

Planned housing vs. Traditional Self-Help Housing: Evaluating the Chilean Experience in Low-Income Housing from the 1950s to the 1990s

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INTRODUCTION

The lack of dignified housing, is a historically unsolved problem in Chile. Traditionally, construction techniques and methods came about through a natural process of observation and adaptation, thus being well suited to each individual case, environment, and culture. At the beginning of the century, professional planning processes replaced the traditional building process, creating a new culture in planning, where designing and planning were separated from their actual implementation. Professionals learned how to create "good" plans, how to define the problems and how to define the solutions. But they became less involved with the building process itself. Today, we are experiencing the need to understand how to create a reliable building process that could be used as a self-help construction alternative, independent of the need of planning professionals.

PLANNING AND SELF-HELP

The self-help concept was born in the 1950's, as a reaction to the incapacity of the government to respond to the needs of housing with the "sectoralist" model created by European countries after World War II, developing massive housing construction programs, to meet a massive housing shortage. The self-help conception sprung from observations like those of John Turner (Turner 1983), who in 1957 observed that low-income families had a great capacity to solve their own housing problems. He found that in Lima, Peru, for example, two-thirds of the housing construction in the previous ten years had been built by and for the low-income sector, while government construction in the same period represented less than 1 % of construction.

ADMINISTRATION	SELF-HELP PROGRAM
1952-1958 C. Ibáñez Government.	This socialist government introduced the first self-help programs via technical cooperation agreement between the Chilean and U.S. governments
1959-1964 J. Alessandri Government	During this right-wing government self-help programs were incorporated into a national housing program and massive relocation of the urban poor to 80 sq. mt. site and service lots.
1965-1970 E. Frei Government	The Christian Democratic government institutionalized a program that provided credit for the acquisition of lots of 160 sq. mt. and for provisional services. A related program organized the self-construction of industrialized housing.
1970-1973 S. Allende Government	During the left wing government the self-help housing notion was considered an undignified solution to the housing problem. Instead an industrialized housing program was developed in 1971.
1973-1989 A. Pinochet Government	During this right wing government the self-help program was re-instituted under the name of "Casetas Sanitarias": one lot of 100 sq. mt. and a sanitary unit of 6.75 square meters with kitchen, bathroom, water and electricity.
1990-1994 P. Alwyn Government	This left and center coalition government start to eliminate the "Casetas Sanitarias" program. Offers more traditional type of low-income housing program and encourage NGOs to find new solutions for housing problems.

Table 1. Self-Help programs from 1952 to 1994

Since then, self-help concepts have been developing and changing according to the different administrations that have governed the country (table 1). The first evaluations of the self-help programs argued only the benefits of the projects' scale. The inability of the model to solve the housing deficit led to a revision of the model. International agencies that promoted self-help programs started to emphasize the need to organize the participants. General concepts such as "local planning" and others like direct access to credit and technical assistance were formulated. Authors like Lisa Peatti and John Turner favored the new paradigm. They proposed that a new generation of policies should not be based on government programs, but on programs formulated by the participants at the local level. However, the evaluations took into account, only in general terms, the precarious conditions in which the participants of the site and service projects had to live in before they could achieve a definitive shelter. The process of acquiring a definitive shelter, in site and service programs in Chile, took approximately four to ten years, or longer. This can have detrimental effects on a generation that is raised under harsh conditions. The evaluation provided general guidelines, but did not provide any explicit theoretical framework for the extremely important role for the external institutions and government in the local organization and implementation of policies. In reality, site and service communities do not have spontaneous means for organizing themselves. Instead they are very disorganized; they are misinformed, and discriminated against because of their social status and location in the city.

This paper suggests that a third generation of self-help concepts is emerging. NGOs and research institutes have taken an increasingly important role in the formulation of self-help housing in Chile. They are trying to create more integral solutions to the general problem of development for low-income families (Downs and Solimano, 1988). NGOs like CET, CETAL, and TEKNE have concentrated their efforts on the promotion and development of appropriate technologies in the building process.

