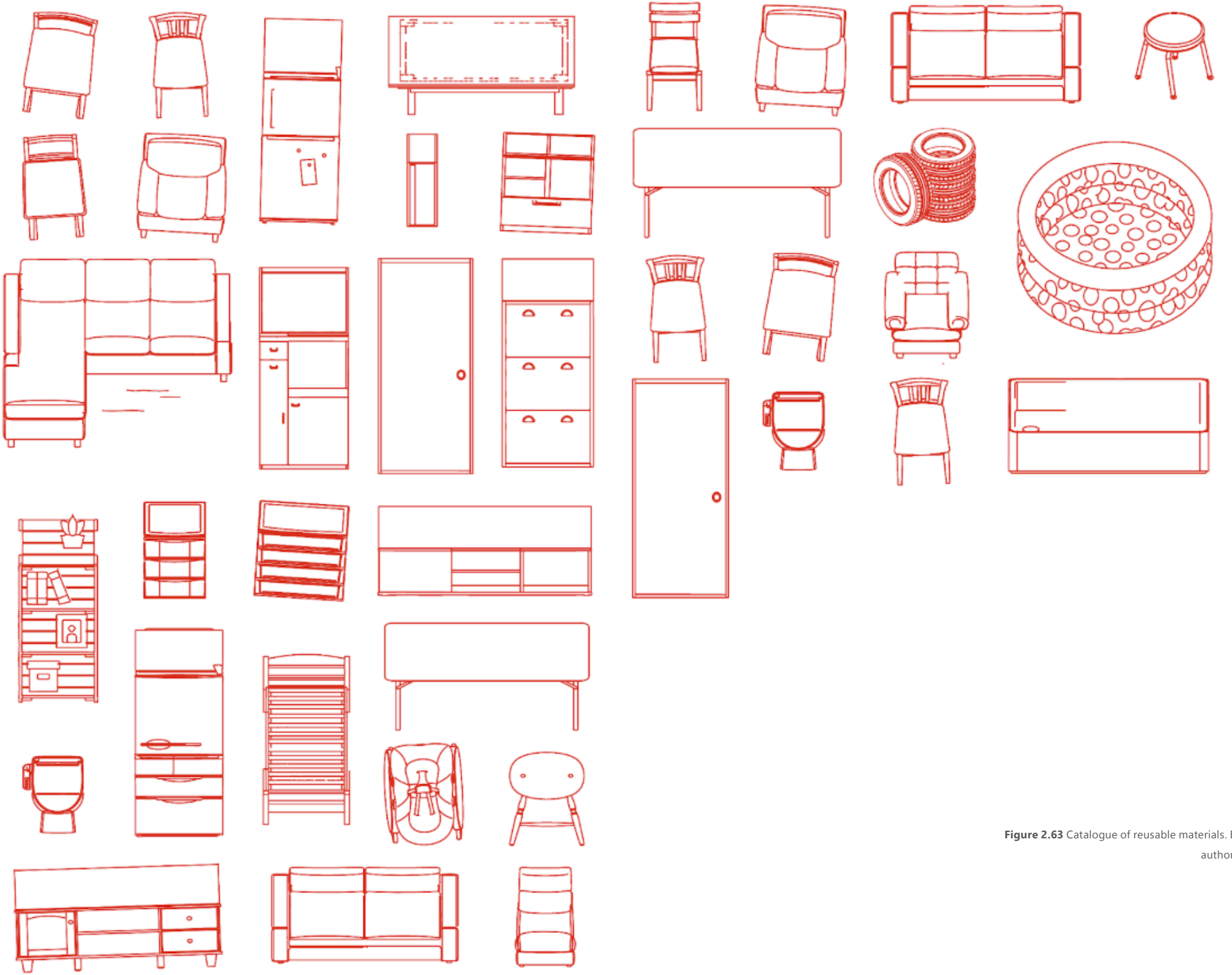


Figure 2.63 Catalogue of reusable materials. By authors.

This thesis unites three core elements to create a system that addresses failing public housing: participatory and open-source design, gameplay, and adaptive reuse.

Each element represents an important part of the puzzle. On the one hand, disorganized and scattered people are unable to make effective progress due to the complex bureaucracy. On the other hand, we are facing an increasingly heterogeneous population with major communication problems. Additionally, as we confront the threats of global warming and limited resources, it becomes essential to prioritize fixing over starting anew, and to develop architectural solutions that minimize economic impact on those already in need. To establish a coherent foundation, we will break down each topic and its history, beginning with participatory design, to clarify which elements we will incorporate into our research.

CHAPTER 3

History of Participation

History of Game Design

A General Framework for a Participatory Game

HISTORY OF PARTICIPATION

Our story of participation begins with destruction: the consequences of a profound disconnect between architects' intentions and the realities people experience. This disconnect challenged the very purpose architects saw for themselves and set the stage for participatory design. In 1972, the remaining towers of Pruitt-Igoe were demolished by a wrecking ball, collapsing into huge balls of smoke. Residents were forced to leave in a mass exodus. George Hellmuth and Minoru Yamasaki, architects from the United States and Japan, designed Pruitt-Igoe. It was an award-winning project, inaugurated in 1956, with 33 towers. Each tower was 11 stories tall. On paper, the project was wonderful for residents, many of whom came from old homes with no running water.

> *"It was a very beautiful place, like a big hotel resort, I'd say, with plenty of green grass, trees, shrubbery, and all the works... [It] was probably one of the most exciting things of my life. It was like another world. Everybody had a bed. My mom had her own bed. And I was so happy to see her in a room to herself, with a door."*
>
> *-Former Resident, Ruby Russel*[3.1]

Figure 3.1 Demolition of the first buildings at Pruitt–Igoe, 1972, photograph by Michael J. Baldridge.

To "maintain" the project in its pristine condition - residents had to conform to a series of strict inhumane rules. For example, men, regardless of their status as husband or father, were prohibited from living with their families. Disobeying these rules could risk eviction from their homes. Unable to keep up with the perfect image that the apartments wanted to maintain, it fell quickly into disrepair, and without the necessary design for infrastructure to communities of this scale - largely due to minimal resident input, the apartments descended into chaos. Windows were broken, lights smashed, elevators urinated in. The project was vandalized to the point that it became unlivable, and was demolished no less than 20 years after its inauguration. More than a great financial failure, the project represented a serious disconnect between capital "A" architects, and the world they are meant to serve. In the media at the time, much of the blame was placed on the residents themselves. However many of the problems seem like design choices made from opportunistic, capitalistic views of maximizing profit and quantity without listening and understanding what is essential to actually help the people the building promised to.

> *"Little was said about the laws that built and maintained it, the economy that deserted it, the segregation that stripped away opportunity, the radically-changing city in which it stood."*
>
> *-Katherine G. Bristol*[3.2]

At its core, participatory design seeks to address the disconnect between architects and people. We must agree that our site, Homi Danchi, is suffering from injustices very similar to these: highly restrictive rules governing how to live, a lack of management and infrastructure, miscommunication between residents and authority figures, and, in turn, resident vandalism and disrepair. Learning from Pruitt Igoe: more than just design, relying on a

1 Jackie Dana, "The Failed Promise of Pruitt-Igoe," Unseen St. Louis (February 10, 2022), accessed January 2026, Unseen St. Louis, https://unseenstlouis.substack.com/p/the-failed-promise-of-pruitt-igoe

2 Katharine G. Bristol, "The Pruitt-Igoe Myth," Journal of Architectural Education 44, no. 3 (May 1991): 163–71, accessed January 29, 2026, https://rasmusbroennum.wordpress.com/wp-content/uploads/2011/11/1991-bristol-pruitt-igoemyth.pdf

good management plan, and listening to the residents it is made to serve are always a surefire way to improve the chances of success.

What is Participation?

Participation is a simple term to describe active involvement in a process. It implicitly conveys the relationship between two entities that co-create something. When applied to design, however, what could "involvement" entail? Picture a scenario where you and a furniture designer are designing a chair together. The designer may ask you to choose the style of chair - classical, maximalist, or Scandinavian. They may ask you to choose the materials and the size. Or perhaps you yourself are carving the wood and assembling the pieces alongside the designer. You can see how each of these different scenarios speaks to different levels of involvement and, more importantly, communication, which have been studied in detail by Arnstein's Ladder of Citizen Participation.[3.3] In Arnstein's Ladder of Citizen Participation, eight different types of relationships exist as described below:

Manipulation: users are non-participative. Citizens are told they must do it a certain way and are convinced it is for their own good.

Therapy: users are non-participative. Refers to a mentality where the project is a "solution" to the citizens' situation and teaches inhabitants to change the way they live. (Like a doctor prescribing medicine).

Informing: users receive information. There is one-way communication from the larger power to the inhabitants.

Consultation: users are asked for opinions. The first step in gathering information involves small surveys and public inquiries as part of the process.

Placation: representatives of users advise. Refers to the representation of citizens by a few selected individuals appointed to advise or plan, but who cannot make final decisions.

Partnership: users share responsibilities. Planning and decision-making responsibilities are shared through joint committees.

Delegation: users dictate decisions. Where Citizens have a clear majority of decision-making power

Citizen Control: users decide entirely. Where citizens handle the entire job of planning, policy making, and managing, a neighborhood corporation with no intermediaries between it and the source of funds.

Using examples from the history of Japanese housing, for example, we can see a clear parallel between the design of post-war Danchi in the past as a form of "therapy" where users were given a "solution" to their problems and taught to live a different way than what they had been previously used to as a means of survival. A multifunctional living space with a tatami mat structure and rhythm was swapped for monofunctional spaces within separate rooms, whose dimensions loosely fit the tatami mats but were more focused on creating a useful structural grid to support a multitude of units above, below, and to the sides. Handcrafted items and materials were replaced with plastic and synthetic alternatives, and naturalistic gardens were replaced with simple, geometric concrete playgrounds. Though arguably a helpful solution given the circumstances of post-war people, it definitely sent the clear message that their traditions and ways of life were no longer "enough" to thrive and survive in this rapidly evolving world.

3 Sherry R. Arnstein, "A Ladder of Citizen Participation," Journal of the American Institute of Planners 35, no. 4 (July 1969): 216–224, accessed January 29, 2026, https://www.historyofsocialwork.org/1969_ENG_Ladderofparticipation/1969,%20Arnstein,%20ladder%20of%20participation,%20original%20text%20OCR%20C.pd

Figure 3.2 Danchi Dreams, photograph by Cody Ellingham, May 2018.

Figure 3.3 Legends of Ishiyama-dera Temple, vol. 5 (detail), painting by Tani Bunchō, Edo period, 19th century.

The roles entities play with each other may vary, as seen in the example. These distinctions are essential to understanding your current role in the built environment around you. They also help clarify your "options" to enact change and become a willing participant. Currently, common communication structures with larger authorities exist within the resident-led organizations that many public housing associations offer. However, the amount of power varies widely due to factors such as size or importance to local opinion.

Our central argument is that increasing participation in architecture is necessary for both equity and the industry's health. We understand that most living situations today fall into steps 3-4 of Arnstein's Ladder of Citizen Participation, and sometimes, mostly at the beginning of the design phase, into step 5. We strongly believe that not only is this unfair, but it is also unhealthy and is creating a large gap between architects and society, which self-perpetuates the industry's unattainability. We are not saying that we completely abolish the industry as we know it, but that we begin to offer architecture at varying scales - specifically, low-stakes, low-commitment architecture services that are much more affordable and attainable via the use of strategies such as open sourcing.

What is open source and why is it important?

To understand the concept of open source, we can imagine a restaurant with tools and a simple recipe:

1 prepare dough

2 prepare filling

3 wrap

4 cook

If this restaurant were open source, it would publish its recipe and share it with its community. The community, with its own cultures and preferences, could enter the kitchen and participate in cooking. The community could also open its own restaurant using the recipe and introduce modifications.

Open sourcing, within the ladder of participation, occupies steps 6-8, reflecting systems of direct communication, shared decision-making, and sole decision-making. This approach is especially significant for the architecture industry, where improved communication and collaborative design-making are critical. Therefore, open sourcing represents a foundational opportunity to reinvent how architectural solutions are created and shared.

The tech industry, for example, used open source as a catalyst, driving a major boom in development and opening the industry to a range of changes and innovations. First, with the creation of Linux, an open-source, transparently coded operating system developed by a vast online community, it has become one of the most important foundational developments of the modern internet. Similarly, though perhaps easier to grasp, is Wikipedia, an online, open-source encyclopedia where users can contribute and expand the library of all things known.

What does participation & open sourcing look like for the architecture industry?

The history of participatory design lacks a clear beginning. Any system where inhabitants shared knowledge of building techniques, iterated, edited, and replicated could be considered, to some extent, open source. It seems natural that designs that impact personal health and happiness would be developed collaboratively; however, this is no longer the case. More important is understanding when this shifts. In Japan, for example, a move away from a craft-based society toward specialized professional activity occurred during the transition from the late Edo and early Meiji periods into rapid twentieth-century industrialization, when centralized planning and state-led housing policies redefined building.

Figure 3.4 Conceptual sketch including "la rue intérieure," "le sport au pied des maisons," and "plages d'hélio et hydrothérapie", drawing by Le Corbusier, early 1930s.

Participatory Design in Europe

In the European context, the shift toward modernism introduced a belief in a universal design language: "one size fits all." Modernists were optimistic that imposing what they considered "great design" could improve society, but this approach limited opportunities for participatory design by prioritizing designer expertise over user involvement.

In terms of communication and the Arnstein's Ladder however, this exemplifies no communication therapy relationship (step 2).

These sentiments of top-down design peaked during the creation of the CIAM. CIAM, or the Congrès International d'Architecture Moderne, was a series of conferences held between 1928 and 1956 that aimed to establish a framework for the development of modern architecture. CIAM brought together prominent architects worldwide, including Le Corbusier, Walter Gropius, and Ludwig Mies van der Rohe, to discuss urban planning, architecture, and design issues. The Congress significantly influenced designers around the world - popularizing the use of new materials, such as reinforced concrete, and massively shifting taste towards cleaner, simpler looks. The ideas and principles born of the CIAM continue to shape contemporary architectural discourse - most iconic among them is the functional city, which emphasized the need to design urban spaces solely on their intended use. Ironically, a universal language was detached from local culture, values, or beliefs and strongly emphasized an architectural practice in which solutions are prescribed rather than arrived at.

Take a country with a cold climate, for example, with heavy snowfall. Designing a classic modernist home - using a classic material such as reinforced concrete, and a typical look such as a flat roof, the home will react extremely poorly to the weather, disregarding entirely the need for slanted roofs to shed snow, or highly bendable material that can resist the intense weight of snow and not buckle under the pressure.

This was the argument that pushed Italian Architect Giancarlo DeCarlo to protest and dramatically leave the CIAM in the early 1960s.[3,4] Giancarlo De Carlo (a Politecnico di Milano Graduate) designed one of the first widely known participatory design projects in Europe—Villaggio Matteotti—between 1969 and 1975. Though it may now seem banal, the design was unique for its time and context, thanks to extensive research and interviews with the local population conducted before the design process began. In the late 1960s, Giancarlo DeCarlo conducted interviews with a local community in Terni, Italy, from which he extracted 45 possible housing alternatives organized into three recurring typologies.

Here, the importance of user input and local knowledge shaped the project's articulation and, in a sense, determined its final form.

To achieve this, the primary effort consisted of, in collaboration with a sociologist, interpreting and filtering the needs expressed by the selected residents and translating them into 15 housing typologies organized into 5 units. Measuring the success of this process is not straightforward, particularly given that all possible combinations yielded 45 distinct dwelling types out of the 240 units built. Nevertheless, this approach represented a meaningful step toward a more inclusive architectural practice, paving the way for a contemporary architectural language that moved away from rigid symmetry and formal composition toward a more dispersed, parametric mode of design.

4 Giancarlo De Carlo, Architecture's Public (Cambridge, MA: MIT Press, 1980), n.p.

Figure 3.5 Conceptual sketch including "la rue intérieure," "le sport au pied des maisons," and "plages d'hélio et hydrothérapie", drawing by Le Corbusier, early 1930s.

Figura 1. Descripción de la imagen. Tomado de: Referencia de ejemplo

Belgium, in the meantime, was awoken to participative architecture by Lucien Kroll's "participatory architecture movement" of the 1970s. Lucien Kroll, a Belgian Architect, is credited as one of the original founders of participatory design for his approach to the design of a student accommodation building at the University of Louvain. He was approached by students protesting their proposed housing situation and, seeking an unusual opportunity, opened the floor to the students themselves to iterate extensively through physical models until successfully campaigning to replace the original.

A seminal example is Lucien Kroll's La MéMé project,[3.1] which is best known for hosting a model-making workshop where homeowners and stakeholders were given full authority to change, modify, and remove pieces from a public architectural model, which was later translated into the real thing. The level of participation and opinion in the original design makes this project a great example of participatory design, although it is not quite open source. The project is lacking in repeatability.

Figure 3.6 Participatory Atelier, Photograph by Lucien Kroll, 1970–1976.

1 Dionne, Caroline. "L'architecture incrémentaliste au service du savoir-vivre." Espazium, October 1, 2013. https://www.espazium.ch/fr/actualites/larchitecture-incrementaliste-au-service-du-savoir-vivre.

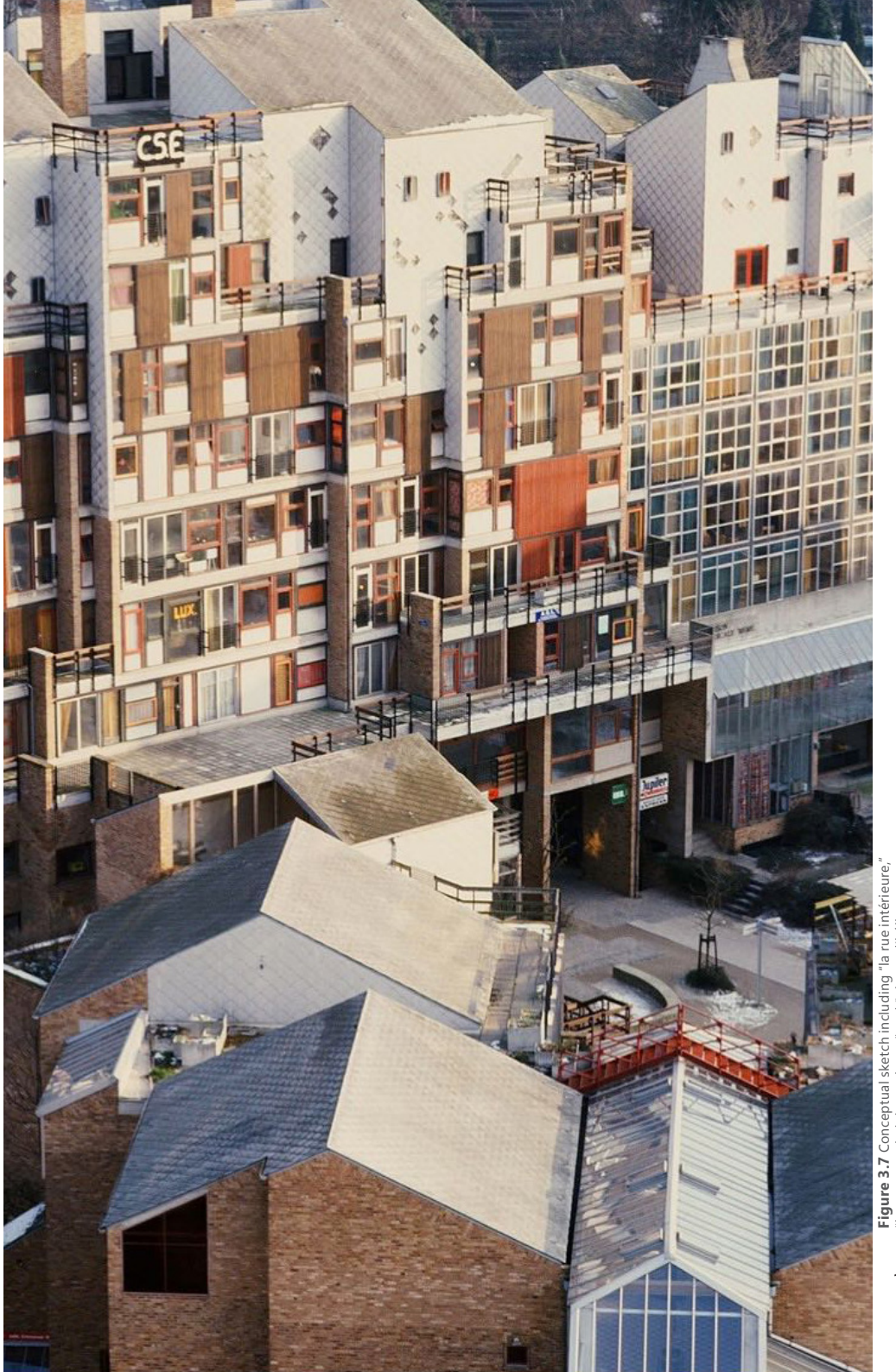


Figure 3.7 Conceptual sketch including "la rue intérieure," "le sport au pied des maisons," and "plages d'hélio et hydrothérapie", drawing by Le Corbusier, early 1930s.

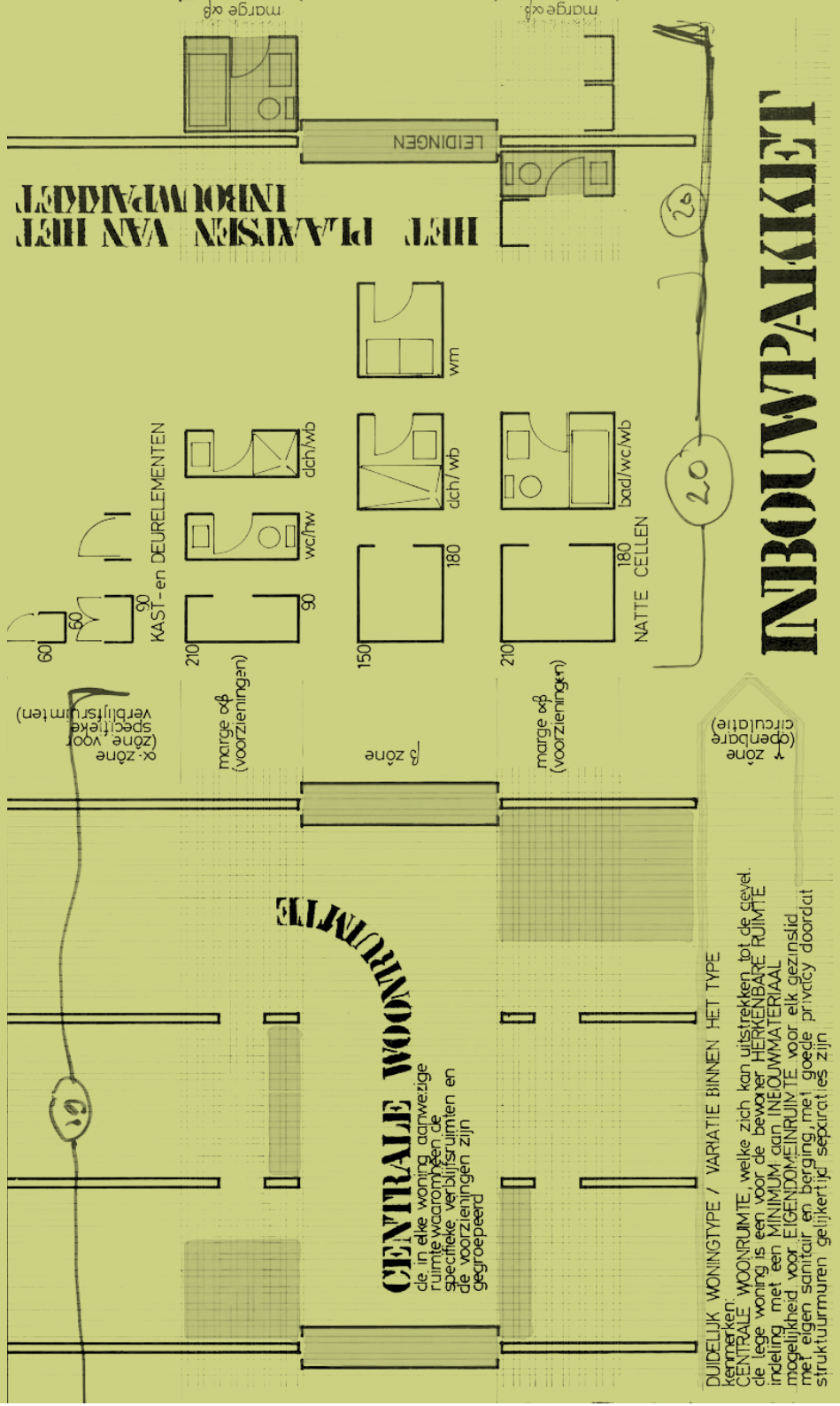


Figure 3.8 The Twin Structure, poster by John Habraken, 1967. Collection Het Nieuwe Instituut, SARE, Archive A67, HNI box 89.o

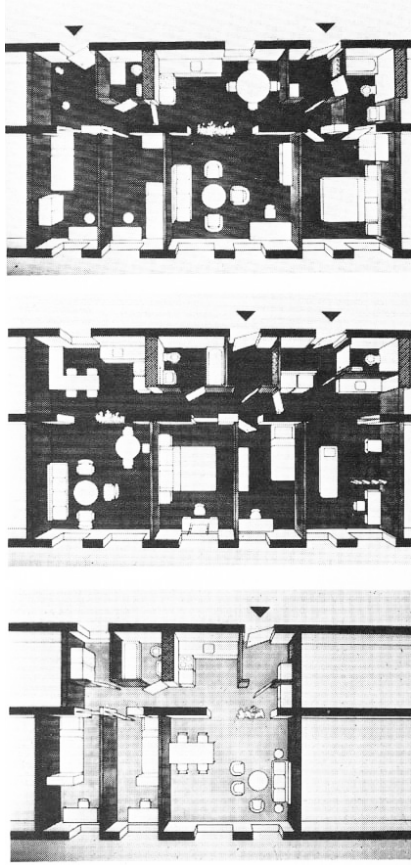


Figure 3.9 The Twin Structure, poster by John Habraken, 1967. Collection Het Nieuwe Instituut, SARE, Archive A67, HNI box 89.o

Around the same time, we see John Habraken's "Support and Infill" model appear, published in his book Supports: Model for Mass Housing, focusing on the idea that the "infill," or walls, finishings, and furnishings, could all be determined by individual will. The support model acknowledges the universal experience of resource scarcity and instead focuses on building a social infrastructure that can supplement and intelligently resolve scarcity issues, leveraging the scalable nature of a project of this type.[3.2] Habraken took his ideas and pushed them further through his work for SAR, a Foundation for Architectural Research, where he investigated the role of architects in the mass housing industry, and created a series of schematic proposals, such as the following, to illustrate how the model could be used.

2 Habraken, J. (1972). Supports: An Alternative to Mass Housing. Urban International Press. https://www.habraken.com/html/supportsOLD.htm

Open Source & Participatory Design in the Americas

In the United States, we see traces of open-source sentiment much earlier, through the capitalist ideology that "the customer is always right." America has a major cultural difference that has always set it apart from other countries in ideals - its fervent belief in capitalism. Very early on, the United States built on the idea that what makes money is what pleases the consumers; in other words, the world is focused on the demand side of economics. In terms of interpersonal relationships and design hierarchy, this would already mean that the individual should and will be given design agency, not directly through their own design, but through the creation of trends and taste. Designers could not, and would not, design something that did not have real market potential. This set the scene for the first commercialized home designing scheme.

