



RESPONSIVE PUBLIC HOUSING

An Alternative for Low-Income Families

ROBERT OXMAN holds a B.A. and M.Arch. from Harvard University and a D.Sc. from the Technion—Israel Institute of Technology. He has practiced architecture in the United States, Puerto Rico, and Israel. Dr. Oxman is currently Senior Lecturer on the Faculty of Architecture and Town Planning of the Technion and has taught at the Technical University, Eindhoven, the Netherlands.

NAOMI CARMON received her B.A. in sociology from the Hebrew University in Jerusalem, her M.Sc. in management and D.Sc. in behavioural sciences from the Technion—Israel Institute of Technology. She is currently Senior Lecturer on the Faculty of Architecture and Town Planning and a senior researcher at the Samuel Neaman Institute for Advanced Studies in Science and Technology at the Technion. For the last four years, she has been a codirector of a comprehensive evaluation study of Project Renewal, a nationwide program for social and physical rehabilitation of distressed neighborhoods in Israel. In 1984-1985, she spent a year as a visiting scholar at the Department of Urban Studies and Planning at the Massachusetts Institute of Technology.

ABSTRACT: A series of studies in public housing neighborhoods in Israel explored a widespread phenomenon of user-initiated expansion of small units. The residents of these neighborhoods were working-class families of below average income, who usually function as passive users in the services of the welfare state, including housing services. However, when these people gain control over their housing, when physical conditions enable it, when the social environment encourages self-improvement, and when the administrative institutions do not inhibit it, a considerable portion of them turn into active, participating users, contributing to their own welfare as well as to that of the public in general. The results are significant amelioration in both objective dimension (maintenance) and subjective dimension (satisfaction), which leads to alleviation instead of deterioration of housing conditions and elevation of neighborhood status.

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Governments throughout the world are investing considerable resources in public housing to assist low- and moderate-income households in achieving decent housing. In spite of the heavy governmental investment in construction, in management, and in maintenance, residents of public housing are frequently unsatisfied with their housing conditions and housing environment; and neighborhoods of public housing tend to deteriorate rapidly, both socially and physically. Assuming that we still need public-assisted housing services, the question is whether we can plan it differently in order to improve the long-range effectiveness and efficiency of this public investment.

EARLY STUDIES

A clue to one of the possible answers to the above question was suggested by an exploratory study of the 70 neighborhoods in Israel included in Project Renewal, a national program for social and physical rehabilitation of distressed urban areas.¹ Of the 70 areas, 61 were (at least partially) public housing projects, generally in poor condition, which was the reason for their inclusion in Project Renewal. However, within these generally deteriorating areas we observed many islands of self-rehabilitated and self-expanded housing. As this was an unexpected phenomenon, we started to document its frequency and to try to understand its causes and consequences. One finding stood out almost immediately: The self-rehabilitation and self-expansion took place in low-rise houses (mostly two-story buildings) with only a few households (mostly 4, but sometimes up to 12). In about 50% of the 70 neighborhoods, at least 50% of the buildings were of this low-rise type, and in many of these areas the self-help process could be observed.

In order to put our subject in context for a non-Israeli reader, we have to note that the Israeli process of self-help improvement of public housing shares a few common ele-

ments with the process of self-help housing that is prevalent in countries of the Third World (Turner and Fichter, 1973; Perlman, 1976; Turner, 1977). In all these cases the focus is on low-class groups who have gained control over their housing and gradually adapted it to their needs, in accordance with the development of their economic resources and social aspirations.

However, whereas in the Third World it is usually a process of building from scratch by people who are just entering the urban economic system, in Israel the subject is improvement of existing housing units by residents who have already been absorbed in the economic and social urban systems. From these perspectives it resembles the processes described by Stegman (1979) and Kolodny (1980) from the United States and by Kearns (1981) from Britain. However, the latter relates primarily to multistory housing and mainly to collective efforts, whereas we deal with low-rise buildings and individual enterprise. Therefore, the most similar comparison is with the "incumbent upgrading," which Clay (1979) found in his study of the 30 largest cities of the United States, and with the voluntary improvements in the Deeplish area of Rochdale and other areas in England, reported by Spencer and Cherry (1970). Here, the resemblance is both physical (type of buildings) and social (the social position of the residents). Hence, it seemed worthwhile studying the process, the lessons of which could be relevant to planners in other countries in addition to being useful to housing policymakers in Israel.

Our early studies of self-help public housing improvement in Israel included a long series of mini-studies of public housing projects throughout the country, administered by our students (six semesters in the years 1978-1980; total of 130 mini-studies). They provided information about the spread of the self-improvements, stages of the process, the conditions that facilitated it, and its physical and social consequences.

Because these early studies were insufficiently systematic to support sound conclusions and recommendations,

we initiated a series of empirical studies, the first of which has been completed and is reported below.

The purposes of this first empirical study were

- (1) to describe the process of self-help housing improvement,
- (2) to identify the factors that facilitated it, and
- (3) to analyze its physical and social consequences.