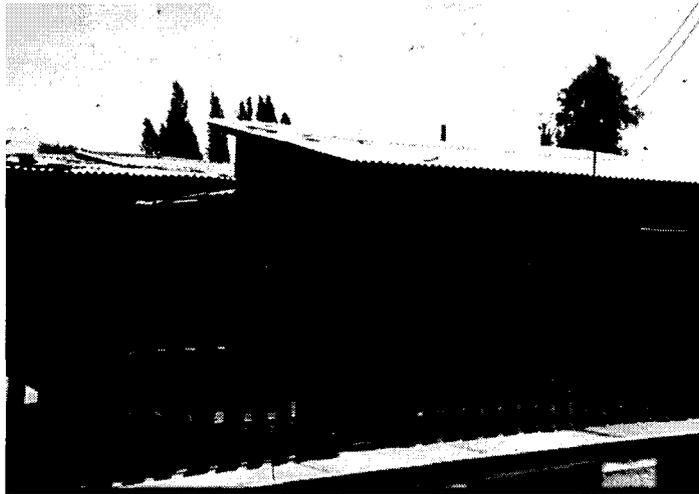


Figure 1. A typical view of a "Caseta Sanitaria" site and service low-income housing. The lots in the first phase include a 100 sq. mt. lot with a sanitary unit of 6.75 square meters. Shown in the picture are two sanitary units together divided by a wood fence and surrounded by the first spontaneous wood housing structures.

STANDARDIZED BUILDING PROCESSES FOR THE MOST POOR FROM LATE 1970S TO EARLY 1990.

The "Casetas Sanitarias" program, developed by the Pinochet government, became the standardized solution for housing of the urban poor for almost two decades in Chile. The program consisted of lots averaging an area of 100 square meters connected to sewage and water

systems. Each lot includes a reinforced-brick' sanitary unit of 6.75 square meters, which contains a bathroom and a kitchen area. In a second phase, which could take up to 5 years, an additional structure of 30 square meters of brick and concrete is built. In the mean time, people start building highly precarious wood structures around the sanitary unit with very little or no technical assistance. This type of construction goes through constant transformation, for long periods of time, until they reach the definitive stage promised by the government. These initial structures, called "mejora," are characterized by having a small edification area (18 to 35 square meters) and a high occupation density (five people or more living in the mentioned area). The word "mejora" is an informal term for the word "improvement."

Beyond the material conditions, the "Casetas Sanitarias" participants were deeply rooted in an adverse sociological reality of isolation. Many of the site and service projects were related to programs of eradication. New communities, such as La Pintana, were created in the outskirts of Santiago, marginalizing an entire generation from education, job opportunities, and social contact with other sectors of the city. These areas attained the highest level of violence in the entire country.

Early 1990s: NGOs emphasis on community organization

With the collapse of the Pinochet government, and the restoration of democracy, a new "style of planning" began to emerge. NGOs, church organizations, departments of social work of the municipalities, and non-profit organizations began to promote plans of actions to increase the speed through which "Casetas Sanitarias" residents could achieve a dignified solution. Initially, these projects did not challenge the type of building process proposed by the government. Their most important parameter for action was the development of an effective organization. Group organization became the key element to achieve quality, time, cost, and technology desired.



Figure 2. This image shows, to the right, the reinforced brick sanitary unit of a "Caseta Sanitaria" housing. The roof is part of a social program called "Operacion Techo" (roof operation) in which different neighbor families participated in a savings and acquisition of material program that lasted 6 months.

In order to evaluate this emerging "style of planning" we observed several working groups in la Pintana. The groups developed in three distinctive stages: 1. Formation; 2. Organizational support; and 3. Management and procurement of resources. In the first stage, the formation of groups takes about two months. Personal conflicts arise during this first period. The first meetings were oriented toward a

process of capacitating, management of resources, organization and the search of a sponsoring institution. In the second and third stages, the groups focus specifically on the improvement of group functionality. Actions are directed to the achievement of productive activities, and organizing group chores. The organizational support from the external agent was directed toward the groups' cohesion and resolution of conflicts through the use of dynamic participative techniques. At this stage, it was critical to have a clear proposition for each group. Major proposals like "roof replacement," or "exterior walls," and other smaller tasks to maintain motivation like collective buying of Christmas gifts, or clothes must be stated. Another strategy is to generate new alternatives to increase collective savings; some examples are the creation of stands for selling food, or the collection and selling of newspapers, cans, and bottles. Groups, through this process, learn how to manage their resources and improve their skills by contacting outside institutions. Our observations suggest the process requires a large initiative from the external agent. Therefore many of these projects' success or failure depends highly on the effort and personal skill of the NGO or agency involved.