The Sears Catalogue was a shopping magazine that offered everything from clothing to tools, and by the early 1900s, one-fifth of all Americans subscribed to it. It was in 1908 when they offered the first-ever Sears Kit Homes. The Sears Kit Home was a house chosen from a catalogue, shipped to you as a kit of parts to be assembled by homeowners. The catalogues offered at their peak up to 447 different typologies of homes, and gave the creative agency to owners to make design decisions for their own property through autonomous assembly.[3.3] Sears' founder, Richard Sears, was a marketing genius who made 1.3 million in annual sales and shipped around 75,000 homes to new homeowners during this era.

> *"Customers could select from dozens of different models in Sears Modern Homes Catalog, order blueprints, send in a check, and a few weeks later everything they needed would arrive in a train car, its door secured with a small red wax seal (just like the seal on the back of a letter). This seal was to be broken on arrival by the new owner, who would open up their boxcar to find over 10,000 pieces of framing lumber, 20,000 cedar shakes, and almost everything else needed to build the home — all the doors, even the doorknobs."*[3.4]

The Sears Kit Homes symbolized not only the free will and independent taste, but also the building power of the American people. Much like open source projects allow users to modify code to fit their needs, the extensive customization and choice offered by this project meant each home could be uniquely tailored, making it an example of open source principles applied to homebuilding. Ultimately, the Sears Kit Home craze came to a halt with the Great Depression and closed completely in the 1940's, but the homes can still be found scattered all over the country, unassuming to the untrained eye.

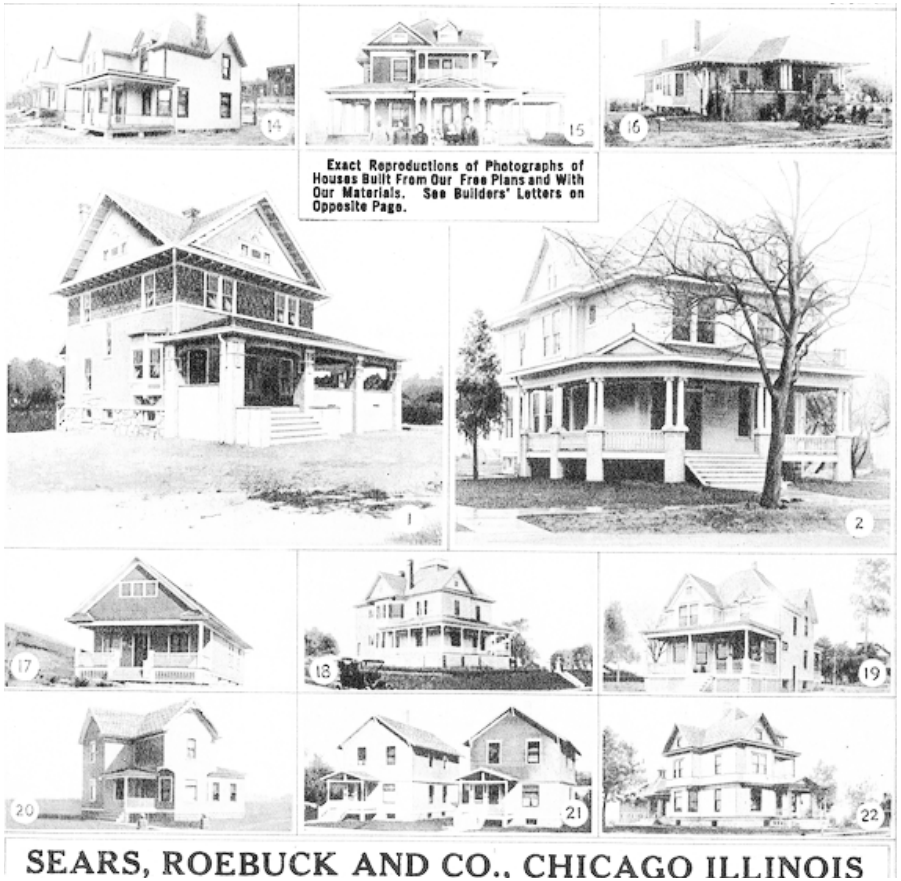


Figure 3.10 Sears Catalogue Home, poster, Sears, Roebuck and Company Mail-Order Catalog, Consumers' Guide, 1901.

3 (1901). Sears, Roebuck and Company Mail-Order Catalog, "Consumers Guide, 1901," Catalogue No. 111. Henry Ford. https://www.thehenryford.org/collections-and-research/digital-collections/artifact/403600/

4 Mars, Roman, and Joe Rosenberg. "The House That Came in the Mail." 99% Invisible (podcast), episode 323, February 5, 2026. https://99percentinvisible.org/episode/323-the-house-that-came-in-the-mail/.

Figure 3.11 Sears Catalogue Home, photograph by Liz West, April 14, 2011.

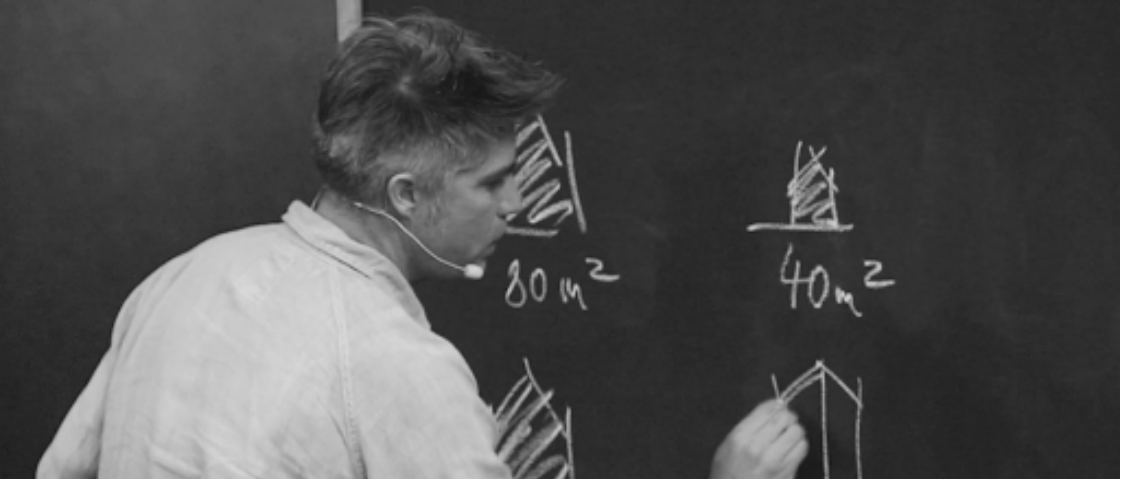


Figure 3.12 "Bring Community into the Process", screenshot from TED Talk by Alejandro Aravena, October 9, 2014.

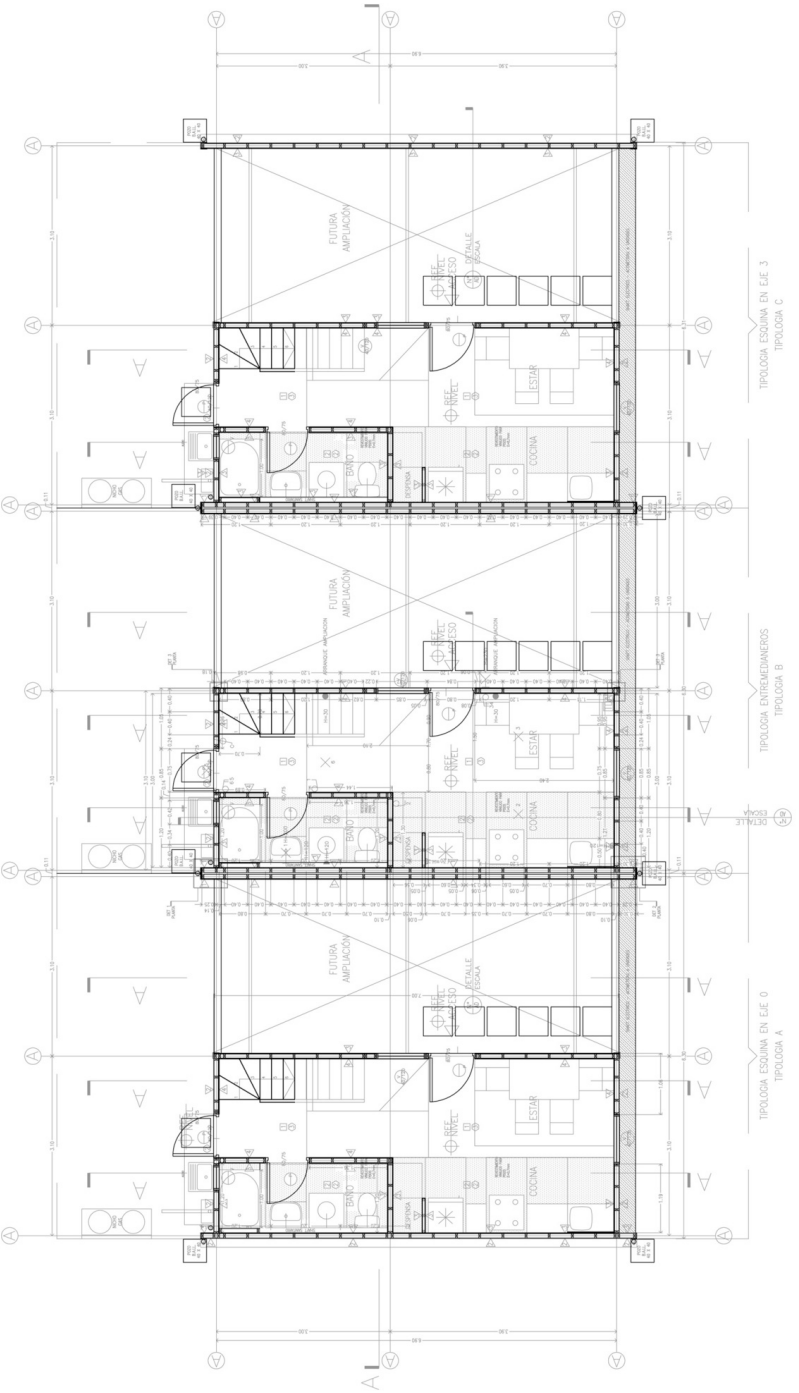


Figure 3.13 Villa Verde, photograph by Felipe Díaz Contardo, 2013.

One of the most important open source design projects in South America is arguably Villa Verde by Elemental Studio, led by Alejandro Aravena. The architect has become known for his practical, logical, and resourceful approach to space. Favoring design for the "bare minimum" rather than bells and whistles. His project for Villa Verde, therefore, was quite an ingenious solution to the scarcity of resources he was given. Instead of trying to achieve everything within a pre-selected budget and materials, I decided to build the foundation for the project to then grow on its own over time.

> *"What if, instead of thinking of 40 square meters as a small house, we think of 40 square meters as half of a good house?" - Aravena.*[3.5]

The architect cut spending in half by designing only the bare necessities of the house and instead dedicated time and effort to teaching locals how to build so they could expand their houses on their own when they could afford to. The residents are handed the freedom to expand on their half of the projects however they desire, given the education to be able to freely replicate, edit, or innovate - in true open-source spirit.

5 Aravena, Alejandro. "My Architectural Philosophy? Bring the Community Into the Process." TED Talk, TEDGlobal 2014, filmed October 9, 2014, 15:49. Accessed January 29, 2026. https://www.ted.com/talks/alejandro_aravena_my_architectural_philosophy_bring_the_community_into_the_process

Figure 3.14 Villa Verde, photograph by Felipe Diaz Contardo, 2013.

Figure 3.15 Villa Verde, photograph courtesy of ELEMENTAL.

Figure 3.16 Long-term layout transformations of a dwelling unit in the Kodan Experimental Housing Project (KEP), diagram by Kazunobu Minami, 2015.

Open Source & Participatory Design in Japan

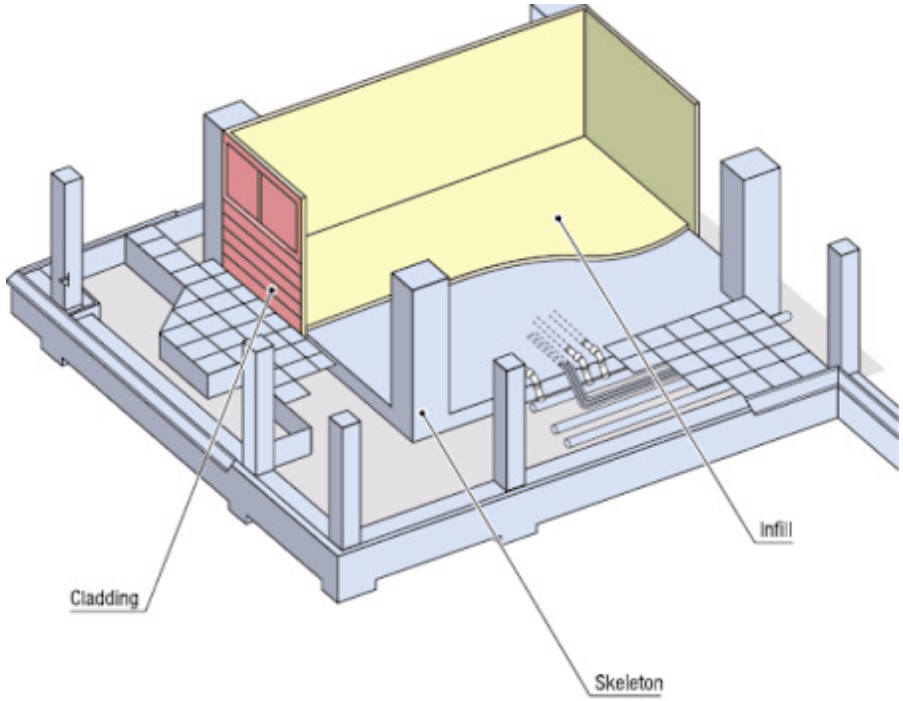
When discussing Open Sourcing in the Japanese context, it began in the 1970s (Fukao, 2018). In 1971, the idea of system building was introduced from the USA and the UK, leading to early prototypes such as the KEP (Kodan Experimental Project).[3.6] The KEP began with the Project of Tsurumaki Estate 3 and was promoted by the Japan Housing Corporation (JHC). During this phase, a "Support and Infill" model was introduced, envisioning durable structural frameworks with customizable interiors chosen by residents. The main aim of these projects was to extend the lifespan of these buildings from 30 to 100 years, realized through the Century Housing Project (CHP).

In theory, Japan's regulatory frameworks prevented its adoption, since authorities require complete drawings before occupation. This disconnect highlighted how top-down regulations can inhibit resident-led flexibility. Unfortunately, many Danchi built in the 1960s–70s were designed with limited lifespans of 50–70 years, and although some reinforced concrete from the 1980s was assumed to be "eternal," budgetary constraints have often prevented systematic renovation.

6 Kazunobu Minami, "The Efforts to Develop Longer Life Housing with Adaptability in Japan," Energy Procedia 96 (2016): 662–673.

Another important case of Open Building was made in 1990 with the project: Next 21. Led by Osaka Gas alongside Professors Yositika Utida and Kazuo Tatsumi, they planned to develop an experimental near-future-type apartment building that could be flexible and eco-friendly. This building also uses the principle of "Skeleton" and "Infill" for its flexibility. [3.7]

Figure 3.17 Structural diagram illustrating the skeleton–infill housing system (NEXT21). Source: Studocu, from "NEXT21 English Leaflet 1," 2015–2016.



7 Joshua Hakimi, "NEXT21 — The Council on Open Building," Council on Open Building, 2023, https://www.councilonopenbuilding.org/projects/next21.

For the NEXT21 project, dimensional coordination was key; traditionally, Japanese architecture has maintained a 900mm modular system for ease of customization, so these decisions felt part of their culture. However, for NEXT21, each dwelling unit was designed by a different architect, independently. Each architect designed the external walls and window layout of each apartment, resulting in a wide variety of apartments. It created a fragmented design, which through the years, experienced several changes.[3.8]

The redesign of its facade reused 80% of the already existing one, ensuring a system that will allow it to maneuver the building with less resources while its inner flexibility also allows for its use in the future, as some single housing were able to be divided by two. We can argue then, that this project is an example of how Open Buildings can be persistent and adaptable through time while maintaining a sort of identity due to its modularity and design of the facade.

8 Tetsuo Yamaji Architects, "Module Grid House," ArchDaily, October 26, 2015, accessed February 11, 2026, https://www.archdaily.com/787411/module-grid-house-tetsuo-yamaji-architects.

Figure 3.18 Diagram for changes in the façade (NEXT21). Source: Studocu, from "NEXT21 English Leaflet 1," 2015–2016.

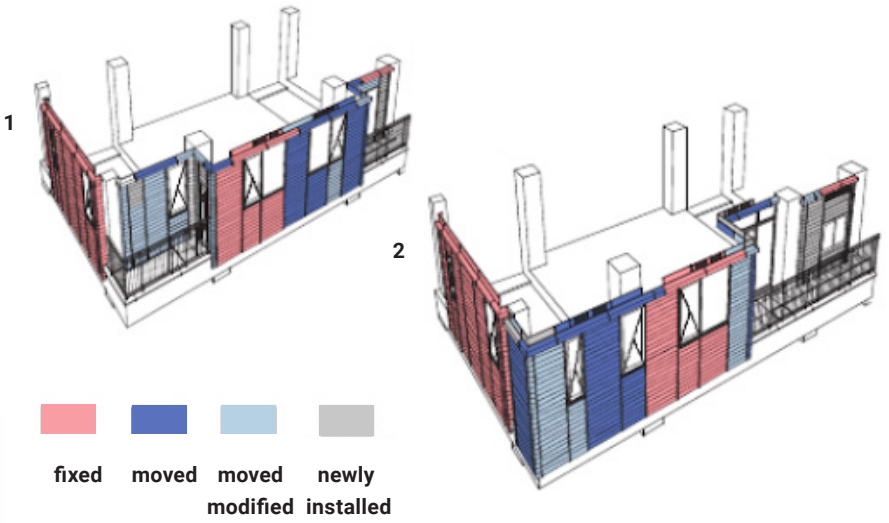


Figure 3.19 NEXT21 experimental housing project, Osaka, photograph. Source: The Council on Open Building. Photo credit: Osaka Gas.

Even though the later development of these techniques and plans stalled for a while, it is also important to note that, in contemporary times, there is a "revival" of the concept of open sourcing in the Japanese architectural scene. Within the context of an overaccumulation of technology and architecture produced by modern society, together with depopulation, an aging population, and a stagnant economy, young Japanese architects have begun to turn their marginalized position into a strength. An approach based on "making do" with limited resources, existing materials, and existing spaces has emerged,[3.9] standing in contrast to the perfectly sharp and refined aesthetics that long characterized Japanese architecture. This new generation is not afraid of imperfection and seeks to redefine the relationships between architects, institutions, and inhabitants by breaking through the boundaries that have protected architecture as a specialized discipline since Japan's modern era.[3.10] In this context, increasing attention is being paid to "tailor-made" architecture, developed on a case-by-case basis and deeply responsive to the specific social and environmental conditions in which each project is embedded. Tanishige describes this approach as "Gradualism," referring to the position of architects who pursue slow and steady social improvement through architectural practice by scaling their interventions, engaging with the systems and networks that support architecture, and contributing to the enhancement of

9 Shinohara, Yuma. 2022. "Make Do With Now: Reflections on an Emergent Architectural Practice in Japan." Make Do With Now, November.

10 Matsumura, Shuichi. 2019. Open Architecture for the People. https://doi.org/10.4324/9781351116107.

Figure 3.20 Diagram for division of one house into two (NEXT21). Source: Studocu, from "NEXT21 English Leaflet 1," 2015–2016.

Figure 3.21 NEXT21 experimental housing project. Osaka, photograph. Source: The Council on Open Building. Photo credit: Osaka Gas.

Figure 3.22 Diagrammatic axonometric and material receipts, by Studio CHAr. Source: Studio CHAr website.

local communities.[3.11]

One example of this movement is CHAr, a non-profit organization led by Yutaro Muraji that focuses primarily on renovation as a means to repair the social, spatial, and other connections severely damaged by rationalized urban planning in Japan.[3.12] Specifically, through the project Mokuchin Recipes, CHAr operates an online platform dedicated to refurbishing post-World War II wooden rental apartments, known as mokuchin, which, like Danchi, have deteriorated over time and face risks such as fire.[3.13] To address these issues, CHAr publishes standardized renovation methods called "Recipes," which provide accessible systems that enable owners and managers to easily implement renovation strategies. By making these recipes openly available as open-source assets, the project encourages broader participation in the design process, allowing users to modify and adapt them to their needs. In this way, architecture becomes more accessible to the general population, fostering a diverse architectural language and contributing to the revitalization of mokuchin apartments. Ultimately, these small, modular interventions can scale up into a more dynamic and democratic mode of architectural production, rooted in the existing building stock and driven by user participation in the design pro-

11 Tanishige, Leo. 2022. "What Is Gradualism?" Make Do With Now, November, 138–42.

12 CHAr (Commons for Habitat and Architecture), "CHAr_Commons for Habitat and Architecture," accessed February 11, 2026, https://www.studiochar.jp/.

13 Masanori Fujihira, "The Potential of Small Wooden-Frame Buildings in Aging Japan," Sustainability 15, no. 4 (2023): 1, https://doi.org/10.3390/su15043602.

cess.

Within the context of an aging society, a stagnant economy, and a diminishing workforce, it is more important than ever to be able to modify our immediate environment ourselves. The efforts made by the KEP projects and NEXT 21 to reform your own habitat with limited technical skills, plus the Mokuchin Recipe, provide a guideline for re-democratizing construction and design for more resilient buildings, from a technological perspective or from the know-how of the

Figure 3.23 "Play the City." Ekim Tan and Arnold Reijndorp. Photo courtesy of Play the city. 2009.

HISTORY OF SERIOUS GAMING

existing building stock.

Games, in essence, are micro-situations that are useful for simulating outcomes. We distill our everyday experiences, isolate one specific mechanic, and explore it as a simple, repetitive experience. In sports, the mechanic could be described as the struggle between two opposing forces wanting the same object to be in two different places, or "goals."

In tic-tac-toe, the mechanic could be described as a negotiation over who can place 3 symbols in a linear, adjacent relationship. Through the elements of time and development, players can begin to simulate what the mechanic allows, reaching an inevitable conclusion and, depending on the rules, potentially a compromise.

The elements of compromise and simulation have great potential because, by distilling a specific topic of our complex lives, we can better understand a struggle or issue in our daily lives and make something of it.

Serious Gaming

'Serious games' is a relatively new term used to describe any game-like situation in which there is controlled play to simulate a sort of educational

TOOLS		PLANNING PROCESS				
		Initiation	**Planning & Design**	**Implementation**	**Evaluation & Research**	**Maintenance**
Diagnostic	Non-digital	Surveys (offline), interviews			Surveys (offline)	
	Digital	Surveys (online), social media monitoring, photography, filming, participatory GIS			Surveys (online), social media monitoring	
Expressive	Non-digital	Interviews, focus groups, consultation meetings, workshops, activation games, quizzes	Architectural models, interviews, focus groups, consultation meetings, games, workshops, brainstorming		Interviews	
	Digital	Mobile apps, games, quizzes	Mobile apps, online forums and feedback forms, games		Mobile apps, online forums and reaction forms	Online forums and feedback forms
Organizational	Non-digital	Local press, policy documents and reports, brochures and flyers, press conferences, letters	Guided tours, exhibitions, info points, on-site info panels, brochures and flyers, letters	Guided tours, exhibitions, info points, on-site info panels, brochures and flyers	Policy documents and reports, letters	
	Digital	Tv, radio, project website,	Project website	Project website	Project website	Project website
Political	Non-digital	Fund-raising	Participatory budgeting	Co-financing	Citizen panels	

Figure 3.24 Games as participatory design processes. Source: Cristina Ampatzidou et al., "All Work and No Play? Serious Gaming for Urban Planning," 2018

result.[3.14]

> *"Games and gamified applications are often described as being a magic bullet in current governance debates, with their aim to attract citizens to engage with city matters and planning questions, to participate in decision-making, and to improve the overall process of public participation."*[3.15]

Board Games, and games in general, are a beautiful way to generate conversation, simulate negotiation, and also reach resolutions. This is why they became such a popular tool in urban and anthropological fields, though they did not fully take off in architecture. There are a few characteristics that enable games to unlock, so to speak, certain solutions that are usually not easy to achieve.

Imagination. Games tend to shift players' mindsets toward a more relaxed environment through the "imaginary" setting. Players may be more willing to take risks and test out different situations than they would in real life.

Ice breaker. Games allow conversation to flow more easily as they lead to different, expected, confrontations.

Empathy. When a role-playing game is paired with role reversal, it allows characters to come to terms with the difficult decisions and contexts the other parties face on a day-to-day basis, thereby significantly improving players' empathy.

