"Supports" and Housing Ideology in Mexico: A Case Study

by

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"SUPPORTS" AND HOUSING IDEOLOGY

IN MEXICO: A CASE STUDY

by

JOSE A. ALDRETE-HAAS

Submitted to the Department of Urban Studies and Planning on December 12, 1981 in partial fulfillment of the requirements for the Degree of Master of City Planning and Master of Architecture and Advanced Studies

ABSTRACT

The idea of "supports" was introduced by J.N. Habraken in 1961, in The Netherlands, as a means to modify the uniformity and anonymity of mass housing, by allowing the user some initiative in shaping his (or her) own dwelling, thereby preventing the decay of the physical environment.

What is the usefulness of "supports" in the Mexican context; why was it limited to one single project (Colonia Guerrero); what are the major obstacles to a larger diffusion of this design idea; what are the future prospects of its use? These are some of the questions this work answers by undertaking an inquiry of Mexican housing policies as represented by the Instituto del Fondo de la Vivienda para los Trabajadores (INFONAVIT), Mexico's single most important housing agency.

This analysis concludes that neither the problem (environmental decay), nor the diagnosis (destruction of people's initiative in the shaping of the environment), and even less the technical means for solving it (supports) according to Habraken's original vision, have a close relation to developing countries. Therefore, the implementation of "supports" has to be looked at in a context where housing programs are decided on economic and political grounds and where the user has little to say. In such a context, and given the prevailing "housing ideology" (middle-class type), the "support structure" which I propose does not seem politically acceptable to INFONAVIT officials. Speculating about a middle-class type support, it appears that it might be politically acceptable, although neither its need, nor its advantages would seem obvious to users or officials. This, however, should be tested out. To be acceptable, a "support" would have to present cost advantages. A low-cost "support" would be a wall-bearing structure, with limited flexibility and "unfinished". Under those circumstances, there are no obvious cost advantages in their implementation. However, one advantage is that the flexibility of "supports" might make it possible for the lowest income group among INFONAVIT members to have access to less
than the standard minimum floor space (if acceptable to INFONAVIT officials). Finally, if the Mexican version of "supports" was accepted (case of Colonia Guerrero), most government housing agencies could finance their implementation. Also, if implementation involved user participation, advantages in the management and maintenance of those projects are to be expected (case of Colonia Guerrero). However, given the structure of the prevailing "housing ideology" and the interests it serves (government, labor, and the private sector), the likelihood of INFONAVIT implementing other projects like Colonia Guerrero seems remote.

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Introduction

The idea of "supports" was introduced by J.N. Habraken in 1961, as a means to modify the uniformity and anonymity of mass housing, by allowing the user some initiative in shaping his (or her) own environment. This new concept in housing has been attractive to professionals interested in mass housing ever since, and has been implemented in various countries of Europe. The reasons for its success are several: first, users' intervention could put an end to the inhuman uniformity of mass housing; second, it would allow dwellings to be designed and altered according to peoples' changing needs and desires, giving the physical structure a longer useful life; third, it would restore peoples' right to adapt and personalize their most elemental living space, which Habraken argues was taken away from them when mass housing was introduced as the "solution" to housing; lastly, adaptability would allow the user to appropriate his or her own dwelling, thereby preventing the decay of the physical environment.

Although "supports" may appear as a solution to a particularly European problem, that is, a problem of nations far advanced into the process of mass housing, it has also begun to be known in Latin America and implemented outside of its original context, particularly in one single housing project.


2. A number of seminars and short courses (two weeks long) have been held in Mexico, Brazil and Argentina, since 1977, where the "support idea" has been discussed. Also, the translation into Spanish of Supports - An Alternative to Mass-housing, has been widely diffused in Latin America since 1979.
(Colonia Guerrero) sponsored by the Instituto del Fondo Nacional de la Vivienda de los Trabajadores (thereafter INFONAVIT), Mexico's single most important housing agency.

What is the usefulness of "supports" in the Mexican context; why was it limited to one single project; what are the major obstacles to a larger diffusion of this design idea; what are the future prospects of its use. These are some of the questions this work intends to answer by undertaking an inquiry of Mexican housing policies as represented by INFONAVIT.

In order to examine the prospects of a particular concept of housing or building formula, like "supports", in the Mexican context, it is not enough to consider its cost or demand implications. One major assumption in this study will be that any concept for shaping the physical environment is basically the product of a social and economic system at a given juncture of its historical development. Any transplantation of a particular design will, therefore, raise two questions simultaneously. First, why was it successful in its original socio-historical context, and second, to what extent are these reasons repeatable or substitutable in a new context, in this case Mexico.

The study of the transfer of supports from The Netherlands, a developed country, to Mexico, a developing one, will therefore involve an examination of such varied factors as the economic situation of potential users and their expectations as shaped by the dominant "housing ideology" institutionalized in a particular context, the political forces involved in the definition of and response to the housing problem and the interest articulations implicated in a particular mass housing formula.

3. See Chapter II, p.25, for the relative importance of INFONAVIT in the production of housing by the government.
The advantage of this kind of evaluation over a mere economic view is that it can predict possible future trends as well as assess the feasibility of supports in present-day Mexico. In addition, this kind of analysis is capable of weighing the importance of non-technical factors, so that the failure of a particular design in the face of objective need and technical-financial feasibility will not be attributed to the irrationality of actors or their "cultural" background, as has been so often the case for the developing countries.

This study is structured as follows: Chapter I introduces the idea of "supports" and its basic concept of re-establishing the "natural relationship" between dweller and dwelling in the context of the Netherlands. It then describes "support structures" and "detachable units" as the means for re-establishing the "natural relationship". Finally, a brief description of the S.A.R. design method is presented as well as some examples of housing projects where the idea has been implemented. Chapter II analyzes the major characteristics of INFONAVIT, its relative importance in the country, history, goals and internal organizational structure, as well as its programs and projects. Chapter III presents the case of Colonia Guerrero. Chapter IV highlights the implications of implementing the "support" idea in the context of INFONAVIT. This includes a definition of a "support structure" and its political, cost, standards, financial and managerial implications. Finally, some conclusions are offered as to the present and future prospects of using supports in the Mexican context.

4. Stichting Architecture Research, the institute from which the method takes its name (S.A.R.) from, where the method was developed, and which was headed by Habraken since its foundation in 1962 up to 197.
Aspects of the research topic and the methodologies selected are significant for the limitations they impose upon the scope of the study. Among them, the most important is probably the problem of inference inherent in any cast study (Riley, 1963). Due to its restriction to a single setting (INFONAVIT) and a single project (Colonia Guerrero), it is difficult to generalize from this study to the Mexican context. Moreover, selecting any given agency as the site for a case study involves subjective evaluation. Nevertheless, as Chapter Two establishes in more detail, INFONAVIT is the single most important government housing agency in Mexico. It is also a recently created institution which embodies the characteristics and contradictions of the economic and political structures of the country, and whose housing programs and housing types are representative of public housing in Mexico. Moreover, it is also the only housing agency which has already been involved in the implementation of "supports" in a small (64 units) housing scheme built between 1975 and 1979 in Colonia Guerrero (see Chapter Three), an urban district located in a decaying central area of Mexico City. The project can therefore be considered as a valuable first experiment which has provided the opportunity (in spite of changed circumstances in INFONAVIT since 1976) to observe the process of implementation of a "support" project in a concrete situation, and has helped to identify the issues (political, cost, financial, etc.) which were important for the experiment and which were later used as guiding points for the development of this study. Nevertheless, it should be made clear that INFONAVIT presents peculiar organizational and financial arrangements which make it different from other government housing institutions. Whenever possible, this study will try to show those differences and similarities.

The second problem of inference in the research is the non-random nature of the sample of interviews conducted mainly with present and former officials
of INFONAVIT. These respondents were chosen either because they were involved in the case of Colonia Guerrero, on behalf of INFONAVIT, or because they are presently the officials of the Institute who would normally deal with the implementation of a similar case. This method proved to work well since only these officials knew enough about the case to issue an opinion about Colonia Guerrero and the idea of "supports". This study could have been more complete had I interviewed users, labor union leaders and representatives of the private enterprises (all of whom have an interest in INFONAVIT). Nevertheless, as our discussion will show, the policies of INFONAVIT are shaped by major interest groups (government, labor and private enterprise), so that the views on "supports" presented by INFONAVIT officials reflect, in fact, the position of the coalition of these major interest groups.

Other interviews were conducted with a social worker involved in the organization of Colonia Guerrero as a co-operative, with members of the co-operative who live on the project, and with the Director of the Centro Operacional de Vivienda y Poblamiento A.C. (COPEVI) at the time of the implementation of the project.