We present this study, and then combine what we have learned throughout the last four years both in order to estimate the contribution of self-help improvement of old public housing to the achievement of housing policy goals and broader social goals and in order to derive lessons from the above with respect to the design of new public housing.

THE STUDY OF GIVAT OLGA

Shortage of resources compelled us to limit this research to one neighborhood alone. Givat Olga was selected because there are many self-expansions in the neighborhood and there are also many units that were not expanded; therefore, one can compare expanders and nonexpanders in the same environment. Another reason for selecting this neighborhood was that from several perspectives—social as well as physical—Givat Olga is a reasonable representative of old public housing projects in Israel.²

Givat Olga is a neighborhood of 12,000 inhabitants located in the town of Hadera on the coastal strip of Israel, midway between Tel Aviv and Haifa. Most of its residents are in the bottom third of the distribution of families by level of income in Israel. In general, housing conditions and the state of public services in the neighborhoods are below the norm of Israel. Objectively speaking, social problems are not severe (except for a high percentage of illiterate adults); yet the neighborhood is popularly labeled as having many welfare-dependent residents and as being crime-infested (Figure 1). This image, together with the objective gap

between living conditions in Givat Olga and conditions in the town of Hadera as a whole and in other neighborhoods in Israel, has resulted in the inclusion of the site in Project Renewal.

Givat Olga consists of public housing projects. Initially, all the apartments in Givat Olga were owned by Amidar, the national housing company. Gradually, residents purchased their rented apartments from the company, which encouraged this process by providing very favorable terms of purchase. The current percentage of private ownership in the study area is about 65%.

One can easily distinguish between two major parts of the neighborhood. The larger one was built in the 1950s and originally included about 2,000 very small housing units (32-47 sq. m.) in one- and two-story buildings, most of them with 2 to 4 housing units and a few with 6 to 12 units; on the average, there were 5 dwelling units per net dunam (1/4 acre). The other 700 housing units of the neighborhood were built in the 1960s and early 1970s in three- to four-story buildings, each for 12-36 households with somewhat bigger apartments (usually 55 sq. m.). The current difference between these two parts is not only in the size of the original buildings but also in what was done to them since they were built. By careful check of aerial photos we discovered that although the bigger buildings with the 700 units stayed in their original form (see Figures 2 and 3), there was at least one noticeable enlargement in 87% of the small buildings in the area of 2,000 housing units.³

Finding housing enlargements in Givat Olga in the low-rise (one- to two-story) buildings only, strengthened the conclusion of our early studies and convinced us to draw our sample from the area of the 2,000 low-rise housing units alone. Thus, a control over relevant environmental variables was achieved: All the sample population lived in the same social, economic, and physical environment.

The field study was carried out in the spring of 1980. The research tools included analysis of aerial photographs, semistructured interviews with various officials and resi-



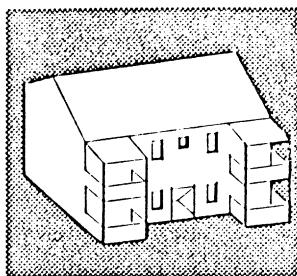
NOTE: Housing enlargements exist all over; some of them are still in process.

Figure 1: A Typical Street in Givat Olga

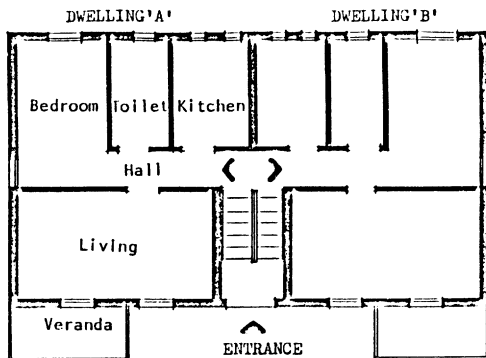
dents, and a household survey with a fully structured questionnaire of 150 questions administered to a sample of 165 housewives.⁴

The sample of 165 households was selected systematically from the lists of families in the local health clinic in which almost every citizen of the neighborhood is registered. Every fifth family card was checked, first by its address, whether or not members live in the selected area of low-rise buildings, and then by the age of the younger child. Only families with at least one child under 6 years old were selected, because we were interested in the behavior of growing families and families at the peak of their housing needs.

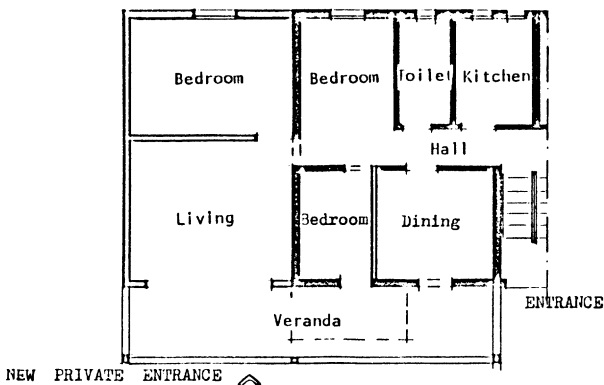
In this way, 180 households scattered throughout the low-rise buildings area were selected. A total of 165 of the housewives were interviewed at their homes. Only women were interviewed in order to control for the variable of sex in our small sample (especially important when attitude measurements are involved). In 15 cases no interviews were



VIEW OF ORIGINAL BUILDING



TYPICAL BUILDING WITH ORIGINAL FLOOR PLANS
TWO DWELLINGS PER FLOOR



DWELLING 'A' ENLARGEMENT PLAN

ORIGINAL FLOOR AREA = 43 M² ENLARGED FLOOR AREA = 91 M²

Figure 2: Floor Plan of Original Building



Figure 3: A Close-to-Original Building with Four Housing Units

carried out because of wrong addresses or because people were not found at home in spite of three visits.