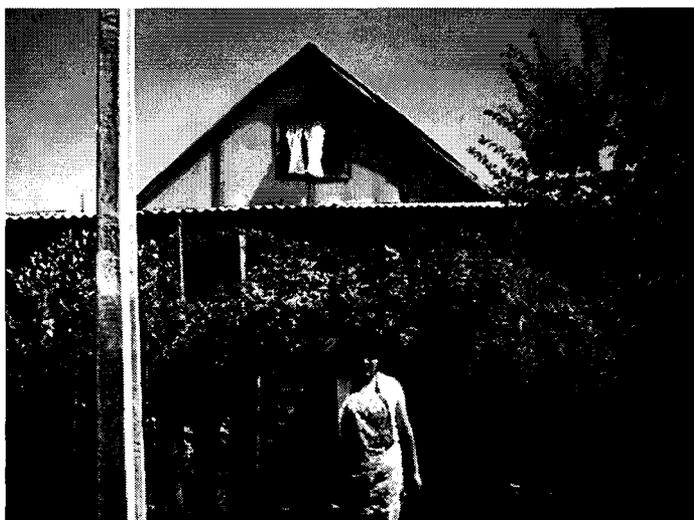


Figure 3. An exceptionally successful participant of the "Casetas Sanitarias" program build a two story self-help house around the sanitary unit.

We have also observed that the organizational process develops differently depending on the previous experience with group participation, gender, and types of savings. We have summarized those findings from tables 2, 3, and 4. Table 2 presents the differences within groups that have previous experience working together, verses groups that were formed for the first time. Table 3 shows the different rolls that women played in those environments. Table 4 presents the differences between the groups that decided to have collective savings and the groups that decided to have individual savings.

	EXPERIENCED GROUPS	NEW GROUPS
Organization	The groups usually asked for specific support. There is a recognized board of directors.	The groups usually have to be organized by an external agent. Usually the participants do not know each other. Very few have experience working in groups.
Relation within the External Agent and the Group	The groups demand specific interventions of the external agent. They are usually able to express their unhappiness to the external agent if their expectations are not met.	The groups do not have any requirements and they are often willing to change their expectations.
Objectives	The groups usually have an identified objective, like the construction of walls or the replacement of a roof.	The objectives of the group have to be identified by the external agent.
Conflicts	There are rules and a clear style of management of the group. Interpersonal problems did not interfere with the group.	These groups experience many interpersonal conflicts that interfered with the work of the group.

Table 2. Groups with Experience vs. New Groups.

	MIXED GROUPS	FEMALE GROUPS
Organization	Usually there are clear demarcations of roles, a man in the position of President and women in the positions like treasurer and secretary.	Women's groups sometimes refuse to have a President in the groups. Although they usually keep positions like treasurer and secretary.
Relation within the External Agent and the Group	Problems of strong leadership by men sometimes restrain the projection of women in the group.	Problems of inefficiency are developed due to the lack of leadership.
General Characteristics	Women usually learn to relate to men in a work environment. Women share responsibilities and express their positions often.	Female groups were usually quieter in expressing their positions.
Interest of the Groups	The main interest of mixed groups is on the development of tasks to reach the group's objective.	The interest of these groups was broader. These groups usually create meetings in which they share issues of personal development.

Table 3. Role of Females in Mix Groups vs. Female Groups.

	COLLECTIVE SAVINGS	INDIVIDUAL SAVINGS
Organization	The emphasis of the meetings is usually on the issues that affect the collective savings.	The emphasis of the meeting is usually on other aspects like organization or resolution of conflict.
Amount of Individual Savings over Time	As the main objective of these groups is collective savings, individual savings became a secondary issue. Usually the majority of the individual savings are obtained in the last months of the project.	The individual capitalization reinforced the planning of savings over time.
Benefits	The experience of collective savings has taught organizational skills.	The projects have helped people become better at establishing and maintaining savings accounts.

Table 4. Implications of Groups' Savings Methods.