Interviews were the primary tool of research. They were all open-ended, a format particularly appropriate for the kind of data sought in the study (see Richardson, et.al., 1965). In practice, it was found that open-ended interviews were extremely useful in eliciting opinions and facts that were too varied and touched upon subjects that were too sensitive to be directly solicited. Finally, there were also specific questions to each individual's job-related responsibilities. In that case, the flexibility of an open-ended discussion provided much opportunity for delving into topics not foreseen in the original design.

5. COPEVI is an organization of advocate planners involved in housing in Mexico.
Interviews were structured around the following themes: the respondents' perceptions of INFONAVIT's housing policies and their relation to the broader socio-political context; respondents' perceptions of their role and reaction to the case of Colonia Guerrero, in particular with regards to the implementation of "supports" in the context of an INFONAVIT program. Interviews (a total of 12) lasted an average of 90 minutes and were all recorded in Spanish.

Finally, interviews were supplemented with two types of written materials: first, INFONAVIT-related information, such as internal reports, brochures and internal studies, as well as a limited number of books and articles analyzing or describing INFONAVIT activities; and second, written material about "supports".
CHAPTER ONE

THE CONCEPT OF "SUPPORTS"

The concept of "supports" and the idea of the "natural relationship".

The concept of "supports" was first introduced by J.N. Habraken in The Netherlands in 1961, in his book, Supports: An Alternative to Mass Housing, first published in English in 1972. A "support" is a physical structure over which a group of individuals has communal control, and within which each individual is able to appropriate his or her own living environment, that is, to establish the "natural relationship". The existence of such a relationship depends upon the dweller's power to shape his or her own intimate environment. This power was taken away from the user by the introduction of mass housing as the solution to the production of housing. The "natural relationship" between dwelling and dweller no longer exists. Habraken advocates its re-establishment through "supports". In so doing, he not only advocates the dweller's right to control his or her private realm, but warns us of the danger for dwellers of abdicating their responsibility for their dwellings, with the consequent deterioration of the built environment.

It is important, in inquiring into the notion of "supports", to understand first, what Habraken meant by the "natural relationship"; second, why it was destroyed by mass housing; and third, how that has brought about the deterioration of the built environment. In order to understand Habraken's notion of the "natural relationship" one has to start by looking at his definition of dwellings and then see how it relates to dweller. He defines dwelling as the space which man determines as such by his very presence. He ar-

gues that "a dwelling is only a dwelling, not when it has a certain form, not when it fulfills certain conditions which have been written down after a long statistical study, not when certain dimensions and provisions have been made to comply with municipal by-laws, but only and exclusively when people come to live in it". ² Thus, the human act, the act of dwelling, determines what a dwelling is.

He defines the relationship between dwelling and dweller as one based upon action,

... dwelling is, after all, doing something; it is the sum of human actions within a certain framework, within the protective environment created by man. These human actions affect the environment itself.³

He then goes on to assert that this relationship is "the basis for all that has to be done in the matter of human habitation", in short, is the "natural relationship". ⁴

Thus, Habraken seems to argue that the "natural relationship" between dweller and dwelling (building) is that in which the user builds his or her own environment. He calls it "natural" because buildings or dwellings are the outcome of human nature. In fact, he notes that "at a primitive stage, this relationship expressed itself directly in the action of man who, by himself, without any help, built his protective environment.⁵ It follows that for the "natural relationship" to exist, dwellings should express human nature at any point in time and throughout the user's life span. This implies a physical environment capable of being transformed, appropriated and personalized

³. Ibid., p.18.
⁴. Ibid.
⁵. Ibid.
by the individual or the various individuals who dwell in it during its existence.

Mass housing obviously does not contemplate any of those elements which make Habraken's "natural relationship" possible. Moreover, it ignores their very existence. Mass housing is shaped by statistics, not by individual needs and desires. The homogeneity of its spaces and facades expresses a cool economic rationale, not the idiosyncracies of individual or even collective taste. In fact, as Habraken expresses it, "the only way to ensure uniformity is the rigorous exclusion of the action of individual man".6 In addition, mass housing is not changeable, adaptable or capable of expressing changing users' preferences.

According to this concept, mass housing is bound to decay and destruction, because it prevents the user from its "possession". Habraken adds,

the inhabitants of a mass housing town cannot possess their town. They remain lodged in an environment which is no part of themselves. And the fact is, we simply cannot get used to what appears intangible, to what receives no imprint from our hand. It is known that if this urge for possession has no other means of expression it would rather become destructive than look on passively ... the only way in which the population can make its impression on the immense armada of housing blocks which have gotten stranded around our city centers is to wear them out. Destruction is the only way left.7

In this assertion, Habraken appears to argue that the decay of the urban environment, particularly mass housing, is a consequence of the users' impossibility to possess, personalize, or appropriate the physical environment to which they relate. In other words, depredation and decay are the result of the destruction of the "natural relationship" between dweller and dwelling. "Supports" are the remedy Habraken proposes in order to overcome mass housing

6. Ibid.
decay. In order to understand the problem as well as the solution, we must nevertheless situate them into their socio-cultural context, that of The Netherlands, and more generally, that of an industrialized country.

By the mid-sixties, developed countries of Europe had built a large number of housing projects in order to solve their housing problems. This was particularly true of those European countries that had to replace the housing destroyed during World War II. By 1965, the housing problem of most of these countries was practically solved in quantitative terms. The housing solutions adopted before and after the War addressed quantitative issues such as cost, number of units, efficiency of building systems, etc. They emphasized the use of pre-fabrication and standardization of building systems and building materials. At the same time, some of those buildings had become old and no longer met users' expectations. As a result, they were vandalized and destroyed, bringing about the decay of the built environment. In the early sixties, the decay of mass housing in industrialized countries was denounced as institutional, economic, political, or even financial, depending upon the background of the scholar studying it. As an architect, Habraken saw decay in physical and spatial terms, and "supports" as a physical solution. As such, "supports" were bounded to the context where they appeared as a solution to a problem, that is, to the context of a highly industrialized country, and in particular, to The Netherlands.

8. Dutch architects, among which Habraken is considered to be one of the most influential figures (together with Bakema, Van Eyck and Hertzberger), have been the most acrimonious and strident in their rejection and criticism of modern mass housing. For an excellent account of the Dutch contributions in the art of housing design, and the leading role played by Habraken, see Donald Grinberg, "Modernist Housing and Its Critics: The Dutch Contributions", The Harvard Architecture Review (MIT Press, Vol. 1, Spring 1980) pp. 147-159.
Habraken's vision of "supports" and the technology behind it are clearly expressed in the following paragraph.

The support structure will leave no facet of contemporary housing untouched; the whole field of modern architecture will be affected by it, and industry will have to adapt to a new building approach, which in extent and production capacity will exceed the motor car industry... To this end, large enterprises entirely devoted to the manufacture of prefabricated dwellings will be required. In their mass production, research, development and extent of markets they will be comparable to the motor industry. Where they differ greatly from this example, however, is that the variations required in housing will lead to the manufacture of groups of elements from which innumerable dwelling types can be made up. Such groups may be, for example, external wall elements, doors, kitchen elements, bathroom elements, etc. All these groups will have different price ranges, and therefore differ in quality, finish and design. Within each group an infinite variety of combinations is possible. An industry will therefore arise which will market various groups of elements competitively.9

The concept of "supports and "detachable units".

As mentioned earlier, a "support" is a physical structure over which a group of individuals has communal control, and within which each individual is able to appropriate his or her own living environment, that is, to establish a "natural relationship". In fact, Habraken argues that "to allow the development of 'natural relationships' in the urban situation, we must regard each dwelling as an independent one".10 What appears as problematic to Habraken is to "pile up" dwellings and still retain those individual qualities. The solution advocated is to take constructions which are not in themselves dwellings or even buildings, but are capable of lifting dwellings above the ground; constructions which contain individual dwellings as a book-case contains books, which can be removed and replaced separately; constructions which take over

10. Ibid., p.59.
the task of ground, which provide building ground up in the air, and are permanent like streets. These constructions are, in short, "support structures", named for their function.

FIGURE 1

The longitudinal support system

11. Ibid., p. 59.
FIGURE 2

The twin support system
For the "natural relationship" to exist, it requires not only the space within "supports" where each individual is able to shape, modify or appropriate his or her own dwelling, but also the physical elements with which to do so. Habraken calls those elements "detachable units". These units are the movable components within the "support" over which the resident has individual control. A set of "detachable units" contains the elements which are then built into the support to make the dwelling. This implies that "detachable units" should be adaptable, capable of being used in many different combinations and support structures.

FIGURE 3

Detachable units

COMPLETE SET OF BATHROOM COMPONENTS

FIGURE 4
Other detachable units
A dwelling is created when an individual builds a "detachable unit" into the "support". The dwelling is the result of both the community and the individual having played their parts.

