

# Use, Appropriation and Personalization of Space in Mexican Housing Projects and Informal Settlements

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Given the great need for housing, there is today in Mexico a low-income housing construction boom, which is favoring the development of large, standardized projects. At the same time, informal settlements continue to expand and consolidate, providing flexible environments and opportunities to those who cannot access “formal” options. This study aims at understanding how each of these built environments facilitates or hinders the fulfillment of different needs. It analyzes two housing projects and two informal settlements, and concludes that flexible environments have more potential to fulfill the needs of low-income families.

As in most developing countries, today in Mexico there is a great need for housing. The shortage is estimated to be around seven million dwellings, and continues to grow each year. People who cannot afford a home through the market or through traditional mechanisms of lending, have two options. The first is the “formal” option, which consists of applying to programs or projects provided by state housing institutions. Projects built as part of these programs must comply with existing zoning and building codes; and in order to obtain a unit there, people must meet given criteria established by the institution. In these programs standardized housing production has been seen an ideal way to reduce costs and produce dwellings in large quantities.

Today, even though many alternatives have been devised in the last four decades, all one has to do is look at an aerial photograph of Mexico City to see how predominant this model of formal housing production has been. This government-sponsored low-income housing boom has been encouraged by a number of factors, including the transformation of housing institutions into financial entities, the availability of credit, and the potential for profit by private developers. This formal housing option was estimated last year to have produced around 430,000 units — which, while a significant number, is still insufficient to meet the great housing demand that exists in the country.<sup>1</sup>

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In the face of the great demand for housing in Mexico, however, many other people have settled (in some cases by choice and in others for having no alternative) for a second option. This is to live in some type of “informal housing” — a term which includes a wide range of alternatives that do not comply with building, zoning or legal codes. Within this range of informal housing types, “squatter or informal settlements” may be defined by the following characteristics: the land used has not been zoned for residential development; land tenure is insecure; the state is tolerant or ignorant of the settlement; speculative capital is involved (i.e., the land is not free); and the building process is of a self-help nature.

#### THEORETICAL DEBATE

The importance of informal settlements has been recognized since the 1960s and 1970s when their size and rapid expansion and the increasingly large percentage of the population they housed led to a new field of research. People from many disciplines tried to explain the reasons for their existence and the mechanisms and actors involved in their creation, as well as who was living in them and why. Early on, the prevailing notion was that informal settlements were marginal to the rest of society, and those living in them were seen as vicious, criminal, and politically radical, unable to break free from the “culture of poverty.” Janice Perlman was the first to challenge this notion, which she called “the myth of marginality.” She argued that inhabitants of informal settlements “. . . have the aspirations of the bourgeoisie, the perseverance of pioneers, and the values of patriots. What they do not have is the opportunity to fulfill their aspirations.”<sup>2</sup> In 1989 Martha Scheingart estimated that informal settlements, combined, represented at least 50 percent of all housing in Mexico City.<sup>3</sup>

At the same time, people began to recognize the shortcomings of “formal” mass housing projects. John Turner broke new ground in 1976 when he explained how people who built in informal settlements followed a different set of priorities than those imposed by public housing programs. Using “housing” as a verb rather than as a noun, he tried to make clear that the function of a person’s home went beyond meeting building codes and physical standards, and that other factors, such as access to jobs and flexibility, were also important.<sup>4</sup> When people were in control of the building process, they could weigh the different alternatives that were available to them, and this more varied set of priorities led to more appropriate environments. From Turner’s ideas emerged a new “self-help” paradigm, which gave the central role of decision-making to the users, and which cast the different financial and housing institutions largely in a supporting role. Programs such as upgrading, sites and services, and core housing were accordingly devised as a new approach to the housing problem.<sup>5</sup>

This new and innovative approach was soon subject to criticism by left-wing academics, however. They argued that rather

than contributing to a long-term solution, self-help programs not only failed to address the roots of the housing problem (which could only be solved by promoting income redistribution) and helped reproduce the status quo<sup>6</sup>, but they also burdened their recipients with labor and shifted responsibility from the government to those in need. Indeed, many self-help programs did misinterpret “participation” to include only “labor.” And, as Turner pointed out, “. . . the obligation to build your house could be as oppressive as being forbidden to do so — the corollary of the freedom to build your house is the freedom not to have to!”<sup>7</sup> Perlman also recognized this misinterpretation: “To the users, participation in housing relates to choice over the decisions that affect them. . . . Once this is controlled and organized as part of a ‘housing project,’ the point is defeated.”<sup>8</sup> The real meaning of “participation” then should be clarified, since this marks a crucial difference between a self-help approach that is “empowering” and one that is merely “enabling.”

While it remains important to address the issues presented in this debate, as Peter Kellett has noted:

*Despite the theoretical eloquence of many of the above views, the reality on the ground demanded more practical responses. The proportion and scale of the urban population throughout the world living in informal housing areas was accelerating rapidly. . . . In addition, conventional housing approaches, which led to the demolition of informal housing and its replacement by “Western” models of state-subsidized and state-planned social housing projects, were proving both socially and economically expensive. As a result, receptivity increased to what was soon to become the new self-help orthodoxy.<sup>9</sup>*

Eventually, Turner’s ideas were even adopted by the World Bank, and became a widely accepted form of housing delivery. Evolving from these ideas, nowadays the United Nations defines Community Empowerment as one of the criteria that defines a “best practice.”<sup>10</sup> Ismail Serageldin has also proposed an “architecture of empowerment” as a “built environment which responds to the needs of the poor and destitute, while respecting their humanity and putting them in charge of their own destinies.”<sup>11</sup>

The self-help housing debate then, is fundamentally an ideological and theoretical debate between the Marxist point of view and Turner’s conservative anarchism (as he positions himself). It centers itself in the political, social and economic realms, leaving the spatial dimension largely in the background.<sup>12</sup> Given that the first three areas of analysis are the realms in which change can happen — and that change does not happen through the spatial realm (as environmental determinists have proposed) — it is understandable that the spatial dimension has been neglected. This study by no means aims to solve the housing debate by analyzing its spatial dimension. But it does seek to rescue the physical and morphological analysis that has been obscured by more theoretical approach-

es. I will therefore focus on those issues within the housing debate that affect built form directly — in particular, the contrast between centrally administered housing systems and informal or “spontaneous” systems.<sup>13</sup> As Turner has noted:

*Centrally administered housing systems are inevitably and necessarily standardized with regards to their procedures and the goods and services they provide. Housing schemes have to be financially viable, and this means limiting the number of alternative locations. The units built must be highly standardized; and often most importantly, the systems of financing and the forms of tenure are also standardized and imposed . . . extremely rigid systems are also imposed on extremely variable demands.<sup>14</sup>*

By contrast, flexibility is the key characteristic of the informal settlement’s built environment. Indeed, it is the main reason why this form of production can accommodate variable demands and adapt and transform over time as needed, as opposed to more rigid centrally administered systems.

For those of concerned with the spatial dimension, I believe there are valuable lessons to be learned from the ways in which the built environments resulting from these two different modes of housing production are used and adapted by their users — lessons that could be applied to different political contexts and housing production models.

## THE STUDY

How are people’s needs met in different environments? Which practices are present in all settlements, and which are rather a mechanism of adaptation to a particular environment? How do people manipulate and change their environments to meet their needs? What do these uses and transformations tell us about their residents, their needs, and their aspirations?

It is possible to study the similarities and differences between mass, standardized housing projects and informal settlements from many different angles. Authors such as Castells, Turner, Perlman, Peattie, Lomnitz, Scheingart and Duhau have documented the economic, social and political dimensions of informal settlements. Others such as Rapoport, Kellett and Napier, Drummond and Opalach have focused on their spatial dimension, usually as a subcategory of vernacular architecture. A few (Caminos, Turner) have focused on the efficiency of informal settlements in terms of infrastructure costs and use of land. Meanwhile, studies of public housing projects have mainly focused on the satisfaction of residents. Among these are studies by Scheingart, Weisenfeld, Villavicencio and Cooper, to name a few. Other authors, such as Tipple and Tawfiq, have examined the physical transformations people make to public housing to enable their units to better meet their needs.