A BUILDING PROCESS BASED ON SUITABLE TECHNOLOGIES

Parallel to the emphasis on organizational aspects some NGOs began in the early nineties to go further and to also challenge the technology of construction of low-income housing. NGOs like CET, CETAL, and TEKNE have concentrated their efforts on the promotion and development of "suitable technologies" in the building process of self-help housing. CET (Centro de Estudios Tecnicos) investigated the combination of the traditional "quincha" building method from the central region of Chile with the "torchi" building method which has been used since the Middle Ages in the Burgundy region of France. The French architect Antoine Stauder introduced the "torchi" method at a CET seminar, in 1983. This method provided an overall sound structure for the already known "quincha," which consists of a thin wall of small vertical branches tied together between two larger horizontal branches at different heights. Adobe was then applied covering the thin wall lathing, providing a solid wall with good formal qualities, but with a very weak overall structure (Guzman, 1980). This method was the traditional method used in Ecuador, Colombia, Peru, Argentina, and Chile, developed and diffused by the Inca Empire.

The result of the combination of these two methods was seen in an experimental, 70 square meters, two-story house built at CET. The overall wood structure was derived from the "torchi" method; the spaces left between wood structural elements were filled with a simplified version of the "quincha" method. Other experimental techniques were added, such as a greenhouse attached to the north side of the house, with openings toward the inside, which provides natural and very efficient heating in the winter, and which can be closed off from the interior in the summer. This new type of construction technology offers several advantages:

- Economic: Most of the building materials are inexpensive, recycled, or naturally available.
- Seismic: The wood frame structure combined with the "quincha"-based latticework makes it resistant to seismic movement.
- Fire Resistance: The adobe fill makes it substantially more resistant to fire than a wood shack or "mejora."
- Thermal: Adobe buildings have extremely efficient thermal qualities, being cool in the summer and retaining heat in the winter.

- **Environmental:** Most of the houses built after the experimental stage has been built with re-use or recycled materials.
- **Social:** The individuals become involved in a project, which will better their standard of living, and they learn that they can produce with few resources. They become productive members of society.
- **Simplicity and Adaptability:** It allows for construction according to individual needs. It requires very little technological assistance, making expansion of the dwelling very easy once the skill has been learned.

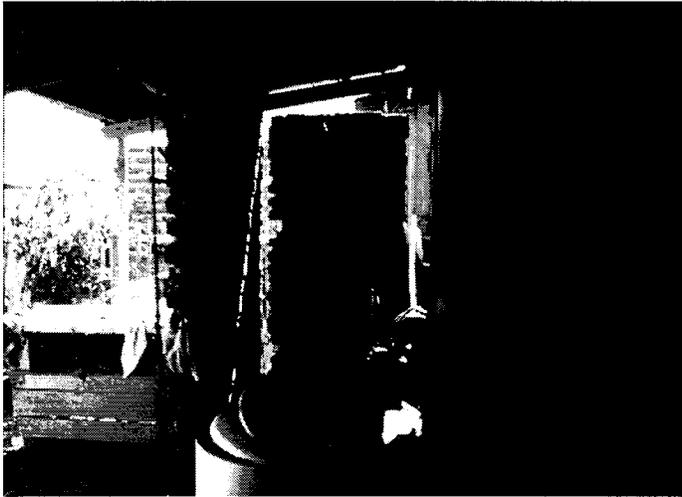


Figure 4. A typical image of the constant re-construction process inside the self-help housing "Casetas Sanitarias" program.

At first, the method itself had little acceptance because of conflicting values. In the first place, adobe construction has always been considered extremely vulnerable to earthquakes. Second, adobe buildings are considered something belonging to more rural areas, or simply as animal corrals. While reinforced brick or concrete implies a definitive home, something, which gives low-income and marginal dwellers a great deal of social status. The third objection is a practical one: adobe houses tend to be more vulnerable to pests, especially rats and dangerous insects.

In the implementation of the project, another local age-old tradition was put to use, the "minga," which was a collective work effort in order to achieve a specific task, such as a harvest or the building of a house. The community participated without actual payment, with the understanding that the effort would be returned to the participants through perhaps another "minga" to meet their own needs. The person who benefited from the "minga" provided some sort of a party or feast.