Finally, the following script presents Habraken's overall image of what life could be with the use of "supports" and "detachable units":

A married couple want to settle down in a support-structure town. They find a space in a structure where they can assemble their dwelling. In this particular structure the space is as follows. The support structure consists of a concrete construction of a number of floors one above the other, stretching out through the town. Between these floors are the dwellings, side by side. A zone at one side remains free as a walking gallery which connects freestanding staircases and lift shafts, placed at regular intervals. Between two floors there is an open space, until recently taken up by a dwelling but now removed. This space is limited top and bottom by the support floors, and to left and right by the blind walls of the other dwellings. On the gallery side there is nothing, nor on the opposite side: openings which presently will be filled in.

This space suits our couple for various reasons. They decide to have a dwelling constructed there. To this end they study information, trade literature and different manufacturers' displays of support structure dwellings. After much thought, they make up their minds, and visit the showrooms of the manufacturer of their choice. With the help of a representative of the firm, and effective arrangement of a dwelling is decided upon. Because support structures have long since become common property and their housing technique perfected, the dwelling in question can be totally formed out of prefabricated elements.

The representative invites our customers to return in a fortnight. The dwelling will then be ready for inspection in the showrooms. At the appointed time, they see a full-scale model of their dwelling. They walk about in it, test doors and windows, visit kitchen and bathroom, try the usefulness of the rooms and cupboards. After suggesting a few alterations, they decide to buy. The manufacturer transports the parts to the support structure where the dwelling is finally assembled in a short time. The local authorities connect gas, water, electricity and drainage to supplies under the approach gallery and the buyers can move into their new home.

12. Ibid., p. 60.
The S.A.R. design method

The S.A.R. design method is a professional tool which addresses two important aspects faced by the designer of "supports": the problem of evaluation and the problem of co-ordination. These two problems are inherent to the idea of "supports" which implies a separation of community decisions (support structure) from individual decisions (detachable units).

In this section, I shall briefly describe this method, even though no reference will be made to it in the coming chapters. It is important to include it in this presentation, since the "support" idea has usually been associated with it. Nevertheless, "supports" can be designed with or without the use of the method.

The S.A.R. method was first outlined in December of 1965 as a method for the design of adaptable dwellings by means of "supports" and "detachable units". Research has continued since then. In 1976, the MIT Laboratory of Architecture and Planning published *Variations: The Systematic Design of Supports*, where the method is clearly explained.

The problem of evaluation of support-based designs is made difficult by the fact that the design of supports cannot be examined on the basis of a dwelling unit plan, since there is no such predetermined plan. Therefore, the support building must be judged in terms of its potential for accommodating dwelling unit plans which satisfy the individual requirements of different users throughout their life span.

The problem of co-ordination in the design and construction of "supports" and "detachable units" is also a complex one. Usually, there will be two production processes: one for the "support" and the other for the "detachable units", but it is impossible to foresee the kinds of detachable units that will eventually be used in a particular support.
The S.A.R. design method basically offers a series of operations that provide, in increasingly complex situations, the possibility of evaluation. Essentially, those operations deal with the kind of questions that will be raised in a design process. For instance, it will deal with such questions as, given the width of a building bay, what meaningful combination of spaces or functions can be accommodated? In certain locations within a given structure, what kinds of activities are possible? Or conversely, given certain necessary relationships between functions, what bay width offers an optimum solution within certain technical and financial constraints? In what specific areas of a structure can certain desirable activities be located? The result of each separate operation within the method is always what is called a series of "variations", a number of possible solutions that give us the information we need to make decisions and proceed in the design process. However, in order to make the resultant variations comparable with each other, they must be generated in a systematic way. The method provides such a way, as well as a formalized system of annotation in order to avoid ambiguity.

The following floorplans and pictures correspond to a number of "support" designs from The Netherlands and Great Britain, in which the method was used.
FIGURE 6

"Molenvliet", The Netherlands

The support structure

FIGURE 7

The support structure and detachable units, floor plan
FIGURE 8

"Molenvliet", The Netherlands

View from a courtyard
PSSHAK, Adelaide Road, London, England

Floor plans

FIGURE 9
PSSHAK, Adelaide Road, London, England

Floor plan

FIGURE 10

View of the entrance
Sterrenburg III, Dordrecht, The Netherlands

Various floor plan-arrangements

Facades
Thus, Habraken presents an image of housing such that the major problem is not so much the access of users to a dwelling, as the quality of that dwelling. The latter is measured by the ability of a dwelling to be transformed, adapted or appropriated by the user, that is, by the ease with which the dweller can establish what Habraken calls the "natural relationship" with the intimate environment.

Mass housing is alleged to have failed to provide such quality and thereby has led to housing decay. Habraken proposed a solution by which users can have access to built space (supports) according to their needs and desires, and can appropriate and personalize them through the use of "detachable units" which can be produced like automotive parts.

Finally, Habraken's definition of the problem (environmental decay), his diagnosis of it (destruction of the "natural relationship"), and his solution ("supports" and "detachable units") are strongly bounded to his professional background and national context, The Netherlands, and generally to developed countries, so that neither the problem, nor the diagnosis or the solution, as he states then, seem to relate to the developing nations, as the next chapters clearly demonstrate.
CHAPTER TWO
INFONAVIT AND THE PROBLEM OF HOUSING IN MEXICO

The deficit of urban housing in Mexico in 1970 was estimated to be between 1.6 and 2.4 million dwelling units.\(^1\) For the same year it was also estimated that 211,238 new urban dwellings would be required in order to maintain this deficit constant, that is, merely to satisfy the increase in annual demand.\(^2\) By 1974, that figure increased to 262,013. The total required housing for both years, including rural housing, was 471,034 and 547,248 for 1970 and 1974 respectively. The total accumulated of required dwellings between 1970 and 1974 was 2,542,129 units.

The total production of housing for the period 1970-76 by the public, private and informal sectors\(^3\) was 1,204,300 units. The informal sector contributed the largest share, 65.5% of the total, while the private and public sectors contributed 16.5% and 18.0% respectively.

Within the public housing sector, INFONAVIT has played a leading role, in spite of the fact that it entered the scene as late as 1972 (see Graph 1).

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3. Ibid.
GRAPH 1

The Production of Housing in Mexico
by the Most Important Government Housing Agency
(units per year)

INFONAVIT: history, goals and structure.

The idea of creating INFONAVIT can be traced both to the 1970 National Housing Conference held in the city of San Luis Potosi, and to the May 1971 meeting of the V Comision de la Comision Nacional Tripartita. This idea was further developed in December of 1971, when Article 123 of the constitution was reformed for the purpose of creating INFONAVIT, which formally came to life thereafter in April 1972. Several Constitutional laws and regulations were modified in order to provide the Institute with its judicial framework. Basically, these modifications established the requirement for all employers to contribute an amount equivalent to 5% of wages (not discounted from salaries) in order to create a National Housing Fund (later called INFONAVIT).

The creation of INFONAVIT, its increasingly important role in the production of housing in Mexico, and its particular housing programs should also be seen within the larger political and economic context of the country. In 1970, when President Echeverria took office, Mexico had already experienced a period of deep economic depression and stagnation. There was a high deficit in the balance of payments, exhaustion in the growth of the internal market and insufficient job creation. Such a critical economic situation had generated social tensions which were expressed in land invasions, urban guerrilla and the student movement of 1968. As a result, the State had lost considerable legitimacy as a social conciliator. To remedy this situation, Echevierra's "populist" government established a number of policies intended to restore economic and political order. One of them was the creation of strong public

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4. This committee is made up of representatives of labor, private business, and government. It is a mediating body for negotiation between private business and labor.
housing policies. INFONAVIT, together with other housing agencies, was regarded as the most important instrument of implementation of those policies. Some of the goals of those policies were: a) to bring about the development of the construction industry; b) to reduce the unemployment rate; and c) to broaden the popular base of Echeverria's government.

The creation of INFONAVIT was regarded as a government concession to the unions, designed to mitigate the social and political crises of the late 60's and early 70's. This general situation had not changed by 1976. In that year, the incoming president, facing a difficult situation of high inflation and unemployment, again had to request the support of labor in order to fight inflation and increase productivity. The latter accepted to maintain the demand for wage increases much lower than the inflation rate. In exchange, it was given almost total de facto control over INFONAVIT.

In 1981, labor's expanded control over INFONAVIT is unquestionable. It looks as though INFONAVIT has been implicitly conceived by government, and to a large extent by labor leaders, as an instrument of reward and control over rank and file union members, in exchange for discipline and loyalty toward

5. Fondo de Vivienda para los Militares (FOVIMI) provides housing for the members of the Army and Fondo de Vivienda para los Trabajadores del Estado (FOVISSTTE) exclusively serves government employees. Both agencies operate in a similar way as INFONAVIT, with the only difference that the government becomes the employer.