CHARACTERISTICS OF THE SAMPLE POPULATION

Data were collected from 165 households. Because only families with at least one young child were selected, the age range of the interviewees was limited: About 50% were up to 29, 40% were 30-40, and 10% were older than 40. Of the subjects, 96% were married and the others were widows; only one was divorced.⁵

Approximately one-third of the heads of families were born in Israel; of the rest, most arrived in Israel as children from North African and Middle Eastern countries. Two-thirds of the households had 2-5 persons, whereas the rest had 6-16 (with 4% having 8-11 children).

The average level of education in the neighborhood was low: About 10% of the family heads had virtually no formal schooling, and 33% had only partial elementary school

education; but 20% were high school graduates, including 5% with higher education.

Of the males in the investigated families, 94% were employed; only 2% defined themselves as unemployed (looking for work). Of the employed males, 87% worked on a salaried basis, and the rest were self-employed; 51% were skilled workers, 38% were service workers and unskilled laborers, and 11% worked at white-collar occupations.

The occupational distribution among women was different. Only 30% of them worked outside their homes, all on a salaried basis. Over half of them (55%) were in white-collar occupations, including 17% who were professionals.

A total of 73% of the interviewees owned the apartments they inhabited. Average housing density was 2.0 persons per room (kitchen and bathroom are not counted as rooms), whereas about 10% lived at a density of more than 2.5 persons per room.

The average family income was low: 14,300 IL per month, which was two-thirds of the average for a salaried employee in Israel at that time. There were big differences among the households, with 20% making less than half the Israeli average and 13% making more to much more than that average. Only 7% of the households were fully or partially dependent on welfare.

Our sample is biased in favor of younger families. It is representative enough, however, to conclude that Givat Olga is a socially heterogeneous area of public housing. Rich and powerful people do not tend to live there, but it is a mixture of lower-low-class, higher-low-class, and a considerable number of lower-middle-class households.

IMPLEMENTATION OF SELF-HELP IMPROVEMENT

For the purpose of this study, self-help improvement was defined as an addition in hard construction to the original apartment area, built as a result of personal initiative of its residents and financed through their savings and/or through personal loans. The residents may or may not have

participated in the design and the actual construction of the addition.⁶

Close to half of the interviewees (73 out of 165) carried out such housing improvements. Of these, 40% financed the dwelling enlargements exclusively from their savings; others depended on loans from various sources, but only one-third received subsidized loans from the Ministry of Housing. Thus, this particular solution to the housing problems of moderate- and low-income families proved very inexpensive from the point of view of public expenditure.

Half the group that enlarged their apartments planned the improvements without any professional assistance, whereas the other half planned theirs in conjunction with a professional (an architect or engineer), taking an active part themselves in the process of planning. Only a small portion of "enlargers" did not participate at all in the planning of the enlargement.

Approximately 20% built the additions to their apartments with their own hands. An additional 20% built them with the help of skilled workers. The remainder acted as contractors or handed the job over to a contractor.

The enlargers had to obtain building permits. To receive such a permit from the local authority the construction plan must be approved by a registered engineer, it should be in accordance with the detailed confirmed town plan, and the potential enlarger should have written permission from all the abutting neighbors. It was quite difficult to get a clear picture of what was really happening in Givat Olga with regard to licenses. As far as we can tell, most of the enlargements had received the required license; but sometimes it was given retroactively (and the builders had to pay a fine), whereas in other cases there was little in common between the conditions stated in the license and what was actually built.

In the 1970s, the local authority of Hadera was quite permissive with respect to the enforcement of building regulations in Givat Olga. We were told that this attitude

derived mostly from the fact that the officials were aware of the serious housing distress (especially the high ratio of persons per room) in Givat Olga; but it might also be attributed to the peripheral location of the neighborhood, which is hardly visible to other than its own residents. The strategies of the Office of Engineering of the Town of Hadera in that period were (1) a generous interpretation of building regulations when issuing licenses (for example, the regulation according to which one is permitted to build 20% of the size of the lot was reinterpreted so that 20% could be approved for each story) and (2) overlooking many of those expansions that did not follow the exact conditions of the license. However, things have changed in the last three years and building regulation enforcement has been significantly increased.