This study aims at integrating these points of view in order to achieve a greater understanding of the built environ-

ment. It will focus on the relationship that the user establishes with his/her built environment, and it will analyze how the built environment in turn reflects some of the theories that have been put forward about the characteristics and processes that informal settlements incur over time — and about the people who live in them. In general terms, the findings here confirm the importance of factors that have been identified with regard to other Latin American cities. Among these are the heterogeneity of the residents of informal settlements (Perlman in Brazil); the importance of income-generating activities in the dwelling (Kellett in Colombia, and Perlman in Brazil); and the practice of sharing the dwelling with kin, which also applies in countries of Africa and Asia (Tipple). However, rather than trying to find generalized practices across different environments, the relevance of this study to other cities is that it has devised a methodology to analyze not only the similarities but the particularities of different contexts in relation to each other. The purpose of this study therefore is to go beyond supporting or defending any one mode of housing production, to understand the specific mechanisms through which a standardized vs. a flexible environment can support or hinder certain activities, intentions and relationships.

This study is particularly relevant at a time when Mexican housing policy favors the continued development of large housing projects, some containing as many as 11,000 units.<sup>15</sup> It is important today to analyze whether these large developments respond to the needs and priorities of their inhabitants. At the same time, it is now possible to study informal settlements in their later stages of consolidation — which means that many of the constraints they initially faced have been overcome, and a fuller understanding of their potentials and shortcomings can now be realized. This study calls for reflection on whether this mode of solving the “quantity” of the housing problem is not creating one of “quality.”

## METHODOLOGY

Fieldwork for this study began in 1999 and was complemented by further analysis and fieldwork during the summer of 2002 (observation) and spring of 2003 (interviews and surveys). The work began as part of my thesis to obtain the Licentiate in Architecture at the Universidad Iberoamericana.<sup>16</sup> It was continued as part of a 2003 Master of Science in Architecture degree, which I received from the University of California at Berkeley.<sup>17</sup>

The work consisted of comparing two housing projects and two informal settlements. Such a dual comparison was thought to be useful because it would enable questions generated at one half of each pairing to be asked at the other. This would help determine whether a pattern or trace observed in a given project or settlement might represent a generalized practice or a mechanism of adaptation specific to that environment. The main strategy used during the field-

work was the observation and analysis of physical traces. This yielded information on *behaviors*, and thus on the ways people use, transform, appropriate and identify space. The observations made were recorded on a map and accompanied by photographs. The following major categories of analysis emerged from the observation.

*Public vs. Private.* The built environment was examined to discern how boundaries were established to separate public and private realms and control the use of space. These realms were also related to notions of ownership and territoriality.<sup>18</sup>

*Personalization and Adaptation for Use.* This included examination of a number of factors: state of maintenance, litter, missing traces (used vs. abandoned areas), appropriation of public areas, displays of self (identification and group membership), graffiti, government and political party propaganda, patterns of differentiation, and ways dwellings were similar or different in each settlement.<sup>19</sup>

*Use of Space.* This included identification of activities as they were made evident through facade design and public messages.

The method chosen presented two main shortcomings. The first was that it dealt with images, and the force of concrete visual impressions can be very powerful. Thus, an image from an occasional observation, especially if taken out of context, can be misleading. The second was that this method made it very easy to elaborate a hypothesis about causes, intent and sequence, when the trace alone was not enough to prove the hypothesis. To avoid being misled in this sense, a detailed registration of the frequency of the traces was made, and emphasis was placed on those patterns and traces that were most frequent.

Eventually, all the hypotheses that emerged from the physical analysis were tested through focused interviews, surveys, and literature reviews. In-depth, focused interviews lasting around two to six hours each were made with five families or head of families in each of the informal settlements (ten total). In order to answer questions of mobility, given the contrasts in levels of consolidation found in the informal settlements, 70 surveys in Dos de Octubre and 58 in Lomas Altas de Padierna were carried out.<sup>20</sup> Ten to fifteen focused interviews of approximately one hour each were carried out in the housing projects.

## THE CASE STUDIES

The area composed by Cuautitlán Izcalli, Coacalco, Tultitlán and Tultepec has grown mainly through housing projects sponsored by state housing institutions. This has made it possible for these municipalities to achieve higher levels of infrastructure and basic services than the median for the co-urbanized municipalities.<sup>21</sup> The housing projects studied were both located in this area of great housing project growth (FIG. 1).



FIGURE 1. Location of the settlements studied. Original map taken from Villavicencio et al., “Condiciones de vida y vivienda de interés social en la Ciudad de México” (UAM, unidad Azcapotzalco, edit. Porrúa, 2000). Reworked by author.

The first project, San Pablo Tultepec, is located at the edge of the municipality of Tultepec. It was promoted by the CTM, Confederación de Trabajadores de México (Mexican Worker’s Confederation), and built between 1982 and 1986. It covers an area of 80.7 hectares and has a total of 3,858 units. The project design and layout follows the superblock and multifamily apartment ideas derived from the Modern Architecture movement (FIG. 2). It is organized in forty superblocks, each containing sixteen three- and four-story buildings with six and eight units respectively. In the center of the project, and along one of its edges, several areas are subdivided to contain two-story duplex homes. In general, the buildings are also situated in a way that creates interior plazas in a chessboard layout.

The second project, La Palma, is an example of a new type of housing being built (in the last ten years) by private developers. It is located in the municipality of Coacalco, very close to San Pablo. Developed by Casas Geo and finished in 1993, it covers an area of 40.54 hectares, with a total of 1,873 dwelling units (FIG. 3).

Casas Geo is one of the most important private low-income housing developers in the country, and the one which has the most solid and explicit architectural and urban proposals. Geo’s design principles have taken into account the criticisms of superblock layouts, and instead provide small duplex houses, clustered around parking, with a securi-

FIGURE 2. Layout of San Pablo.

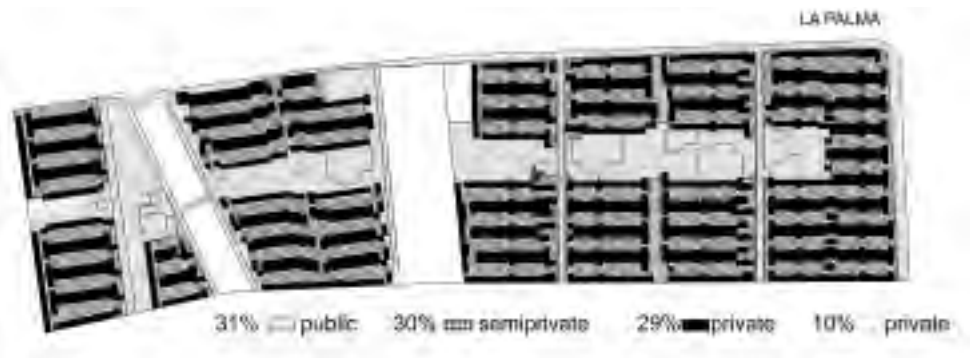
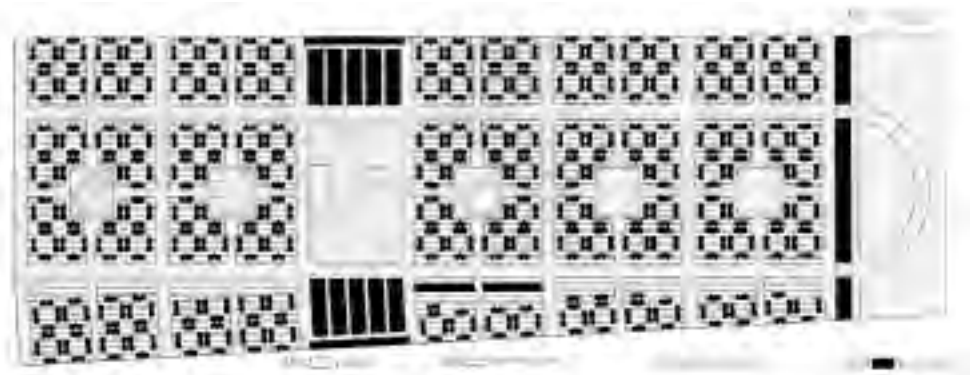


FIGURE 3. Layout of La Palma.

ty control house at the entrance. There is a pedestrian service corridor in the center of the project, along which schools and commercial establishments are located.