6. The construction industry in Mexico is considered very important because of its broad economic spillover and its fast creation of unskilled jobs.

7. This is very important for the political and economic stability of Mexico. The government in Mexico not only exercises a vertical control over organized labor and other popular organizations, but also integrates them, together with their leaders, as its constituency base. The government uses them for its legitimization and strongly relies on their support. A similar example of the provision of Social Services by the government in its effort to strengthen the coalition with its base is the Instituto Mexicano del Seguro Social (IMSS) which provides health care for workers.
government's economic policies, particularly that of keeping wages down in order to dampen inflation.

Initially, the stated goals of INFONAVIT were: 1) to administer the Workers' Fund, and 2) to establish and operate a financial system that would permit member workers to have access to low interest loans for a) acquiring new "comfortable" and "hygienic" dwellings; b) build, repair, improve or modify their dwellings; and c) pay former debts.

In addition, INFONAVIT was to co-ordinate and finance construction programs of dwellings to be acquired by the workers. Thus, INFONAVIT was created as a financial as well as a construction and development housing institution. Since 1977, this last function is no longer performed by INFONAVIT, making it solely a financing entity.

INFONAVIT's internal organizational structure varies from that of other government housing agencies, basically because representatives of labor and private sectors, as well as government, intervene in its operation. This is a unique case where workers participate, through their leaders, in shaping housing policy decisions.

Formally, the three most important decision makers in the organization are the General Assembly, the Administrative Council, and the General Director. The General Assembly is composed of 45 individuals, of which 15 are representatives of various government agencies, 15 of the most important labor unions, and 15 of private firms. The General Assembly meets twice a year and its functions are to review and approve the investment plans and budget.

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8. During the last four years INFONAVIT has reduced its direct involvement in development and construction almost to zero. In fact, during a recent meeting with the President of Mexico, INFONAVIT officials announced that during and since 1980, INFONAVIT has not been directly involved in the construction or promotion of a single dwelling. Excelsior, May 2, 1981, p.18.
The Administrative Council is composed of individuals, equally representing the three groups mentioned above. They are the most important decision-makers of the organization and meet at least twice a month. The Administrative Council decides on investment policies, approves new high officials or regional delegates' nominations, and presents, to the General Assembly for its approval, credit regulations, financial programs and an annual activities report.

The General Director is the legal representative of the Institute. He is proposed by the President and approved by the General Assembly. The General Director is assisted by three Assistant Directors in the Financial, Judicial, and Technical areas; they in turn control a number of departments and offices related to their own areas. In addition, INFONAVIT has established a number of Regional Delegates in order to control different geographic areas within the country.

Nevertheless, in Mexico as in other contexts, the formal attributions of institutions are poor indicators of actual activities and orientations, as they merely set the stage for the interplay of power and interests. INFONAVIT is therefore no exception to the generalization that the actual goals of a complex organization are best inferred from its activities than its declarations of intent, or its legal documents. What has been briefly described as INFONAVIT's activities during the Echeverria and the Lopez Portillo regimes may therefore be regarded as the result of the dynamic processes of interchange between this organization and its economic and political environment. It is a process in constant flux, no matter how apparently fixed the ground rules or clear the objectives.

INFONAVIT's financial system.

INFONAVIT's financial resources come from a) the 5% of employees' wages
given by the employers; b) subsidies, services or other forms of contributions by the Federal Government; and c) returns on the investments made by the Institute. The main funding source has been employer's contributions which have totalled about one billion dollars between 1972 and 1976. During the same period, the Federal Government contributed only about ten million dollars.

INFONAVIT's resources are allocated as follows: a) programs comprising loans to build, modify or buy a house, financing of new housing developments, and land acquisition; b) investments in Government Bonds and other securities; and c) administration and operation.

By 1976, approximately 90% of INFONAVIT's assets had been invested in programs. Of that 90%, 71% went to the financing of new housing developments, 15% was for land acquisition, and 4% was given as loans to improve, buy or repair dwellings, or to pay up former housing loans.

As far as administrative and operational costs, INFONAVIT has set a maximum of 1.5% of its budget for overhead.

Until 1976, individual credits, either to buy a house directly financed by INFONAVIT, or to buy, improve or repair other types of houses, were assigned through a computerized system, and to a lesser degree through "external promotions" (19% of the total in 1976). The computerized system allocated dwelling based on need: a number of variables (e.g., income, family, size, age of family members, etc.) and a selecting factor (combination of these variables) were programmed into the computer so as to select beneficiaries according to the criterion of most need. This, in turn, led to some difficulties with labor leaders, especially when the "most need" criterion selected dissident workers, thereby demonstrating the independence of INFONAVIT from labor politics. In the case of external promotions, on the other hand, developers representing
labor, the private sector or government would present a housing package to INFONAVIT for its approval and financing.

Such a package would include a site, complete with services and already approved by city planning authorities; urban and housing design, according to the standards set by the Institute; working drawings and technical specifications approved by the city authorities; a construction company responsible for the execution of the project; a socio-economic study of those future homeowners represented by the developer; and a feasibility study showing the affordability of the project. Since 1976, "external promotions" have increasingly been taken over as the only allocating procedure. By 1980, all "promotions" were external, and the majority of developers were union leaders. Therefore, the power to decide who should have access to a house has increasingly been taken away from the computer and given to union leaders. This allocating procedure is, however, more in accordance with the logic of the Mexican labor movement and its internal processes of power. It is also more consistent with one of the tacit objectives of INFONAVIT, namely giving labor leaders a means of controlling and rewarding rank and file discipline.

Regarding the allocation of loans, from 1972 to 1976 INFONAVIT had four million members. During the same period, 114,000 loans were allocated. In 1975, when the computerized system was still functioning, INFONAVIT loans were allocated as follows: 52.6% were given to those earning 1.0 to 1.5 times the minimum wage; 23.4% to those whose wage was 1.6 to 2.0 times the minimum; and 20.9% and 3.1% to those in the 2.1 to 4.0 and in the 4.1 to 5.0 times minimum income bracket, respectively. However, not all the loans allocated were actually applied. That is, not all loan receivers bought a house. Often the location of housing projects was not convenient or simply the supply of housing by INFONAVIT did not correspond to the demand. For instance, a close analysis
of the Pedregal de Carrasco INFONAVIT housing project (1975), shows that only 23.9% of the houses could be afforded by those earning from 1 to 1.5 times the minimum wage, and that, in general, 56.6% of the houses could be afforded by those whose income was more than double the minimum wage. Therefore, it appears from this case, that INFONAVIT housing supply was inversely related to demand, since only 23.9% of the houses were within the economic means of 52.6% of those loan receivers with income from 1.0 to 1.5 the minimum, whereas 56.6% of the houses could be bought by only 24.0% of those loan receivers with incomes above twice the minimum wage. In other words, the largest share of the houses built were within reach of only the middle-class worker.

This tendency remains essentially the same after 1977. Specifically, middle-class type housing requires more inputs from the construction industry, which many union leaders have a stake in, since a number of them have established construction companies to carry out "external promotions". Also, it appears that their strongest support comes from those union members relatively better off (above twice the minimum wage). Therefore, a large proportion of INFONAVIT's "external promotions" are oriented toward the preference and buying capabilities of that group. Finally, it seems that the housing demands made by union leaders claim the right of workers to have a house that is no different from the generalized image of a middle-class house.

With regards to other public housing agencies, their allocating criteria varies. FOVISSTE allocates its resources in a way similar to INFONAVIT. Other agencies have different policies. For instance, in 1973-74, Banco Nacional de Obras y Servicios Publicos, S.A. (BNOSPSA), the oldest public housing agency, gave 47% of its loans to those earning from 2 to 4 times the minimum wage, and another 40% to those above that level, while FOVI (Fondo de Operacion y Descuento Bancario a la Vivienda), that also assigns resources for
private developments for low-cost housing, provided only 7.5% of its loans to those earning minimum salary, between 1965 and 1974. It appears, therefore, that most government housing agencies allocate their resources to the middle-income group among workers.

The credit conditions under which INFONAVIT loans are given are as follows: 40% of the contributions made by the employer is applied to the down-payment when the worker decides to buy a house. The rest is paid during a period of up to 20 years with an annual interest rate of 4%. The worker's monthly payments are directly discounted by the firm and paid to INFONAVIT. The amount of those payments varies according to the worker's salary. For those who earn 1.0 to 1.25 times the minimum wage, it is 14% of their salary. For those above that, it is 18%. This means that the total period of credit diminishes as the worker's wages increase, allowing him to pay up the loan sooner.