DESCRIPTION AND EVALUATION OF DWELLING ENLARGEMENTS

The average original area of an apartment was 44 sq. m., whereas the area of an average enlarged unit is 91 sq. m.; that is, an average increase of 110% to the dwelling area. The functional changes were as follows:

- 89% added at least one room (more than half of them, at least two rooms);
- 82% added at least one balcony (either opened or closed);
- 65% enlarged their kitchen;
- 60% either enlarged or added a bathroom;
- 33% of those who did not have a private entrance added one (including inhabitants on the second floor).

The average area of the additions is considerably greater than the corresponding original spaces. For example, the average size of a new room is approximately 45% greater than the average size of an original room.

A systematic physical evaluation of the self-help dwelling enlargements showed that they had provided a better

match between the functional needs of the tenants and the layout of their apartments.⁷ In several apartments, problems stemming from self-help planning, particularly inefficiency in circulation systems and insufficient amounts of daylight and air, were discovered; but these shortcomings did not appear to interfere to any significant degree with the daily life of the occupants.

As part of the physical evaluation, a comparison was made between the enlargement plans of those who had received professional advice and those who had not; no appreciable differences were found in the quality of the plans with regard to the functionality and efficiency of the enlargements. Furthermore, there were no reports of special technical problems, such as cracks in walls or structural failure, when professional advice was absent. According to our analysis, the only advantage of the professionally advised enlargements was found in their exterior, where there was noticeably greater continuity with the original building form.

FACILITATING FACTORS

There was no special economic development in the areas of Givat Olga or its surroundings that could explain the tendency of a considerable part of its residents to invest their resources in it. On the contrary, compared with other towns on the coastal strip of Israel, the town of Hadera (to which Givat Olga belongs) developed quite slowly. The people of the neighborhood did not complain of any social discrimination that prevented them from moving to other places. Nevertheless, many of them decided to stay in their old housing units and improve them.

Four basic factors created the potential for the development of the process of self-help expansions in Givat Olga, as well as in other similar old public housing projects in Israel:

- (1) the type of housing, low-rise houses with only a few units (usually two stories with four units) and with an open space surrounding the house—in Givat Olga, as well as in other places that were visited in our early studies, nearly all the enlargements took place in such low-rise buildings;
- (2) the possibility of purchasing the housing unit from the public management company at very favorable terms—only owner-occupants enlarged; enlargements by renters were prohibited by law, and renters did not care enough about their apartments to break this law;
- (3) the permissiveness of the local authorities in issuing building permits—in Givat Olga, as in other places, the annual number of enlargements changed according to the degree of permissiveness of the local authorities;
- (4) the heterogeneous population in the neighborhood, among which there were enough residents with enough resources (motivation, recognition of the bureaucratic system, and economic means) to start the process and serve as models to their neighbors—38% of the enlargers in Givat Olga constructed their enlargement while their close neighbors were doing so.

In spite of all these factors, not everyone in Givat Olga enlarged his or her apartment; only 44% of our interviewees had done so. They were asked what was the major factor behind their decision to enlarge. The most frequent reply (64%) was that they needed more space for their growing families (the average number of children per family was four for the enlargers and two for the nonenlargers). The next most frequent answer (19%) was that they had a chance to get a loan on good terms. There could have been many other reasons that people enlarged, such as satisfying symbolic and territorial needs, but we could not tell that by our data.

We looked for demographic and/or socioeconomic variables that were associated with self-help housing enlargement. In addition to having bigger families and access to convenient loans, association was found with two variables: a working-for-salary woman (35% among the enlargers and 25% among the nonenlargers) and somewhat higher family income.

As shown in Table 1, the differences are not large, but they show that higher income families tended to invest in housing enlargement more often than lower income ones. Other data showed that the size of the enlargements of the higher income families was significantly larger than those of lower income households (see Figures 4 and 5). The common denominator of all the enlargers in all levels of income was the existence of at least one member of the family who had a permanent job. Having at least one breadwinner with a permanent job seemed to be a necessary condition for the family to take an expansion project upon itself.

We further asked the enlargers to explain why they had chosen investing in their current dwellings rather than moving to larger units elsewhere. Their answers helped us to construct the following list of factors that partially explain their decision to enlarge:

- economic considerations—residents reported that buying extra housing space in their old places was cheaper in terms of price per additional room; they said it could come to half the price, compared with other places in which they looked for housing. The cost was especially low for those who could use their own work and enlist the help of relatives and friends for the construction work. Even more important for them was the fact that expansion of their current dwellings enabled them to invest very gradually, according to their changing economic situations.
- the wish to continue living in small houses with a few neighbors rather than to move into multiresident buildings, which constitute most of the market for low-income families.
- the wish to stay close to relatives and/or friends who live in the neighborhood.
- technical convenience—a few elements eased the technical implementation: the flat topography and the sandy soil in the neighborhood, which did not require any special foundation; the building technology, a concrete frame filled with concrete blocks; and finally an important design element, having three (rather than one or two) frontages to most of the apartments.

TABLE 1
Enlargers Among Different Income Groups^a

	Total	up to 10,000	10,000- 15,000	15,001- 20,000	over 20,000
Enlargers	44	38	40	54	56
Non-Enlargers	54	62	60	46	44
Total	100 (n=146)	100 (n=29)	100 (n=63)	100 (n=35)	100 (n=19)

NOTE: χ^2 significance: $p < .35$; gamma: $\gamma = .23$.

a. Income = net monthly family income all sources.