It is common to associate informal settlements with tight and irregular layouts derived from an invasion or an aggregative type of settlement. However, in Mexico City, Alan Gilbert and Peter Ward have written, “subdivision for sale represents the most important form of land alienation. . . .”<sup>22</sup> Thus, a settlement may be laid out from the start in the form a semiregular grid, with large blocks subdivided into plots of around 200 sq.m. (10 m. x 20 m.). The case studies chosen here attempt to illustrate the qualities of this kind of informal settlement, so typical in Mexico City. It thus presents a different kind of informal settlement than has often been the subject of study elsewhere.

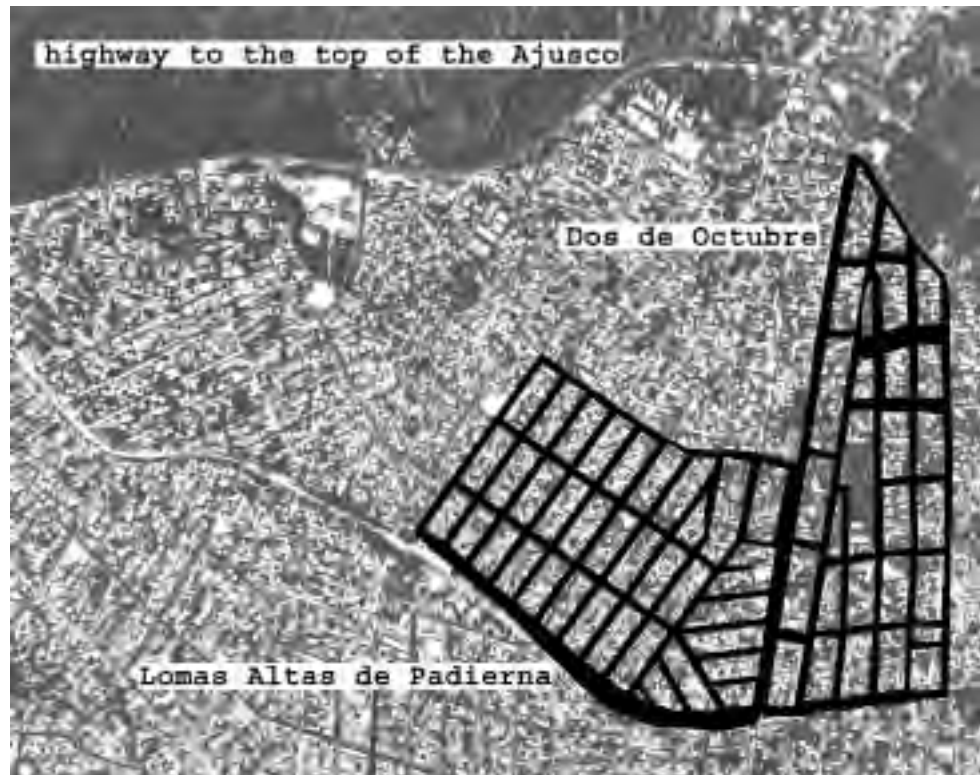
The area called “Ajusco Medio” is located on the skirts of Ajusco hill in the Tlalpan Delegation at the south of the Federal District. Two neighborhoods in this area were chosen for study: Dos de Octubre, and Lomas Altas de Padierna (FIG. 4). In the 1960s and 70s the city began to grow to the south, toward the hill, and at this same time the families of *ejidatarios* in the area had grown extensively and needed additional housing space.<sup>23</sup> Although *ejido* land is designated for agricultural purposes and cannot be sold, the *ejido* members may demand land for their own housing. Originally, this was intended to be only a small “urban *ejidal* zone.” But when the number of new house plots created exceeded the number needed, the law allowed the *ejidatarios* to sell them to “*avecindados*” (people who are not members of the *ejido*). Throughout Mexico City this is a frequent

mechanism by which the door may be opened to widespread urbanization of *ejido* land.<sup>24</sup> And in Ajusco the creation of this new urban zone, together with the pressure for growth in this sector of the city, eventually created a speculation process in which persons outside the *ejido* — and even the authorities — participated. Thereafter, the complete urbanization of Ajusco was carried out through a series of forceful invasions, violent removals, frauds, and direct purchases from the *ejidatarios*. The number of actors and the complexity and juxtaposition of mechanisms used to obtain land made this a conflict-ridden, violent area during these early stages of urbanization.

In an interview, one woman described how she experienced those first years:

*The bad persons were those who came to invade. When we bought from Rena, they had already drawn everything from the railroad tracks to the highway, and each person had their plan.<sup>25</sup> But the invaders came overnight and they drew their own plans and their street layout as they wished, and he who opposed got in trouble with them. When the people from Rena disappeared, we knew we had been defrauded, and now we were being invaded. At that time, we were not living here, but if you left the plot alone, you came back and found someone else living in it. A man who lived in front left with his daughters when they invaded because he was scared, and when he came back someone else was already living there. So I came to stay here by myself so they wouldn't invade our plot. I was terrified at night, and slept with a knife under my pillow and a machete under my bed. . . . I turned the*

**FIGURE 4.** Aerial view of the Ajusco and location of the two study neighborhoods. Aerial photograph bought from Aerofoto S.A. de C.V. Reworked by author.



radio on so I wouldn't listen to them. Finally, we got together with people from Bosques, Dos de Octubre, Mirador, and Cruz del Farol against Belvedere. Everything finally stopped when the leaders were killed. There were many censuses because the neighborhood kept on expanding. The one in 1984 was the good one because they had already killed the leaders of the invaders who were very mean people.<sup>26</sup>

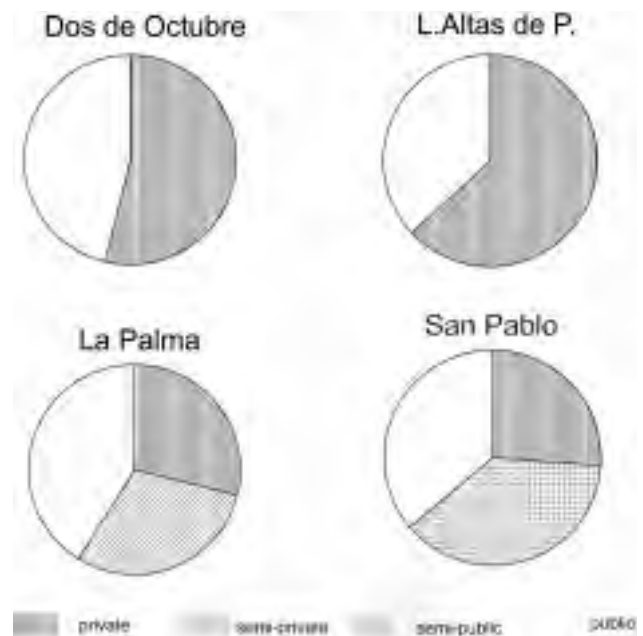
Palma a two-story duplex, in San Pablo an apartment), with no possibility of expansion.<sup>27</sup>

The larger size of the private spaces in the informal settlements, the fact they embody areas of land instead of built

**PUBLIC-PRIVATE SPACES**

As the accompanying figure shows, one of the great differences between the public housing projects and the informal settlements chosen for study is the amount of private space (FIG. 5). Private space was found to be notably higher in the informal settlements (54 percent and 63 percent), compared to 29 percent and 26 percent in the housing projects. As the most valuable resource in any informal settlement, land is efficiently allocated to provide the most possible "private" area, and there is rarely any residual or "wasted" public space. Also rare are squares and plazas, since land use is prioritized for dwellings.