Credit conditions vary among other public housing agencies; FOVISSTE and FOVIMI operate with the same credit conditions as INFONAVIT. BNOSPSA, on the other hand, charges an annual interest rate of between 10% to 12%, and requires individuals to be able to devote about 25% of their income to mortgage payments. In the case of FOVI, the annual interest rate is 6%, and loans have to be paid within a period of 15 years. Thus, INFONAVIT undoubtedly offers the best credit conditions for low-income housing in the country.

INFONAVIT's pricing system.

The best way of illustrating INFONAVIT criteria for establishing the cost of its product is to refer to an example that appears to be representative.

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(see Table 1). The tables show the various components of INFONAVIT housing costs, as illustrated in the case of the first two construction stages of the Pedregal de Carrasco project. For the various components (land, land development, construction, etc.), it shows what percentages are capital or overhead, and what their internal cost composition is.

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10. This particular case has been used for the same purpose for two other studies; Nunez (1976) and Garza and Schteingart (1978). The case is Pedregal de Carrasco.
TABLE 1
COST COMPONENTS FOR HOUSING PRODUCTION (INFONAVIT: Pedregal de Carrasco Project)

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price of undeveloped land</td>
<td>4.53%</td>
</tr>
<tr>
<td>Land</td>
<td>4.6%</td>
</tr>
<tr>
<td>Overhead on acquiring the land</td>
<td>0.14%</td>
</tr>
<tr>
<td>Production price:</td>
<td></td>
</tr>
<tr>
<td>Infrastructure</td>
<td>7.76%</td>
</tr>
<tr>
<td>Services</td>
<td>0.44%</td>
</tr>
<tr>
<td>Urbanization</td>
<td>13.52%</td>
</tr>
<tr>
<td>Commerce</td>
<td>0.99%</td>
</tr>
<tr>
<td>Overhead (administration, finance, taxes, etc.)</td>
<td>4.41%</td>
</tr>
<tr>
<td>Overhead (technical, studies)</td>
<td>0.76%</td>
</tr>
<tr>
<td>Legal</td>
<td>3.46%</td>
</tr>
<tr>
<td>Financial</td>
<td>2.67%</td>
</tr>
<tr>
<td>Housing construction</td>
<td>52.31%</td>
</tr>
<tr>
<td>Overhead (technical, supervision, advice)</td>
<td>1.09%</td>
</tr>
<tr>
<td>Legal (permits and others)</td>
<td>3.65%</td>
</tr>
<tr>
<td>Financial (INFONAVIT's supervision, others)</td>
<td>7.33%</td>
</tr>
<tr>
<td>Others</td>
<td>1.17%</td>
</tr>
<tr>
<td><strong>Total Housing Cost</strong></td>
<td>100%</td>
</tr>
</tbody>
</table>
The price of undeveloped land paid by INFONAVIT is usually lower than for most commercial concerns or other state agencies (these ranging from 10% to 35% of the total cost of development) because it launched a vast program of land acquisition when it was first established. (15% of its budget was devoted to land acquisition.) In addition, lower prices are obtained because some of the land is peripheral.

Nevertheless, the cost of land development by INFONAVIT has usually been higher than in most similar public or private developments (although rarely exceeding 20% of the total development cost). There are two reasons for this: first, the standards for urbanization set by the Institute raise the price, and second, peripheral development often requires additional investment in infrastructure and urbanization.

Finally, there is a difference between the production cost (Table 1) and the final price the buyer has to pay. The selling price varies from case to case. An important criteria for fixing that price is the market. An estimate is made of the price of similar housing in similar locations. For the case of Pedregal de Carrasco, the selling price was 10% higher than the production cost. Such profit is only virtual if one considers INFONAVIT's very low interest rate (4%) and the long period of the mortgage (20 years).

**The products of INFONAVIT: basic housing programs and housing types.**

The changes in allocating procedures and programs, undergone since the founding of INFONAVIT, have also produced changes in INFONAVIT housing types. INFONAVIT's housing typology, as well as its urban and architectonic design criteria, have changed considerably not only since its founding in 1972, but also since 1976. Large, high-density, massive housing complexes with over 100,000 inhabitants have stopped being built as early as 1976. Instead, medium-size and medium-density development of about 2,000 houses have become the
standard size. Since 1976, INFONAVIT has had no projects considered "experimental", as it used to, nor has there been, either before or after 1976, a design process which would allow for user participation.\textsuperscript{11}

In general, INFONAVIT's present housing typology can be reduced to seven multi-family and single-family building types. The former are "duplex" or "triplex"\textsuperscript{12}, the latter are one or two stories high. These 7 housing types are the result of previous evaluations of other government housing typologies, as well as of housing types successfully used by private developers. However, since INFONAVIT has become a mere financial institution, those housing types are just design examples or guidelines to be considered by those in charge of the design on the part of the developers of "external promotions".

Generally speaking, these housing types express INFONAVIT's image of housing: A very traditional middle-class type design with very little flexibility to accommodate extensions or changes required by the evolution in size requirements of users. Moreover, it appears that all groups involved, especially the labor sector, define a "hygienic", "economic", and "comfortable" house as one which includes a kitchen, bathroom, three bedrooms, a dining room, and a living room, in short, a compartmentalized house.\textsuperscript{13}

\textsuperscript{11} The exception in Colonia Guerrero, considered "experimental".

\textsuperscript{12} "Duplex" and "triplex" are building blocks with two dwellings per floor; and three or four stories high.

\textsuperscript{13} Quoted from an interview with an INFONAVIT official.
The following are illustrations of those seven housing types presently in use.

**INFONAVIT PROTOTYPES**

**SINGLE HOUSE**

A. tapanco
B. one floor
C. two stories

**TYPE A** 56.70 sq.mts.

**FIGURE 13**

- First floor
- Tapanco floor

**TYPE B** 58.60 sq.mts.

**FIGURE 14**

- Floor plan

**TYPE C** 78.61 sq.mts.

**FIGURE 15**

- First floor
- Second floor
DUPLEX AND TRIPLEX

FIGURE 16

TYPE D 52.00 sq.mts.

FIGURE 17

TYPE E 60.00 sq.mts.
DISCLAIMER

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Thus, within the limited role which the government plays in the production of housing in the country (18%), INFONAVIT is the largest and most important public housing agency, in terms of its increasingly large assets (since wages and membership increases) and its large production and financing of housing. INFONAVIT project costs generally compare with most government projects implemented by other agencies, but its credit conditions are the best for low-income housing in Mexico. INFONAVIT was created to spur economic development through the construction industry, and as a government concession to the unions designed to mitigate the social and political crises of the late 60's and early 70's. By the late 70's, the crisis was less acute, in part, due to labor's restraint of its demand for higher wages. Labor's reward has been a larger share of control over INFONAVIT, as shown by the now prevalent practice of "external promotions". Under such practice, housing supply seem to be inversely related to need, that is, in favor of those INFONAVIT members who are better off. Moreover, this situation applies to most government housing programs in Mexico. Consequently, the limited production of housing is of the middle-class type, that is, what an INFONAVIT official called "a compartmentalized house", as illustrated by INFONAVIT's 7 housing types. Finally, housing is built with traditional designs and construction methods, given its purpose of job generation and its low-cost requirements.
CHAPTER THREE

THE CASE OF COLONIA GUERRERO

Colonia Guerrero is a small, 64 unit, housing project, located in a decaying central part of Mexico City, appearing similar to many others that get financed by Public Housing Agencies. There are three major factors that contribute to make this a special case: the process and method used in its design; the way the people got organized and participated in the design and construction process; and the financial and economic problems which resulted from the previous two factors. These three factors have to be considered as special because they all departed from the normal financial, legal, and technical specifications of INFONAVIT at the time of its implementation.

Background of the Project.

The three crucial factors which shaped the project resulted from the particular set of circumstances. Two parallel events interacted in early 1974 to get the project started. First, social workers were organizing the community around "the housing problem". Rents in "vecindades" (inner-city slums) were increasing, and slum dwellers were prevented, by slum owners seeking property deterioration and eventual slum clearance, from doing their annual repair work on their rented dwellings. Rent increases, housing deterioration, and sometimes even the collapse of "vecindades" were putting people on the street and forcing them out of the neighborhood they had lived in for many years. In such circumstances, organization was a resource to be used against eviction. Second, COPEVI, a non-profit organization, was involved in two projects: one was a study of inner-city rehabilitation which introduced that institution to most community groups, and the other was a monthly publication in which COPEVI attacked INFONAVIT for their insensitive housing policy. These
attacks resulted in INFONAVIT inviting COPEVI to develop a proposal for a housing scheme in Mexico City's downtown area. COPEVI accepted the invitation and began to search for an organized community group with which to work. A group from Colonia Guerrero accepted the idea and work began.

The Project: A Co-operative and Participatory Housing Design Scheme.