The actual implementation of the project in the urban sphere encompasses two conditions: 1. The dweller has been given a government-subsidized reinforced brick sanitary unit. 2. The more marginal case, where no sanitary services are provided. Both cases are living in a wood shack, before they begin construction. The basic process is the organization of a group of dwellers interested in learning self-help construction techniques. They receive training and a small group-loan contract if needed. The basic unit used in the urban area is a 6 x 3 square meters two-room house. This can either be adapted or added on to, depending on needs and available resources. An evaluation of this type of technology shows that there is a considerable investment reduction for the participants. A 64 square meter two-story house has a cost of approximately one-fourth to one-third of that of a 30 square meter reinforced brick construction subsidized by the government. This program is usually complimented with technological education in

other areas, including organic horticulture, an improved form of the traditional adobe oven, and other important skills that form part of the integral home environment.

The experience in the urban context has been very successful. One indicator is that the number of built square meters has more than doubled that of each original basic unit. Also, the participants often speak of a new sense of emotional stability, security, and capability.

The experience in the rural areas has shown more favorable results, with a few variations from the urban form. An exterior 6 x 3 square meter corridor was added to the front of the basic unit house. In the rural area, many of the daily activities throughout the year are staged on this outdoor corridor or porch, in the front of the house, an architectural tradition that dates back to colonial architecture. In some cases this corridor or porch was later closed off, and thus the interior space was expanded. The other variant, in the rural areas, was that materials in their natural form were much more readily available, thus the actual cost was reduced to a minimum. Socially, adobe buildings are more accepted, as it is a more common building type. Adobe constructions still exist today in the form of the house of the "campesino," or peasant, as well as the houses of the old haciendas.



Figure 5. Rural self-help housing developed with a combination of the traditional "torchi" and "quincha" wood and adobe methods developed by the Centro de Estudios Tecnicos NGO.

CET worked also with Mapuche Indian tribes, toward interior in sTemuco. The traditional dwelling of the Mapuches was the "ruka." The original "ruka mapuche" consisted of a very large building, somewhere between 120 and 240 square meters and housed several family groups when the Indians were polygamous. Today the ruka dwelling are much smaller and houses one family. It was long and its ends were rounded. The building method was the "quincha" for the walls, with a simple wood structure covered with straw and other organic material to form the roof. The door always faced east, to let in the rising sun, and there were no other doors or windows. Land was considered community property, and the head of each tribe reassigned land as farming needs dictated, which meant that the "ruka" needed to be of transportable. In this culture, the "minga" for a house was named "rukaturun" (Aldunate, 1996). This type of dwelling is still used in some areas because of its low cost, good thermal performance, and traditional meaning.

Some interesting aspects of cultural and technological interchange occurred during this project. For example, the "ruka mapuche" has a special opening at the rooftop to allow smoke to escape. The smoke for the traditional fire-hearth provided a resin coating for the organic material, which made it impermeable and very resistant to rot. If a wood or gas stove were to be introduced, then the roof would need to be changed since the protective resin would be absent making it subject to very quick deterioration, lasting no more than two years. Some of the Mapuches wanted to retain their cultural heritage of the straw roof, which implied the need of a hearth. On the other hand, others considered a gas or wood stove much more practical, and others went even further, as to consider a zinc roof as a mark of wealth, progress, and social status.

In this CET project the "ruka" with its rounded ends was maintained as the basic unit, and simple improvements were introduced. The "quincha" was given a more solid structure using wood from the local forests. In some cases, additions were built using the wood frame, branch latticework, adobe fill technology, always respecting the original "ruka." These additions generally required a different type roof, since they were not a part of the space that was protected by the smoke resin. Windows were also introduced. This seemed to go against their cultural heritage, but as one of the participants stated clearly: "If you want us to progress, we need to be able to read. And if you want us to read, we need to have a window and light to read by." In the end the decisions made were based more on economic rather than cultural aspects.

The work of CET, and other NGOs, gave birth to a new "style of planning" in the nineties; it introduced a new level of discourse in low-income housing. It related the infrastructure to a more sociological process. The flurry of NGOs was fueled, in the early nineties in Chile, by a significant number of grants from abroad that supported the re-establishment of civil society groups suppressed during the Pinochet government. As the support decreased and the initial enthusiasm of democracy faded so did the number of these groups. However, by the end of the 1990s many of the largest NGOs remained, and many of its organizers began to move to government jobs and applied their experiences to those organizations.