Serious Gaming is hardly new in governmental processes. In fact, three cities, Vienna (AT), Groningen (NL), and Genk (BE) have been studied in Europe that currently use participatory gaming.[3.16]

Throughout the study, games are featured as an expressive tool that is primarily effective in initiation, planning, and design. We see potential for

14 "Serious game." Wikipedia. 2024. https://en.wikipedia.org/wiki/Serious_game Accessed February 10, 2026

15 Cristina Ampatzidou, Katharina Gugerell, Teodora Constantinescu, Oswald Devisch, Martina Jauschneg, and Martin Berger, "All Work and No Play? Facilitating Serious Games and Gamified Applications in Participatory Urban Planning and Governance," Urban Planning 3, no. 1 (2018): 34–46, https://doi.org/10.17645/up.v3i1.1261

16 Ampatzidou, Cristina, Katharina Gugerell, Teodora Constantinescu, Oswald Devisch, Martina Jauschneg, and Martin Berger. "All Work and No Play? Facilitating Serious Games and Gamified Applications in Participatory Urban Planning and Governance." Urban Planning 3, no. 1 (2018): 34-46. https://doi.org/10.17645/up.v3i1.1261 Accessed February 10, 2026

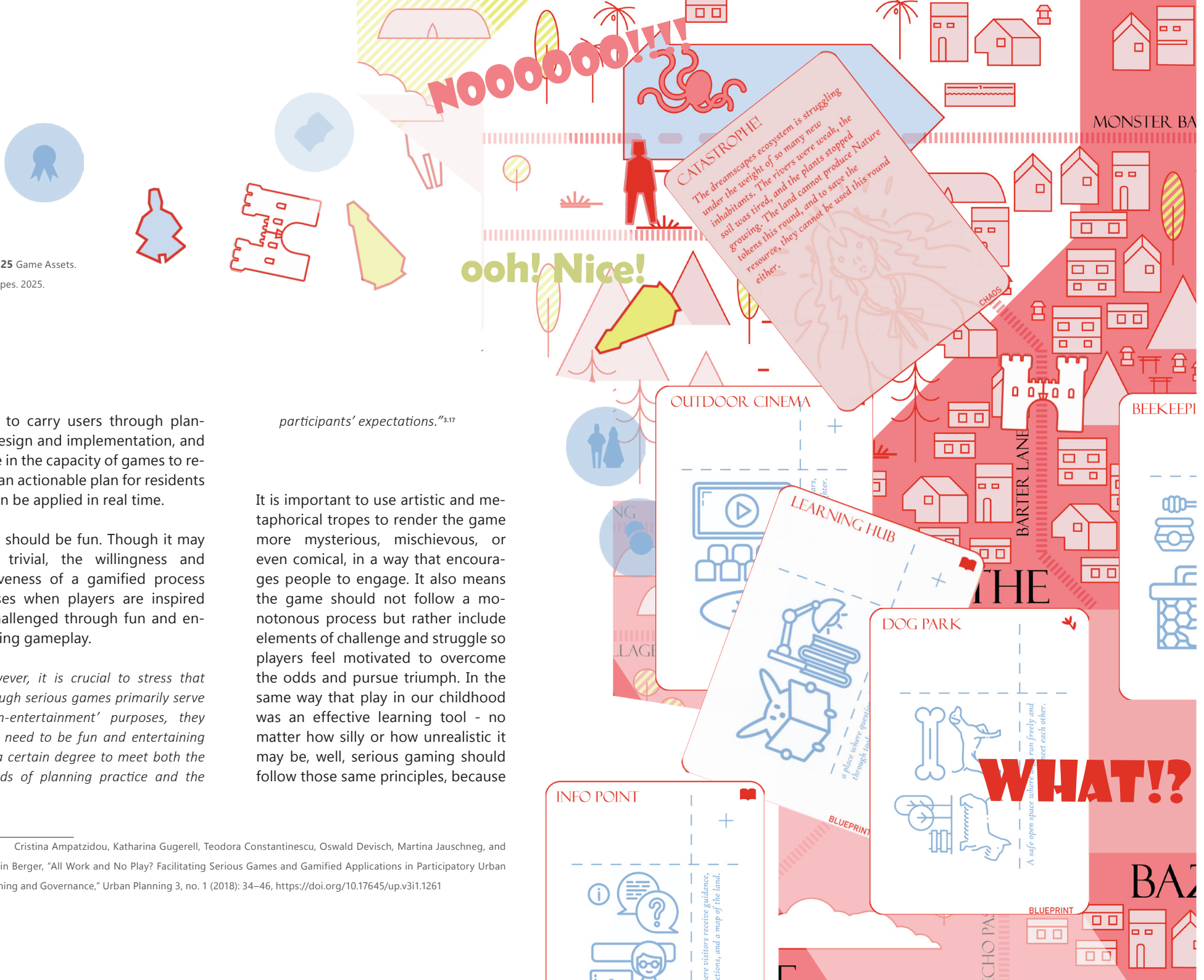


Figure 3.25 Game Assets.
Dreamscapes. 2025.

games to carry users through planning design and implementation, and believe in the capacity of games to result in an actionable plan for residents that can be applied in real time.

Games should be fun. Though it may sound trivial, the willingness and effectiveness of a gamified process increases when players are inspired and challenged through fun and entertaining gameplay.

> *"However, it is crucial to stress that though serious games primarily serve 'non-entertainment' purposes, they still need to be fun and entertaining to a certain degree to meet both the needs of planning practice and the participants' expectations."*[3.17]

It is important to use artistic and metaphorical tropes to render the game more mysterious, mischievous, or even comical, in a way that encourages people to engage. It also means the game should not follow a monotonous process but rather include elements of challenge and struggle so players feel motivated to overcome the odds and pursue triumph. In the same way that play in our childhood was an effective learning tool - no matter how silly or how unrealistic it may be, well, serious gaming should follow those same principles, because

17 Cristina Ampatzidou, Katharina Gugerell, Teodora Constantinescu, Oswald Devisch, Martina Jauschneg, and Martin Berger, "All Work and No Play? Facilitating Serious Games and Gamified Applications in Participatory Urban Planning and Governance," Urban Planning 3, no. 1 (2018): 34–46, https://doi.org/10.17645/up.v3i1.1261

PARTICIPATORY FRAMEWORK

after all, the main element is engagement.[3.18]

The scope of our Dreamscapes Games Series comprises 3 parts and 3 purposes: to understand local needs and organize feedback; to find an equilibrium between impact and satisfaction through a programmatic proposal; and to provide general indications for independent design solutions.

The Game was designed as a trilogy that could be played as a series, in parts, or completely independent of each other as a way to "plug" itself into the design process where it is needed most. We simplified the design process into 3 basic actors: the stakeholders, the architect, and the citizens. These three actors interact as we stipulated here in most architectural design processes internationally, with few exceptions. Each actor both gives and receives. The citizen will communicate (give) their needs to the stakeholders, or directly to the architect, while the citizen will receive a design from an architect. The Stakeholders will receive needs from the citizens, while they will give a professional opinion and scope to the architect. The architect will receive the professional opinion and scope from the stakeholders, while they will give

18 Matthew Pattemore and Raquel Gilabert, "Enjoyment, Engagement, and Success in Children's Digital EFL Games," ELT Journal 79, no. 4 (2025): 1, https://doi.org/10.1093/elt/ccaf041.

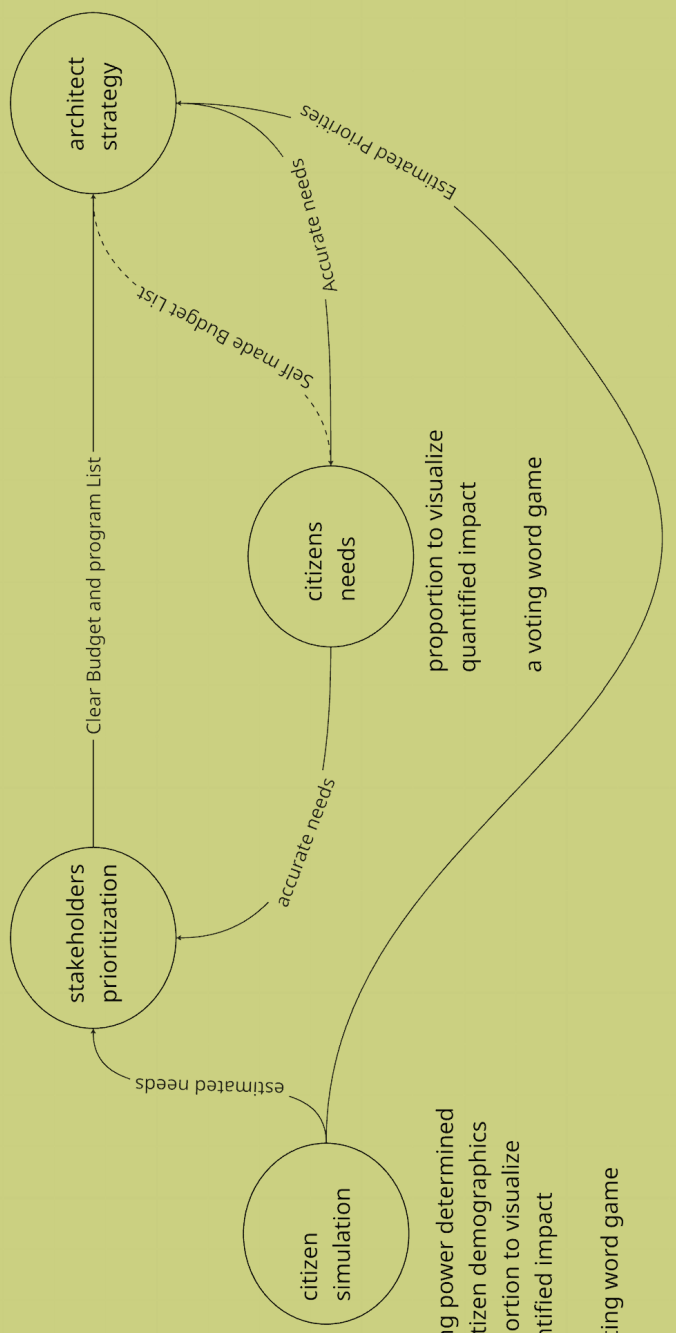


Figure 3.26 Conceptual process: actors diagram, diagram by authors, 2026.

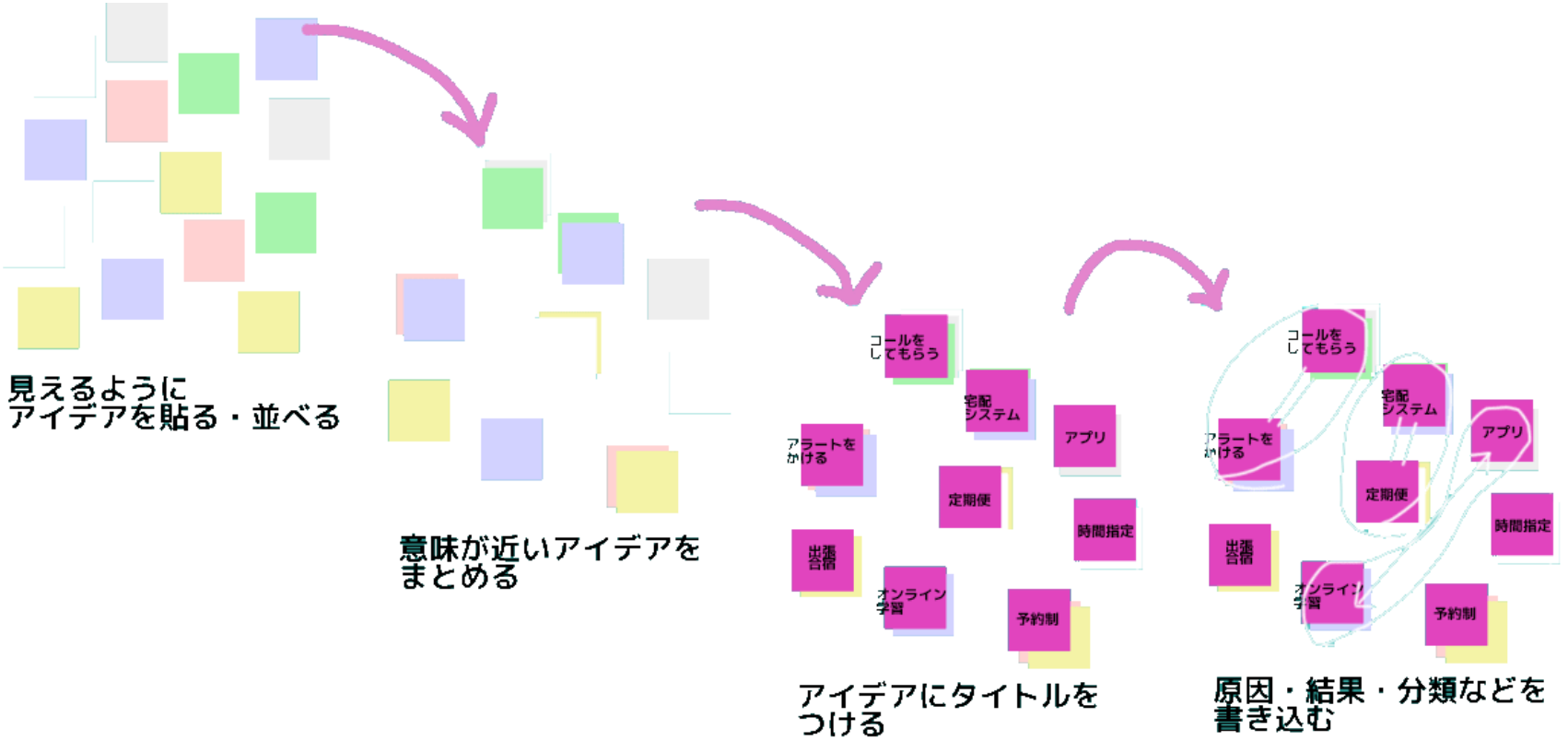


Figure 3.27 The KJ M
graphic by ANKR DESIC
Jiro Kawakita.

their design to the citizens. We have created the following diagram to encapsulate the relationships among these actors.

The 3 games designed have the specific scope to facilitate each of these steps within the cycle. The design has the important scope of also enabling citizens to radically autonomize and to "skip steps" in situations of economic need or inefficient bureaucracy. In our example of Homi Danchi, the ability to play one of these games could give the residents the opportunity to: make sense of their diverse needs, build empathy while balancing them, and clearly communicate to a designer their priorities, the impacts they foresee, and a simple programmatic proposal. In the eventual 3rd game, they may indeed be able to create simple, actionable design proposals. Each of those "steps" within this cycle: communicating needs, communicating priorities and impact, and communicating design.

Part 1 DreamWeaver: Processing, Cataloguing and Understanding Local Input

The first step in our process towards participatory design is the data collection phase. Our game is filling the gap between the public and the stakeholder table by understanding the wants, needs, and desires of the population they are designing for, rather than inferring them from a single site analysis. The first game has the specific scope of receiving input in the form of needs and returning the needs sorted into larger categories, with relationships amongst them. The approach is essential to massively improving efficiency by understanding the underlying problem that residents collectively face. The game takes a diagnostic approach to reveal patterns that exist within a group of people.[3.19]

In our design process, a very interesting and quite illuminating case study was the KJ Method. The KJ method, developed by Jiro Kawakita, is a way to gather a series of textual comments

19 "Bridging serious games and participatory design." International Journal of Child-Computer Interaction 2, no. 2 (2014): 93-100. https://doi.org/10.1016/j.ijcci.2014.03.001 Accessed February 10, 2026

or ideas and reorganize them to make sense of what was said. The method uses the principle that ideas can be organized according to their natural relationships with one another.[3.20]

The KJ Method was originally conducted using sticky notes amongst a group of people, users, or participants of any nature. More than arriving at any "best idea," the strategy focuses on identifying different main themes.

> *"... the KJ Method is not a method for selecting the best ideas from those generated during a brainstorming session. By visualizing the overall relationships in two dimensions, you can arrive at new ideas that would not have been possible through the fragmented ideas generated during a brainstorming session."*[3.21]

To understand how the KJ Method accomplishes this, consider its four main steps: collection, sorting, renaming, and relating. First, data is collected, and all ideas are placed into a pool, each holding equal weight. Next, patterns begin to emerge as we sort ideas of a similar nature into groups. Following this, each group receives a synthesis title to clarify the underlying thread unifying them. Finally, we analyze these groups to identify further relationships, such as causation or symbiosis.

We turned the KJ method into a game for about 6 players, using its four steps. Players collect and group ideas, create group titles, and analyze relationships. Results inform another game segment, called Dreamweaver. This lets players gather resident input, mirroring stakeholders' real thoughts, fears, and wishes. The process shows which issues are common and which are unique.

Starting with the abstraction of a game lowers the stakes for communicating honestly and freely. This is one of the most attractive qualities of game-making, in our opinion. Our case study includes diverse inhabitants and complex local government and authority figures. In the past, this complexity has thwarted efforts to renovate or improve. Allowing these figures to communicate with few barriers and unrealistic consequences removes the usual block to participatory projects of this nature.

Players. The players of this game can be anyone, but could specifically target different demographic groups within the larger housing complex, or rather target each of the stakeholders at the stakeholder table. All players in this stage of the game are equal, though hopefully their outlooks or experiences differ. Hopefully, each player will dig into their personal experiences to bring out the truth in this game.

20 Kokogawa, Tomohiro, Hiroshi Ishikawa, Yoshinori Koyama, and Hiroshi Kato. "Information and Media Technologies 8(3): 898-905 (2013)." Information and Media Technologies 8, no. 3 (2013): 898-905. https://doi.org/10.1587/imt.8.898 Accessed February 10, 2026

21 ANKR Design, "KJ Method / 1枚の付箋にひとつのアイディアを書き出して全体の整理整頓を行う," ANKR Design (blog), accessed January 29, 2026, https://www.ankr.design/designtips/what-is-kj-method

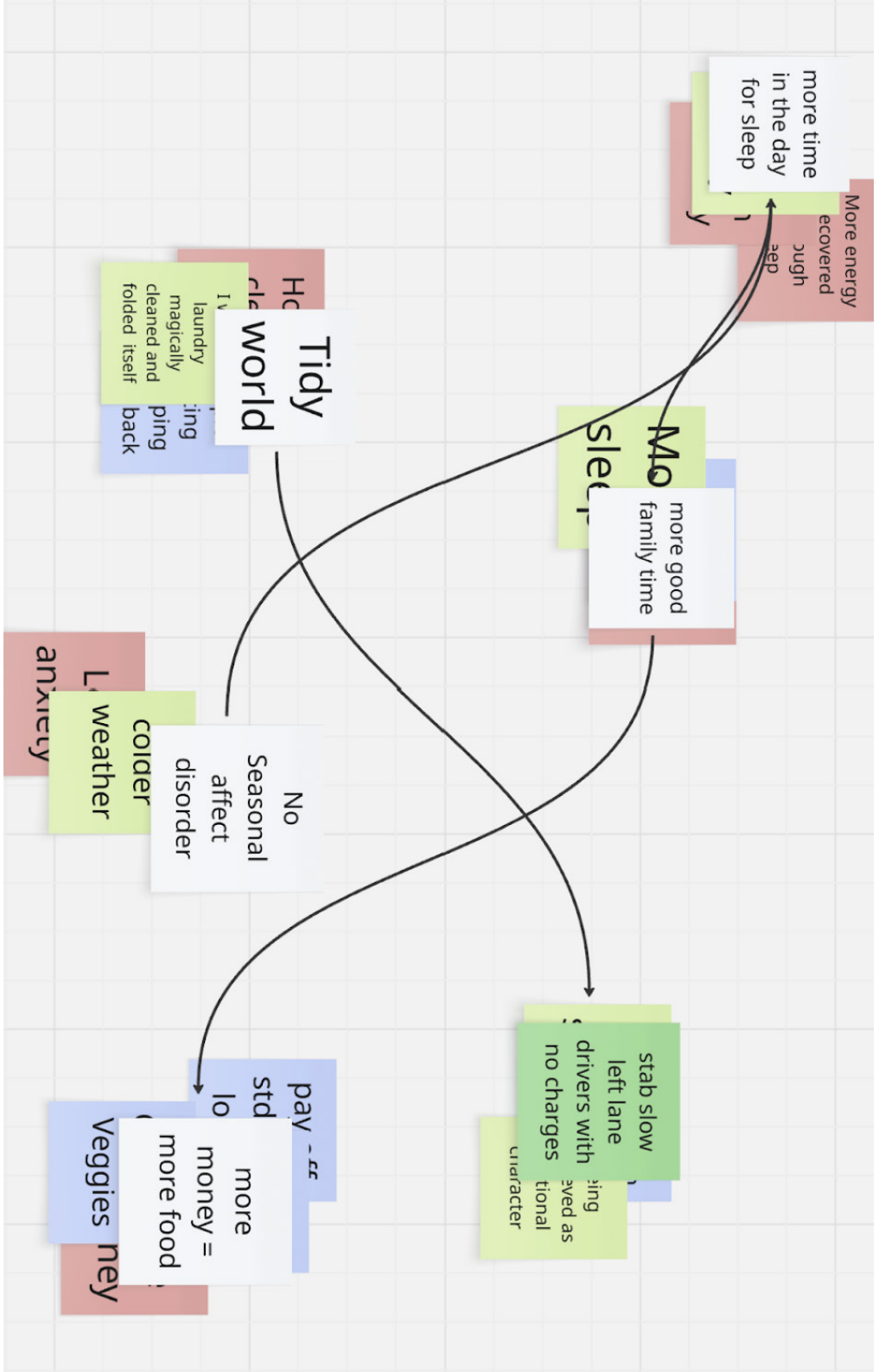


Figure 3.28 DreamWeaver: Second playtest without assets, graphic by authors, 2026.

Materials and Components. The game is relatively easy to play, even without our illustrated assets, and can, at its core, be as simple as a pad of sticky notes and pens at home. Each player needs at least 6 pieces of writable material and a writing utensil to play the game. In our asset library, we offer 6 blank playing cards for each player (36 total) to write on, and ask players to bring their own pencil or pen.

Core Mechanics. The main mechanisms in this game are dreamcasting and weaving. Dreamcasting refers to the player's ability to write freely about any of their dreams within a 4-word limit. Players can draw on their personal experience, or, if simulating, imagine others through sympathy. The player must simply physically write on one of the cards or papers and place it in the center of the table for others to read. Weaving is the mechanism for condensing ideas into larger subcategories. Weaving can be done by any character and requires a player to collect a group of 2 or more cards and write a synthesis that encapsulates the core issue that belongs to both. For example, if there are two cards: "cannot sleep well" and "feeling unsafe at night", a player may rewrite both of them as "nighttime safety." It encapsulates the overall feeling that prevents users from feeling calm during that specific period of the day. Another example of weaving could be: "beautiful gardens" and "no more trash on the streets" can be reimagined as "tidy world". Weaving is introduced into the game through a testing round in which each player tries a weave in turns. Once all players are familiar with the mechanism, it will devolve into an open table discussion with no turns, where people can propose whenever they have an idea, as long as it is accepted by a vote (4 upvotes).

Rules and Constraints. At the first stage of the game, players cast honest opinions into the center of the table by writing them down as "dreams." After each player casts 3 dreams, each takes a turn to combine one of their dreams with one of another person's (or team's) dreams. Once all players take a turn to do this, they will move on to the next challenge, where all dreams must be sorted into a total of 6 categories. The number 6 is important because it allows for variety and condenses each of the 6 categories into about 3 ideas per group, which is useful for the next part of the game. The final step involves asking the players to vote on which dreamscapes they believe are related, such as through causation or symbolism.Several playtests generated a spectrum of participant responses, ranging from playful and humorous to more serious and critically engaged.

In the first play test, we aimed to observe how players would play differently when we factored their teams into a total score. Players combined cards with other teams to boost their point count, and this approach succeeded when each player represented a distinct mindset or stakeholder, fostering empathy and connection.

In the second playtest, we encouraged characters to connect different card subsets to see which dreams could be linked to others. In this version, each player votes for 2 pairs of cards they think are interrelated, and only the pairs with more than 3 votes get connected by a bridge. The bridge becomes a meaningful component in the next game, providing mobility be-

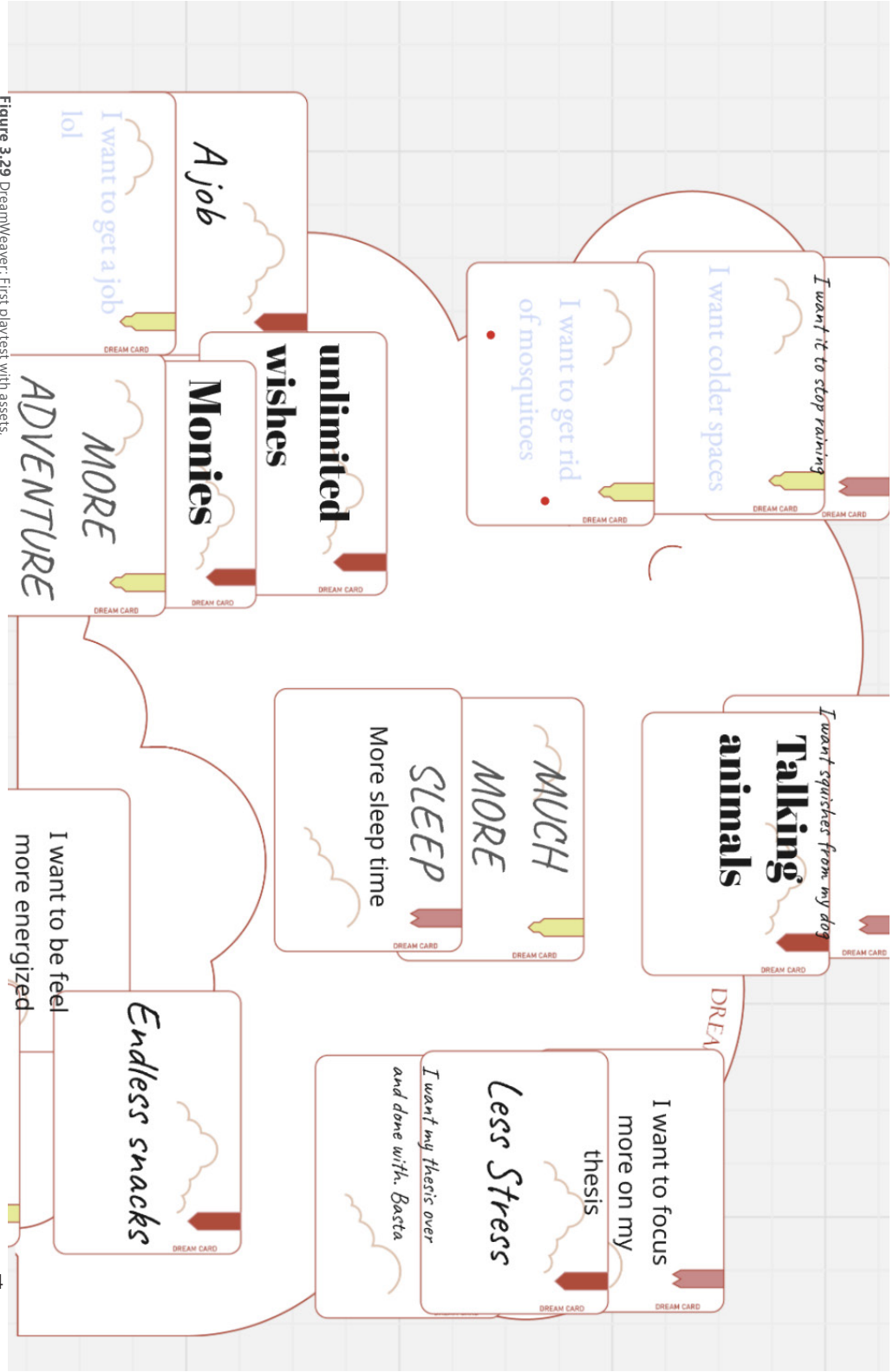


Figure 3.29 DreamWeaver: First playtest with assets, graphic by authors, 2026.

Figure 3.30 Homi Danchi Project: Resident survey, May 2021.

tween areas and allowing ideas in one area to become solutions in another.

Outputs and Results. At the end of the game, the team will have 6 mega categories that describe multiple dreams or desires. The 6 categories describe the 6 main problems that the people sitting that day are facing. These 6 categories can be seen as 6 potential points for the development of the following game.

Part 2 DreamScapes: Prioritizing Necessity and Balancing Impact

The next game aims to simulate a roundtable discussion among stakeholders in an architectural process, with the objective of collaboratively identifying which architectural programs are most worthwhile to invest in. By focusing on a few key issues, the game facilitates productive discussion that helps all participants leave with a clearer understanding of how to use resources effectively.

Architectural planning is easier said than done. In a recent survey of Homi Danchi in 2021, researchers asked residents which problems they had with their current living situations, and subsequently what they suggest the community do to fix it. The results from the survey illustrate that although all residents agreed (100% of respondents) that improvements were indeed necessary, community members are often divided over efficient or practical investments to achieve those goals. The difficult step of translating need into actionable strategy is a complex and often layered type of question that architects ask themselves constantly when beginning a design. The difficulty and nuance of being able to respond to the question: "what should we do about it" highlights the underlying necessity for tools that help bring these fundamental truths to light.