Hence, it was a combination of physical, social, economic, and organizational factors that facilitated and enhanced the self-help housing improvement process in Givat Olga.

IMPACT OF SELF-HELP HOUSING EXPANSION

Impact on Individual Housing Conditions

Self-help housing expansion usually resulted in an increase in the number of rooms in the apartments. However, because in general the families who expanded their apartments were the large ones, their average density after enlargement was two persons per room—similar to the average at the nonenlargers' housing units. There is, however, one major difference: The average area of a room in an expanded apartment is much larger than the average area of a room in an unenlarged apartment—one-and-a-half times as large, according to our findings.

In the expanded apartment, the use of space was changed with the addition of new functional areas. Only 50% of the residents in the units that were not enlarged had a space exclusively used as a living room, as against 85% of the enlargers. Only 60% of the former had a master bedroom for exclusive usage by the parents, whereas 90%



Figure 4: A Typical Four-Housing-Unit Building with a Medium Enlargement to a Second Floor Apartment

of the latter could afford it. All the enlargers had at least one children's bedroom, and 55% had two or more. Among the others, 25% of the families with children did not have a special room for them and none had two such rooms. The enlargers usually had spacious kitchens. Previously, kitchens had been used only for preparing meals; but today they also function as dining areas. Enlarged units also had one or two balconies, previously used only as service space; after expansion these were used for leisure activities of both adults and children.

The maintenance of the buildings in the neighborhood was generally evaluated as not satisfactory; but, as was expected, the scores given by the interviewers based on the appearance of walls, entrance, and stairway were significantly higher for the buildings of enlargers compared with other buildings: Only 10% of the former were given low scores compared with 51% of the latter.

Investment in interior enlargements also generated improvements to the exterior and yard, as shown in Table 2.



Figure 5: A Similar Four-Housing-Unit Building with Substantial Additions, Including a Private Entrance to a Second Floor Unit

Any visitor to the area we investigated would notice the tendency of the residents who enlarged their apartments to personalize their dwelling units by treatment of the exteriors and adjacent open areas. They took advantage of surface finishing materials, such as stone, glass, specially treated plaster, and distinctive colors, in order to express their personal taste and individuality.

Social Impacts

Reading some of the literature on self-help housing in other countries, we expected to find major social impacts—especially on neighborliness and community life. However, we found only a few differences between the enlargers and the others as far as behavior in the neighborhood is concerned.

Generally, there were close social relationships in the area investigated. Most of the interviewees had relatives in the neighborhood (more than 50% had relatives in at least four other households in Givat Olga), and most of them had

TABLE 2
 Ratios of Enlargers and Nonenlargers Who
 Invested in External Improvements

	Exterior renovation	Entrance renovation	Caring for garden	Erection of fence
Enlargers (n = 73)	62	43	38	53
Non-Enlargers (n = 92)	11	7	11	4
χ^2 significance	$p < .0001$	$p < .0001$	$p < .0001$	$p < .0001$
Gamma	$\gamma = .86$	$\gamma = .83$	$\gamma = .67$	$\gamma = .92$

“very good” and “good” relationships with their neighbors. This applied to both enlargers and nonenlargers, but only the former had concentrated most of their friendships in the neighborhood. The interpretation of these findings is unclear: We do not know whether the fact that most of their friends live in the neighborhood was behind their decision to enlarge, or whether the feeling of permanence in their neighborhood after the investment in the enlargements influenced their social relations. Possibly, both explanations are correct.

Most of the investigated families, enlargers as well as nonenlargers, made frequent use of the local public services and commercial services. About one-third of both groups participated in at least one community activity (house committees, PTA, and the like). A difference was found, however, in one type of local activity: A larger portion of the enlargers played a role in Project Renewal, which entered Givat Olga shortly before our study started; and more of them expressed their willingness to be active in this framework in the future. It seems safe to assume that their personal investment in the neighborhood made the enlargers more interested in its future and, hence, more

active in the deliberate effort to improve it by Project Renewal.

Our examination of social impacts also included an investigation of residents' satisfaction with the housing and the neighborhood. Even though the average density (persons per room) was equal in the two groups, we found satisfaction with the apartment to be much higher among the enlargers: Twice as many of them—73% in comparison with 34%—were satisfied with their apartments; only 11% of them reported that they were not satisfied, compared with 41% among the nonenlargers. The difference between the two groups remained statistically significant when relevant variables such as age, education, and tenure were controlled.

In contrast to our expectations, however, those who enlarged their housing units were not necessarily more satisfied with their neighborhood as a whole, as compared with the nonenlargers. About 60% of both groups were satisfied, although only about 30% of each considered Givat Olga as a "good place for raising children." Most of the interviewees rated their neighborhood as inferior to other neighborhoods in Hadera. A significant difference was found only in the question "Would you advise your friends to move into your neighborhood?" Of the enlargers, 40% gave a positive answer, compared with 25% of the others.