The amount or size of individual private spaces was also found to be dramatically different between the formal and informal paradigms. In the informal settlements studied, people typically obtained 200 sq.m. of land, over which they could build up to three stories, or 420 sq.m. In the housing projects they obtained a dwelling of around 60 sq.m. (in La



**FIGURE 5.** Distribution of public vs. private land in the settlements studied.

space, and the fact they are owned outright present many alternatives and advantages. Most important is the opportunity to improve, extend or subdivide the private area over time, which helps foster such practices as plot sharing with kin, the development of storefronts for rent or home-based enterprises, and the creation of private open spaces such as patios or yards.

All of these possibilities are strongly constrained in the housing projects — which does not mean they do not happen. For example, extension to a third level is hindered in the duplex houses of La Palma by the slanted roof, and in San Pablo because they are apartments. Nevertheless, studies in other parts of the world have shown how even under these physical circumstances, people manage to extensively transform and extend their apartments in public housing complexes (i.e., by building over public areas, or by extending their apartments with cantilevers).<sup>28</sup> Residents in the Mexican housing projects studied here may not have transformed their dwellings as extensively, but in certain instances they had torn down facade walls to created storefronts, sacrificing their living rooms; and they had extended their units horizontally by appropriating immediately adjacent open spaces. These transformations suggest that no explicit controls against alterations exist in the projects.

The total amount of nonprivate open area (which includes semiprivate, semipublic and public areas) adds up to 68 percent in La Palma and 74 percent in San Pablo. Spaces with intermediate grades of privacy predominate in the housing projects: semiprivate cloisters in La Palma (30 percent), and semipublic plazas in San Pablo (38 percent). The rest of the open areas are public. They include the streets (8 percent) and a pedestrian service corridor (20 percent) in La Palma; and public squares and an urban center (8 percent) and streets (26 percent) in San Pablo.

The amount of open space in the housing projects could be seen as one of their advantages. In up-market areas of the city these green, common areas are well maintained, and they attract people and activities, creating lively spaces. However, in these neighborhoods, people (or the local governments) have the economic means to hire maintenance personnel. In the housing projects, the reality is that common maintenance of these large spaces is problematic due to lack of resources. Organization to maintain them by individual residents is also difficult because their ambiguous limits make it difficult to define who might be responsible for which area. This means that much of the open space in the projects remains underutilized and even abandoned. And abandoned, ambiguous space often becomes a no-man's land, which due to the lack of surveillance and use becomes ideal for sheltering antisocial behavior.<sup>29</sup> Furthermore, when activities and people are dispersed over large areas, the effect is to inhibit the overlapping of activities that could enliven a smaller open public space.<sup>30</sup> Only the semiprivate cloisters in La Palma (30 percent), and the semipublic plazas of San Pablo that give access to their surrounding buildings (30 percent), are in a good state of



FIGURE 6. Abandoned urban plaza in San Pablo.

maintenance and are used constantly. This means that less than half of the total open area is well used and maintained (FIG. 6). However, it is important to note that the study did not conclude that open, green areas are inappropriate in housing projects. As will be shown later, if allocated in the right way, neighbors can maintain and create beautiful, lively green areas. But it is important for designers and planners to understand the socioeconomic reality of the residents, and to allocate smaller open spaces that are easier to maintain.

By contrast to the public housing projects, the configuration of the urban layout allows only a very small amount of “public” space to exist in the informal settlements. The intermediate grades of privacy predominant in the housing projects also do not exist there. For this reason, the streets, which represent 34 percent and 29 percent of the total area, have become the main and most important public areas. All the activities that happen outside the private realm happen in the street, which also serves as the main access to the dwellings, helping to explain their active nature (FIG. 7).



FIGURE 7. Active Durazno Street in Dos de Octubre. A market on wheels settles here each Thursday and Sunday.

The different amount, configuration and organization of private spaces in the two types of environment also entails a fundamentally different type of tenure. In the informal settlements, each family owns a private piece of land; in the housing projects, tenure is in condominium, which means that people need to get organized and work together to maintain their common spaces. One interviewee's comments from Dos de Octubre serve to illustrate feelings about these different kinds of tenure:

*I wouldn't like to live in a public housing Project because it is like a disguised vecindad.<sup>31</sup> There is no privacy. I close the windows here and I do as I please. If you get a ground-floor apartment, you get lucky, because then the floor belongs to you. But the ceiling and the walls do not belong to you. They offered us an apartment from FOVISSTE but we declined. I tell my daughters that here they are the queens and masters of the house. In public housing you can't do parties. Here we dance. People who like to live in conjuntos are old people or couples with one kid or two, tops.<sup>32</sup>*

It is common to associate informal settlements with communal activities, ownership and spaces. But as I found in the case studies, a much more individualized type of ownership is given in informal settlements than in housing projects. As documented in other studies, my interviews also reflected a decline in communal participation among neighbors in the informal settlements.

## PERSONALIZATION

Personalization is achieved through different mechanisms. In public housing projects everything is finished in the first phase. Only afterwards, and from homogeneous prototypes, do people begin to personalize and modify their own apartments and facades to suit their tastes and aspirations. One could say that this is a process of adaptation and transformation. By contrast, in informal settlements, personalization is inherent to the very process of construction, and is specific to each household and plot. Usually, it also follows a process of upgrading, which is normally considered one of the main advantages of informal settlements.<sup>33</sup>

In my analysis, all signs of individualization and identification, such as change of color, facade improvement, vegetation and so on, were considered signs of personalization. Appropriation referred to cases where people took a piece of public land and made it their own, not only by personalizing it, but also by demarcating it and restricting access to it.

Personalization in the housing projects was normally characterized by the emergence of a transition space, achieved through the appropriation of nonprivate areas contiguous to the dwelling unit. This transition space often serves to fulfill needs of privacy, security, identity and open space. In con-

trast, in the informal settlements, these needs are largely met within the boundaries of the dwellings and plots themselves. Thus, privacy is obtained by avoiding visual contact from the street to the private areas;<sup>34</sup> identity and pride are created through the building process itself; open space is obtained by the size of the plot; and security may be improved by building a fence or wall. In the housing projects, appropriated transitional spaces provide the additional benefit of beautifying and enlivening the semipublic or semiprivate areas that they face. Thus, the best-maintained open areas in both housing projects were often the small gardens or front porches tended or decorated by the individual residents.

A small pedestrian path in La Palma provides a good example of how such spaces may help enrich public spaces. The path is located where several cloisters meet, and serves as access to several homes. It has a fringe of soil and grass, with a paved walkway in the center. The residents of the dwellings that face this path had each taken over the fringes of soil that faced their houses and created small front yards. This is a beautiful green, varied, and well-maintained area — which contrasts to the service corridor, which is in a very bad state of maintenance (FIGS. 8, 9). In general, the difficulty of main-



FIGURE 8. (TOP) Vandalized play equipment and high school wall in La Palma's service corridor.

FIGURE 9. (ABOVE) Pedestrian path in La Palma appropriated and beautified by the neighbors.



taining open public spaces is what turns designated “green areas” into dirt areas, later abandoned. But this pedestrian path in La Palma serves to illustrate how, if allocated in the right way, well-maintained green areas can exist where budgets are low. The key principle is that it is easier for each person to care for their own small space than for them to get organized and maintain a larger area. Also, the existence of different “owners” ensures this space will be varied and lively.