In a stakeholder discussion, each person comes to the table with very different scopes and desires, and an outlook focused on achieving a positive outcome for their scope. A social advocate may want the project, for example, to include a humanistic component that alleviates homelessness in the area, while an environmental advocate may focus on ensuring that the design includes a planting agenda to increase green space. The dis-

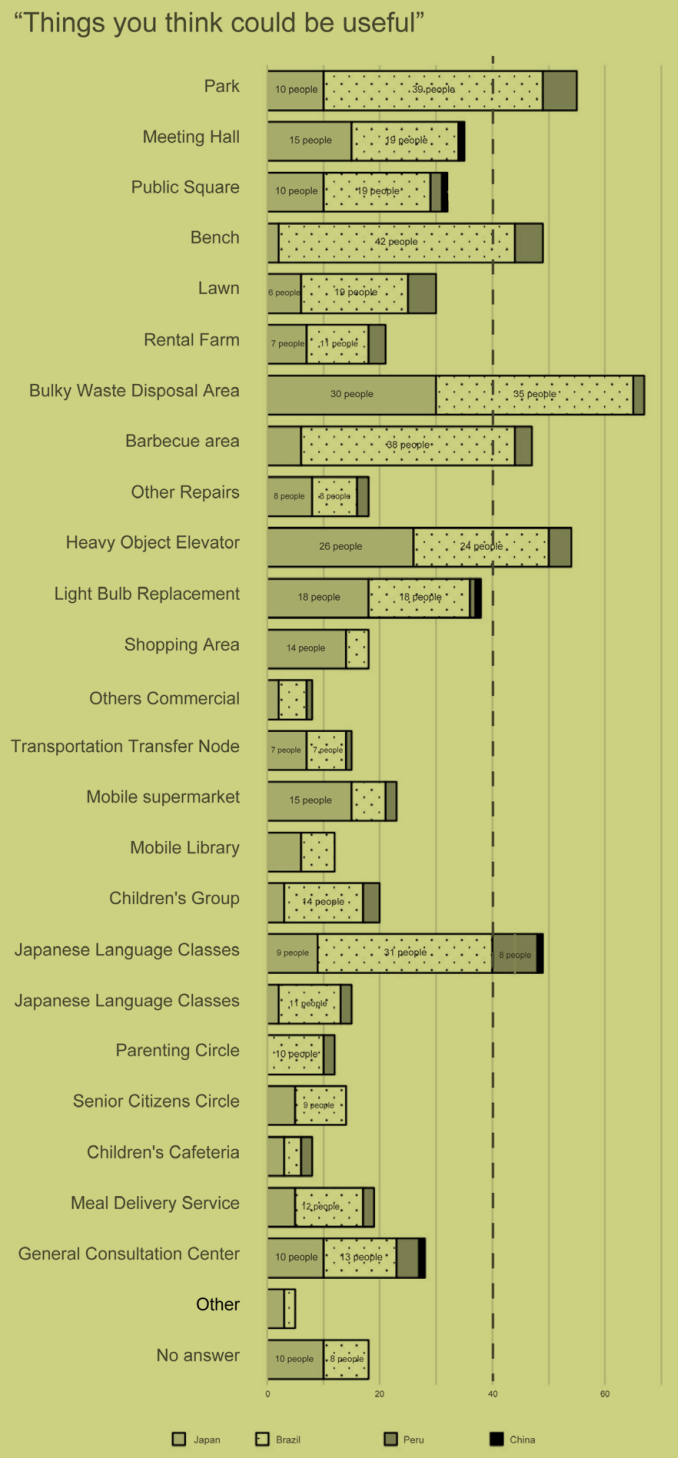


Figure 3.31 ROOT board game, product photograph, courtesy of Mighty Ape.

Gabi Castro & Ismael Kagawa

cussion in a stakeholder table can be described as an asymmetric conflict: people are not intentionally on one side or another, nor are they directly opposed to each other, but their goals may have negative implications for others, leading to friction between them. The game's design allows players to experience the push and pull of their own needs and desires, as well as those of others, and to learn to collaborate through empathy.

Game Reference. For this game, we have used the asymmetrical board game "Root" as our inspiration. Root is a competitive, point-based board game in which 4-8 different characters must achieve points through independent strategies and rules against each other. What is interesting about this example is that the characters use the same board and the same pieces, but play completely asymmetrical rules. The game offers both a physical and a web-based version.[3.22]

In the game, characters must move their characters around the board, craft items based on certain goals, and fight each other for control of certain bases. Characters will score points based on their own objectives and move through the game's public scoreboard, as shown in the image. Each character is given a character sheet that walks through the steps they must complete in their turn. The game accommodates different player counts and expansion packs.

Pictured here are examples of how different your character's experience may be person to person. Each character has a completely different set of rules, victory metrics, and mechanics that allow other players, on the surface, to experience an unpredictable yet exciting gameplay.

The game served as a useful reference point to our project because of its "asymmetric" nature. We understood from the start that the design process, specifically, stakeholders have unique qualities. They have different goals and achieve their "success" in different ways. Thus, it made sense for the characters to act and react differently to bring the unpredictability of life into the game, offering a unique and quirky experience every time people sit down to play.

World and Metaphor. Dreamscapes represents a stakeholder conversation. The 6 distinct landscapes on the Playing board represent the 6 different problems to be addressed to improve living conditions. The 6 characters represent 6 distinct ways of thinking and prioritization, and the development of these territories represents the brainstorming that occurs in the development of an idea. Although stakeholders are debating abstract concepts, it is sometimes easier to "materialize" them into a visible form. This was where we decided

22 Theel, Charlie. "Root is a terrific—and fully asymmetric—woodland wargame." Ars Technica, September 28, 2018. https://arstechnica.com/gaming/2018/09/root-is-a-terrific-and-fully-asymmetric-woodland-wargame/

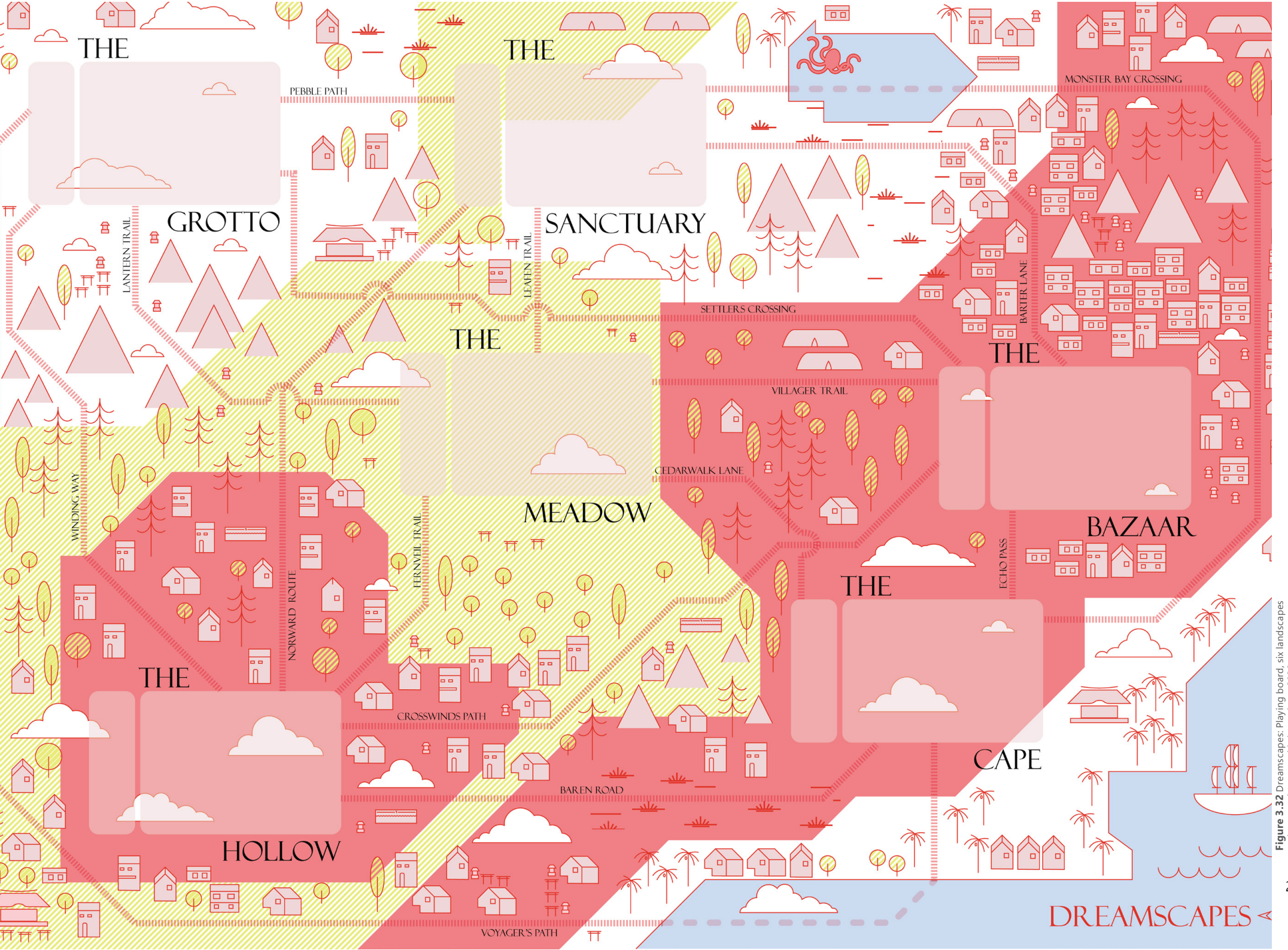


Figure 3.32 Dreamscapes: Playing board, six landscapes and connections, graphic by authors, 2026.

to reconnect to its reference of root - in order to name the places with magical but more tangible labels. The game uses a fill-in-the-blank method, so at the conclusion of the first game, the 6 topics translate into 6 "dreamscapes" named the grotto, the meadow, the bazaar, the hollow, the cape, and the sanctuary. When filled in with the results of the first step of the game, they could take on names such as: the [wellbeing] meadow, the [quality time] sanctuary, or the [better business] bazaar.

Allowing people to imagine what these concepts could look like in an actual city, village, or place primes them to start thinking concretely - making the first step towards design thinking much more accessible.

Players. Each player in the game represents one of the 6 stakeholder factions, though the numbers may be adjusted to fit the workshop. The six characters playing in this game are: Urban Planner (as "Mapmaker"), Developer (as "Builder"), Environmental Advocate (as "Mother Nature"), Social Advocate (as "Monk"), Homeowner (as "Settler"), and the Renter (as "Nomad"). Each role interacts with the spatial control function differently: for example, the Builder may physically expand into new areas, while Mother Nature defends or restores landscapes. These character-specific actions shape how control is established, maintained, or transferred across the game's landscapes.

The Urban Planner, or "Mapmaker," represents an organizational power seeking to find a compromise between the factions, but is not per se loyal to any one faction. They work towards the fair and just distribution of resources to meet needs that lead to a healthy society. This faction's main objective is to increase efficiency between players to achieve the world goal initiative as fast as possible. They control local currency and distribute it where strategically useful to help teammates.

The Developer, or "Builder," represents a character seeking to generate economic benefits from the proposed projects. It refers to the company or entity that would actually construct the project, and is focused on keeping costs down while creating a circular economy wherever possible. This faction's main objective is to grow projects that, in their view, have economic potential. Their presence is essential for expanding a project by providing funding and support.

The Environmental advocate, or "Mother Nature," represents someone who seeks to preserve local ecosystems, encourage the return of permeable soil, and promote new growth of native species. This faction's main objective is to reduce the environmental impact that proposals may have on the earth. They are focused on reducing the quantity of high-impact projects and replacing them with low-impact construction that allows for nature to continue to thrive.

The social advocate, or "Monk," is a character who seeks to protect civil rights, especially the quality of life for renters and homeowners. The main objective of this character is to keep other players in check by imposing punishments on those who become too powerful through certain projects, and by emphasizing the voices of characters who may not have enough support to ensure their needs are met.

The homeowner, or "Settler," is a long-term resident seeking in-depth solutions to the more ingrained problems in their living situation. They represent someone not afraid to commit to a high-cost solution, which may take years to develop. The main objective of this faction is to generate generational happiness and wealth by supporting a healthy balance of different qualities on the playing field.

The renter, or "Nomad," represents a short-term resident who is not looking for generational solutions but for quick ones, with quickly changing needs and a low commitment to costly projects. The main objective of this character is to quickly and simply satisfy their immediate needs, even if it destabilizes others.

Resources and Economies. The game has two in-game economies: the inhabitants themselves and specific tokens. Firstly, the inhabitants serve as a funding mechanism for the existence of certain projects. Each proposal of a blueprint requires a certain number of inhabitants to live in the area at the time of the turn. If the population drops because someone decides it is better to invest in another solution, the project risks failing and returning to the deck of cards. This is a subtle way to influence the game's outcomes.

The second economy is the more literal tokens. The tokens are a sort of in-game currency that reflect the harvesting of different resources from positive combinations, such as a very multicultural population in an area or projects that support cultural or artistic development. Tokens may be used by specific players depending on their type, and are generally distributed and collected by the urban planner mapmaker character, but are also internally harvested and used by the nomad character.

The third economy is that of the blueprint cards. The blueprint cards represent architectural programs that can act as solutions for a site problem. The program cards will usually contain iconography denoting the types of items or elements that make up the space, a typology symbol denoting the category (such as humanities, nature, or commercial), and a short description of the activity there.

Core Mechanics. A typical turn in Dreamscapes consists of player-specific actions, the movement of inhabitants, the proposal of a card, and then the rallying of points. The player-specific actions may

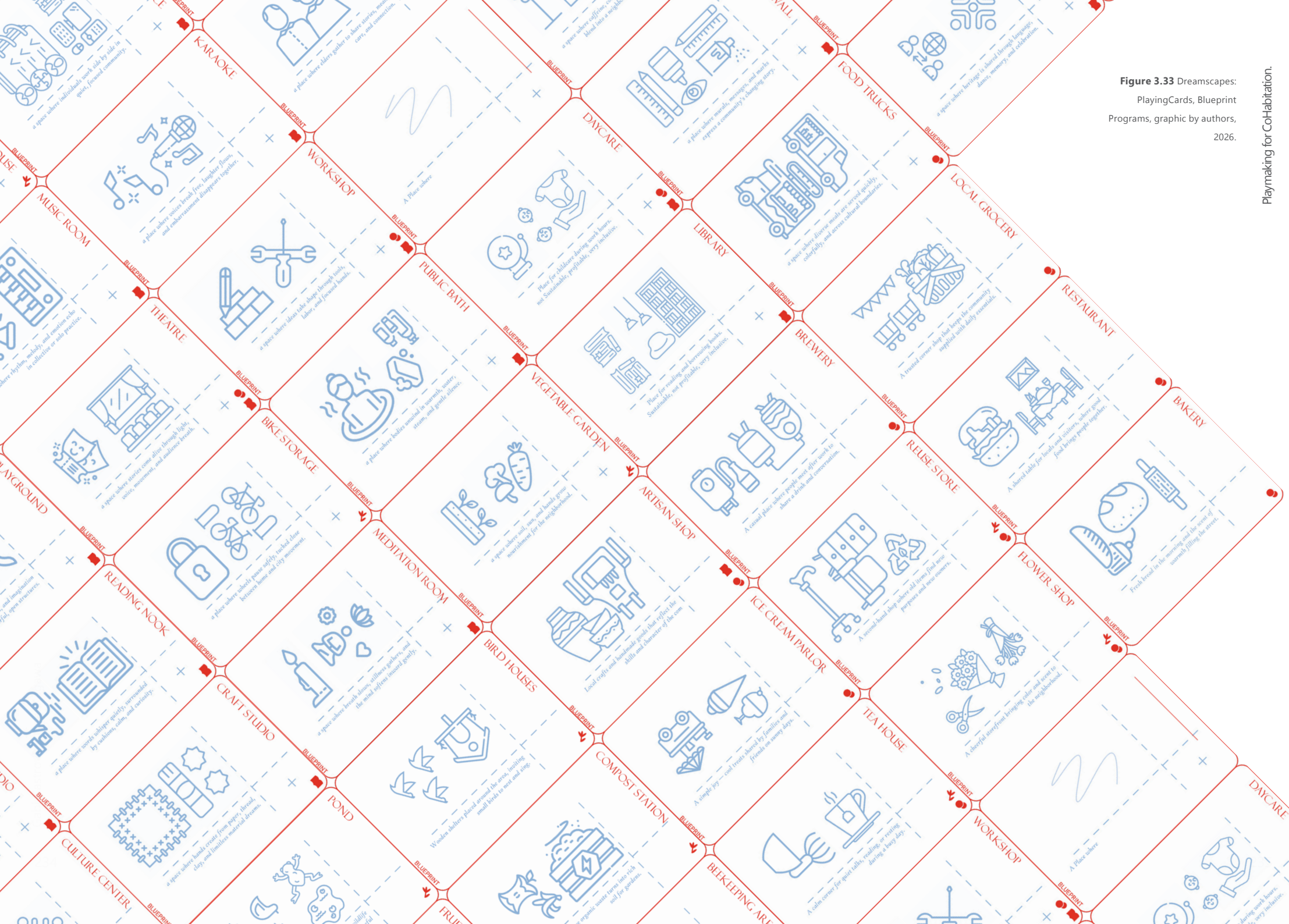


Figure 3.33 Dreamscapes: PlayingCards, Blueprint Programs, graphic by authors, 2026.

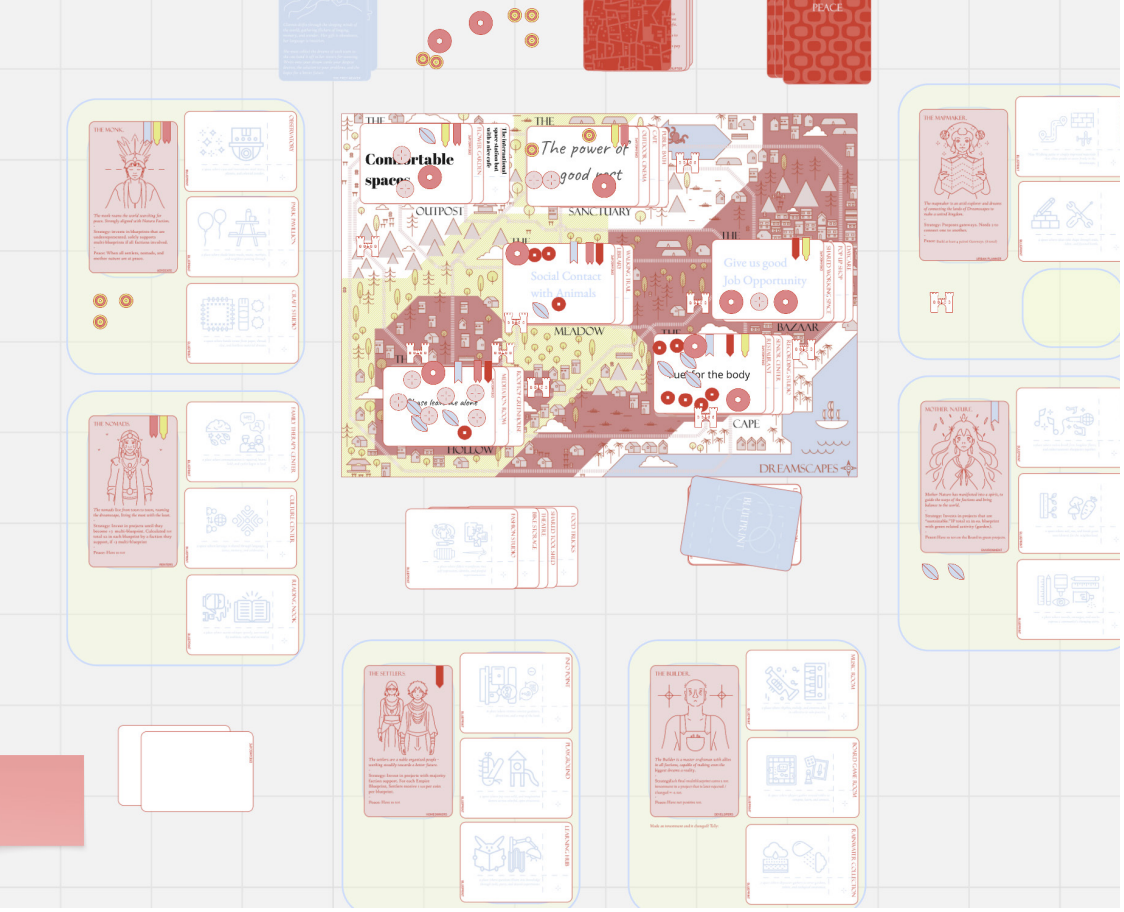


Figure 3.34 Dreamscapes: Game Test, graphic by authors, 2026.

occur at the beginning of the turn or at the end, depending on the specific mechanic (for example, for a builder, it may be collecting profits at the beginning of the turn, while a nomad may be moving a character after points are counted at the end). Players are generally able to move inhabitants to other dreamscapes by taking two turns, and one turn if two dreamscapes are conceptually linked through the presence of a gateway. This establishes a paved path that facilitates player movement, as the two dreamscapes represent issues that exist hand in hand, and thus their solutions may be linked. Then, all players must propose a card in any dreamscape that they are inhabiting.

The scope of this second game is that of translating 6 major "need categories" into landscapes that can be developed to suit the needs of each of the 6 characters. The game uses "investing" as a form of currency that allows for characters to benefit from certain characteristics each of the 6 major themes may have. Throughout the game, characters will match these themes with architectural programs that may address their needs and the specific themes outlined in the first game. At the end of the game, one can look at the board and see which areas benefit certain characters most and which areas may be harder to address. For us, this is an indicator of impact, where themes that positively benefited more characters may have a larger impact on long-term happiness.

Scoring. The game is designed to be semi-cooperative: half towards your personal goals, and the other half towards a shared goal with your teammates. In scoring terms, this means the game can only be complete when you have achieved your personal scoring goals, and when your team has all achieved together the table's goals. In action, each player earns 5 personal points and 25 table points.

Game Mechanics. Game mechanics refer to the possible actions players can take in a game. Game mechanics are defined by the rules that specify the ways a player may interact with others. In our game, players can move and inhabit cities, propose blueprints, and vote on them. Certain players may also have special mechanics that only apply to their character.

We added the movement mechanic after multiple playtests with our colleagues and friends. Originally, we wanted to have a simple vote and agree to develop areas by proposing "blueprint cards" (a sort of program proposal) for each area. We quickly realized that the concept of voting for which place they wanted best by "investing" a form of currency was difficult to grasp, and at times, players seemed uninterested in the outcome of such votes.

> *"Maybe if there is a way to increase the differences between the players, or have more actions specific to them to increase the risk or consequences."*
>
> *-Eoin Denver, Participant in First Trial*

This led us to radicalize the character rules, adding special qualities and powers to each. More importantly, we shifted the mindset—from investing, which originally meant having players vote for spaces on the board by placing tokens, to inhabiting. Instead of voting for a space, we reframed the question: would your character's people actually live here? Would they thrive here? We switched to small personal inhabitant game pieces that can move across the board and travel to other dreamscapes. This reinforces understanding of the consequences of such a design and forces you to think in their shoes.

The mechanics for proposing and voting are essential to gameplay. The main goal of this game is to test, through iteration and simulation, the best-case scenarios for achieving each goal desired by the Round Table. Therefore, we have created a game

Figure 3.35 Dreamscapes: Game Test 2, graphic by authors, 2026.

mechanic in which each player must propose at least one blueprint (or architectural program) per turn to cycle through as many options as possible. Players are able to choose from a hand of 3 cards, which they think will be most useful in an area that will benefit them the most. This enforces critical thinking with a limited set of cards, which helps with faster decision-making.

The third and perhaps most crucial game mechanic is voting. When a card is proposed for an area with a blueprint, players must vote together to decide whether it improves the current situation. Each player in that area must make a rational decision about whether this blueprint benefits their character, and if no subjective reasoning exists for why one is better than another, players may tap into their own personal taste and desires to make decisions together. In this way, everyone is responsible for making design decisions carefully, evaluating their impacts, and, through democracy, making a decision that benefits the majority.

Finally, the last game mechanic is spending tokens. The game uses a form of currency, or tokens, with different types that can be used by specific characters. Characters may use these tokens to help themselves or help others, which will improve the cooperative score in the game. Each player has character-specific mechanics as well. In the following pages, we will show each character board and how their gameplay can manifest differently.

Conflict and Disruption. The game models conflicts through disruption cards, which put players in increasingly difficult positions that strain their relationships and force them to think critically about what is essential to support their own needs and to offer benefits to others as well. Most importantly, the game has specific rules and mechanics that eliminate an individualistic mindset, where players may actually lose points for not supporting other players. Other characters, for example, can be activated to support players in need, such as the mapmaker, which earns points from thriving players and can then redistribute them to players who need extra voting power or economic support to make their projects a reality. This mechanic is based on a system of checks and balances whose goal is to prevent monopoly in a game that is meant to be compromising.

Victory Failure and End States. The game ends only when all players reach personal peace, defined as five points in their individual goals, and have collectively contributed a total of 25 world peace points. These world peace points represent factions that are thriving and capable of producing a continued surplus each turn; however, what constitutes surplus is defined differently for each character. As a fully cooperative game, completion is possible only when all players meet all conditions, and play continues until this shared state is achieved.

In relation to real-world planning and governance, winning the game corresponds to having identified two to three high-impact projects that benefit a large number of stakeholders, as well as recognizing architectural programs that, in combination, can meaningfully respond to the situation at hand. Since each landscape in the game represents a specific resident issue, the blueprint programs proposed can be un-

THE MAPMAKER.

The mapmaker is an avid explorer and mediator whose role is to travel, collect resources and redistribute them.

Avid Collector
You are interested in collecting resources that different dreamscapes offer you.

Royal Aid
Supported by the Royal Guard, you are able to redistribute what you collect in your travels to help people.

1 COLLECT

From each dreamscape with a royal guard, that guard may collect one resource. This may be for a dreamscape whom: has more than 3 different types of inhabitants (diversity token), is connected by more than one gate (traveler token), has more than one blueprint (legacy token), has a commercial blueprint present (wealth token), has a nature blueprint present (nature token), has humanities blueprint present (humanities token)

2 AID

You can give 1-3 tokens per turn to players in need excluding diversity tokens, which help you personally achieve your own peace.

3 DEPLOY

You travel with the protection of the royal guard, knights and diplomats who can be stationed to collect resources peacefully from a dreamscape. You can move up to 2x (move into map, relocate area, or remove from map).

5 PEACE

for every diversity token you receive, you will earn one personal peace point

4 PROPOSE

You MUST propose one blueprint per turn, and replenish your hand with cards from the draw pile OR cards that have been discarded from losing votes.

1 2 3

Blueprint Storage

6 WORLD

You are the collector of word peace. Your teammates will tell you if they have a point to add!

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 The End.

