A Dream Come True?
Analyzing the Geography of Opportunities for Public Housing Residents in Santiago de Chile

by Sara McTarnaghan

AS RIGHT-TO-THE-CITY movements expand across Latin America, the role of state governments in shaping the urban environment through policy changes and infrastructure investments is in a process of (re)negotiation. Shelter is the most basic component in supporting safe and vibrant communities, as the home is central to the daily experiences of individuals and families. State interventions in housing have historically been controversial, occasionally lauded for improving basic standards of living but often criticized for displacing communities. This article analyzes the recent implementation of a decades-old housing approach in Chile by mapping the landscapes of urban services near public housing projects to evaluate residents' access to such amenities.

Background

In the late 1970s, the Chilean government initiated a demand-based housing subsidy to develop public housing in its cities. The housing policy was part of a package of neoliberal reforms applied during the period of military control of the country under Augusto Pinochet from 1973 to 1989. This change transformed housing policy in Chile from a rights-based approach grounded in the concept of *derecho a la vivienda* (right to housing) to a targeted social policy offering housing subsidies to the most vulnerable quintile of the population through public-private partnerships. During this period, the Ministerio de Vivienda y Urbanismo (MINVU, Ministry of Housing and Urbanism) understood public housing as finished units that would solve the housing deficit problem, focused on the *sueño de la casa propia* (dream of homeownership) for those who lived in informal settlements or as *allegados* in overcrowded houses of their relatives.

The policy was consolidated in the 1980s and the construction of public housing increased dramatically after the return to democracy in the early 1990s. As it was implemented, this demand-based housing subsidy drastically changed the urban landscape in Chile's largest cities as informal settlements were largely replaced by uniform housing construction in blocks on the periphery of the city.

Despite quantitative success, scholars and practitioners have increasingly raised concerns about the low quality, poor locality, and severe overcrowding of these subsidized housing units. Similarly to other Pinochet-era social policies, critics claim the housing subsidy produced "a new kind of institutionalized poverty created by the system" (Richards 1995, 521). While successful in tackling some of the physical and social manifestations of indigence, the housing policy has not created social mobility among marginalized classes. As highlighted in the book *Los con techo: Un desafío para la política de vivienda social*, critics claim housing policy has reproduced segregation in Santiago through construction of public housing units on the urban fringe, isolating residents from basic public services and amenities (Rodríguez and Sugranyes 2005). While the unit itself represents a major improvement in the "material" quality of life, with better physical infrastructure and reduced exposure to hazards, the peripheral location raises serious concerns about the right to the city for public housing residents (Jirón 2004).
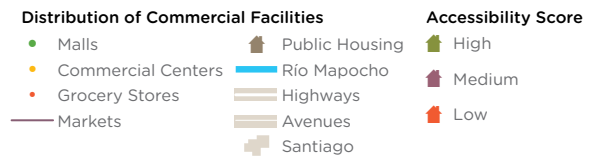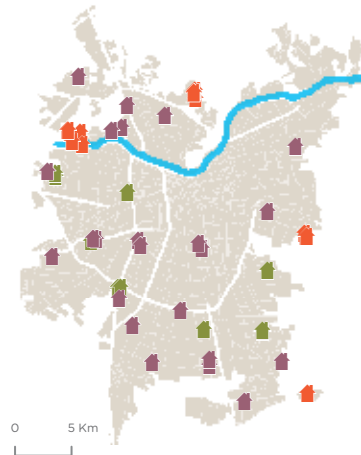
To correct this negative legacy, the Chilean government has tightened regulations on the type and location of housing projects since 2006 under the Nueva Política Habitacional (New Housing Policy). The MINVU added new regulations on funding for the private sector, such as limiting the number of units per project and matching construction sites near one's community of origin (Aravena 2012). The