When the interviewees were asked about their lack of satisfaction, another difference appeared: The nonenlargers emphasized problems of housing, whereas the enlargers tended to complain about the social environment and social services, focusing mainly on those for children and adolescents. Our interpretation of this finding is that because the more basic need for decent shelter was met, the enlargers were free to expose their higher needs for a decent environment.

The most significant difference, as far as implications for the future of the neighborhood were concerned, was found in the distribution of subjects' answers to the questions regarding a move from their apartment.

TABLE 3
The Wish and Intention to Move (in Percentages)

	Total	Wish and intend to move shortly	Wish but do not intend to move	Do not wish to move
Enlargers (n = 73)	100	4	55	41
Non-Enlargers (n = 92)	100	27	53	20

NOTE: χ^2 significance: $p < .007$; gamma: $\gamma = .45$.

Although 59% of the enlargers expressed a wish to move, twice as many of them, compared with the others, wanted to stay. Moreover, only a fraction of the former actually intended to move in the near future—one-seventh of the comparable rate for the nonenlargers. One can argue that this is a case of self-selection: Those who did not tend to geographical mobility enlarged their apartment. There is no way to prove causality, but statistical control of relevant variables can increase the probability of pointing in the right direction. We found that the difference in the intention to move between enlargers and nonenlargers remained statistically significant when variables that are usually associated with geographical mobility, such as age, size of family, education, and occupation, were controlled.

Thus, our conclusion is that self-help housing expansion had a limited impact on the wish to migrate from the neighborhood, but a decisive impact on actual mobility. In spite of their criticism of their neighborhood, those who had enlarged their houses intended to continue living in them.

Impacts on the Housing Stock and Its Market Value

About 60% of the housing units in the investigated areas as a whole (not only from among the interviewed house-

holds) were enlarged and improved by their residents; thus, a significant change was achieved in the housing stock of the neighborhood. Instead of the original 2,000 dwelling units of 32-47 sq. m., there are now about 800 units of this small size. About 400 of the units now include an additional 5-15 sq. m., and the average size of the remaining 800 units is 90 sq. m. This change in the housing stock—the availability of larger and better housing units—has a direct impact on the type of population that chooses to live in the area. Only weak and/or elderly households will stay long in a neighborhood in which there are only very small units, whereas a neighborhood with a great variety of housing unit sizes can keep households that are much more heterogeneous from the point of view of their socioeconomic status. Thus, a major cause of neighborhood deterioration—negative selection of residents—can be avoided, at least partially, due to the change for the better in neighborhood housing stock.⁸

The impact of the self-help expansions on the aesthetic quality of the neighborhood is a controversial subject. Although there are residents, as well as professionals, who describe the process as a spreading cancer, others praise the imagination and creativity of the new forms, which break the monotony and make parts of the neighborhood appear similar to neighborhoods of a higher social class.

The economic facts seem to back up the latter evaluation. With the help of real estate agents in the town, we found that the process of self-help housing expansion has had important economic externalities: It considerably raised the value of housing assets in its environment. A two-room apartment in Givat Olga, in an area in which 80% of the apartments have been enlarged, costs 1.75 times as much as a similar size apartment in the same neighborhood, in an area in which only 15% were enlarged. The difference is so great that, even if we assume that part of it is due to other causes, it is still reasonable to argue that it was also considerably influenced by the spread of self-help expansion.

DISCUSSION AND RECOMMENDATIONS

The discussion is based on our four years of investigation of the process of self-help housing improvements in old public housing in Israel. It included an exploratory study of 70 Project Renewal neighborhoods, 130 ministudies conducted by university students in public projects throughout the country, and the research of Givat Olga.

Our investigation disclosed many advantages and very few disadvantages to the process of self-help housing improvements in old public housing in Israel. Among the disadvantages one may count the controversial visual quality of the individual expansions. Technical defects and conflicts among neighbors might have been other disadvantages, and they are being studied as part of our further research. The benefits of the self-help improvements, however, seem to overbalance its less desirable consequences. The beneficiaries include those who initiated the improvement of their houses as well as their communities and their society as a whole. *At relatively little expense to the public treasury*, the following goals have been advanced:

- improvement of housing conditions of moderate- and low-income households without relocation;⁹
- better match between residents' needs and preferences and their actual living conditions;
- development of residents' ability to help themselves and to control their fate;¹⁰
- reduction of gaps in living conditions between lower and higher socioeconomic groups;
- increase of size, quality, and market value of housing units in the local housing stock;
- lengthening the period of utilization of housing assets and—as a result—also of infrastructure facilities and social services; and finally,
- gradual urban renewal, expressed both in the improved physical assets and in the halting of the exodus of socially and economically “strong” households from the old residential areas.

These results were achieved in old projects of public housing that had the potential to be used as responsive housing and that are therefore in a process of self-renewal instead of the expected process of physical and social deterioration. Hence, we recommend the construction of new responsive public housing for moderate- and low-income households.