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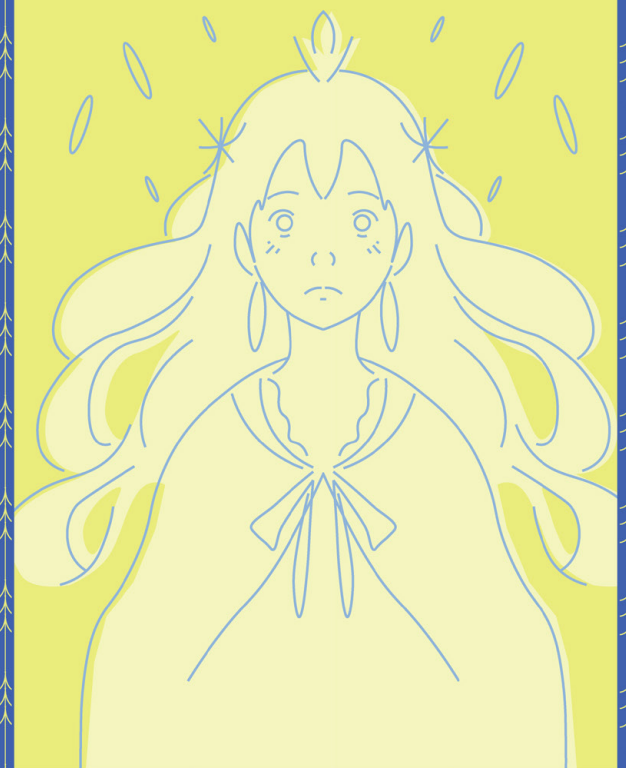
Figure 3.36 Dreamscapes: Mapmaker character board, graphic by authors, 2026

MOTHER NATURE.

Mother Nature is an all powerful spirit whose role is to ensure that nature is preserved, protected and honored.

Protectress of Ecosystems
She fights desperately for nature blueprints to thrive.

Overgrow
Additional to her one proposal per round, if any additional green blueprints in her hand may also propose a second blueprint.



1 MOVE

Mother Nature leads her nymph followers, who thrive in places where nature is preserved and highlighted. You can move up to 2x (move into map, relocate area, or remove from map).

2 SPEND

Tokens are resources that your faction may lack. You can only accept Humanities Tokens from the royal guard which may be used for: using 1 MOVE to relocate nymph even if the areas are NOT connected by gates, trading 1 blueprint from the mapmakers hand with one of your own, or adding one extra point to the vote for a blueprint.

5 GIFT

After reaching personal peace, Mother Nature can generate a world peace point in many ways:

1. *1 point for more than two nature blueprints are present.*
2. *2 points for outvoting a blueprint with a nature one.*
3. *3 points for one dreamscape with 2 nature blueprints.*

4 GROW

Mother Natures power grows once each round that 3 or more dreamscapes have a nature blueprint.

Personal Peace

4
3
2
1

if you have less than 2, you must "wither" and lose one point, ex. 3>>2.

3 PROPOSE

You MUST propose one blueprint per turn, and replenish your hand with cards from the draw pile. Each blueprint costs either 3 inhabitants, or 1 builder.

Blueprint Storage
3
2
1

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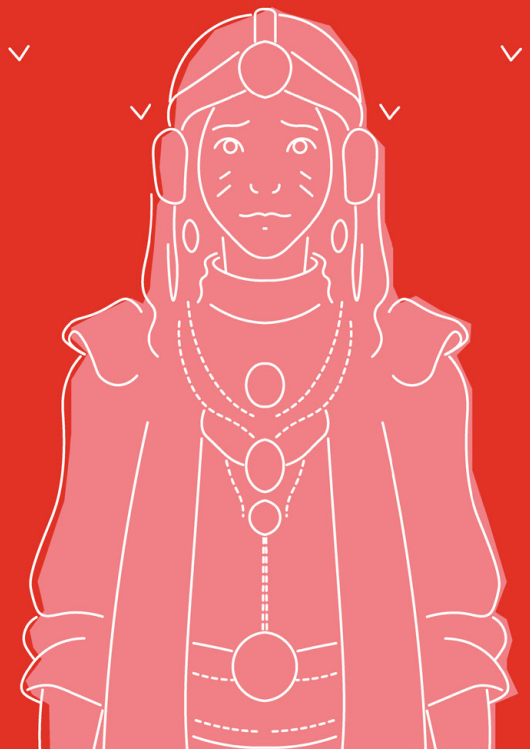
Figure 3.37 Dreamscapes: Mother Nature character board, graphic by authors, 2026

THE NOMADS.

The nomads roam the dreamscape, in search of low commitment quick fixes to improve life.

Searching for a Simple Life
The nomad likes to live in areas where there aren't too many blueprints.

Free Drifter
You are the only player allowed to move ONE nomad ONCE per round at any point during anyone elses turn.



1 COLLECT

Nomads being skilled traders, can collect from the local people resources from their site: a nature token from a nature blueprint, a humanities token from a humanities blueprint, and a wealth token from a commercial blueprint. Nomads may only hold up to 2 tokens, others are discarded.

OR

TRADE . . .

You may trade a token received by the mapmaker to prevent losing a level - see 3.

4 MOVE

Nomads can only earn tokens from areas where there is a maximum one blueprint. You MUST move 2x (move into map, relocate area, or remove from map).

Blueprint Storage
3
2
1

2 PROPOSE

You MUST propose one blueprint per turn, and replenish your hand with cards from the draw pile. Each blueprint costs either 3 inhabitants, or 1 builder.

world peace +3! repeat from line below to earn again

any token

*world peace^*
personal peace

3 SURVIVE

Nomads can only collect tokens if the area is not overdeveloped (<2 blueprint). If they cannot manage to collect the resources they need at this step, they must go one step backwards. If they have enough resources to advance the journey further, advance.

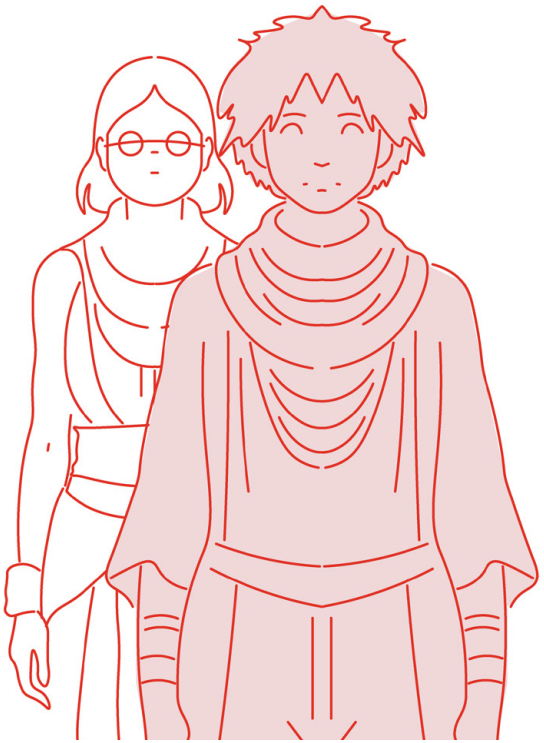
Figure 3.38 Dreamscapes: Nomad character board, graphic by authors, 2026

THE SETTLERS.

The settlers are a noble organized people - thriving mainly from humanities blueprints.

Protectors of lineage.
They understand how culture and education empower the young & take care of the old.

The final say
In a vote, they break the tie, and once per game, they may veto a decision.



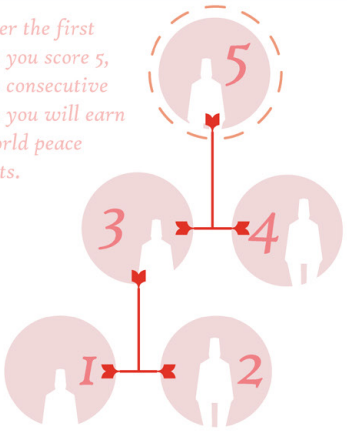
1 PEACE

Settlers earn peace points from dreamscapes with a humanities blueprint. Each settler may collect 1 point by having settled on a dreamscape with a humanities blueprint.

Growth of the Family tree.
If there are >1 settlers, you may receive 1 total extra peace point for the birth of a child.

Tourist Tax
Settlers who have just arrived to a town must wait one round to collect from it.

**after the first time you score 5, each consecutive time you will earn 2 world peace points.*



Advancing one family member at a time, players must score the number of points written on the circle or more to advance to the next family member to move up the family tree. You may move wherever there are connections, but all members must be satisfied. ex. 3>5>4 ok

2 SPEND

Tokens are resources that your faction may lack. You can only accept Traveler Tokens from the royal guard which may be used for: adding 1 pt per token to your peace point score once, or to pay the tourist tax.

4 SETTLE

Settlers can move up to 2x (move into map, relocate area, or remove from map). If moving, remember that Settlers who have just arrived to a town must wait one round to collect from it.

3 PROPOSE

1 2 3

You MUST propose one blueprint per turn, and replenish your hand with cards from the draw pile. Each blueprint costs either 3 inhabitants, or 1 builder.

Blueprint Storage

Figure 3.39 Dreamscapes: Settler character board, graphic by authors, 2026

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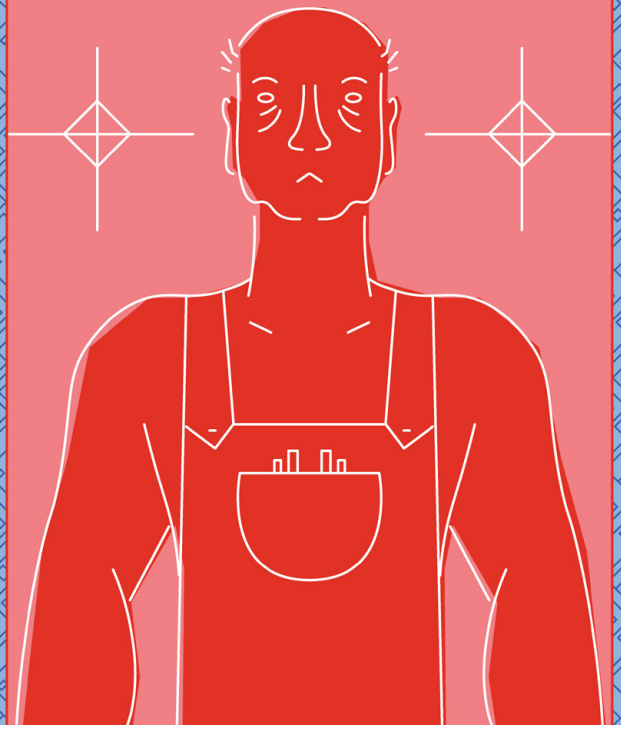
THE BUILDER.

The Builder is a master craftsman looking to expand his business empire by making large, preferably profitable projects.

Open for Business
The Builder is able to turn blueprints into profit by employing his workers to make them commercial.

Skilled Craftsmen
The builders craftsmen are able to expand a dreamscape to allow for two dreamscapes even without 6 people on it.



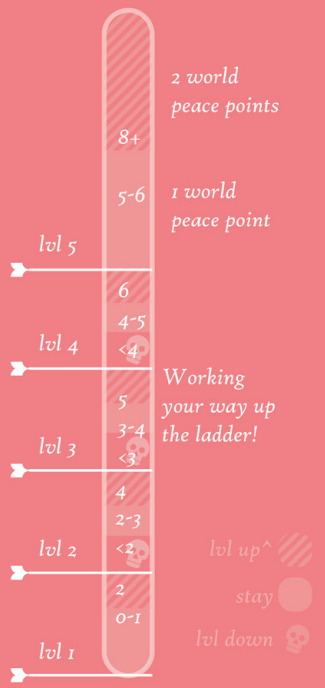
1 COLLECT

First, you must collect your profits for each craftsman you deployed.

PROFIT COLLECTION RULES
A site must host 2+ other inhabitants for a craftsman to profit.

Profit:
+1 pt per craftsman
+1 bonus per commercial blueprint.

Stacking Craftsmen
Placing a second craftsman on a site doubles the blueprints profit this round — but if the site fails to qualify the inhabitant rule, you lose 1 pt instead.



2 SPEND

Tokens are resources that your faction may lack. You can only accept Nature Tokens from the royal guard which may be used for: adding 1 pt per token to your profits in order to avoid going back a level, OR trading 1 blueprint from the mapmakers hand with one of your own.

3 DEPLOY

Deploy all of your craftsmen based on which profit bracket you are in. (lvl 1 deploys 1 craftsman, lvl 2 deploys 2 craftsmen ... etc). Check your profit rules to see where to send your craftsmen.

4 PROPOSE

You MUST propose one blueprint per turn, and replenish your hand with cards from the draw pile. Each blueprint costs either 3 inhabitants, or 1 builder.

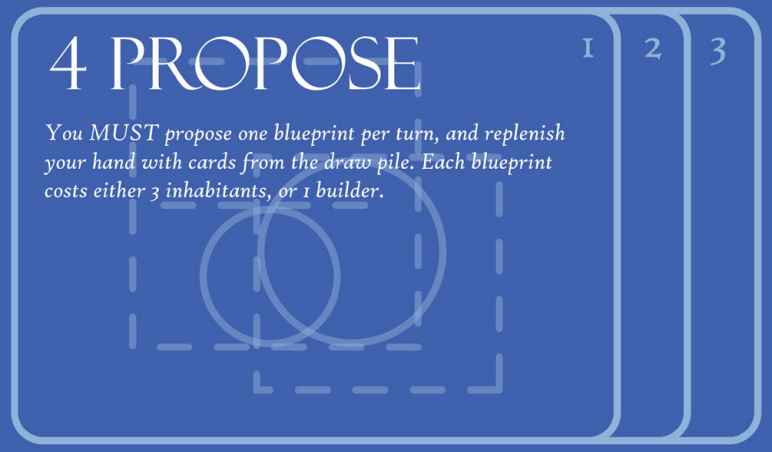


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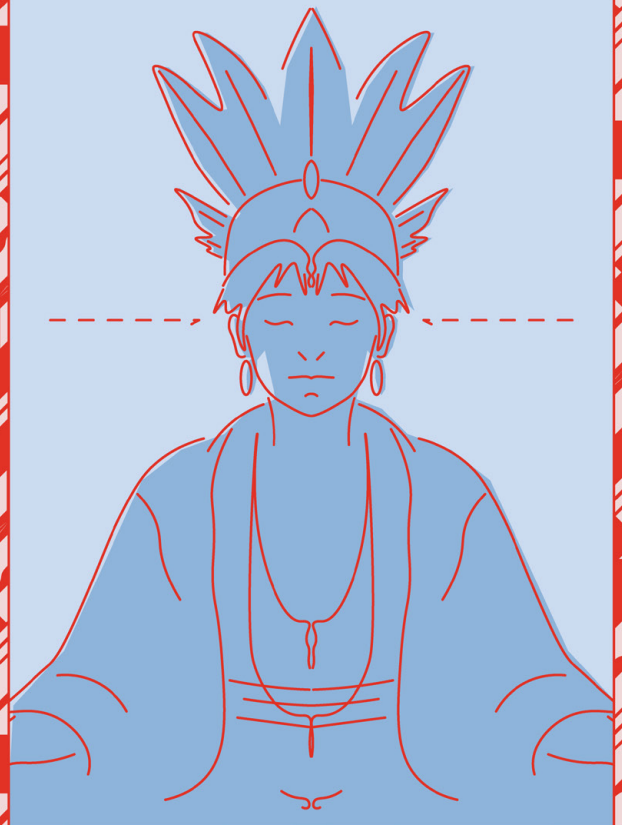
Figure 3.40 Dreamscapes: Builder character board, graphic by authors, 2026

THE MONK.

The monk roams the world searching for peace. Constantly in touch with the others, he sends aid to whomever is most in need.

Helping Hand
Builds friendships with characters in order to support dreams by sending disciples to help projects get approved.

Righteous Curse
The monk may curse a dreamscape, not allowing one inhabitant of choice to vote.

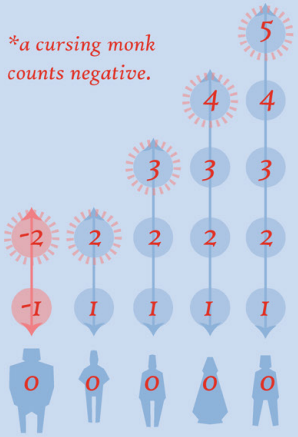


1 AID

The monk may either aid with friendships, or withdraw from them.

For ea. monk, count how many of each clan share their dreamscape.
Each = +1 Friendship Point for that clan.

**a cursing monk counts negative.*



Personal Peace
Personal Peace is achieved 4 clans at max friendship goal. After achieving personal peace, you may contribute to world peace.
World Peace
3 clans at max friendship goal in one round.

2 CURSE

This Cursing disciple will act as a (-1) to the population count. The cursing monk can move to any location in 1 move.

3 BLESS

Send your disciples to aid players in need. You can move up to 2x (move into map, relocate area, or remove from map).

6 PROPOSE

You MUST propose one blueprint per turn, and replenish your hand with cards from the draw pile. Each blueprint costs either 3 inhabitants, or 1 builder.

Blueprint Storage
1
2
3

4 SPEND

The monk may receive only Wealth Tokens from the mapmaker, and may invest them in: using 1 MOVE to relocate monk even if the areas are NOT connected by gates, trading 1 blueprint from the mapmakers hand with one of your own, or adding one friendship point to one clan.

5 WASH

if you do not share any dreamscape with a clan, decay one friendship point towards 0.

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Figure 3.41 Dreamscapes: Monk character board, graphic by authors, 2026

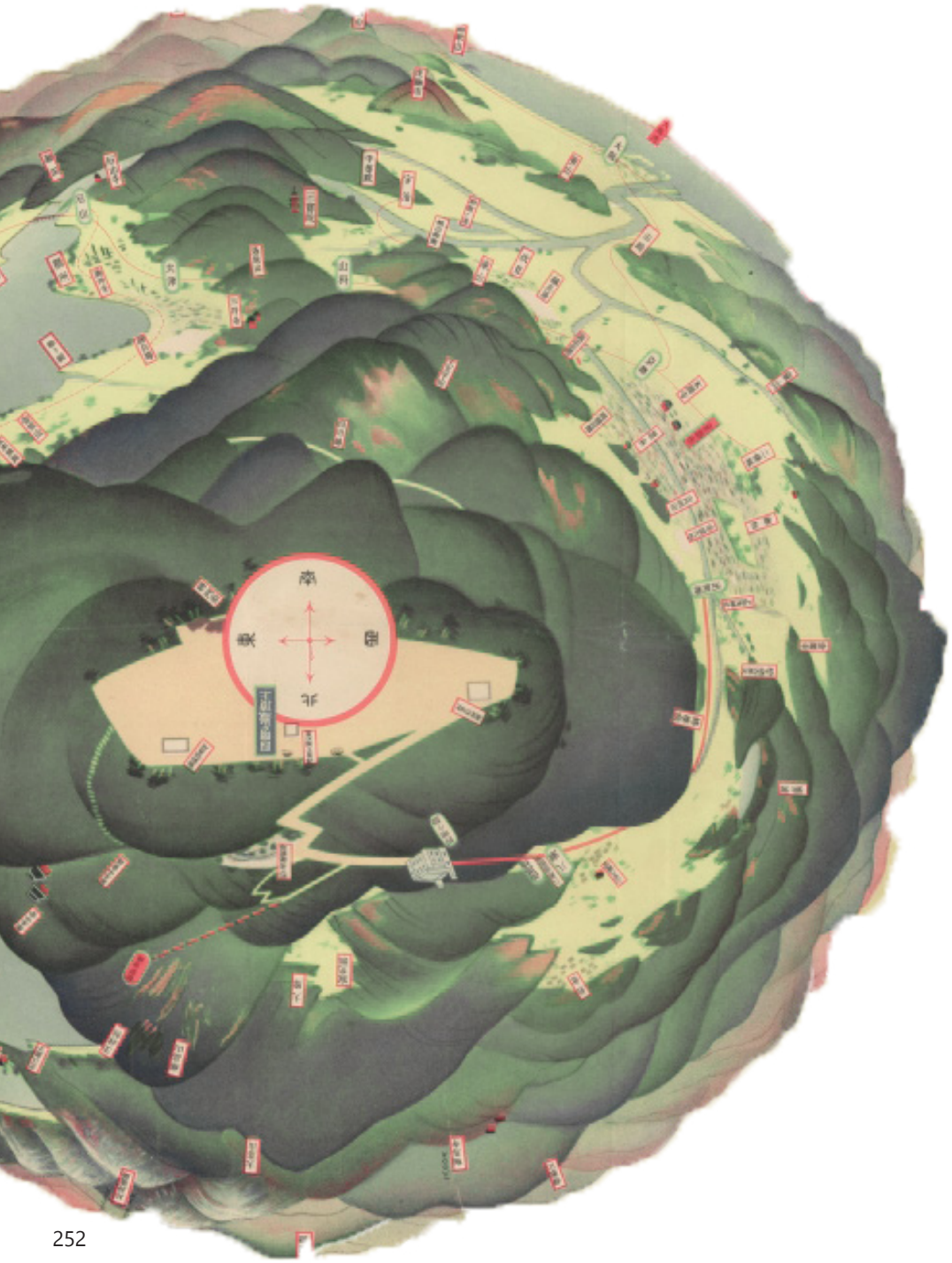


Figure 3.42 View from the top of Mount Hiei, Multi-Directional Bird's-Eye View Map. by Yoshida Hatsusaburo, 1926. 叡山頂上一目八方鳥瞰圖

derstood as plausible design responses, ideas that an architect, designer, or players of a sequel game could further develop.

Beyond producing proposals, the game also functions as an analytical tool. It makes visible how support accumulates around particular issues, where collective attention tends to gravitate, and which interventions generate the widest consensus. In doing so, it produces a quantifiable map of issues and relative support, alongside a set of project-based responses aimed at addressing the needs of the greatest number of people.

Part 3 The Seed: Design Thinking

The third game is a cooperative puzzle game in which players must translate the Design Brief into a shared spatial proposal by collaboratively assembling spaces using limited resources, rewarding repair, reuse, and creativity over consumption. This game considers outcomes from the past two games to create a participatory spatial assembly game. To enable participants to collaboratively transform an abstract design brief into a concrete spatial configuration, using playful, low-tech, hands-on tools inspired by paper dolls and modular furniture cut-outs. Its purpose is to make spatial decisions visible, encourage negotiation and consensus, and reward reuse, repair, and creative transformation of existing resources.

GameBoard and Metaphor. The board is designed in birds-eye view axonometry, a traditional form of drawing seen in ancient Japanese maps that recalls the history tied to the places reinterpreted featuring modern architecture. It is also a key design strategy for the game, because it allows players to visualize and interact with elements both in elevation and in

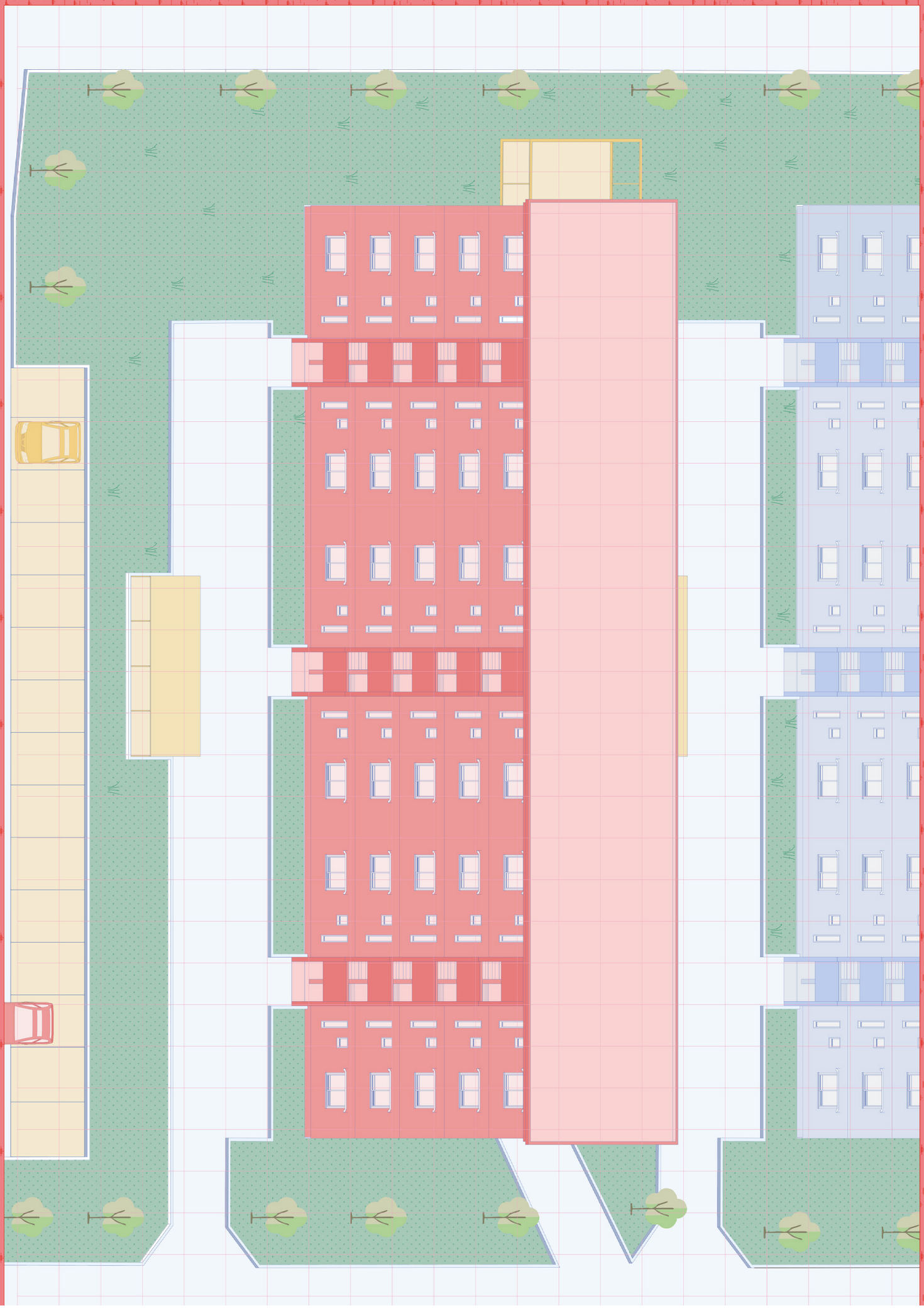


Figure 3.43 The Seed: External space game board, graphic by authors, 2026.