Given the benefits that these appropriated spaces provide, it is important to ask how the built environment hinders or facilitates the appropriation of such spaces. Two conditions were found to be essential: available open space, and direct access to the dwellings. In both housing projects it was found that people chose to personalize only those areas contiguous to access from their homes. By contrast, windows — or eyes on the street, which are considered by many authors as crucial for people to relate to their immediate environment — were not found to have an influence on people’s appropriation of space.

San Pablo presents a good example of this condition. Here, the buildings alternate with plazas in a chessboard layout. The plazas are all identical in shape and size, but some give access to all four facades surrounding them, while others do not (in some cases remaining blind to their surrounding buildings, and in others with windows facing onto them). In this condition, each apartment faces two plazas, one of which gives access to the dwelling and one of which does not. In every case, appropriation was present only on the plazas that gave access to the buildings, and not on the no-access plazas. The importance of immediate access to the surrounding buildings was found to go beyond the opportunity for appropriation. Indeed, it provided a determinant of activity in the contiguous open space. Thus, the no-access plazas were initially provided with basketball courts or playgrounds, while the others were not. But the great majority of no-access plazas were abandoned, vandalized and under-maintained, and were seen as dangerous spaces by the residents. By contrast, the access plazas, even when contiguous to the no-access plazas, presented well-maintained, beautiful and varied green spaces (FIG. 10).

Direct access to buildings was therefore found to be crucial in activating contiguous open spaces. In the case of residential uses, it may even be the key issue influencing people’s decision to appropriate them. The ideal solution would be to provide these spaces and allocate them in the design phase.

The case studies of informal settlements allowed observations of a variety of personalized dwellings. The control that each family has over the building process allows great opportunity for personalization. In the initial stages, the forms and shapes of homes may be similar, given the widespread use of concrete-frame/cement-block construction. But personalization reaches its peak when a house is ready for finish materials. Such materials offer the possibility to express different styles and tastes, and thus their installation

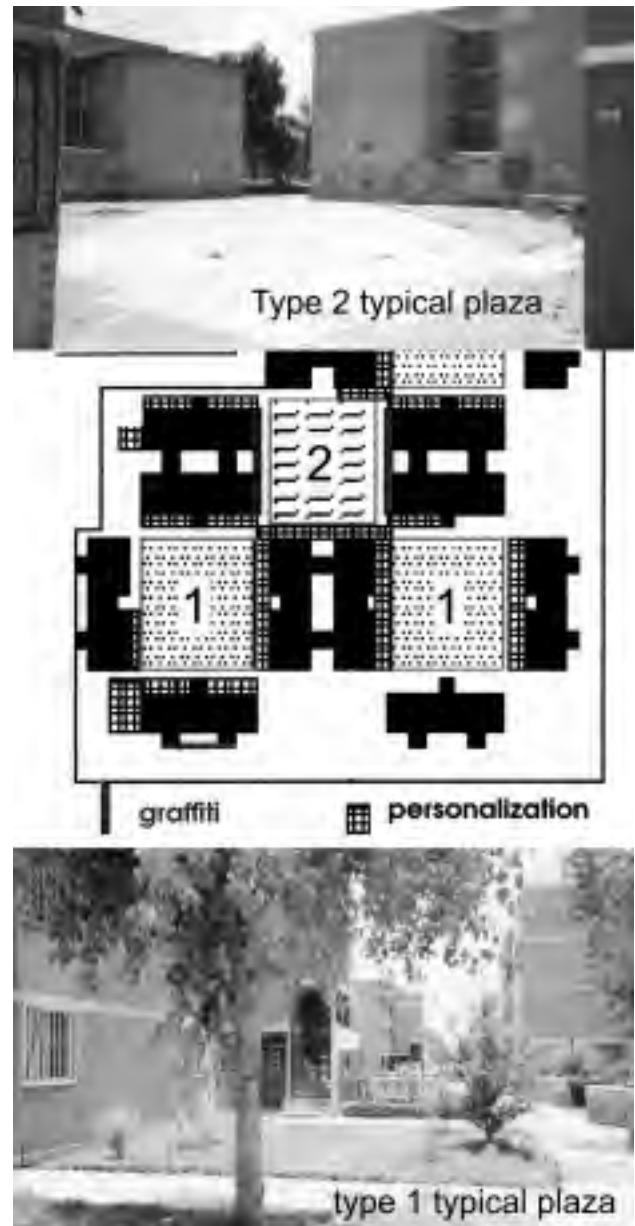


FIGURE 10. The different plazas in San Pablo.

is often the moment when the greatest level of differentiation begins to appear between dwellings.

The first thing that becomes evident when analyzing the built environment of the *colonias* of the Ajusco is the great contrast that exists from one house to the other. Levels of consolidation vary greatly from one plot to the next. For example, a three-story house with luxury finishing may exist next to a temporary cardboard and corrugated-metal shack. Overall, however, a good percentage of the lots exhibit some medium level of consolidation, in which the houses are built of permanent materials, many with second floors, but with the walls still bare (FIGS. 11, 12).



**FIGURE 11. (TOP)** *Contrasts in levels of consolidation in Lomas Altas de Padierna.*

**FIGURE 12. (ABOVE)** *As if walking in time, three levels of consolidation in Dos de Octubre. On the right, as in the early stages of settlement, with no structure and waste materials. In the center and average level of consolidation, with permanent materials and structure, but awaiting finishing materials. To the left a four-story apartment building (awaiting the fifth floor!), an extreme case of consolidation.*

These contrasts serve to illustrate Perlman's point regarding the "enormous heterogeneity within the settlements in terms of income, education, occupation, size and materials of the dwelling units and reason for being there."<sup>35</sup> But these contrasts between levels of consolidation also raise the question of whether public infrastructure and service improvements to the settlements have increased land values and caused poorer households to be displaced. In order to answer this question, a correlation was made between levels of house consolidation and the number of years a household had been in the neighborhood. The goal was to find out if the more consolidated houses belonged to newcomers or to original settlers who had improved their condition. The

analysis did not seem to show any correlation between level of consolidation and time of residence. This seemed to indicate that, of the original settlers, some are able to consolidate; some weren't, but stayed in the neighborhood; and others (around half) left the settlement at different points in time. The data therefore did not bear out the common hypothesis that initial residents leave after a settlement is upgraded, since they cannot put up with the costs. Neither did it show that most residents improve their dwellings over time within the settlement. Rather, it showed that variety and mobility are typical within these settlements.

In the informal settlements there did not seem to be a pattern of appropriation of public space, as in the housing projects. This might be explained, as mentioned earlier, by the fact that many of the needs the appropriated space would seem to fulfill are met in the plot and dwelling themselves. Meanwhile, sidewalks here function as transition spaces between the public and private realms. They were often personalized, but not appropriated.

#### HOME-BASED ENTERPRISES

In the study it was important to observe any evidence of dwellings being used for purposes other than residence. Such evidence would challenge the notion that houses serve only residential purposes. In this regard, home-based enterprises emerged as the most important alternative use in a dwelling.

Government programs usually — if not always — characterize dwellings as space for residential use exclusively, and home-based enterprises are rarely considered an integral part of a dwelling in housing projects. However, as Kellett has noted: "Home-based enterprises demonstrate the close symbiotic relationship between housing and work, and the fundamental economic role of the dwelling."<sup>36</sup> Perlman has also found that "the dwelling is more often than not, used as the base for income producing activities, other than rental income."<sup>37</sup>

Even in the flexible environment of informal settlements, the government's intervention with upgrading programs does not support home-based enterprises. For example, in the Home Improvement Program, no loans may be given to build spaces for rent, for commercial establishments, or for workshops. For the government, the existence of a storefront, or even the suspicion that commercial space may exist in a home, may mean automatic ineligibility for such a loan. Since preference is given to households that are less well off, the reason given is that the presence of a storefront indicates better economic standing. However, the presence of home-based enterprises and storefronts in all four case studies here shows that this practice emerges independently of whether the built environment supports it or not. At the same time, the ways in which such spaces emerge and the different spaces they occupy in each settlement help demonstrate how the built environment facilitates their



**FIGURE 13.** Storefronts in Dos de Octubre with median grade of consolidation.

emergence in informal settlements, while complicating their emergence in housing projects.