The project was largely shaped by two self-reinforcing elements, which came out of COPEVI's intervention. One was a co-operative and another was the idea of "supports". The idea of a co-operative had two purposes: first, to assure that those who would produce the houses would also consume them, thereby preventing any disruption in the life of the community; and second, to present to creditors, as a group, individuals with minimal resources, in order to obtain financing. This would ensure both a home and permanence in their neighborhood. The "support" idea was meant to allow people to design their own dwellings within a physical structure, letting the user decide about the dwelling's layout in the area of space they could afford. Everyone would be able to get a design according to his needs, using the amount of surface he could afford.

Key Issues in the Development of the Project: Finance, Cost, and Design

Before getting into the discussion of the particular issues raised in this case, it should be mentioned that the Colonia Guerrero project was promoted in an unusual way, compared to common practice, at a time when almost all INFONAVIT projects were promoted by the institution. As we indicated, INFONAVIT would look for a piece of land, provide the designs, and choose the construction company. Houses would then be allocated through a computerized selection process. In the case of Colonia Guerrero, the co-operative provided the land and design, requesting only finance. This situation generated consequences that were both advantageous and disadvantageous, to be discussed in
the following sections.

**Financing.**

The first central issue regarding the financing of the project was the communal ownership of the building. This was never accepted by INFONAVIT, who would only provide individual loans for individual dwellings. INFONAVIT rules made the situation very difficult for the co-operative because some of the co-operativists were not registered in INFONAVIT. To finance a non-member of INFONAVIT to buy a house was against the law that created INFONAVIT and its infringement would have been politically delicate, given the fact that only around 40,000 loans were annually provided to meet the demand of almost 2,000,000 registered workers. COPEVI argued before INFONAVIT high officials that all they needed was to get the scheme built, and then, those who were not registered in INFONAVIT would get a mortgage from any of the other state agencies and pay INFONAVIT back. This was proposed as a "bridging" loan. Although the idea was finally accepted by INFONAVIT, there were some side-effects which affected the original goals of the co-operative and COPEVI. Originally, the idea was communal ownership of the building with only 25% of the members with access to INFONAVIT and the rest coming from the community. In the end, only 12 out of the 64 households were not members of INFONAVIT. In fact, whether members or non-members, it appears that a number of the original co-operativists, despite their enthusiastic and dedicated participation, did not have final access to the project. Two factors were held responsible for this situation: first, pressure against the idea was translated into prolonged delays (also blamed on the bureaucracy) which spurred a number of desertions; and second, the fact that non-members of INFONAVIT would have to pay a considerably larger down-payment and higher interest rates for the money coming from lending agencies other than INFONAVIT.
Cost

A number of factors were related to the issue of cost: the form of organization (co-operative); the way the project was presented to INFONAVIT ("external promotion"); the architectural design; and the location of the project (price of land). The co-operative and the "external promotion" worked together to bring down the cost of the project considerably. For the first time in the history of the institution, there was a client-user who was interested in looking after all the factors which accounted for the final cost of the project. For example, they obtained a reduction of overhead costs normally charged by INFONAVIT because the project and most technical supervision was provided by COPEVI at a lower professional fee. There were lengthy and harsh discussions with the constructor about the construction cost in which it was argued that not only was his profit margin high (about 24% of the total cost), but that he was already making a huge profit on construction materials that had been in storage for a long time and were being priced at current market values. The co-operative also argued against paying for the cost of promoting the project which the institute normally did, since they had actually played that role. Finally, they even fought against paying the allocated 1% for building maintenance before it was occupied, since the latter would be immediately occupied as soon as construction was completed. In the end, people felt that they had won the battle against cost, having reduced them by at least 10%.

The second aspect regarding cost was the design concept. Two basic ideas were behind the use of "support"; one, a participatory design; and two, cost reduction. The first will be dealt with in the next section. The second idea was that people could buy within a flexible physical structure, the number of square mts., and "detachable units", that they could afford. The principle was to facilitate access to a dwelling, even to those with very little income.
The idea seemed to have worked out well in a housing scheme named Palo Alto, previously carried out by COPEVI. Palo Alto was a project built in the periphery of the city where the principle of the "unfinished dwelling" saved the user up to 20% of the total cost. The idea was therefore very attractive. However, given the location of Colonia Guerrero (downtown), the cost of land, and the type of soil which made necessary a rather costly structure, only 1 to 2% of the total cost could be eliminated by providing "detachable units". Thus, given the cost of land and structure, the "unfinished part" of the "support" had little impact in cost reduction. On the other hand, the flexibility of the "support" gave some co-operativists the opportunity to afford a small dwelling (30 sq. mts.).

Design

The principles behind the "support" idea were very compatible with the circumstances of the project. One basic goal of "support" is that of user participation. Such a principle was obviously consistent with having a co-operative. Although the cost argument was not very successful, as we have previously seen, the flexibility of the scheme and the participatory aspect of the process had a positive outcome. People's participation in the design process seem to have made them accept the project as a whole. As one of the respondents who lives in the project put it, they took the model from office to office, from meeting to meeting. Even if people did not quite understand what went on, they participated and identified much with the design of the scheme.

The participatory process also seemed to have reinforced the cohesiveness of the co-operative and its strength in the pursuit of its objectives. In other words, it appears to have been a positive factor in integrating community forces. The flexibility of the scheme proved useful in two ways.
First, it allowed modifications at the design stage of those dwellings which were already assigned, but whose potential users had to drop out of the co-operative during the process. Second, it allowed modifications of the built layout of the dwelling, either due to last minute change of ownership or the owner changing the design to better suit his needs. In both cases, people expressed positive opinions towards design flexibility.

FIGURE 20

General plan of support structure and zones.

Ground floor plan of vecindad.
CHAPTER FOUR
IMPLICATIONS OF THE IMPLEMENTATION OF SUPPORTS IN THE CONTEXT OF INFONAVIT

This chapter deals, first, with the definition of "support" structures, and second, with their implications (political, cost, standards, financial and management). The analysis of each of those implications is organized around the leading issues and the most relevant questions which anyone interested in the implementation of the "support" idea in a context like Mexico should look at. In some cases, there are no ready answers for some of the questions asked. In such cases, further questions are asked or particular research is suggested in order to guide future exploration around the implementation of "supports".

Clearly, it is necessary to make the "support idea" more concrete in order to establish the implications of its implementation in a given context. The first section of this chapter presents a specific "support" design and the assumptions behind it. This section describes, in detail, the methodology used for arriving at the design of that "support structure" and specifies how it was used during the interviews to get respondents' reactions. Those reactions, together with official documents\(^1\) and my own interpretation of the issues and context, constitute the basis for the discussion of each of the implications listed above.

The "support" structure

The following illustration represents the "support" structure used to get INFONAVIT officials' reactions to the idea, and from which I drew my inferences.

\(^1\) See note on the methodology in the Introduction.
Several issues were considered in designing it. First, its openness, or lack of internal walls, was meant to take the issue of flexibility to an extreme (versatility in internal spatial arrangements), so INFONAVIT officials would perceive the idea with clarity and would be able to state more explicitly what would be, in their views, the consequences of its applications (see Figure 21). For instance, the "support" structure proposed is capable of accommodating a number of the housing solutions presently provided in duplexes or triplexes, and at the same time, allows for a variety of different spatial arrangements. Moreover, duplexes or triplexes are usually less expensive housing. Therefore, the "support" structure also addresses the issue of cost (case of the Colonia Guerrero project). In addition, the proposal addresses the issue of a "support" facade, allowing only for the possibility of a variety of windows. This was meant to meet the concern of INFONAVIT officials that facades be totally finished. The reason alleged is that INFONAVIT dwellings must maintain a "Government Housing" image. After all, the provision of housing by the State is regarded as a triumph of government and labor over private enterprise. Therefore, such apparently "high" standards cannot be jeopardized.
Other examples of "support" structures were also considered in this design (the ones included in Chapter One as well as the one used in Colonia Guerrero). The idea was not only to refer to other actual cases of "supports" but, more importantly, to capitalize upon the Colonia Guerrero project and evaluate it. Moreover, as mentioned earlier, the Colonia Guerrero case was brought up in all interviews as a way of both making officials refer to a built example, and focusing interviews on the issues which had come out of the implementation of that case. 1

Before analyzing the implications of the implementation of "support" designs in the Mexican context, some general remarks should be made. In Chapter One it was concluded that "supports" address a qualitative more than a quantitative housing problem, that is, not so much the user's access to a dwelling as the dwelling's ability to be transformed, adapted or appropriated by the user. If dwellings lack such an ability, the "natural relationship" between dweller and dwelling is destroyed, bringing about the decay of the physical environment. The extent to which the "natural relationship" does not exist there-

1. The hypothetical design of "support" was discussed with the respondents during the last part of the interview, after all other topics (see Introduction) had been covered. The discussion of the case of Colonia Guerrero was the linking element. I referred to Colonia Guerrero with regards to issues such as the cost of an open structure vs. a wall bearing structure, flexibility, the importance of providing a facade, financial and managerial aspects, and finally, the acceptance of "supports", given the "housing ideology" of INFONAVIT.