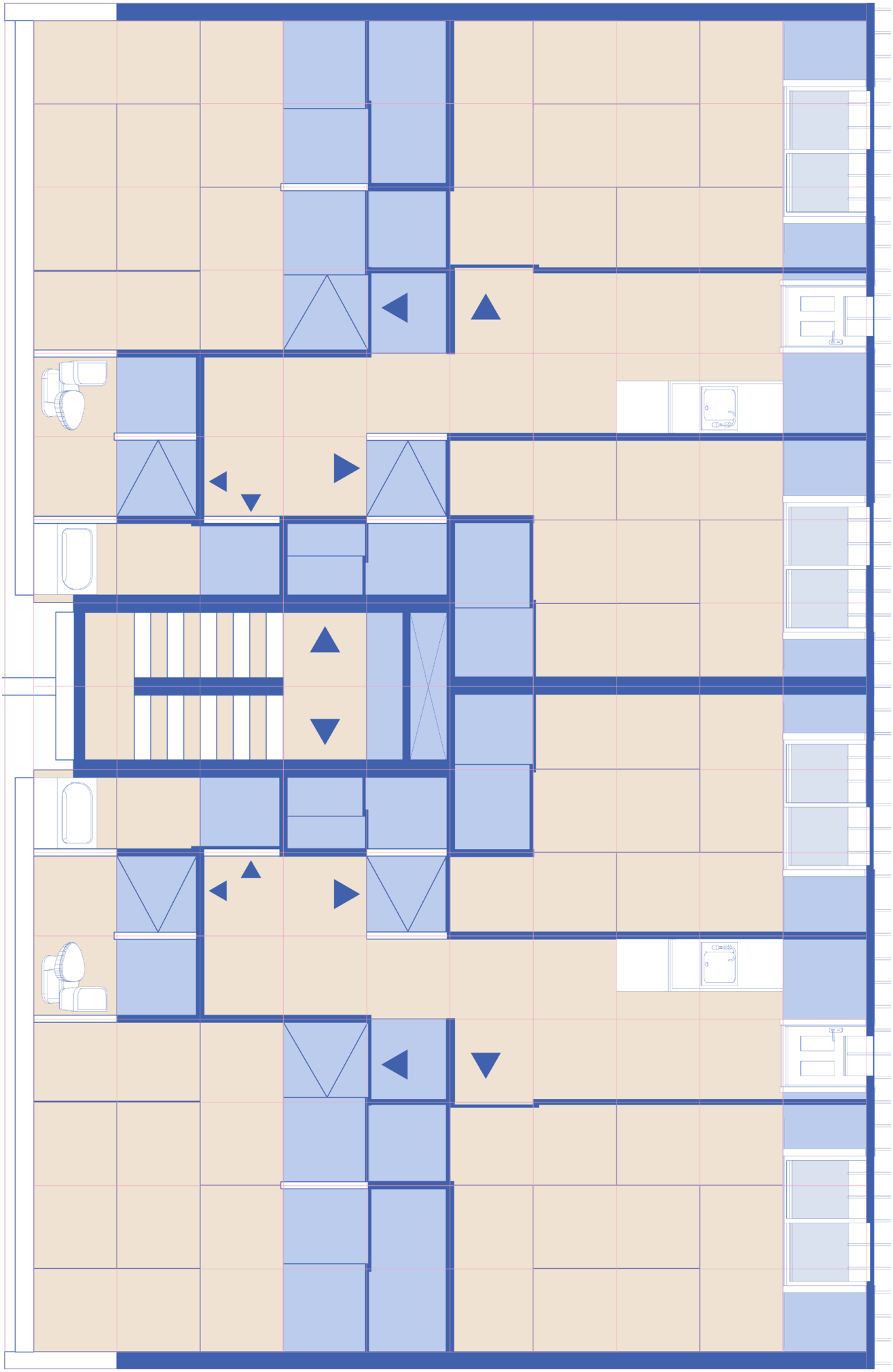


Figure 3.44 The Seed: Internal space game board, graphic by authors, 2026

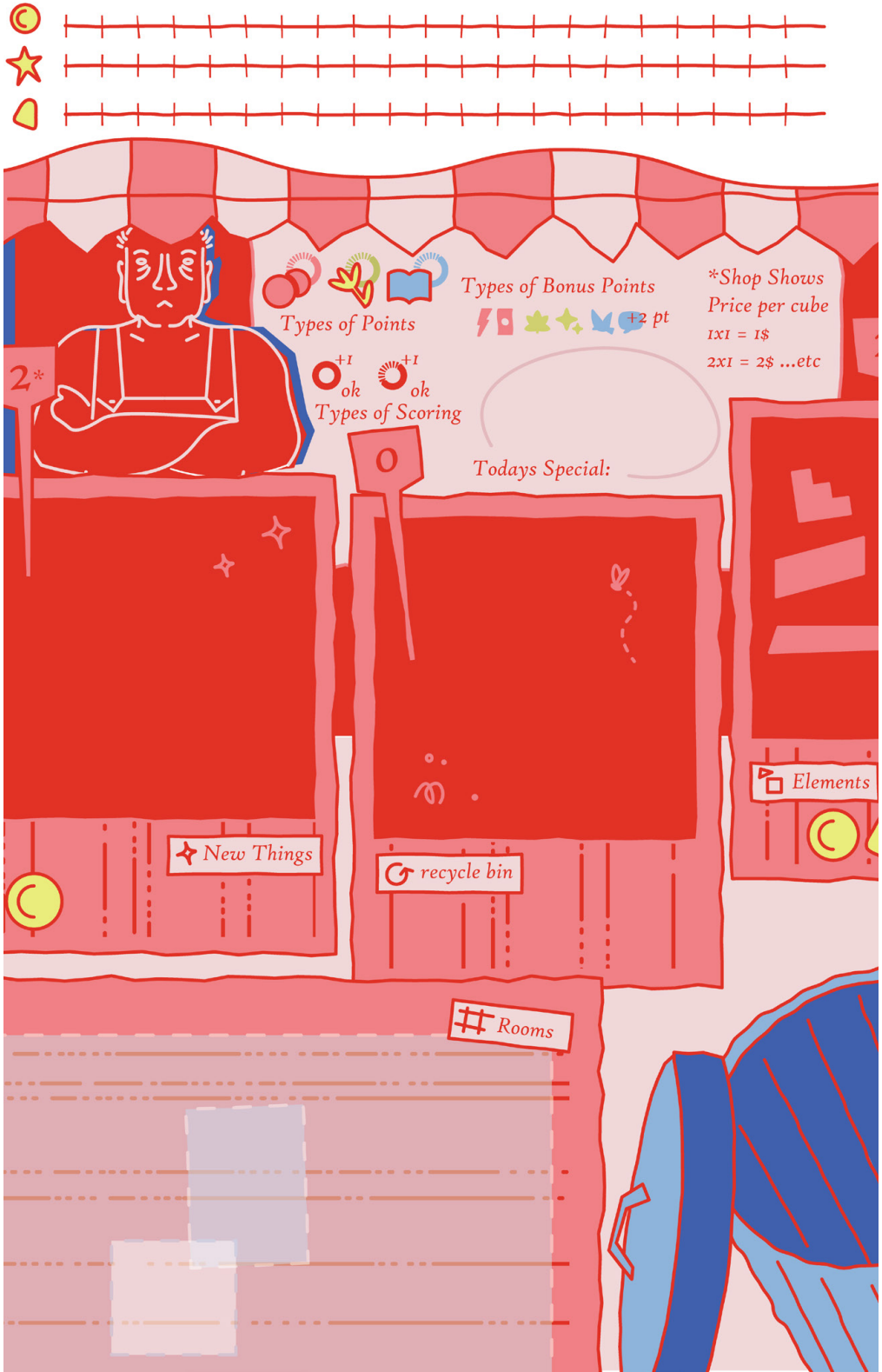


Figure 3.45 The Seed: Shop, graphic by authors, 2026.

plan, allowing players to engage in 3d to the game.

The game board is designed so that both the interior and exterior architectures, as well as parasitic architectures, are possible. We have designed one board based on our current site - Homi Danchi, but understand that this model of a "tofu" Danchi typology is commonly seen throughout Japan and can apply to many different case studies. The board is neutral and generic, aiming to avoid any aesthetic style or designed spaces, leaving blank areas for players to develop.

Players. The players in this game are equal, and each represents a single design idea or method. With each person attacking the problem from different perspectives, the game will naturally go through an iterative process of improvement. This game, unlike Dreamscapes, is symmetric, and as such, all players have the same universal rules applied to them.

Resources and Economy. In this game, we have 3 main currencies and 4 types of playable materials. The three currencies are:

Raw materials: refer to the amounts of raw materials that can be found on site. This could be anything from a pile of bricks to sheets of glass or wood. Each unit of material refers to a quantity large enough to make 1 cubic meter structure.

Money: Money refers to the real-world currency and purchasing power a specific community has when creating something new. Each unit of money is roughly 50 euro or 10,000 japanese yen.

Labor: The hours of time people are willing to give to build or improve something. Each unit of labor is roughly 2 hours worth of work.

The currencies act as an in-game economic simulator, showing how different situations may yield different design scopes. Each currency has different spending power; for example, raw materials can be used to make architectural elements such as platforms and coverings, but cannot be used to purchase new items. Instead, labor is useful in repairing items that are broken or unusable denoted by a pink shading. The currencies in a typical "arbitrary" game may just be decided along the team by a total of rolling the die 3 times for each resource.

In the case of a specific design study, the resources will be determined by abstracting their real-world constraints. We can assume that each square on the board costs approximately 10,000 Japanese yen (about 50 euros). In-game, the store shows how many resources we have, so each tick on the slider represents one unit of about 10,000 yen, the average of the cubic metre prices of all items in the game. Similarly, raw materials are referenced by one cubic meter or by raw materials that have the potential to form a surface of 1 m2 x 1 m2, or a partition, etc. Labor is determined by the amount of labor that 10,000 yen could buy. For simplicity, you can imagine that this is around 2 hours in real-world time.

The 4 types of playable cards are: architectural elements, reusable items, new items,

and rooms.

Architectural elements are spatial constructions that affect the reading of the space. Beyond furniture, they can modify the 3D makeup of the room or alter its perception. These include: stages, windows, doors, partitions, stairs, level changes, pits, nooks, bridges, and coverings.

Reusable items are those found at the actual site and may be used for free during the game to incentivize reuse. They may be damaged and need to be repaired by the players.

New items are brand-new items that can give character to the space. These may be determined randomly by the game host.

Rooms are any architectural enclosure, usually a simple shoebox-style room that can serve as a blank canvas for continued play.

The game can be expanded based on case studies and revisited as "expansion packs." In this case, we are considering only "Homi Danchi – Edition," so it's a set of resources that can be found in the area.

Core Mechanics. A typical turn consists of a character carrying out one or multiple actions in order to improve the score. To make a point, the cards must be placed next to or near each other to add to the score. Based on the goal program cards, players can see which types of points should be made.

Players must score a point by doing any of the "actions" with the cards in their hand or by selling and buying new cards. The turn ends when the player has increased the score, and the next player's turn begins. All players have the same rules.

Figure 3.46 The Seed: Shop instructions and example of scoring blue and green points, graphic by authors, 2026.

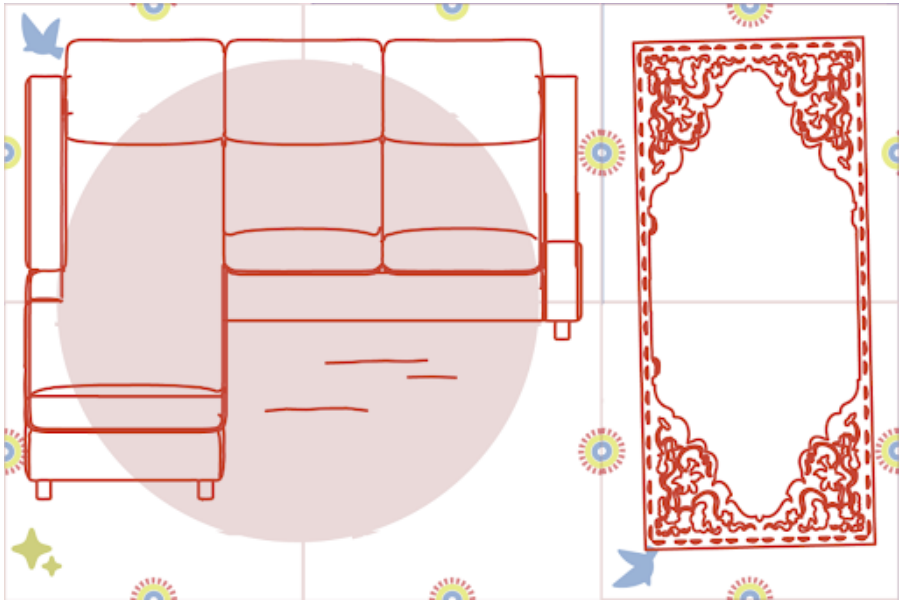


Figure 3.48 Example of player actions, graphic by authors, 2026.

Figure 3.47 Example of player actions, graphic by authors, 2026.

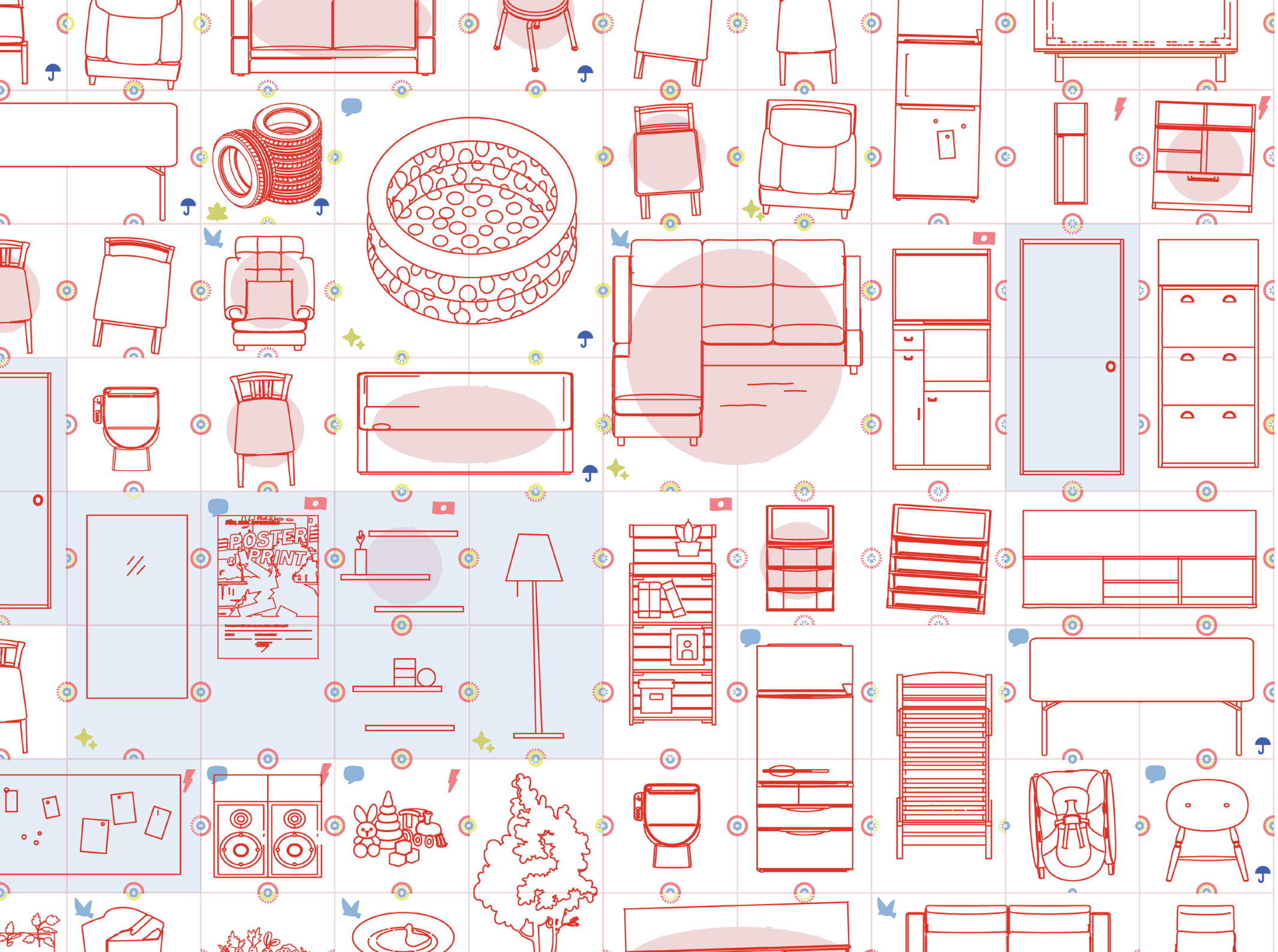


Figure 3.49 The Seed: Playable Resource Cards, graphic by authors, 2026

Conflict and Disruption. This game models conflict between ideas as a series of "iterations" that each player's turn creates on the in-game design. In other words, players build on their ideas equally, in a repetitive pattern that allows everyone to have a share in optimizing the proposal. The only limitations we have is that certain cards cannot be placed outdoors, to limit the creation of unrealistic spaces, and that certain cards by nature, are not able to score certain points because we deem them not to have the potential to (such as radio earning points for ecosystem improvement).

Victory, Failure, and End States. The game ends when no player can improve the universal "design" score. The design score is calculated by seeing which cards' "adjacencies" are scoring points. Cards have the ability to score a point if: both cards have the same trait and are placed next to each other, or if one card has the potential trait and the other has that trait. Potential trait refers to the ability of something in conjunction with other things to create value. Value in our games is defined in three types that recall the previous game, where we simplified all public architectures into three types:" humanities (for public service and culture), commercial (for economy and movement), and nature (for a healthy environment and lively ecosystem. In the game, there can be losers, but the game ends when no one can improve, so players may compete to be the last to improve their score. Winning will mean that players have identified the key relationships and dynamics that yield the greatest benefits for the design of the type of space they would like. This is a powerful tool for organizing people's ideas and balancing the reuse resources they may use with the new material and design they bring to the project.

Gabi Castro & Ismael Kanjaya

CHAPTER 4

Figure 4.1 Game Test 2: Dreamscapes. View Captured from Miro.

GAME TEST RESULTS

Before starting the game, a few ground rules were set to achieve results we feel are authentic and unique - but, most importantly, to become the jumping-off point for a valid, high-potential design in the future.

In terms of players, we ensured a diverse demographic and that each person brought a unique lived experience to the table. Second, we made sure that they had at least our Japanese colleagues' experience living in Danchi. Although we would have loved to meet and test the game with actual residents from our site, our Mentor and connection, Professor Saito San, had recommended that residents were not particularly open to communication with outsiders and had resented past efforts. In the end, we contacted fellow acquaintances we met during our Danchi tours, who were quite passionate about Danchi living and lifestyle, one student from Tokyo University, and 3 mixed background young generation students who all have Latin roots, one of whom is working in the industrial sector - the exact demographic of most nikkei in Homi Danchi.

The second precondition we focused on was to allow players to interact with the game with little to no guidance on which roles they should play, and not to try to "exaggerate" or "impersonate" someone they are not. For example, telling them that they are playing to improve their life, specifically in an apartment, may lead someone to focus on physical changes they would like to see rather than reflecting on their own life and which conditions are essential to their happiness. We wanted to broaden the game's horizons and potential outreach so that we may, with a more holistic approach, understand the possible critical issues within Homi Danchi.

The final preconditions refer to the starting conditions of the third game. As the third game start condition requires a general economic budget, a labor force, and raw material assets, we were able to roughly determine Homi ~~Danchi's starting conditions. As dis~~cussed in the rules chapter of the Seed game, each unit of money in the game corresponds to about 10,000 yen, or roughly 50 euros. Using the existing Danchi renovation and art activities of organizations such as Juntos, we estimated the budget for that project ~~would have been around 10,000,000~~ Yen, or roughly 1000 euros. We set this as the starting condition for economic means, or "coins" available in-game. The second was the labor force. As per our conversations with Saito San and the local gardening cleaning crew, we learned that Homi Danchi actually has a large number of willing inhabitants looking to improve living conditions. Each unit would equate real-world to about 2 hours of physical labor, and so for this unit we set it at the maximum available - 40 hours, or roughly one entire week of work (8 hours a day). The third and final factor was raw material. This element is a little more abstract to calculate correctly, but we measured the amount of raw materials needed to create a "square's worth" (about 1 by 1 meter) of design material, such as a stool or chair, or a piece of wall about 1 meter wide. For this, based on the photos and the survey we had conducted on raw materials found in and around the site, we saw a high quantity of wooden planks, bricks, and panels, which we deduced could roughly equate to 15-20 "square's worth" of material, or about 15-20 chairs, or about 5-6 meters long of a 3 meter tall wall.

GAME 1: ANALYZING DESIRE

Game 1 took approximately 15 minutes including a brief introduction to the rules. Players cast their dreams onto the board, and results varied dramatically from those who wrote one word answers to those who wrote longer phrases. Topics brought to the table at the end of game 1 showed several emerging patterns and themes that were the grouped into the following topics:

Flash Connections: Need for better transportation and connectivity

Forest of Dreams: Need for higher quality sleep environments

Cloud Heaven: Need for safe spaces to dream and be imaginative

Fluffy Friends: Need for comfort and coziness

End of the Rainbow: Need for Wealth and economic independence

Animal Crossing: Need for spaces where they can explore hobbies outside of work or education.

In the first phase of the game, players were asked to cast their dreams into the "cloud." It was quite silent at first with some players being able to quickly write dreams, while others struggled to consider what were the most important dreams they wanted to start with.

In the second step of the game, players began interacting with each

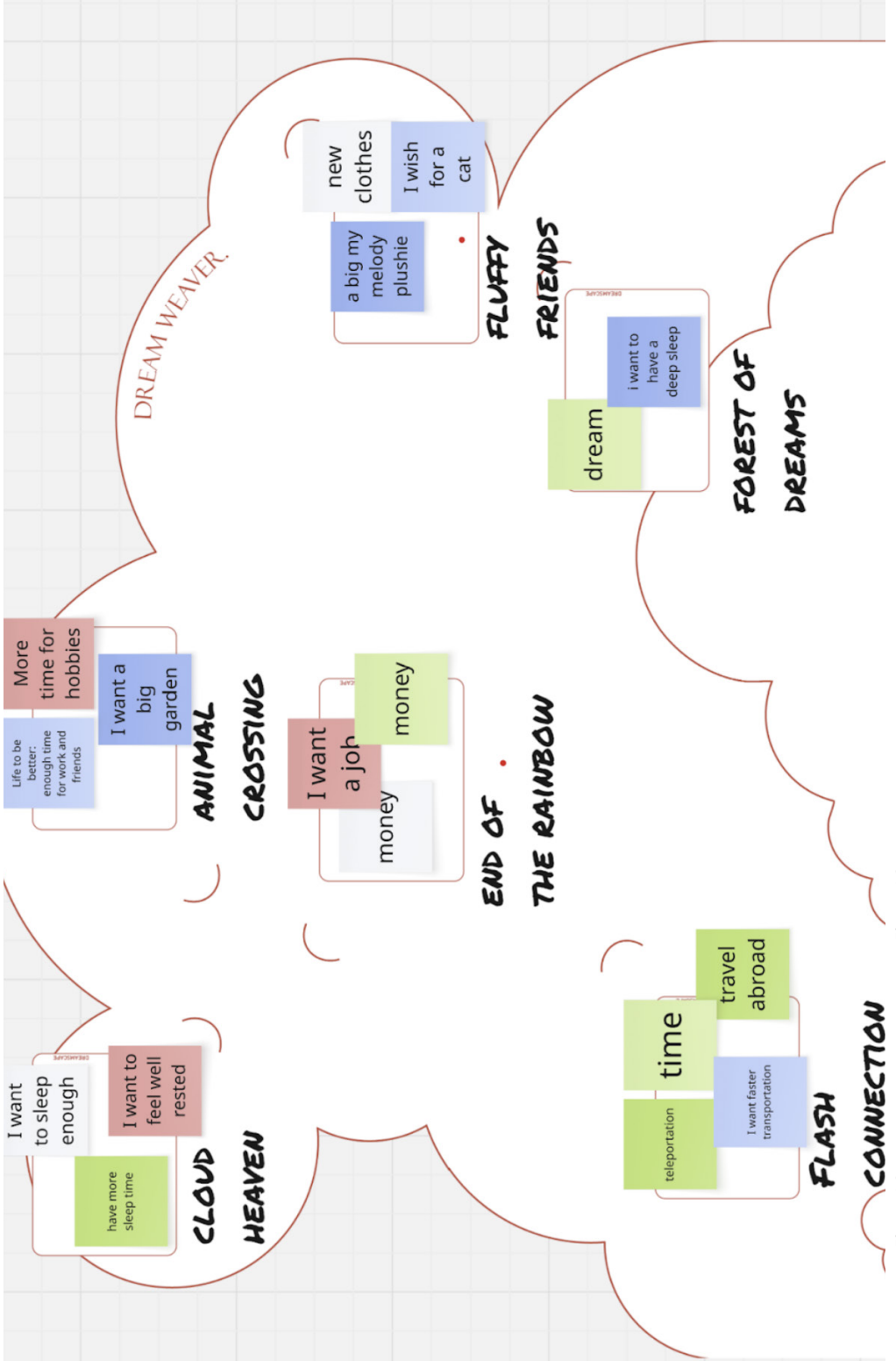


Figure 4.3 Game Test 1: Dreamweaver. View Captured from Miro.

Figure 4.2 Game Test 1: Dreaweaver. Collage of Game Assets. By authors.

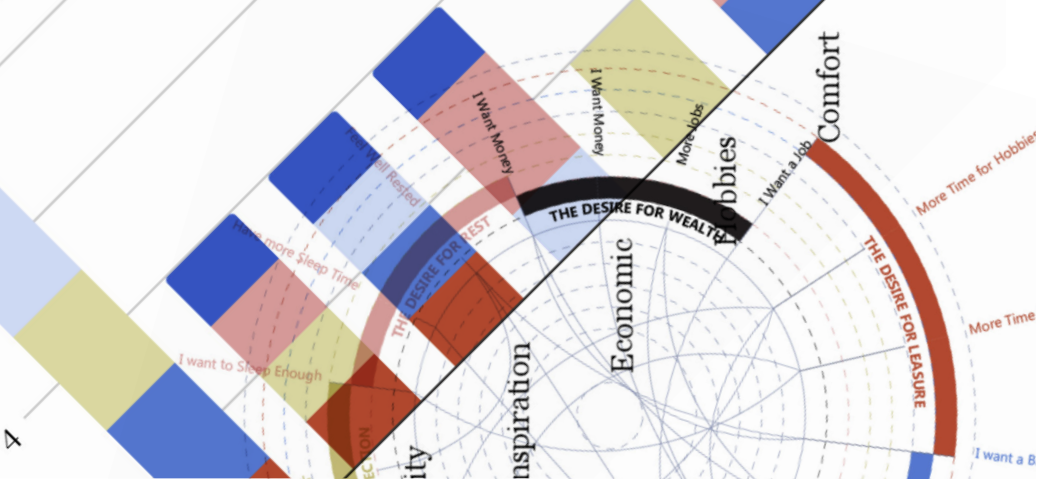
other, and the game's creative element came into play. It was very apparent that the players had very different communication styles, and it was quite difficult at times to understand whether they were all on the same page regarding accepting or participating in the creation. Our Japanese side of the discussion was especially quiet and shy to test different names, and the Latin side was very open and vocal. We do, of course, have to mention that although everyone was quite fluent in English, we do feel it is worth mentioning that for our Latin colleagues, English was a more comfortable language to express themselves in, while for the Japanese colleagues, English is a more difficult language to handle and express fluidly. The names during this round of the game were quite creative and also quite niche, as a result of our Latin players getting excited about giving each one meaningful names that speak to the original sentiment. One such dream, End of the Rainbow, brought to the table the discussion that, in Irish culture, which extends to many Anglo-Saxon cultures, there is a common belief that leprechauns sit with a pot of gold at the end of the rainbow.

In the Animal Crossing dream, players discussed how the dream recalled the atmosphere and goals of the video game of the same name. Animal Crossing, a popular Nintendo game, embodies a "slow life " style where you have time to spend your days calmly and develop various hobbies. Given the game's Japanese origins through Nintendo, it was another interesting cultural crossover that players could relate to regardless of background. It was wonderful to see how players worked together to synthesize their dreams and negotiate cultural expression as they did so.