In the informal settlements, the flexibility of plot size and the laxity of building and zoning codes make it possible for storefronts to be built specifically for that purpose without having to sacrifice other spaces within the dwelling (**FIG.13**). In the housing projects, however, people have to sacrifice one of their already limited spaces to accommodate a storefront (**FIG.14**). In this context, the transformation of part of the dwelling into a home-based enterprise, despite space constraints, reflects their great importance. The contrast of flexibility vs. rigidity also means that more than one storefront can exist on a site in an informal settlement, while only one at the most can be accommodated within a dwelling in a housing project.

The ways that “unplanned” storefronts appear in the informal settlements and in the housing projects have much to teach architects and planners about the appropriate location of these commercial establishments. Most importantly, commerce concentrates



**FIGURE 14.** Small storefront achieved by the opening of a blind wall to face the service corridor in La Palma.

and locates in areas where there are flows of pedestrians. In other words, the stores go where the people are, and pedestrian traffic is strongest on paths between two points of intense daily activity, such as a school, a marketplace, or a bus stop.

In Dos de Octubre, since the early stages of the settlement, businesses have been concentrated on Durazno, the street along which the schools are located, (**REFER TO FIG.7**). Also, the reason Tecax Street in Lomas Altas de Padierna seems to have acquired its commercial nature is that it is one of the few streets that crosses directly to the other side of the railroad tracks. A market is also located at one end of this street, and vehicular traffic is heavy, as is pedestrian flow.

In San Pablo, informal storefronts are concentrated along a street that leads from the elementary school to the high school and the market, and along the street that gives access to the settlement (**FIG.15**). “Planned” commerce was ironically intended to be concentrated in the “urban center.” But today this large piece of underutilized land serves as a prime example of how little this project’s designers knew about successful storefront locations (**REFER TO FIG.6**). By contrast, there are very few storefronts in La Palma. The grouping of dwellings in cloisters there does not create a pattern of paths which lead to other areas of the settlement (**FIG.16**). By restricting access to possible clients, this layout gives businesses little chance to survive. The storefronts that do exist in La Palma are all located facing streets, in places where customers have access to them (**REFER TO FIG.14**). In La Palma, not only the size of dwellings, but also their grouping in cloisters has constrained the emergence of storefronts.

An example of how points of strong activity draw and create a flow of people is illustrated by the accompanying visual analysis of an active residual space (**FIG.17**). All the spaces of a similar type were found to be abandoned and in very bad



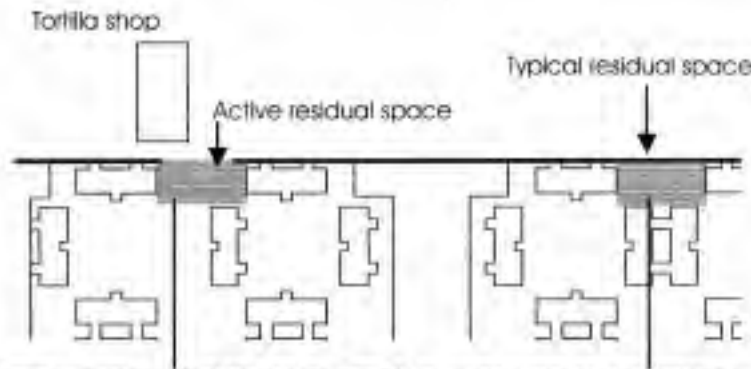
**FIGURE 15.** The street that leads from the school to the market is very active, and informal storefronts are concentrated in this area. People have opened their ground-floor patios and converted them into storefronts, with means that they have sacrificed not only the patio, but also light and ventilation into an important part of the apartment.



**FIGURE 16.** Closed cloisters in La Palma with restricted access (fence and police stall at each entrance). While enhancing the feeling of safety for residents, they restrict access to possible clients and thus hinder the emergence of storefronts.

shape. But in this one space there were children playing and a few candy stalls. The reason was that the otherwise enclosed space had been opened up so as to create a shortcut to the *tortillería* (a store of daily use), and this had created a strong pedestrian flow. The relationship between the concentration of storefronts and greater flows of pedestrians indicates that businesses respond not only to need — as is commonly assumed for home-based enterprises — but also to opportunity.

**FIGURE 17.** Example of an active residual space. Neighbors have torn down the fence to access the tortilla shop.



In terms of typology, two kinds of storefronts were found in the informal settlements. In one, a single room in a dwelling was transformed into a commercial space, constituting an integral part or an extension of the dwelling. The other type was configured as a mixed-use building, having more than one storefront on the ground floor, with the dwelling either on top or in back, or both (FIG.18).

It was expected that most commercial establishments would be home-based enterprises, managed by a family — and therefore that a deep relationship would be established between work and home. However, the existence of more than one storefront, especially when more than two existed, suggested that these spaces, rather than sheltering a home-based enterprise or activity, might be purpose-built as rental spaces. Indeed, of the storefronts in our sample, 60 percent in Dos de Octubre and 38 percent in Lomas de Padierna were rented out. Only 15 percent of the businesses in Dos de Octubre, and 30 percent in Lomas Altas de Padierna, were managed entirely by resident families. The rest were a combination of rented and family management (when more than one storefront existed).

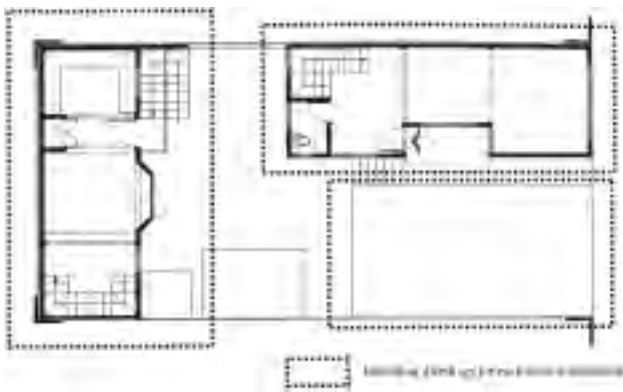
In these communities storefronts were not only important as a means by which individual families might earn additional income. They also benefited the community at large by helping provide supplies within walking distance. It is a fact that the limited resources of low-income families make access to transportation difficult. When asked if the quality and prices of the neighborhood stores were good, people recognized that most of their shopping was done in the neighborhood — even when prices were higher. But to shop at the big chain supermarkets, they had to take public transportation.



**FIGURE 18.** Example of a consolidated mixed-use dwelling, with five storefronts on the ground level and the residence on top.

#### PLOT SHARING WITH KIN

Although not evident from the streets, floor-plan samples and census data indicated that plot sharing with kin is a very common practice in the informal settlements of the Ajusco (FIG. 19).<sup>38</sup> Ten out of 24 of the case studies in the sample had more than one dwelling per plot, each belonging to a different nuclear family — who were related, usually as parents and children. The census data further indicated that 1.5 dwellings per plot exist in Lomas Altas de Padierna, and 1.6 in Dos de Octubre. By contrast, in the housing projects, since people only possess a dwelling unit, the only way to have more families per unit is to subdivide it internally, and thus overcrowd it. The size of the dwelling represents a big constraint to inhabitation by extended families in the housing projects, while the plot of informal settlements provides the opportunity to give each family their own private space.