More specifically, I showed the respondents how I arrived at the design of the "support" and how it was just an abstraction of INFONAVIT present housing types. I showed them how the design not only was capable of encompassing those types, but also provided the flexibility for other layouts and dwelling areas. I explained to the respondents how the idea had already been used in Europe and in Mexico in Colonia Guerrero. I then asked questions such as: what would be your general reaction to this idea and why; what things would have to be modified of this proposal if it were to be implemented by INFONAVIT, and why; who might accept or oppose the idea, and why; given the variety of climates and cultural characteristics of some of the regions where INFONAVIT is operating, what is your reaction to "flexible" housing which can adapt to different environments. The answers to those questions have been a substantial element of this work.
fore expresses the extent to which the environment decays. "Supports" are introduced to re-establish such a relationship. In Mexico, however, decay, as defined by Habraken, does not exist, not even in mass housing projects such as the ones built by INFONAVIT.2

What about the "natural relationship", supposed impossible given the characteristics of INFONAVIT housing? The fact is that the notion of a "natural relationship" is of little use to explain the housing situation in Mexico, to sustain the introduction of "supports" in the Mexican context. It doesn't mean that the notion of user's appropriation and personalization of the space should be disregarded completely, but that such appropriation should not be limited to the terms in which Habraken first presented it and on the basis of which his proposition of supports was based. Quite rightly, Habraken recently argues that "what constitutes a support and what is a detachable unit depends on the housing condition, on the image the people have of themselves and their society...".3 I would add that the definition of the "natural relationship", if it is to be attempted at all, should also be consistent with local housing conditions, understandably different from conditions in The Netherlands.

In Mexico, the problem is not housing adaptability but access to housing. As mentioned in Chapter Two, for the period of 1970-74, the accumulated number of required dwellings was 2.5 million units. Total housing production during

2. Until the late 60's early 70's, vecindades (inner-city slums) and illegal settlements on the periphery of most cities in the developing world were the only housing considered in decay, mainly because of their appalling appearance. Since then, they have been increasingly regarded as settlements where an intensive and creative process of social reconstruction through popular initiative and creative process is taking place. For a review of the literature of illegal settlements in developing countries, see Lisa Peattie and Jose A. Aldrete-Haas, "Marginal Settlements in Developing Countries: Research, Advocacy of Policy, and Evolution of Programs", Annual Review of Sociology, 1981, 7:157-75.

1970 to 1976 was 1.2 million units, 65% of which were produced by the informal sector and only 18% by the public sector. Although the public sector share has been increasing, still more than half of the population house themselves. Furthermore, as it was discussed also in Chapter Two, government supply of housing is still limited and usually directed to those relatively better off among low-income families. Thus, access to government housing is generally valued and regarded as an improvement of social and economic status. Therefore the issue is not so much appropriation of dwelling, or the possibility of its transformation (which, in spite of INFONAVIT regulations users usually do), but first and above all, access.

It is in this context, where access to a dwelling is the first priority and where the provision of housing by the State acquires specific economic and political dimensions, that the implementation of "supports" should be looked at.

Political Implications

Most public housing programs in developing countries, and perhaps in developed countries as well, have an underlying related logic to the logic of the country's political and economic development. Therefore, one cannot look at public housing programs without looking at the relationship between those institutions and the broader political and economic context. Most countries then, have a particular "housing ideology" or a way of conceptualizing housing which can be translated into various and often different housing types, depend-

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4. According to the survey carried out by Rosemond Cheetman, 75% of INFONAVIT beneficiaries who now have a three-bedroom dwelling previously lived in apartments or vecindades (inner-city slums) which only had one bedroom, and 69% of those apartments did not have a kitchen or a bathroom. From Nunez, O., INFONAVIT, un Sistema Corporativo para asalariados bajos. Paper presented at the Seminario sobre el problema de la Vivienda en America Latina; Centro de Estudios Economicos y Demograficos del Colegio de Mexico (Mexico; 19-22 de junio de 1978).
ing on the characteristics of the public housing institutions involved. Never-
theless, in spite of differences in programs and housing types, as well as in-
stitutions, there is usually a prevalent housing image, which may be regarded
as the housing ideology of the context.

To think about the political implications of implementing supports in a
given context is to think about the supports and their relation to the preva-
lent housing ideology. It also means to think about the interests which such
an ideology serves, as well as strengthen its legitimacy. Seen in that per-
pective, a middle-class type housing makes a lot of sense: it requires more
inputs from private enterprise, projects a better government image, satisfies
the demands of labor and fulfills aspirations of rank and file workers.

The satisfaction of labor demands and projection of a better housing image
are important issues to be considered. First, this ideology serves both labor
and government and therefore strengthens their coalition. As I agreed earlier,
the coalition between government and labor has been one of the basic components
of the Mexican political system since World War II. Second, as I also men-
tioned before, INFONAVIT housing policies and allocating procedures are impor-
tant instruments for the legitimization of the labor movement and its leaders in
the eyes of its rank and file.

One can therefore conclude that the prevalent housing ideology in
INFONAVIT, and to a great extent in Mexico, is that of a middle-class type.
This housing image, in turn, serves the interests of those who shape housing
policies in Mexico, and in particular in INFONAVIT, namely government, the
leadership of labor unions and, to a lesser extent, private enterprise. Above
all, labor leaders who control INFONAVIT seem to have a large vested economic
and political interest in maintaining such an image.
Given the prevailing "housing ideology" it appears that, on sole political grounds, the "support" which I propose (Figure 21) might not be acceptable for INFONAVIT. It is obviously a "support type" which is far from projecting the prevalent housing image. This conclusion was in fact supported by the reaction of most INFONAVIT officials interviewed for this study. In other words, when the implementation of supports is contemplated, one must ask what is the generally accepted image of housing in the context where I want to implement the "support" idea, whose interest does it serve and how? The answer to this will tell the inquirer to what extent his idea of "supports" approximates the prevalent housing image. It will also tell him the weakness or strength of the interests (groups) served by the housing ideology, their commitment to it, and the ways in which those interests are served. Whatever the answers to those questions may be, the inquirer will be able to assess the political meaning of implementing his "support", to know which group or interest involved is likely to oppose or like it, or why it might do so. This in turn should guide, if need be, to redefine the concept of support, in order to make it more congruent with the political context.

In the case of Mexico, particularly INFONAVIT, it appears, as we mentioned earlier, that all important groups involved, especially labor, define a "hygienic", "economic", and "comfortable" house as one which includes a kitchen, bathroom, three bedrooms, a dining room and a living room, in other words, as a compartmentalized house. Therefore, in Mexico, the dominant "housing ideology" coincides with the middle-class image of a house, with its front facing the street, with a garage, and if possible, detached.

5. It could be safely stated that such definition of housing can be generalized for Mexico as a whole since FOVISSTE and FOVIMI operate very similar to INFONAVIT, and BNOSPSA and FOVI address their programs almost exclusively to the middle-class segment of the lower-income.
One possible explanation for that generalized image of public housing is the important political and economic function played by the government's production of housing, in which INFONAVIT plays a leading role. As we argued earlier, the creation of INFONAVIT and other public housing agencies resulted from Echeverria's policy of attenuating the social contradictions generated in the process of Mexican development, which had come to a head as a result of the international and national economic depression of the early 70's. In this context, the role of INFONAVIT was, first, to promote economic development and reduce unemployment through stimulating construction industry, and second, to widen the popular support of the government.

An example which might serve as an illustration of these reactions:

The Institute has the goal of providing hygienic, economic, and dignified housing. This means, for most of those who provide it, that such a housing should have a kitchen, a bathroom, three bedrooms and a livingroom and diningroom; in sum a compartmentized dwelling...

Nevertheless, I would like to make clear that this negative conclusion was reached only because of the specific type of "support" which I proposed in the study. As illustrated in Chapter One, there are support designs which could be closer to the INFONAVIT housing ideology. For instance, in spite of the fact that it is a Dutch housing scheme, and that it is not detached, "Sterrenburg III", looks more like middle-class housing. Therefore, the support idea should not be thought necessarily as a "duplex" or "triplex". Also, one could suggest that INFONAVIT housing types already recognize some of the issues addressed by the support idea: the need to provide some space for future expansion and some choice for internal arrangement, even if this is

6. This does not mean that no public housing agency existed prior to Echeverria's regime, but that its contribution was the most significant, especially in terms of the scale of the effort.
done by just not building a partition wall. Therefore, one can think of the possibility of providing a middle-class type of support which might be more congruent with the prevalent housing image of INFONAVIT.