In the final step of the game, players are supposed to vote for which dreams they feel are interconnected, either by a causal relationship or a symbiotic relationship. This, in other words, describes two dreams that either cause each other or may influence each other's ability to exist. The players subsequently identified that the need for comfort and coziness was intrinsically linked to the need to design safe spaces to explore hobbies and to live within comfortable economic means.

During the exercise, the dream that showed the most diverse participation was Flash connection: the need for better transportation and connectivity, with participation from 4 distinct teammates. It sparked a lot of discussion and prompted reflection on what was actually at the root of the topics, and players identified that the unifying factor in all the dreams was the ability to move and connect with the world around them. It was to our delight that it became the dream most people actively worked to develop in the subsequent game.

We feel that the mechanics in place to reduce the number of dreams from 18 to 6 are a wonderful exercise that helps people start talking and working together to encourage empathy across the board. The observed cooperation amongst players and open communication generated a lot of hope and ambition to work together to make their collective dreams a reality. We feel the game was a success and provided a fruitful starting point for game 2.



GAME 2: ANALYZING POTENTIAL

Game2 took approximately 15 minutes, including a brief introduction to the rules. Players cast their dreams onto the board, and results varied dramatically from those who wrote one-word answers to those who wrote longer phrases. Topics brought to the table at the end of game 1 showed several emerging patterns and themes that were grouped into the following topics:

Flash Connections: Need for better transportation and connectivity

Forest of Dreams: Need for higher quality sleep environments

Cloud Heaven: Need for safe spaces to dream and be imaginative

Fluffy Friends: Need for comfort and coziness

End of the Rainbow: Need for Wealth and Economic Independence

Animal Crossing: Need for spaces where they can explore hobbies outside of work or education.

Game 2 lasted approximately 2 hours and was prolonged by the need to explain the rules to each player as a first-timer. The game concluded prematurely due to time constraints, but followed characters as they developed, overturned, and restabilized their system. All characters completed more than half the required amount of points to "beat"the game. The 6 final sites and designs are the following:

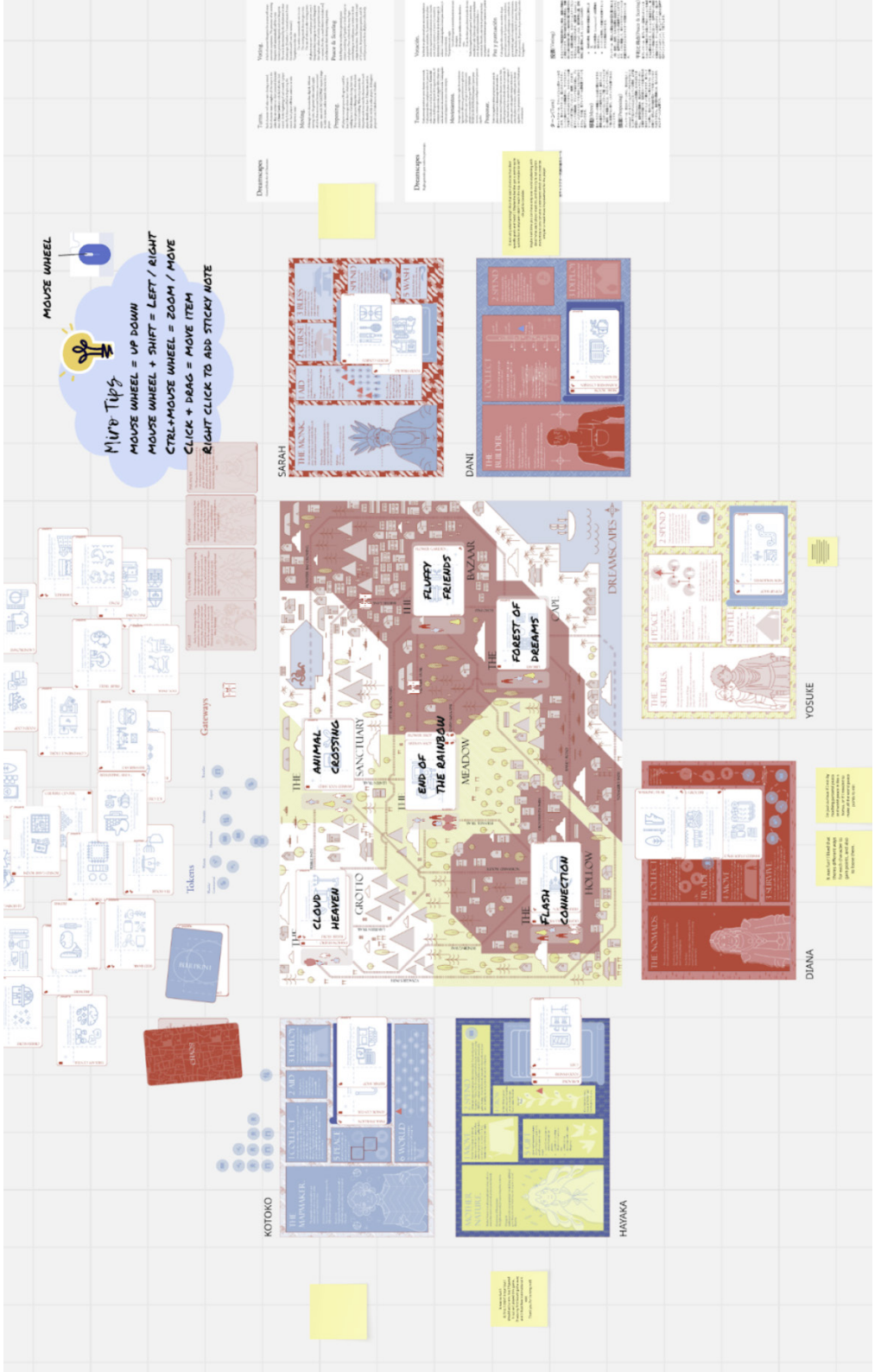


Figure 4.4 Game Test 1: Dreaweaver. Collage of Game Assets. By authors.

Figure 4.5 Game Test 1: Dreamweaver. View Captured from Miro.

Flash connection, programs herb garden and light installation, with 2 votes from renters, 2 votes from homeowners, 2 votes from environmental advocates, and 1 vote from the social advocate; then animal crossing, program shared tool shed, with 2 votes from homeowners, one vote from urbanist, one from environmental advocate, and one from social advocate

Animal Crossing programs shared the tool shed, with 2 votes from homeowners, 1 from an environmental advocate, 1 from an urbanist, and 1 from a social advocate.

Cloud heaven, programs fashion studio, and reuse store, with one vote from developers, one vote from homeowners, one vote from urbanists, and one vote from social advocates

End of the Rainbow with programs, a flower shop, and an artisan shop, with 2 votes from developers, 1 vote from renters, 1 vote from the urbanist, and 1 downvote from the social advocate

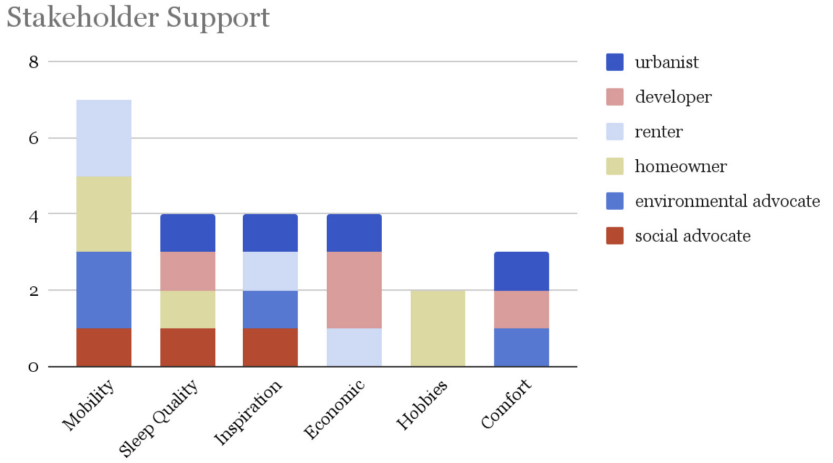
Forest of Dreams Cape had a program library, with 1 vote from renters, 1 from environmental advocates, 1 from urbanists, and 1 from social advocates.

Fluffy Friends had a program for a flower garden, with 1 vote from renters, 1 from urbanists, and 1 from environmental advocates.

In order to decode what the players were actually playing for, we renamed each dreamscape in order to be more specific on which issues we are facing: Flash Connection can be described as mobility, Cloud Heaven can be described as sleep quality, Forest of dreams can be described as inspiration, End of the Rainbow speaks to economic abundance, and Animal Crossing speaks towards hobbies, and Fluffy Friends can be described as comfort; Looking at the simple graphic description above on the type of support on each dreamscape, we were able to see clearly which demographic groups or representatives are more interested in certain topics. Given the design scope of our thesis, which specifically targets the lifestyle of inhabitants, we found it important to examine the overlap between renters and homeowners to move forward with the design phase. We see that this is the same mindset players must have when using the game in a real context. Although it is highly important to see where the most diverse support is located, it is also crucial to identify which areas have more general support, as those characters seem to benefit from them the most. Shared prosperity is a value that our design outlook highlights throughout the game. In this run-through of the game, Mobility, also known in-game as Flash Connections, was the clear winner in terms of diverse impact and favored by inhabitants of both kinds.

Figure 4.6 [ABOVE] Game Test 2: Dreamscapes final results 1-6. Capture from Miro.

Figure 4.7 Columns: Stakeholder Support Matrix. By Authors.



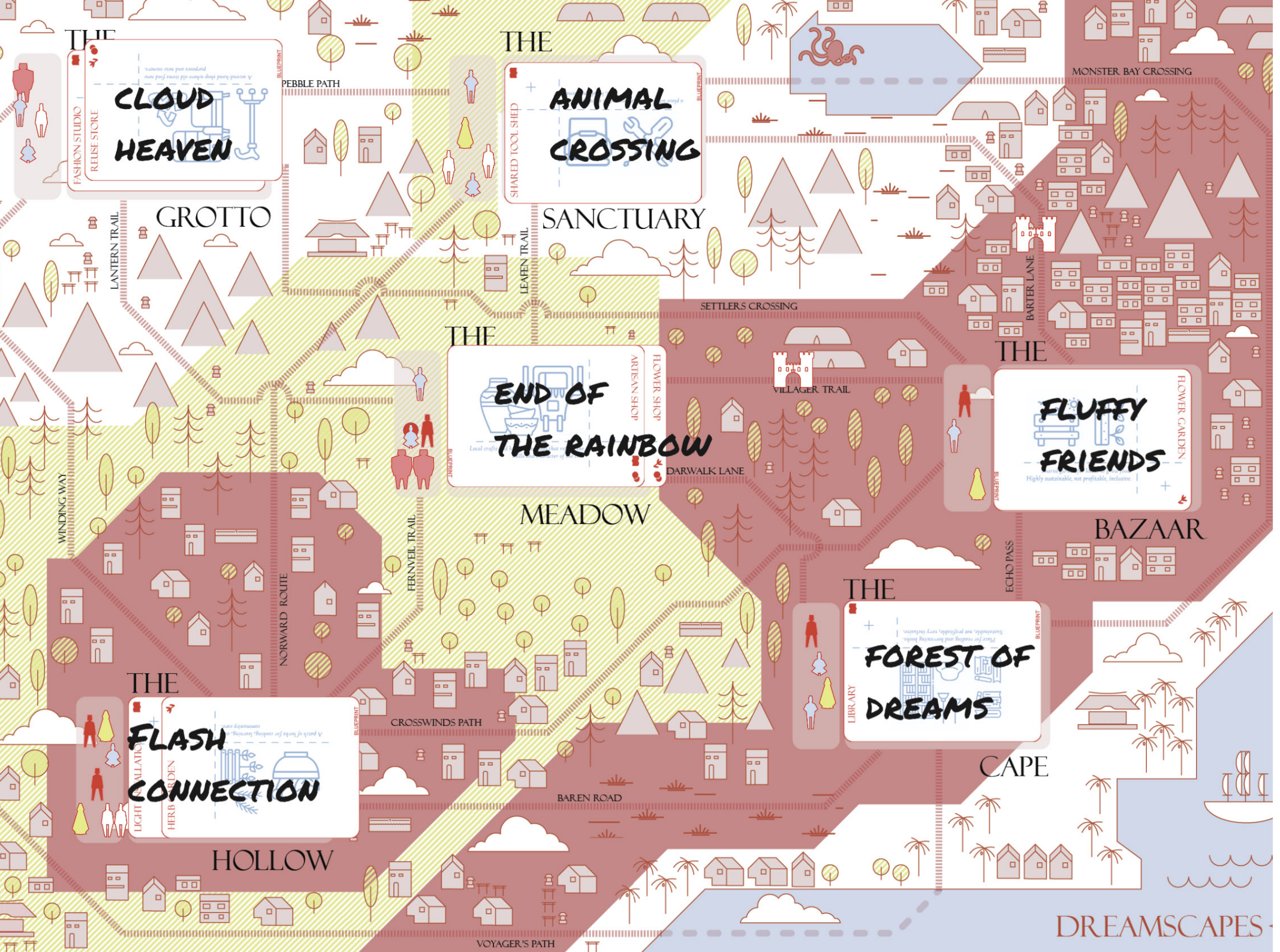


Figure 4.8 Game Test 2: Dreamscapes final Board. Capture from Miro.

The other interesting element of the game we realized when watching players develop the dreamscapes was that not all "end conditions" are relatively the most fruitful. Rather, the game focuses on engaging characters through a series of challenges that test their ability to collect and use resources to thrive. This natural antagonist creates tension and forces players to make difficult, critical decisions about which programs are working for them and which are not. However, due to the nature of the in-game antagonists, we saw as rather successful projects that had withstood several series of crises finally fall victim to neglect or crisis, and were forced to renew and continue iterating over them. This is especially the case with Flash Connection Hollow, where players were quite fond of an info point they were able to build, and that players seemed to collectively agree it made sense in that area, but later, as players were forced into economic constraint, they were forced to downscale towards lower commitment projects that came later into play, such as light installations.

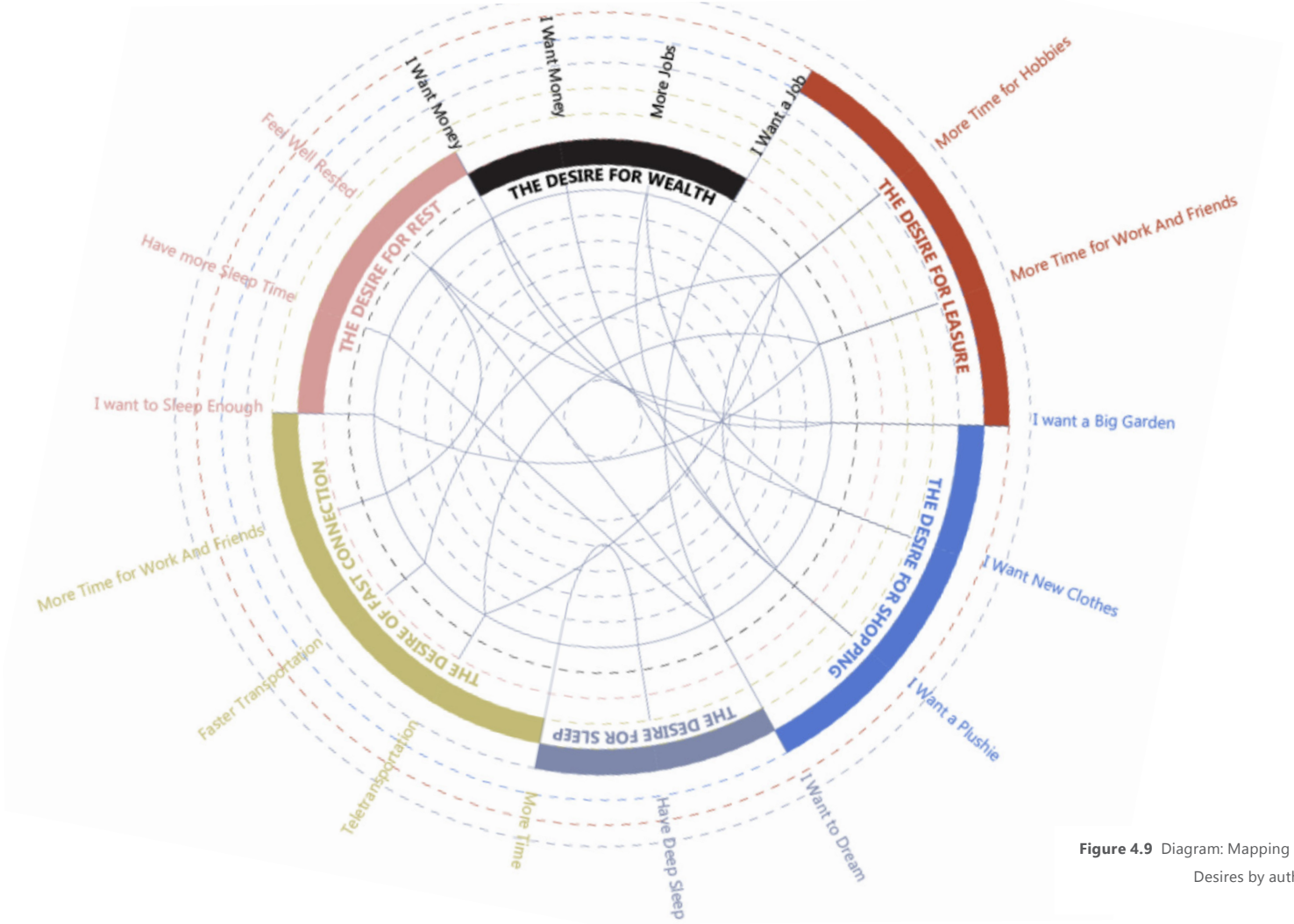
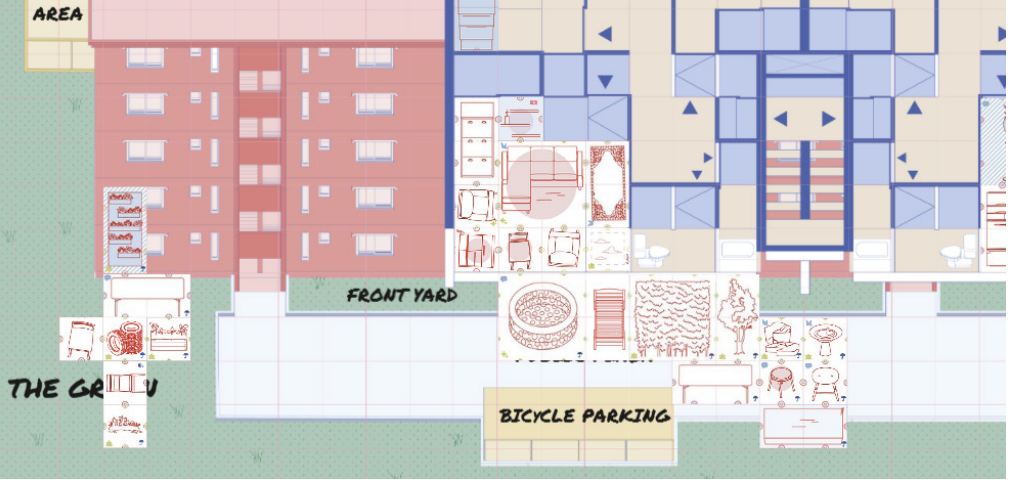


Figure 4.9 Diagram: Mapping User Desires by authors.

We believe that looking at the trajectory of the game as a whole could be useful in not discounting possibilities in the future, but that the more the game is played, the more players will be able to stabilize with a series of proposals that fit their needs and are resilient enough to a crisis, which may have a powerful impact on the communities.

In the following game activity, we will focus specifically on Flash Connection: Mobility. The name stemmed from the previous game's dreams about better transportation connections. People wanted the ability to travel faster and to move faster in their daily lives. Coincidentally, or not so much so, the ability of young generation Homi Danchi residents to move freely is one of the largest issues faced by the Danchi today due to its relative isolation from major cities and reliance on vehicles for arrival, so we were pleased to see that it showed the most promise for both the renters and homeowners characters (nomads and settlers respectively). The winning programs at the end of the game include: better outdoor illumination, outdoor garden landscaping, and an Info Point - an element that also allows the community to build something together in free space outdoors, and an opportunity to create safer outdoor spaces at night, with information readily available to allow for communication on all levels.



GAME 3: DESIGNING TOGETHER

The third game started by identifying the programs selected from the previous game: lighting installations, an herb garden, and an info point. As discussed in the previous chapter, Info Point was not part of the end state of the game due to the game being cut short, but was a popular favorite amongst the group and, in our architectural opinion, does quite well resolve issues related to miscommunication, transportation, and simpler connections.

Before beginning the game, we identified that most lighting installations are infrastructural and large-scale urban proposals. We separated these for us, as architects, to tackle. We focused the game on more plausible spaces, such as the herb garden and the info point. In this version of the Board, the Homi Danchi Edition, we used the typical layout of the most common Danchi unit. Parking sits on one end, with access roads, a green area, and an empty 5th floor. The vacant fifth floor offered a great opportunity for our project. However, access for the elderly is complex if there are no handicap stairs or elevators. For the low-budget, bottom-up approach, the fifth floor seemed to offer the most promise.

The game progressed quite slowly, with characters shuffling items to fit into an optimized arrangement, specifically optimizing their qualities in social humanities, natural ecosystems, and commercial interests. In the store, information about end game states

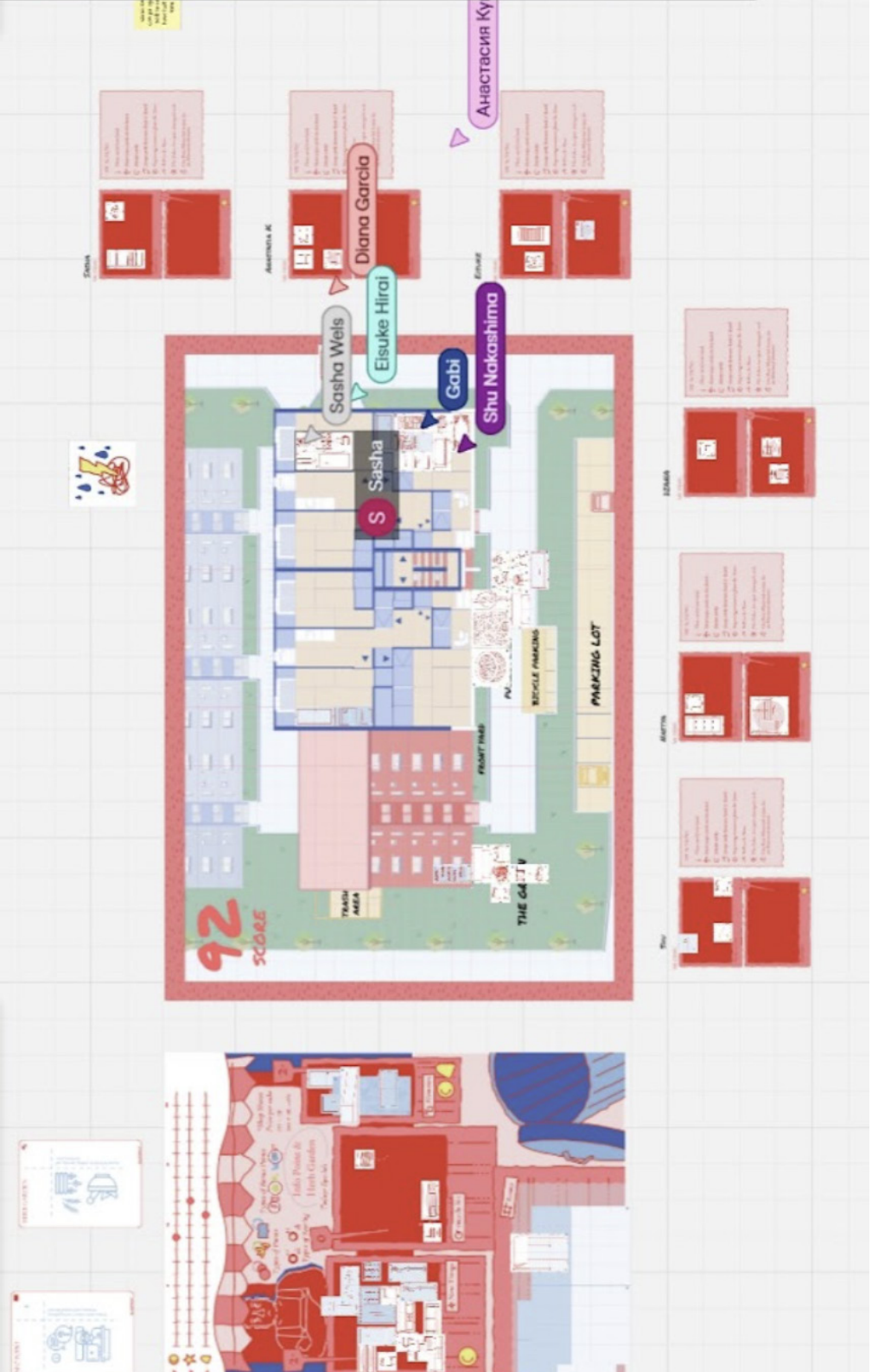


Figure 4.11 Game Test 2: The Seed final Board. Capture from Miro.

Figure 4.10 Game Test 2: The Seed final Board. Capture from Miro.