COMMERCE
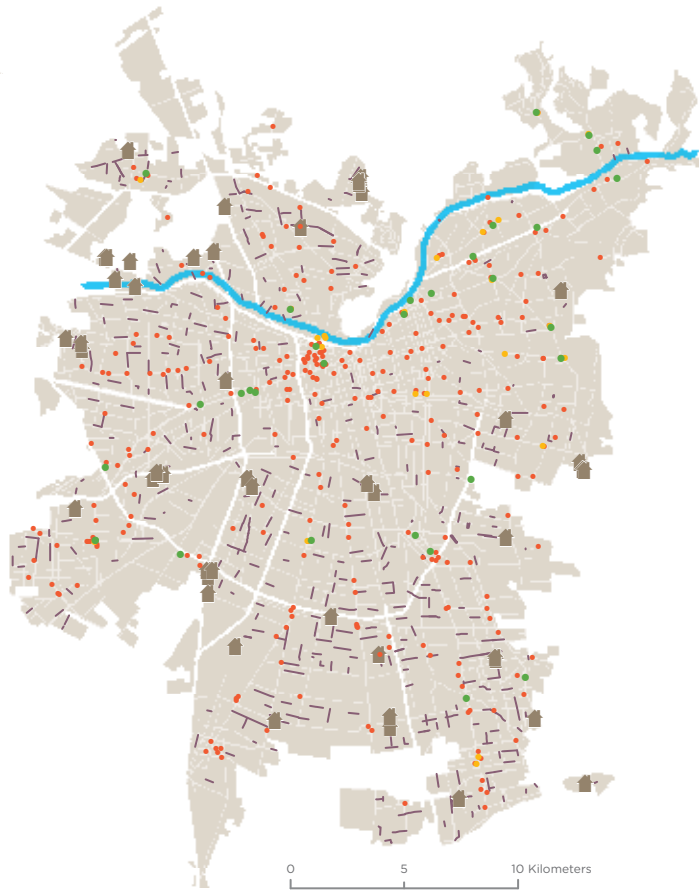
Ranking of Access to Commercial Facilities
Housing projects are ranked on an access scale based on proximity to grocery stores, malls, commercial centers, and markets.

0   5 Km

Distribution of Commercial Facilities

- Malls
- Commercial Centers
- Grocery Stores
- Markets
- Public Housing
- Río Mapocho
- Highways
- Avenues
- Santiago

Accessibility Score
- High
- Medium
- Low

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DATUM: WGS 1984 UTM Zone 19S
SOURCE: OC-UC, CIT-UAI, CIS-TECHO

0   5   10 Kilometers

Figure 1. Access and distribution of commercial facilities

localization subsidy, which provided extra funding to well-located projects, is one of several strategies to improve social integration of housing projects that altered both the application procedures and the architectural standards for the built environment of such projects.

Methodology

To analyze the 2006 policy reform, this project seeks to evaluate the geography of opportunities, or access to a series of public and private urban services and amenities among residents at the post-reform public housing sites. The research questions are twofold: (1) To what degree have public housing projects in Santiago de Chile, contracted and built after the 2006 policy reform, been successful in meeting new policy goals calling for improved localization, based on access to crucial urban services? And (2), to what degree are residents of these housing projects exposed to environmental hazards?

Geographic information systems (GIS) software was utilized to conduct a suitability analysis of public housing sites based on their proximity to a series of public services and urban amenities as well as distance away from hazardous sites. Thematic amenity maps document distribution of services and amenities across Santiago in the categories

identified, including: education, health, safety and public services, public transportation, commerce, and recreation. Then, raster analysis in GIS was utilized to rank projects based on proximity to amenities on a qualitative scale of low, medium, or high access. Additionally, projects were evaluated based on distance from hazardous sites and ranked low, medium, or high risk. A total of 47 housing projects were evaluated, ranging in size from 50 residents to several hundred.

Findings

The geographic analysis effectively illustrates the landscapes of opportunity and vulnerability in Santiago de Chile's public housing projects. The legacy of segregated urban development, particularly acute for residential development, has affected the distribution of urban amenities across the city by concentrating important public and private services within wealthier municipalities. This unequal distribution greatly impacts the quality of life for residents in under-served neighborhoods and further distorts differences in land value across the metropolis. Overall, findings reveal uneven progress in improving the siting of new public housing projects in resource-rich, consolidated neighborhoods, an issue that has long plagued