According to our experience, public housing can be made responsive if the following principles are observed:

- (1) the physical principle: Low-rise housing (preferably up to two-story) should be planned, with a reserve of open land around the units; the buildings should be designed and constructed in forms that will facilitate changes in the future.¹¹
- (2) the social principle: Public housing should be heterogeneous; that is, opened not only to poor families but also to moderate-income and even medium-income families; if it has a large enough number of households with enough resources—psychological, social, and economic—they will take advantage of the physical opportunity and serve as models to their neighbors.
- (3) the principle of residents' control over their housing: The transfer of ownership from the public corporation to the tenants should be made possible legally and financially.
- (4) the principle of flexibility in regulation by local authorities: In particular, permissiveness in the issue of expanding permits should be encouraged.

One may argue that the major deficiency of the above recommendations is the demand of low-rise housing, especially for lower income households. The two common arguments against low-rise houses are related to their price and to the need for high urban density. However, in a careful study of building costs, Warszawski and associates (1982) found no significant difference in building costs of similar size apartments in low-rise (row houses) and high-rise buildings. The combined development costs and building costs of the former were 10% higher than the latter; but this difference was reduced when calculating long-run costs, which take into account the advantages arising from

flexibility and other factors. As for urban density, in Givat Olga there were usually 4-6 housing units per net dunam (1/4 acre); but in other Israeli neighborhoods a more reasonable urban density of 8 units of responsive housing per net dunam was achieved.

The recommendation regarding social heterogeneity in public housing may be rejected as impossible or at least very difficult to implement. But evidence from various countries shows that it may work, especially where certain "do and don't-do" precepts are observed (Carmon, 1976).

Gradual transfer of ownership of originally publicly owned housing has already been experienced in many parts of the world, including the United States (Citizens' Housing and Planning Association, 1980). The latter recommendation, as the whole idea of encouraging the construction of responsive public housing suitable for self-help improvements, expresses the drive both to assist and to provide opportunity for independence to the economically weaker groups of the society, without putting the whole burden on the shoulders of the stronger ones. This is very much in line with Glazer's conclusion: "A greater degree of voluntarism and of self-help can do a great deal to provide for needs and services that, if provided through the state, require a heavy burden of taxation, high deficits, and a variety of unpleasant and increasingly dangerous economic developments" (1982: 89).

Needless to say, there is still much to be learned about responsive public housing and self-help housing improvements before it can be widely implemented. Our further studies concentrate on

- comparison of the costs and benefits of the self-help housing improvements with the other common form of housing improvement for low-income families—that is, relocation;
- social, administrative, and physical factors that may enable the implementation of self-help improvements and expansion in the existing stock of three- to four-story buildings; and
- technical aspects of constructing responsive housing.

We also plan to learn more about the kind of people who could be the best candidates to take advantage of responsive housing. We found only moderate differences between the enlargers and nonenlargers in Givat Olga, which suggests the hypothesis that many—if not most—categories of nonelderly residents may be interested in and capable of joining such projects, once the facilitating factors are present.

Any suggestion for comparative study from any of the developed and developing countries for which our approach to housing for low-income households is relevant will be welcomed by our research group.

NOTES

1. See Carmon and Oxman (1981: Appendix).
2. For details, see Carmon and Oxman (1981: 9).
3. Please note: 87% of the buildings, not of the apartments. There were usually 2-4 apartments in a building, and in a few of them there were 6-12 apartments. See analysis of aerial photos of Givat Olga that were taken every five years since 1960 in Carmon and Oxman (1981: 24).
4. The questionnaire was developed in collaboration with our colleague Dr. Arza Churchman. We thank her for her contribution.
5. The number of broken families is relatively small in Israel in its distressed neighborhoods as well. The sampling procedure did not include any bias against one-parent families.
6. Rapoport (1968, 1969) presented the basic principles concerning user-initiated changes in dwelling units and their personalization. Other researchers focused mainly on our specific subject matter (i.e., changes made by dwellers in public housing units in order to overcome the standardized design that lacked sensitivity toward their particular needs). Beinart (1971) and Andrew and Japha (1978) described the adaptation of Africans to public housing in South Africa. Herbert and associates (1972) investigated user-initiated changes in Israeli public housing. A study by Vernez-Moudon (1981) discussed current and future resident-initiated changes in the typical American one-family house, the purpose of which is the same: to reach a better match between the built environment and the changing needs and preferences of its users.
7. See Carmon and Oxman (1981).
8. For a discussion of this factor, see Carmon and Hill (1984).
9. Relocation, that is, upgrading through movement, has been widely discussed and criticized. See Hartman (1964, 1971, 1979), Fried (1963), and Thurz (1966), to cite a few of many. Encouraging self-help expansions means upgrading

in place and prevents isolation and residential concentration of the hardest-to-upgrade households, which is the usual and least desirable outcome of upgrading through movement (Downs, 1979).

10. Recognition of this goal as the most important intended impact of the various self-help housing and neighborhood development programs in the United States is mentioned by Greenberg and associates (1980: 306).