PLANNING AS AN EVALUATION PROCESS.

In his work in Latin America, John Friedmann (1966) argues that there is a "decision environment," that is characteristic to every country, which creates a "style of national planning." Similarly other theoreticians of planning such as Rabinovitz (1969) and Faludi (1973) argue that the role of planning changes according to the characteristics of power in the communities. This paper has shown how the discourse of self-help housing evolved in Chile since the 1950s: from an infrastructure solution to organizational skills and more suitable technologies. The discourse has moved as different actors and political views of those involved in the process: central government, municipalities, politicians, NGOs, dwellers, have changed through time. The question that remains is how we can develop low-income housing planners and a valuable research that can provide a good account of the process of self-help. Government agencies, NGOs and Corporations such the Instituto de Estudios Urbanos, Corporacion de Promocion Universitaria, and CIPMA have made some attempts to create such framework. On what they seem to agree is the need for better structures for the "evaluation" of planning policies of self-help. It is a complex answer because the actors involved do not share similar goals and/or evaluation parameters. After researching the abundant literature, and experience in this area, I think that the evaluation of self-help can be accomplished by accounting the following five areas: 1. Quality of the building; 2. Time needed to construct the building; 3. Cost of the housing solution; 4. Organizational process needed to promote effective self-help housing; 5. Suitability of technology used in the building process.

1. Evaluation of Quality. Mac Donald (1985) and Cortinez (1984) are among several authors that have developed major evaluations on self-help housing. Their evaluations have used parameters such as organizational environment, efficiency of initial investment, components of housing quality, and perception of users per type of housing solution. The evaluation of quality is directly related to a wide variety of issues, such as local values, availability of funds, availability of materials, and types of solutions considered.

2. Evaluation of Time. Time is a very critical element in the self-help process. Evaluations gathered by CORHABIT (1970), shows that after 1000 hours, or one year, of work on self-help housing, symptoms of discouragement and fatigue begin to appear among the participants. Time is also directly related to other aspects that affect the management of these projects such as availability of funds, materials, manpower, and environmental conditions.

3. Evaluation of Cost. Cost is one of the most used but has a more difficult evaluation parameter. It is used by different actors to promote different political agendas without some times considering other parameters such as quality, time, organization, and technology (Pulton, 1983). For example, Cortinez (1984) found that the cost of self-help housing in some site and services programs in Chile was between 30% and 70% lower than that of houses built by contractors. Mac Donald (1985) found that site and service programs need only 60% of the resources needed for the construction of a conventional house but that the social cost implicit surpasses the benefits obtained at the macro level. The "Corporacion para el Desarrollo de Santiago," found that the cost of incorporating an individual to the Municipality of Santiago was approximately 5% of that of the Municipalities of Renca and La Pintana were site and services programs have traditionally been located.

4. Evaluation of Organization. Usually efficient self-help programs involve notions of group formation, management of resources, contact with institutions (government or private), and the experience of how other site and service communities have solved their problems. By the end of the 1990s an important number of publications emerged in Chile detailing the work of NGOs and other organizations. However, no extensive research regarding self-help organizations and the effects of external agencies has been developed.

5. Technology. The question of suitable technology is the latest in self-help housing. Vincente Caruz (1983) argues that usually the concept of technology suggests the idea of using something visible like tools, materials, and equipment, that is to say, the "hardware." He suggests that technology should also embrace the idea of "software," the knowledge, the practice, the experience of having a reliable building process. The need of these two concepts should be the basis for evaluating "suitable technologies" in self-help housing.

CONCLUSION

Our observations of the Chilean experience with self-help programs suggests that the five parameters proposed above are treated at different levels of importance according to the point of view of the evaluator or agency involved in self-help housing. The parameter "cost," specifically the investment cost, has been critical for government agencies. The parameter "organization" has been critical for some non-profit agencies and social workers. Efficient means of organization and the creation of institutional contacts are seen as the key to achieving high quality and reducing the time of the self-help process. The parameter "technology" has been critical for NGOs that are developing "suitable technologies" in the self-help process. From our observations, we suggest that the approaches that work inside the development of an efficient "organization" and suitable "technologies" are the ones that are more closely related to constructing a reliable building process of self-help, and those which have the greatest elasticity in accommodating differing traditional and social values.

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