HAZARDOUS SITES
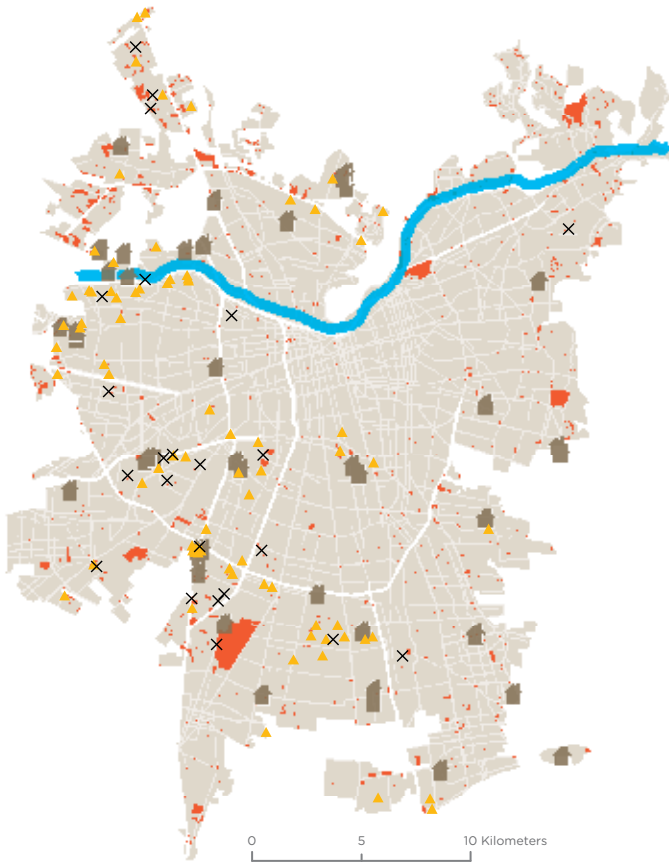
Ranking of Exposure to Hazardous Sites
Housing projects are ranked based on distance from sites that pose hazard or environmental risk. Exposure to risk was assessed based on proximity to illegal dumps, residues, and abandoned lots.
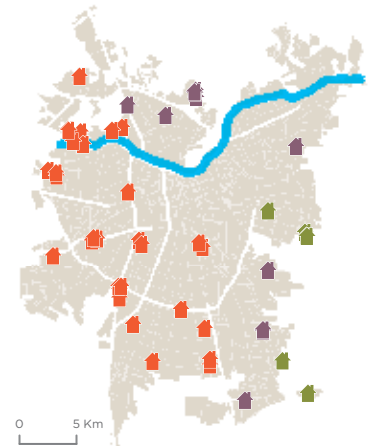
Distribution of Hazardous Sites

▲ Illegal Dumps	▬ Río Mapocho
✕ Landfills	▬ Highways
⬛ Abandonded Lots	▬ Avenues
⬛ Public Housing	⬛ Santiago

Ranking

⬛ High Risk
⬛ Medium Risk
⬛ Low Risk

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DATUM: WGS 1984 UTM Zone 19S
SOURCE: OC-UC, CIT-UAI, CIS-TECHO

Figure 2. Ranking and distribution of hazardous sites

such housing interventions. Some of the new projects have been strategically well located, however these stand out as outliers as the majority of post-reform housing projects have followed traditional patterns of localization from past generations of the housing policy.

Access to Opportunity

There was great variation in the distribution of accessibility scores, both geographically and thematically, reflecting the mixed successes of the policy reforms in better integrating new housing projects into the existing urban fabric of Santiago. Geographically, centrally located projects receive higher scores, but there are interesting patterns of higher and lower access even on the urban fringe. Patterns of localization mirror those of earlier generations of the policy as public housing is almost entirely absent from the wealthy northeast cone of Santiago, while municipalities such as Lo Espejo, Renca, La Pintana, and Puente Alto continue to receive the bulk of projects.

Broadly speaking, across the city there is wider coverage of public services such as education, health, and public transportation than private amenities such as commerce. However, qualitative analysis of these amenities reveals that while new projects may

be located in closer proximity to services, families who reside at these sites often have access only to the lowest quality of services.

Analysis of educational facilities reveals good coverage of public school infrastructure across the city. Preschools and K–12 schools are widely distributed across Santiago, while institutions of higher education are concentrated in the historic core of the city, distant from public housing facilities. Although K–12 schools are well dispersed across the city, analysis of school performance using 2012 SIMCE standardized test scores reveals concentrations of high-achieving schools in the wealthy northeastern cone of Santiago, while underscoring schools create a peripheral belt around the city. The presence of underperforming schools often overlaps with the location of housing projects. These results reflect the limitations and inequalities of access to public services in Santiago, which have become increasingly relevant in the context of the social movements around education in Chile over the past four years.

Unlike public services, where the state and municipality play a role in ensuring coverage of services across geographies, there is little oversight or planning for the distribution of private amenities. Despite different institutional or planning processes, access to

LOW ACCESS

Sueño Por Cumplir | Lo Espejo | 2007

Amenity

- ● Preschool (Municipal)
- ● K-12 Education
- ■ Safety Services
- ▲ Health Facilities
- — Transantiago Bus Routes
- ···· Informal Market
- ⌂ Sueño Por Cumplir
- ▨ 1 Km Buffer

Risk or Hazard

- ● Underscoring School
- ✕ Illegal Dumps
- ▨ Abandoned Lots

0   0.25   0.5 Kilometers

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DATUM: WGS 1984 UTM Zone 19S
SOURCE: OC-UC, CIT-UAI, CIS-TECHO