11. Flexible housing was the subject of earlier studies by the second author of this paper (Oxman, 1978; Oxman et al., 1978). Allen (1972) from the United States analyzed the responsive house, and Habraken (1972) from Holland developed a system of basic support and detachable units that provide changeable apartments.

REFERENCES

- ALLEN, E. [ed.] (1972) *The Responsive House*. Cambridge, MA: MIT Press.
- ANDREW, P. and D. JAPHA (1978) *Low-Income Housing Alternatives for the Western Cape*. Cape Town: Cape & Transvaal Printers.
- BEINART, J. (1971) "Government built cities and people made places," in D. Lewis (ed.) *The Growth of Cities*. London: Elek Books.
- CARMON, N. (1976) "Social planning of housing." *J. of Social Policy*, 5, 1: 49-59.
- and M. HILL (1984) "Project Renewal: an Israeli experiment in neighborhood rehabilitation." *Habitat International* 8, 5: 117-132.
- CARMON, N. and B. MANNHEIM (1979) "Housing policy as a tool of social policy." *Social Forces*, 52 (September): 336-354.
- CARMON, N. and R. OXMAN (1981) *Self-Help Housing Rehabilitation in Distressed Neighborhoods in Israel*. Research Report. Haifa: The S. Neaman Institute, Technion—Israel Institute of Technology.
- Citizens' Housing and Planning Association (1980) *Planning for the Future of HUD-Owned Housing*. Boston: author.
- CLAY, P. L. (1979) *Neighborhood Renewal*. Lexington, MA: Lexington Books.
- DOWN, A. (1979) "Key relationships between urban development and neighborhood change." *J. of the Amer. Institute of Planners* 45 (October): 462-472.
- FRIED, M. (1963) "Grieving for a lost home," in L. Duhl (ed.) *The Urban Condition*. New York: Basic Books.
- GLAZER, N. (1983) "Towards a self-service society?" *Public Interest* 70 (Winter): 66-90.
- GREENBERG, E., C. L. LEVEN, and J. T. LITTLE (1980) "Urban impacts of self-help neighborhood development," in N. J. Glickman, (ed.) *The Urban Impact of Federal Policies*. Baltimore: Johns Hopkins Univ. Press.
- HABRAKEN, N. J. (1972) *Support, An Alternative to Mass Housing*. New York: Praeger. (Original Dutch edition, 1961).
- HARTMAN, C. (1964) "The housing of relocated families." *J. of the Amer. Institute of Planners* 30 (November): 266-286.
- (1971) "Relocation: illusory promises and no relief." *Virginia Law Rev.* 57, 5: 745-817.

- (1979) "Comment on: neighborhood revitalization and displacement." *J. of the Amer. Institute of Planners* 45 (October): 488-490.
- HERBERT, G., B. KAPLAN, and H. JACOBSEN (1972) *User Initiated Change as an Index of User Requirements in Public Housing: A Pilot Study*. Research Report. Haifa: Technion—Israel Institute of Technology.
- KEARNS, K. C. (1981) "Urban squatter strategies: social adaptation to housing stress in London." *Urban Life* 10 (July): 123-154.
- KOLODNY, R. (1980) "The emergence of self help in the USA as a housing strategy for the urban poor." *Habitat International*, 5, 1: 213-255.
- OXMAN, R. (1978) "Flexibility in supports." D.Sc. dissertation, Technion—Israel Institute of Technology, Haifa.
- M. MAYER-BRODNITZ, and Y. AMIT (1978) *Survey, Design and Development of Flexible Housing Systems*. Research Report. Haifa: Center for Urban and Regional Studies, Technion—Israel Institute of Technology.
- PERLMAN, J. E. (1976) *The Myth of Marginality: Urban Poverty and Politics in Rio de Janeiro*. Berkeley: Univ. of California Press.
- RAPOPORT, A. (1968) "The personal element in housing: an argument for open-ended design." *Royal Institute of British Architects J.* (July): 300-306.
- (1969) *House Form and Culture*. Englewood Cliffs, NJ: Prentice Hall.
- SPENCER, K. M. and G. E. CHERRY (1970) *Residential Rehabilitation: A Review of Research*. Research Memo. No. 5. University of Birmingham, Center for Urban and Regional Studies.
- STEGMAN, M. A. (1979) "Neighborhood classification and the role of the planner in seriously distressed communities." *J. of the Amer. Planning Assn.* 45 (October): 495-505.
- THURZ, D. (1966) *Where Are They Now: A Study of the Impact of Relocation on Former Residents of Southwest Washington Who Were Served in an HWC Demonstration Project*. Washington, DC: Health and Welfare Council.
- TURNER, J.F.C. (1977) *Housing by People: Towards Autonomy in Building Environments*. New York: Macmillan.
- and R. FICHTER [eds.] (1972) *Freedom to Build*. New York: Macmillan.
- VERNEZ-MOUDON, A. (1981) "More than one: a second life for the single family property." University of Washington. (unpublished)
- WARSAZAWSKI, A., A. ALWEYL, and E. YISHAI (1982) "Economic comparison of low-rise and high-rise building." Technion—Israel Institute of Technology. (unpublished)