**FIGURE 19.** Example of typical multifamily plot. Three individual dwellings on one plot.

Despite these constraints, sharing of public housing units does occur in other parts of the world. For example, Tipple found that the median number of households per public housing unit was three in Bangladesh and Zimbabwe, two in Ghana, and one in Egypt. Since the units concerned were usually apartments, extensions needed to accommodate a greater number of people were often difficult to achieve. Yet, despite the constraints, people managed to extend their apartments.<sup>39</sup> In Mexico City, Ward has also predicted that “. . . housing tenure and *plot-sharing* arrangements are likely to become more heterogeneous by 2025, and by that time nuclear home owner households may be the exception rather than the rule.”<sup>40</sup> I also believe this practice will become more common, since as land gets scarcer, people will subdivide their lots in order to accommodate their relatives.

Plot sharing can be seen in two ways. On the one hand, it offers second-generation families living space without paying rent. The plot is thus the most important patrimony a family can acquire for future generations. In this respect, the notion of acquiring “land” instead of a dwelling is very important, because it offers the possibility of subdivision in the future. Yet, on the other hand, it remains to be documented how much this practice is welcomed by new families, especially when sharing a plot with in-laws. Are they there because they have no other choice? Or are they there because they benefit from the social and economic networks created with their kin? While interviewing one young resident and her mother-in-law, the resident kept saying how grateful she was and how she liked it there. But when the mother-in-law left the room, I asked her, “Tell me the truth, do you really like living with your in-laws?” She smiled and whispered, “If I could, I would prefer to live somewhere else only with my husband . . . but we would never be able to afford a place of our own.”

While keeping in mind how feasible it might be for each new couple to have a home of their own, the point of view of the second generation should also be contrasted to that of the first generation. In most cases the older generation put up with the social costs of consolidating ownership of a plot. And they did so to be able to house their children, even when they form their own families. This practice could also represent a form of commercialization, or a source of additional income for the parents by renting out the piece of land to their children, or by having help with their expenses in exchange for use of the land.

#### SPACE FOR TEENS

The presence of graffiti as well as answers given on questionnaires and in interviews revealed that there are two distinct types of spaces in which teenagers prefer to hang out. In the housing projects teens generally take over abandoned and ambiguous spaces and make them their exclusive territory. In the informal settlements, teenagers share the

streets with all the other residents, although they tend to concentrate on the quieter streets.

What functions better, then, an anonymous space that teenagers can take over and mark as their territory, hidden and separate from other activities; or having the streets be their territory, sharing the space with many other users and uses?

These questions need to be addressed through many different points of view. Which makes the residents feel safer? Where do teens feel more identified? Hidden and anonymous spaces make it more comfortable for antisocial behavior such as drug consumption, robberies, and gang fights to occur. Sharing the streets might make it less likely that such antisocial behavior would develop, but it also puts other residents more at risk when it does occur.

A deeper understanding, which would require more detailed ethnographic study of teen spaces in each settlement, would be needed for an accurate evaluation and analysis. These questions also tie directly into the nature and extent of teenage and youth problems, and thus go far beyond the scope of this study.

## SUMMARY OF FINDINGS

In their initial stages, without doubt, the dwellings provided in the housing projects present a better alternative in terms of construction quality, availability of services (such as water, sewage and electricity), and the opportunity to own a home and stop paying rent or living crowded in with relatives. However, the disadvantages they present — such as location (where land is cheap, and thus, in many cases, far from jobs); the size of the dwelling; the difficulty of extension or improvement; and the difficulty of living near relatives — are characteristics that cannot be overcome over time.<sup>41</sup>

In some cases by choice, and in others for not having an alternative, people who come to live in informal settlements put up with the social costs of living in substandard temporary dwellings with no services or infrastructure, and with the insecurity and

complicated political environment that surrounds their creation.<sup>42</sup> However, over time, these characteristics, that constitute their initial disadvantages, are slowly overcome, and the potential they offer to better meet the needs of low-income families is realized. With these statements, I do not intend to romanticize or argue that informal settlements constitute the ideal housing solution. The purpose of this article has been to understand the potential that the flexible environments of Mexican informal settlements have toward meeting the housing needs of low-income families.

In all the case studies analyzed, the built environment does more than provide shelter. For example, the study identified how the dwelling helps provide privacy, identity, security, and additional sources of income. In this regard, there are several important differences between the flexible environments of Mexican informal settlements, and the rigid environments of housing projects. Among these are differences in the distribution of public and private spaces; the ways in which public and private spaces are related to each other; the type, size, amount and tenure of the private spaces; the existence of intermediate grades of privacy and the emergence of transition spaces only in the housing projects; the flexibility provided by the large size of the plots in informal settlements; and the difference in the active nature of the public space in the informal settlements, as opposed to the underutilized and sometimes abandoned public spaces of the housing projects. The emergence of storefronts and home-based enterprises and their concentration around spaces of pedestrian flow are practices common to all four case studies. In the housing projects the appropriation of nonprivate space was also found to be an important mechanism of adaptation to the lack of privacy, identity, private open space and security.

The accompanying diagrams are intended to summarize these findings and illustrate the underlying structure of each of the built environments studied (FIG. 20). The illustrations represent the distribution of private vs. public space, their relationship, the plot's flexibility and capacity to accommodate several uses, and the creation of pedestrian flows.

## REFERENCE NOTES

1. B. Anderson, "El protagonista del boom," *Expansion* (February 2003).
2. J. Perlman, "Six Misconceptions about Squatter Settlements," *Development* 4 (1986).
3. M. Scheingart, *Los productores del espacio habitable: estado, empresa y sociedad en la Ciudad de México* (El Colegio de México, 1989).
4. J.F.C. Turner, *Housing by People: Towards an Autonomy in Building Environments* (New York: Pantheon Books, 1976).
5. Sites and services is a well-known program in the housing field, in which people are given a piece of land that has water, sewage and electricity connections, and are allowed to build their own homes. Sometimes they may also be given a "core house," which they can expand.
6. R. Burgess, "Self-Help Housing Advocacy: A Curious Form of Radicalism," in P. Ward, ed., *Self-Help Housing: A Critique* (London: Mansell, 1982), pp. 56–98.
7. P. Kellett and M. Napier, "Squatter Architecture? A Critical Examination of Vernacular Theory and Spontaneous Settlements with Reference to South America And South Africa," *Traditional Dwellings and Settlements Review*, Vol. VI No.2 (1995).
8. Turner, *Housing by People*, p.128.
9. Perlman, "Six Misconceptions about Squatter Settlements."
10. The Dubai International Award for Best Practices to Improve the Living Environment is granted every two years to outstanding con-