Figure 3. Sueño por Cumplir (Unrealized Dream), low-ranking case

HIGH ACCESS

EMATI Housing Project | Estación Central | 2011

Amenity

- ● Preschools (Municipal)
- ● K-12 Education
- ● Higher Education
- ■ Health Facilities
- ■ Safety
- ▲ Grocery Stores
- ▲ Malls
- ···· Markets
- ● Bus Terminals
- — Metro Lines
- — Transantiago Bus Routes
- ▨ Greenspace

- ⌂ EMATI Housing Project
- ▨ 1 Km Buffer
- ▤ Streets
- ▤ Highways

Risks

- ▨

0   0.25   0.5 km

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DATUM: WGS 1984 UTM Zone 19S
SOURCE: OC-UC, CIT-UAI, CIS-TECHO

Figure 4. Centrally located EMATI housing project

commerce, like access to public services, is important for the lived experiences of residents at housing projects, and contributes to their inclusion or exclusion from the city. Results from geographic analysis of proximity to commerce show interesting trends. Formal commercial sites (malls, commercial centers, and grocery stores) are more densely concentrated in the central and northeast zones or along major transit corridors, while informal markets are prevalent in the rest of the city (see Figure 1). Unlike some of the public services analyzed, which, generally speaking, were located near housing sites, many of the projects were isolated from commercial and recreational facilities, meaning housing residents face longer trips and higher transportation costs to access such services.

Exposure to Hazards

Traditional studies of access to opportunity focus mainly on assets such as services and amenities that can improve quality of life for residents. However, due to the legacy of housing policy and the state of older housing projects in Santiago, it was important to counterbalance this analysis of the geography of opportunity with an examination of potential exposure to risk. Alarmingly, the majority of housing projects face significant risk due to their proximity to hazardous sites.

Analysis of exposure to risk was conducted by assessing proximity of housing projects to illegal dumps, landfills, and abandoned lots, representing some but not all potential hazards. Figure 2 illustrates perhaps the most startling results of the analysis: nearly 65 percent of the housing projects were ranked as "high risk" due to their close proximity to hazardous sites. The co-location of public housing projects and hazardous sites is clearly visible on the map, while the wealthier parts of the city show a complete lack of such locally unwanted land uses (LULUs). This raises serious questions of spatial and environmental justice in Santiago. Certain households and communities are not only isolated from key amenities and services necessary to enjoy full rights to the city, but also bear the burden of the city's hazardous or otherwise dangerous sites.

Case Studies

In order to understand what the distribution of amenities and dis-amenities across Santiago might signify for the families that reside at public housing sites, two cases were selected for an in-depth analysis. The two sites reveal wildly different landscapes, illustrating the inconsistent success of policy reforms in prioritizing location for newly funded projects.

The Sueño por Cumplir project (Figure 3) is an example of a project with low accessibility ranking, representative of a housing policy that has been unable to change course. The site is located at the edge of Santiago in the municipality of Lo Espejo. While basic public services are available within a 1-kilometer radius, the nearest school is low performing based on standardized test scores, and there is a complete absence of recreational or commercial facilities. Furthermore, the concentration of hazardous sites suggests that residents here carry an unfair burden of LULUs and likely face undue environmental risk.

On the other hand, the EMATI housing project (Figure 4) reveals a more promising reality. This project is centrally located in the municipality of Estación Central. The neighborhood surrounding the EMATI project is resource rich, with preschool through higher educational facilities, police and fire departments, a diversity of commercial offerings, and several parks and plazas. The housing project is connected to the rest of Santiago through major transit (bus and metro) as well as major avenues. There are a few small pockets of abandoned lots, but no other environmental hazards are present. This case clearly shows an example of what the housing policy should seek to accomplish: not only providing shelter and a permanent housing solution for low-income families but also connecting them (or maintaining existing connections) to a diverse network of basic services and amenities.

In conclusion, the results of this study reveal uneven progress on improving access to basic services and amenities, suggesting that the lived experience at each of the 47 sites analyzed would vary greatly for beneficiary families. This research confirms the importance of broadening the traditional list of public services used in analysis to include a more holistic list of services, amenities, and dis-amenities that families engage in their day-to-day lives. Additionally, clear trends of co-location of the housing projects and hazardous sites across the city raise concerns about spatial justice in Santiago and merit further study. While GIS technology is an effective tool to interpret physical proximity as a measure of accessibility, a more nuanced, qualitative research approach is necessary to explore what non-physical barriers individuals may face as they seek to access these services. The same methodology used in this analysis to conduct post-occupancy evaluation of housing projects based on localization could be utilized at the municipal or city level to identify suitable, amenity-rich locations for siting future housing projects. ☀

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