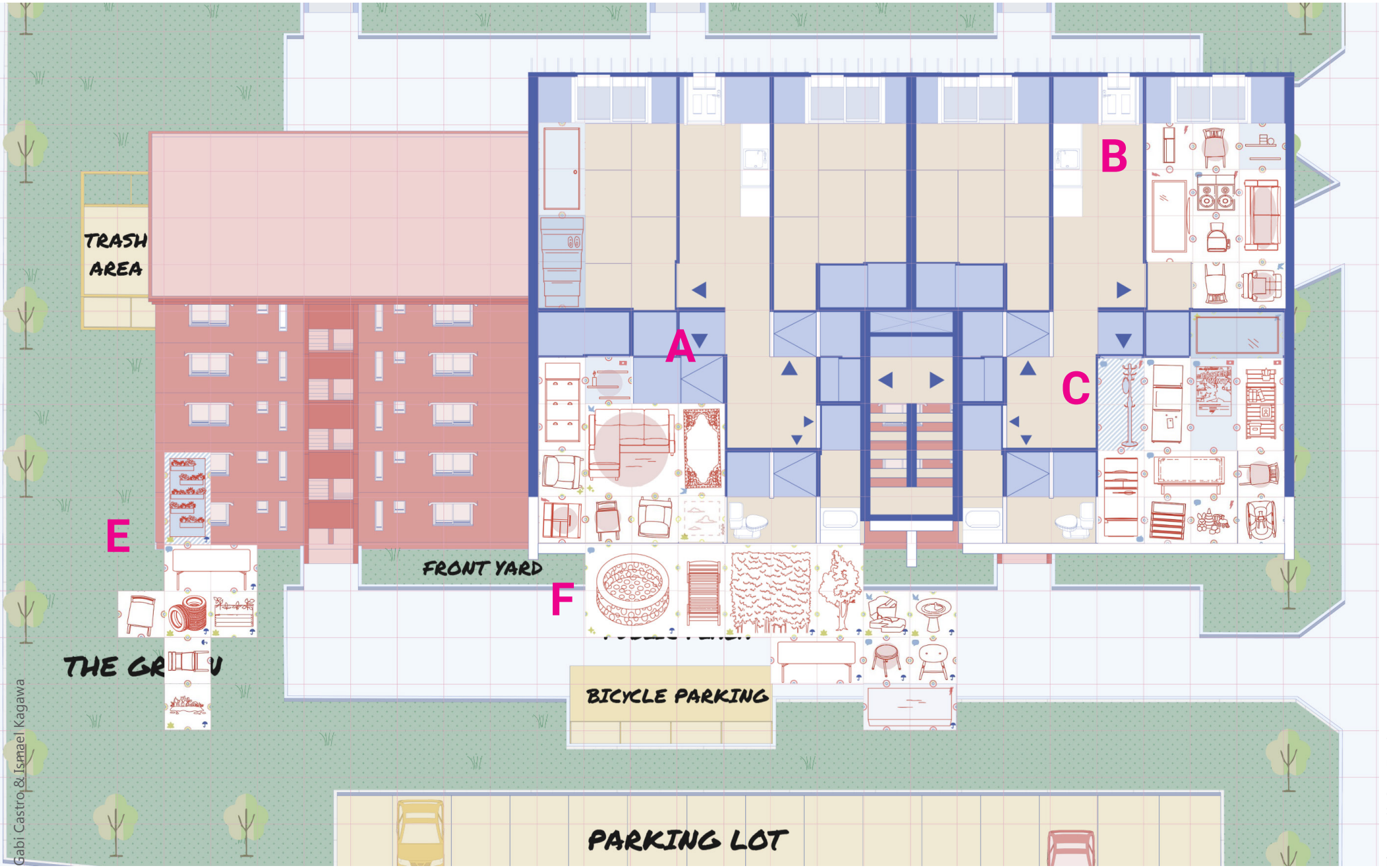


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Figure 4.12 Game Test 2: The Seed final Board. Capture from Miro.

Figure 4.13 Game Test 2: The Seed Shop. Capture from Miro.

were written for all players as a guide. In this playtest, players prioritized completing the blue and green circles for humanities and nature. Given that we were designing an info point and an herb garden, we chose the bonus points accordingly, nature (having or creating ecosystems) for the herb garden, and for the info point, the interest subtype of commercial (creating and generating interest), plus the social subtype of humanities (which describes a space that creates outgoing social bonds).

Players spread the design of the Info point into 3 rooms within the abandoned fifth floor of the building.

Site A This is the main lounge area of our info point, where people can relax, read, and discuss important events! Players developed the herb garden in two spread out locations along the same front facade.

Site B This is the Media Center area of the project - players here can see local news, sit together and listen to music, and view presentations or other important media related to their community.

Site C shows how players developed a main social eating space with multiple elements for multiple generations, from young students with graphic posters to younger kids and space to play. This space implies a longer user stay at the info point and generational mixing, which was an important factor in creating a stronger community structure.

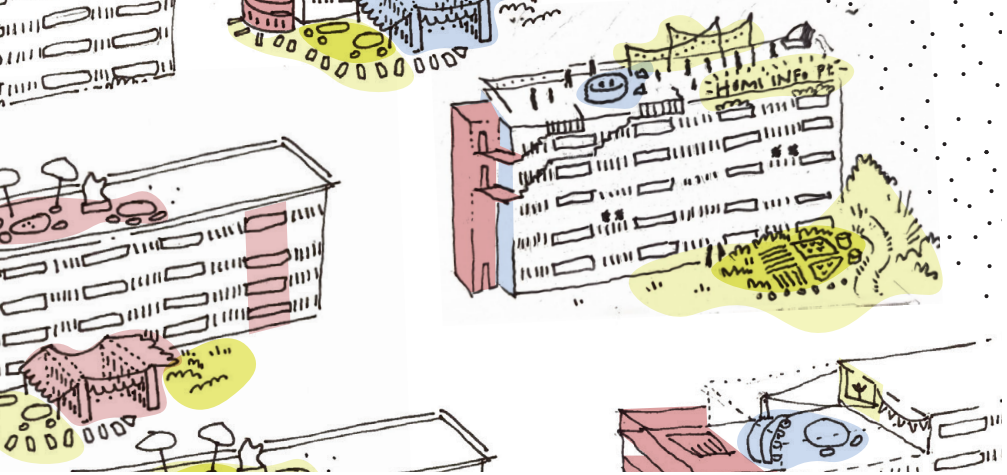
Players designed the Herb garden to spread along the front facade of the building in two main locations.

Site E the players designed the main planting area of the herb garden, with seating to take in nature or rest, and a functional table to store materials or cut and mix different sprays or ingredients used for gardening. The players have also used the wall surface to create a planting area that is supported by the building.

Site G the players created a small social area with a pool, a sun chair lounge, a hedge-and-tree divider, and a small seating area with a small stage for local news!

The overall design may look quite dispersed, but it shows great promise for residents looking to use what they have to create something important. This design shows the opportunity for residents to collectively organize and autonomously design space that can help them enhance their experience of the Danchi.

The series of design games has illustrated three distinct information-gathering devices that could be employed at different stages of design. Together, players can start and finish the spatial design of a program they have identified that targets and benefits their community regarding a specific issue they have highlighted as important. The implications of creating a public platform where users may actually have the tools to engage in architecture for free and with a certain agency, guided by architectural knowledge embedded into the game by architects, are astounding. More than the literal reading of the design seen on the third game board as a "finished space," the game hopes to teach players to design with total vision (a better understanding of others' needs and limitations), and to cooperate together to achieve an organized but plausible goal where their shared resources are negotiated.



SCALES OF POSSIBILITY

The game offers 3 pieces of advice for different stages in the design process: community feedback in Dreamweaver, Concept and schematic proposal in DreamScapes, and a schematic spatial proposal in the Seed. However, we would like to discuss the different options available to users who have just completed the games and are looking to act on a design proposal.

In our case study, users identified the need for improved transit connections and proposed possible solutions, such as an information point and improved lighting for safety, as well as an eco-friendly component to make the design more sustainable. We also witnessed our participants design these spaces with a combination of reused materials, manual labor, raw materials, and a few new things.

To be more specific, the results for each game conclusion: local needs & desires, program proposals & local impact, and a simple adaptive reuse design proposal. These results can be applied for different stages of the design process and at different scales. Using the reference: Habrakens Principle for environmental levels, where the principal tool of an open building is the organization of the design process and building elements on different scales or "levels." [3.1]Though it may be simple to organize a team of fellow residents to move and decorate an abandoned space using recycled materials, it may be harder to design a circulation system that provides better access on all floors. Further, for goals related to transportation connections, the level of expertise and governmental power required to sign and com-

1 Open Building Network. "Open Building Concepts." Accessed February 12, 2026. http://www.open-building.org/ob/concepts.html

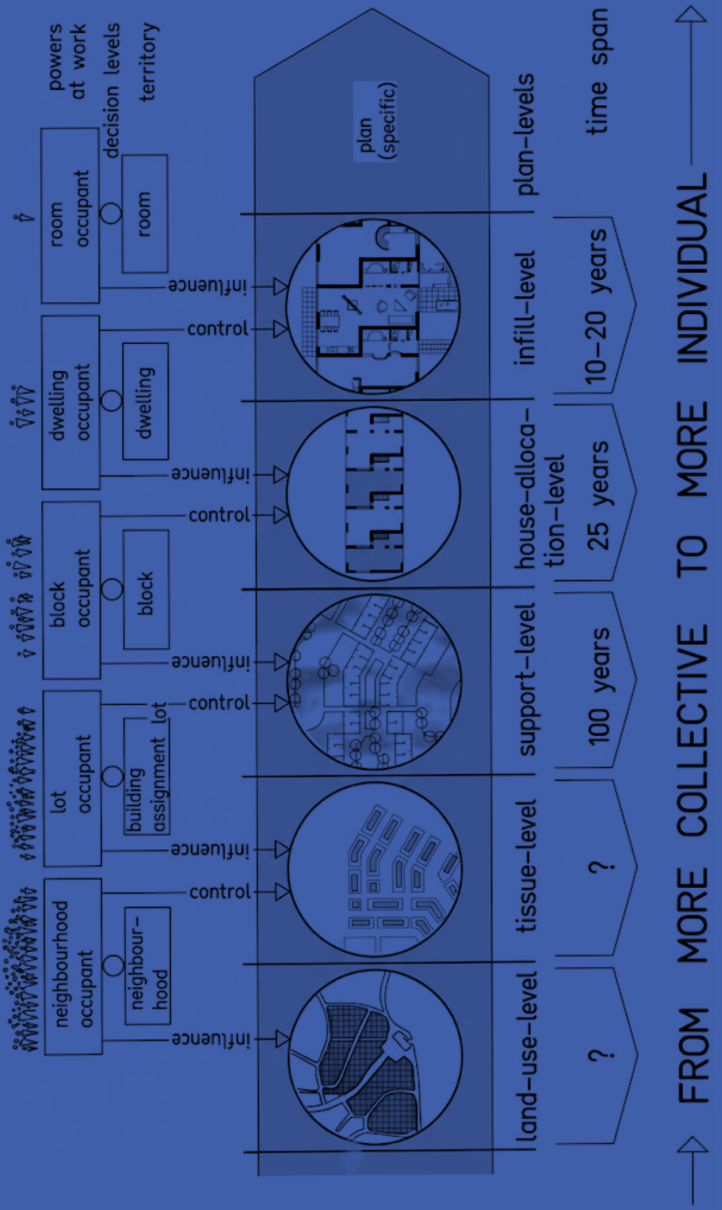


Figure 4.14 [LEFT] Diagram: Dream Games in Design Process. By Authors.

Figure 4.15 John Habraken's Diagram of the Principle of Environmental Levels.

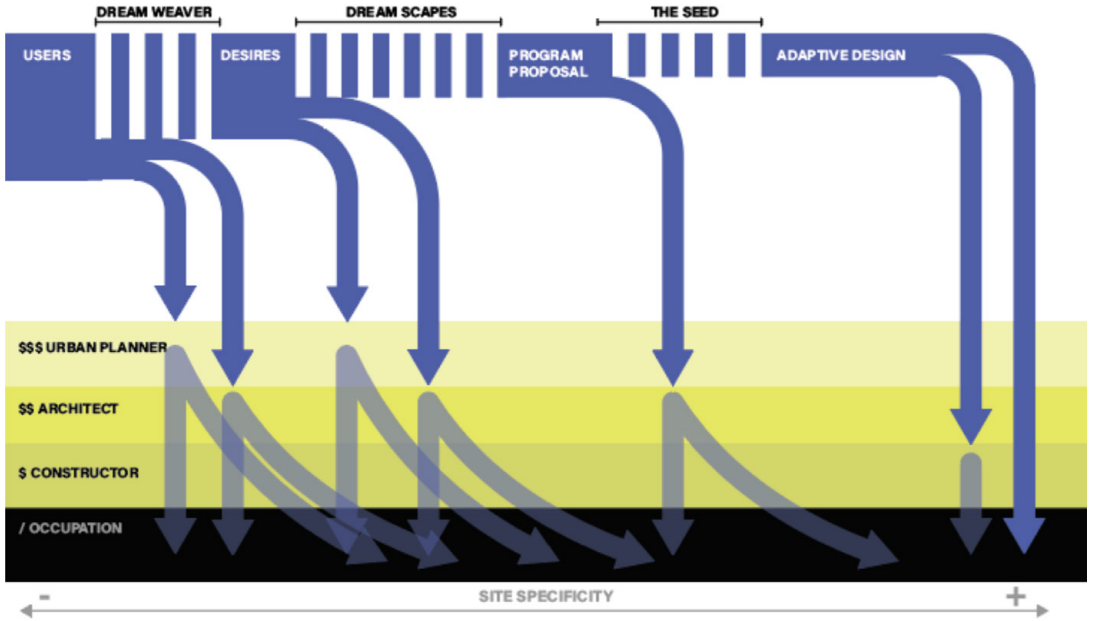


Figure 4.16 Diagram: Dream Games in Design Process. By Authors.

plete projects of this scale lies with an urban planner.

Each game maps to a specific level on this scale. Dream Weaver concludes with a list of 6 general needs that can be addressed at the land-use-to-tissue level by identifying which areas are available for improvement. The kinds of desires and wishes that result from the first game take on a more abstract, intangible form, so they require more diagrammatic responses, such as where and which strategy to use to tackle the issues at hand. For example, in the game's conclusion, test users identified the need: Flash Connections, referring to better transportation nodes for quicker mobility. This kind of intervention must be tackled at an urban planning level. The actionable urban plan requires a process of local government approval, without which users would be forced to pick a series of satellite interventions in spaces they do not control to achieve a result of this scale.

Dreamscapes concludes with 6 programmatic proposals to specific highlighted needs and a general impact analysis on the community. The results of this game test speak to more specifically which architectural strategy should be used - such as a mono-programmatic space, a multi-programmatic space, or a diffused network of programmed spaces approach, depending on the budget and commitment of the users. Users can focus on one or more end-state conclusions of the game and work towards an architectural proposal that responds to the needs and requested programs. Projects at the conclusion of the game may map to a support and house allocation level, where building-wide changes may be made - such as interventions on circulation, parasitic expansions, vertical additions, and free-standing structures. Projects of this nature require an architect's approval, as they entail greater consequences for residents' health and safety by addressing issues such as structural stability, effective user circulation, and financial responsibility.

Finally, the seed proposes a more direct design process for the inhabitants, translating their desires from the game results. The results of the game show specific elements oriented in the desired locations and orientations to create the design. Though the tool focuses more on an informative approach to teaching users the relationships between different elements they might create, the designs created during the game can still be translated literally into real-life scenarios. This will affect the infill and plan levels, where players can directly furnish or redecorate spaces. This requires little to no professional input and is a completely self-sufficient process.

The games themselves serve as tools for managing the different scales of the project and the participation required by its complexity and the need for specialists in that environment.

If we take a literal reading of the results from our game testing, the first two sessions consistently concluded with a desire for improved circulation and lighting safety at the urban plan level. These outcomes point toward large-scale infrastructural interventions, where an urban planner may take the reins to design a primary circulatory boulevard with improved lighting, wider pedestrian space, and clearer connections between transport nodes, allowing residents to move through the area more safely and comfortably. We visualize this urban plan as a flower. One stem leads to a main circulatory boardwalk—long, wide, and pedestrian-oriented—running alongside nature and culminating in the "flower" of the central commercial area. A second branching stem extends outward, with each leaf representing a smaller pocket of urban public space.

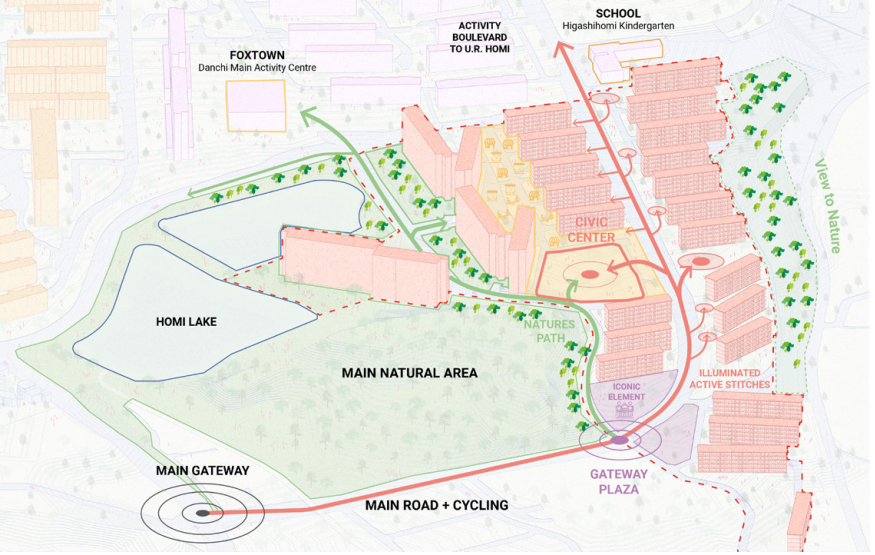
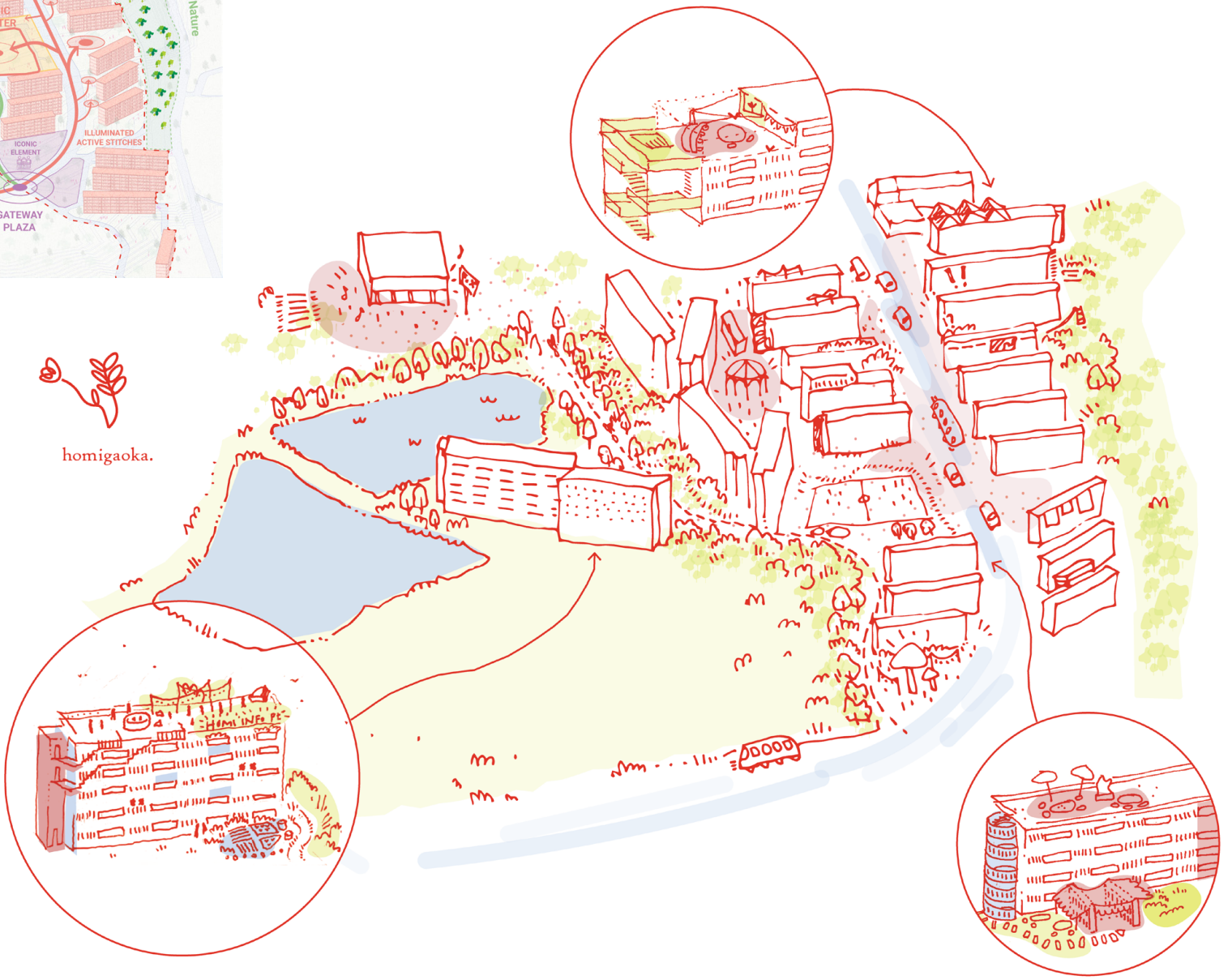


Figure 4.17 Key Master Plan Strategies for Homi Danchi: Dream Gamified. By Authors.

Figure 4.18 Vision Master Plan of Homi Danchi: Dream Gamified. By Authors.



These spaces operate at a more local scale and could each host a round of the Dreamscapes game to generate community-led interventions.

At this scale, smaller programs—such as an information point or herb garden—could either be developed by an architect as a formal design project or further evolved directly by residents through adaptive reuse, using the final game in the series, Seed, as a design tool. As budgets increase, a constructor may become involved, opening access to the fifth level of intervention and "unlocking" the physical realization of these spaces for local use.

Figure 4.19 ROTOR Material Warehouse. Photo Courtesy of Rotor Architects Website. Belgium, 2017.

Figure 4.20 [ABOVE] QR Code to Visit The Seed Lab Website. By Authors.

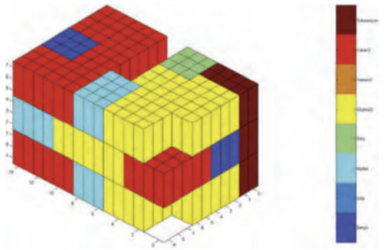


Figure 4.21 Özge Güngör, Gülen Çağdaş, and Özgün Balaban, A Mass Customization Oriented Housing Design Model Based on Genetic Algorithm, eCAADe 29, Ljubljana, 2011, p. 331.

Future Applications

The game also offers many potential avenues for future development. On the meta level, we have designed the board game as an editable platform, and we see how each of the games can be developed further by new designers or new users through its open-sourcification on a web platform - through git hub or its own website. These kinds of changes can include new rules promoting certain game techniques, new program blueprint cards that are more culture-specific, and new web platforms for reusable materials and discarded furniture that become part of larger global libraries, as seen with architectural firms such as ROTOR.

We also see ways the game methodology could be transferred to larger-scale design projects by scaling up the scope of designs. For example, we replacing Dreamscapes' blueprint cards with urban-scale projects (e.g., transportation infrastructure or educational campuses as playable cards) would create urban level masterplan designs. The same could be said of the Seed; it is easy to imagine that individual pieces of furniture could become entire rooms, and design results range from small scale community centers to large scale commercial and education complexes for example. Both games are easily scalable because their core mechanics are centered on design strategies which are versatile and simple, making them ideal bases for editing and modification.

Finally, we see potential growth in the software industry. We support the development of this project through the format of board gaming, primarily because it is a more accessible form of interactive problem-solving between individuals, but we also see its potential transition into software. Board games have many connections with codified processes, software, or algorithms due to the rigidly defined rules and relationships defined in game mechanics. For example, the work done in The Seed Game to categorize objects or architectural elements and their relative orientations to eachother into a point based system can be translated to a digital code. The code can then generate different algorithms to optimize adjacencies and create floor plans - similarly to what was done in the University of Istanbul project which generates massing strategies for complex programs.[3.2]

2 Özge Güngör, Gülen Çağdaş, and Özgün Balaban, "A Mass Customization Oriented Housing Design Model Based on Genetic Algorithm," in Respecting Fragile Places: 29th Conference on Education in Computer Aided Architectural Design in Europe (eCAADe), Ljubljana, Slovenia, September 21–24, 2011, 331, accessed January 12, 2026, PDF.

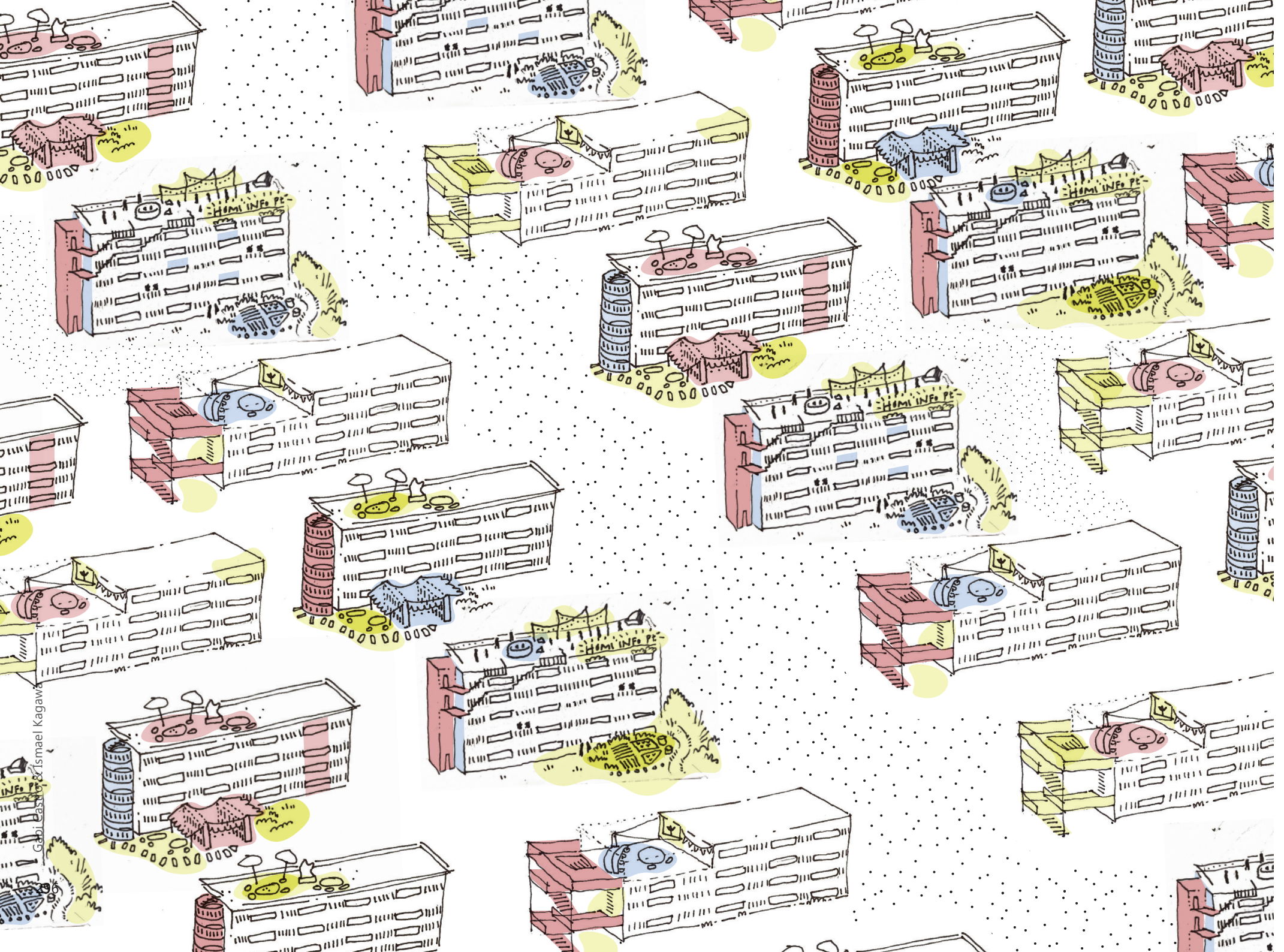


Figure 4.22 Homi Danchi Post-Game Scenarios.
Sketch by Authors

This thesis project has potential at multiple scales and for multiple applications. We see it as just a seed with the potential to grow and to reactivate the stagnant, restrictive society we live in today. We hope to open one small door that connects people around the world with the ability to reshape the environments that fail them.

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