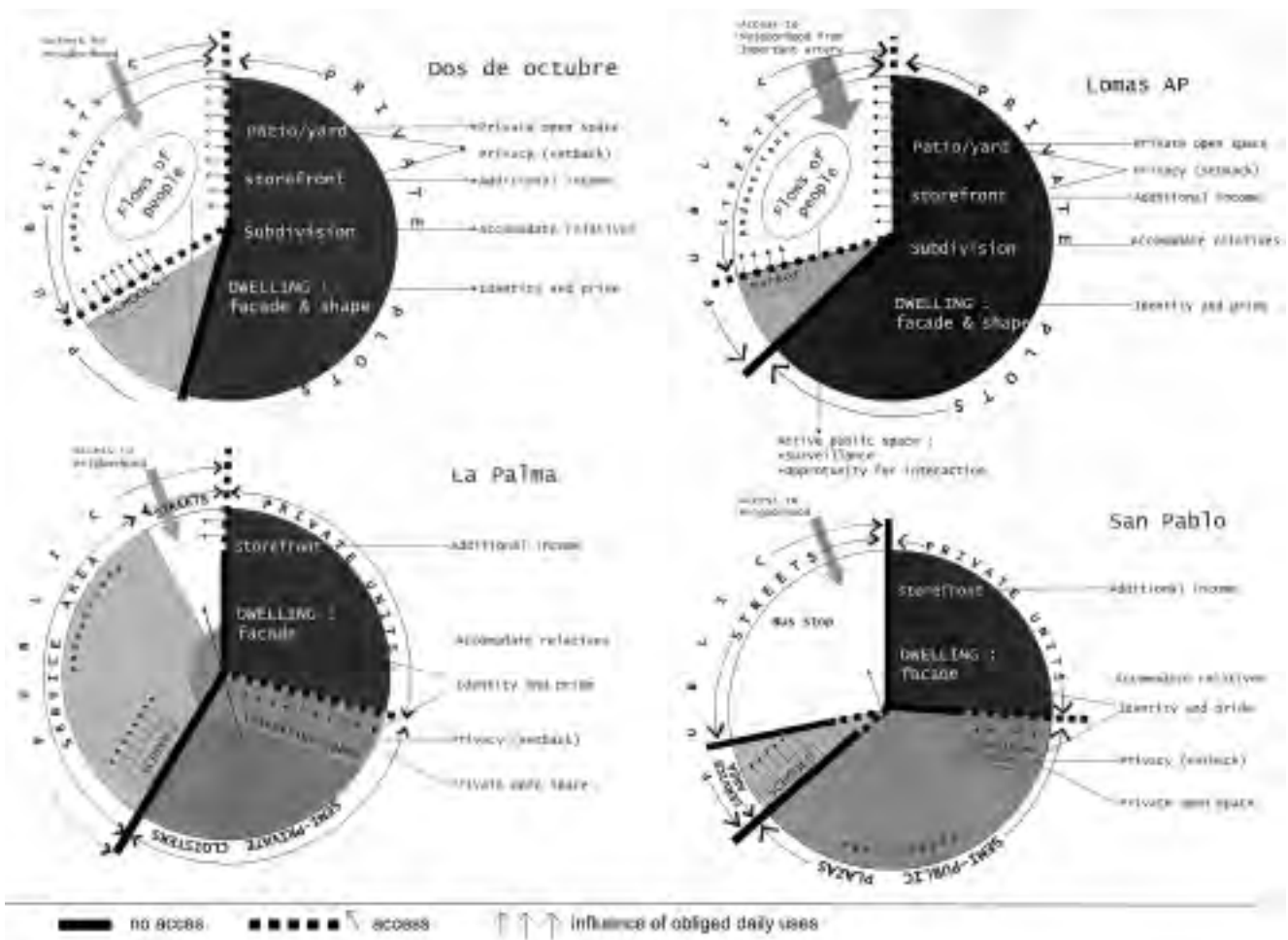


FIGURE 20. Conclusion diagrams.

tributions to improve life in cities. The submitted practices are part of the UN-HABITAT best practices database. Criteria taken from “Submission Guide and Reporting Format for the Year 2004,” downloaded from [http://www.blpnet.org/awards/2004/guide\\_en.pdf](http://www.blpnet.org/awards/2004/guide_en.pdf), page 5.

11. I. Serageldin, “The Architecture of Empowerment: A Survey,” in I. Serageldin, ed., *Architecture of Empowerment* (London: Academy Editions, 1997), p.8.

12. For a detailed description of this debate, see P. Ward’s *Self-Help Housing: A Critique*, in which Turner and Burgess advance the fundamental issues that surround the self-help housing debate.

13. In the past, institutions like INFONAVIT centrally administered the housing projects, from construction to financing and allocation processes. Nowadays, the government’s

housing institutions have increasingly limited their role to being a financial entity, leaving the actual construction to private developers. However, the same type of standardized layouts continue to be preferred, for the same reasons, as well as for economic reasons. Turner pointed out with regard to centrally administered systems.

14. J.F.C. Turner, *Freedom to Build: Dweller in Control of the Housing Process* (New York: MacMillan, 1982).

15. One of the largest developments built by GEO, one of the leading low-income housing private developers.

16. The title of this unpublished thesis is “Influencia del diseño de espacios públicos en la calidad de vida de los usuarios: análisis de dos conjuntos habitacionales” (“Public Space Design’s influence on the Life Quality of its Residents: Analysis of Two Housing Projects”).

It can be found in the Library of the Universidad Iberoamericana in Mexico City. 17. The title of this thesis is “People and the Built Environment: Use, Appropriation and Personalization of Space in Spontaneous Settlements and Housing Projects in Mexico City” (UC Berkeley, 2003). For further detail of this study and other areas of analysis, such as the current Mexican housing policy, please refer to this thesis which can be found at the UC Berkeley Library. 18. The different grades of privacy are defined as follows. Public: a space to which any person has access, with no barriers for entrance. Semipublic: a space in which access is not restricted but which is shared by a precise number of households and hence, when a stranger enters he or she is noticed. Semiprivate: a space that belongs not to one but to several households and

which has a restricted access to those who belong. Private: a space that belongs specifically to one family or household, and which has a restricted access to that specific family.

19. Especially in informal settlements, since the housing projects are composed of standardized prototypes.

20. This is the number of useful surveys, hence the variance. Originally, 80 were applied in both neighborhoods.

21. M. Schteingart, *Vivienda y Vida Urbana en la Ciudad de Mexico: La acción del Infonavit* (El Colegio de México, 1998).

22. A. Gilbert and P. Ward, *Housing, the State and the Poor: Policy and Practice in Three Latin American Cities* (Cambridge: Cambridge University Press, 1985).

23. *Ejido* is a piece of agricultural land that has communal tenure to a group of families who have the right to use the land, but not to sell it. The *ejidatarios* are the members of the *ejido*. The law has been recently changed to allow these families to sell their land, through a complicated process of transforming the *ejido* into private land.

24. Schteingart, *Los productores del espacio habitable*.

25. Rena was a real estate company that subdivided and sold plots illegally.

26. Testimony from interview.

27. Considering a standard of 30 percent of open space within the plot, people can build up to 420 sq.m. in three stories. However, it is

important to remember that the size of the plots in the informal settlements in the case studies should not be generalized to all informal settlements, and that they represent a rather uncommon example particular to the Mexican context. Nevertheless, the possibility of expansion is a general characteristic in informal settlements, given that in most cases homeowners obtain a plot of land, which, however narrow, may be expanded upon vertically.

28. G. Tipple, *Extending Themselves: User-Initiated Transformations of Government-Built Housing in Developing Countries* (Liverpool: Liverpool University Press, 2000).

29. For example, drug dealing can be easily performed in these unobserved spaces, and vulnerable teenagers easily fall into addiction.

30. Some authors attribute the failure of high-rise public housing projects to this matter alone. Oscar Newman developed the concept of “defensible space” after observing the ambiguity, abandonment, and antisocial use of public space in high-rise superblock projects.

31. *Vecindad* is a very common type of low-tenement that exists in the central city. Usually they consist of one- or two-room units organized around a long, narrow central patio. This is now considered a very traditional space, and is represented in many movies, TV shows, and songs.

32. Comment from a resident in Dos de Octubre in an interview elaborated for this study.

33. Not always, as shown in our sample, many households continue to have their homes in the same state as it was in the early stages of the settlement. (See, for example, figures 11 and 12.)

34. 54 percent of the houses in Dos de Octubre and 72 percent in Lomas Altas de Padierna do not have windows directly facing on the street, but rather a wall with a *sagúan* (big entrance door), with the house set back from the street. 23 percent and 19 percent of the houses, related to the street through storefronts.

35. Perlman, “Six Misconceptions about Squatter Settlements,” p.48.

36. Kellett and Napier, “Squatter Architecture? A critical Examination.”

37. Perlman, “Six Misconceptions about Squatter Settlements,” p.42.

38. These floor plans were elaborated for the home improvement program.

39. Tipple, *Extending Themselves*, p.48.

40. P. Ward, “Future Livelihood in México City: A Glimpse into the New Millennium,” *Cities*, Vol.15 No.2 (1998), pp.68.

41. Given the allocation process, not all households or members in the family meet the criteria to obtain a loan.

42. As found in the interviews for this study.

All drawings and photos are by the author unless otherwise noted.