If that was the strategy adopted, a number of questions would still have to be asked. First, how flexible should the support be, to what extent should the support accommodate external expansion and changes in internal arrangements, and how? The answer to these questions will require an understanding of how and why users modify their dwelling, either by expansion or internal rearrangement. Is it because they need an extra room, a workshop or small shop, or even a room for rent in order to earn an extra income, or is it because they want a larger living room, etc. Also, what might be the future need of dwellings in terms of appliances? That is, what should be the flexibility provided for the change and expansion of kitchen and bathroom, knowing that this might be costly and difficult to do by the dweller.

A first exploration into these questions is provided by a recent study by Andrea Martin. The study analyzes physical change in dwellings which users have introduced in an INFONAVIT housing project. Based on that analysis, the author then suggests a number of design considerations for presently used INFONAVIT type A, B, and C — that is, for all those single-family types which could be considered to be in accordance with the prevalent housing image. The design focused on increasing user's choice of spatial arrangements as well as on extending dwelling space. The following figures illustrate Martin's proposals.

PROTOTYPE A: VARIATIONS REDUCING THE LOAD BEARING STRUCTURE

Kitchen:
1. Enlargement into dwelling
2. Enlargement towards patio

Bathroom:
3. Enlargement into dwelling
4. Basin changed

FIGURE 22

PROPOSED

bearing wall
non removable material
Although the author does not refer to her proposal as a "support structure", she does mention that the purpose of her study is linked to the "support" idea, to the extent that it deals with dwelling flexibility and adaptability.\(^8\) If one considers her proposal as a middle-class type "support structure", one could perhaps argue that some users might find it attractive, since it facilitates changes in spatial arrangements and extensions, despite INFONAVIT officials' declarations that users are pleased with the dwellings currently provided.

An evaluation of various INFONAVIT projects also supports the officials' views.\(^9\) This study shows that 92.7% of the dwellers are satisfied with their houses. User satisfaction, however, does not imply that dwellings cannot be improved, but simply that dwellers don't know any better or understand that this is the best they can get. In fact, what they can get already represents a substantial improvement of their living conditions. Moreover, in a country like Mexico, this type of housing projects an image of modernization which not only pleases the government, but users as well.

Based on user satisfaction, INFONAVIT officials are quite content with the existing housing types and therefore do not see the need for changing them or even improving their adaptability.

This is understandable, given the fact that those housing types also please the main interest groups involved in the activities of INFONAVIT, namely labor, government and private enterprise.

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Finally, it is often argued that adaptability is important in the short and long run, not only to the people who live there, but also for the "useful life" of the physical structure. Indeed, it is desirable that a building can adapt to the technology and uses which might exist thirty years later. This point, however, was not discussed during the interviews, nor did it seem to be of concern to INFONAVIT officials who remain in office six years or less. Under the enormous and pressing immediate problems they face during that short period, Mexican officials, not unlike other politicians in other countries, tend to disregard long-term considerations.

In summary, given the prevailing "housing ideology" in INFONAVIT and to a large extent in Mexico, the "support structure" which I proposed does not seem politically acceptable. From my own speculation, middle-class type supports would appear to be politically acceptable, but neither its need nor its advantages seem to be salient among users or housing officials. Therefore, it would be interesting to get the reaction of these two groups to Martin's design proposals.

Cost Implications.

I mentioned before the support which I proposed strongly addresses the issue of cost (affordability). It is based from the outset on INFONAVIT "duplex" and "triplex" types which are usually more affordable by the lower income groups (case of Colonia Guerrero) in an urban setting. Also, inspired by the case of Colonia Guerrero, I assumed that this kind of support could provide a family or an individual an affordable amount of space. This propo-

sition was based on the assumption that INFONAVIT officials were worried about not being able to meet the housing demand of those who earn from 1 to 2 times the minimum wage, given the rising cost of housing. This concern was voiced by several high INFONAVIT officials in the course of my interviews.

What I propose in this section is first, to describe the situation of housing demand which apparently concerns government officials, and second, to discuss how the support structure proposed can make sense in this situation. In other words, I will show how flexible the support structure can be in order to be within reach of the lowest income group.

As the literature of the housing problem of Mexico indicates and the interviews revealed, there is concern about the fact that a large percentage of Mexico's population still does not earn enough income to be able to purchase a house, and that a large demand for housing is thereby not satisfied. In 1970, Mexico's income distribution was as follows: 71.7% of the labor force earned less than 1 times the minimum wage, 23.7% earned between 1 to 3.5 times the minimum, and 4.6% received more than the 3.5 times the minimum. The second group (1 to 3.5 times the minimum) is the one that is normally covered by public housing. Of this group, more than half (13.0 of the total) earned only 1 to 1.5 times the minimum. The last group (4.6%) is, therefore, the only one that can afford commercially produced housing.

The problem does not merely lie in the great inequality of income distribution and access to housing, but in the fact that the supply is inversely related to income distribution, thereby making more units available to the small-

11. By 1980, this situation has not changed for the better, due to a 25 to 35% yearly inflation rate experienced by Mexico since the mid-70's
est segment (23.7%) of the recipient population of public housing. If that is the case, INFONAVIT officials should be interested in "supports" as the means allowing them to produce more low-cost dwellings in an urban setting (e.g. Colonia Guerrero), with a flexible structure allowing the user who earns from 1 to 2 times the minimum wage to buy living space.

In this context, flexibility is defined as the possibility that a physical space be externally expanded or internally rearranged. For the case of support, I have assumed that only internal rearrangements are possible, once a space within the structure has been allocated. The amount of internal flexibility will therefore depend on the type and number of "detachable units". Generally, one can define two kinds of "detachable units": non-bearing partitions (walls) and appliances. For this case, I have assumed that only non-bearing partitions would be "detachable units", since INFONAVIT officials strongly expressed the need to have full and fixed appliances as part of the support structure.

The greater the number of "detachable units", the greater the possibility for internal arrangement. In other words, the greater the "openess" of the support (an illustration of openness is shown in Figure 21), the greater the number of possibilities for different internal arrangements. Finally, I define as the "finish" of the dwelling, components such as flooring, plaster on walls and doors.

12. I am aware of the possibility of expanding the space within the support structure horizontally, by appropriating some of the area of the adjacent dwelling, or vertically by doing the same with the dwelling above or below. However, I have ignored these options because they do not seem feasible in the context of INFONAVIT, not to mention that they would introduce a level of complexity to the support structure that is unnecessary for our discussion.
Having defined the various housing components, one can argue that, in theory, there is a number of trade-offs that people with a fixed income (1 to 2 times the minimum) have to make in order to have access to a dwelling. These theoretical trade-offs are clearly illustrated in the following graph.

Graph 2

"Supports" Trade-offs Between Cost, Space, and Location

Graph 2 illustrates how an individual has to trade-off space for finish and/or detachable units for a given fixed income. The larger the space, the less finish and detachable units, and viceversa. It is a basic trade-off of space versus cost.

Graph 2 also illustrates another component of these trade-offs, namely location. Location determines the cost of undeveloped land and land development. For instance, a', b' and c' represent the same built space as a, b and c, but in a less expensive location. As mentioned earlier, some INFONAVIT housing projects had comparatively low cost of undeveloped land because they were located on the periphery. For the case of Colonia Guerrero, the opposite was
true; the price of land was high because it is located downtown. However, peripheral developments often require additional investment in infrastructure and urbanization, increasing the cost of land development. On the other hand, land development in a central location tends to be low. Both land development and the cost of raw land are, together with construction costs, the main components of the cost of housing (see Table 1). Thus, a peripheral location will tend to bring down the total cost of housing (dotted line in Graph ), buying more space within cost. The opposite is true for a central location, even to a point when an individual with a given income cannot afford to live downtown.

These basic trade-offs can be illustrated also by referring to my proposed "support" with reference to INFONAVIT "duplex" or "triplex" housing types.

For instance, FIGURE 23 shows the approximate amount of space within means of our income group (1-2 times the minimum wage) in an INFONAVIT "triplex" either centrally located (left) or in the periphery (right).

An INFONAVIT "triplex".

![Diagram](image)

FIGURE 23

central location

peripheral location

FIGURE 24 shows the amount of affordable space if only a support is provided, no detachable units (in GRAPH 1, see a), also for the same location. Obviously, in theory, more space will be affordable if no "detachable units"
or "finish" are provided.

**FIGURE 24**

![Diagram](image1)

**FIGURE 25** indicates point b in the trade-off graph. There is less space but some "detachable units".

**FIGURE 25**

![Diagram](image2)

Finally, **FIGURE 26** illustrates point c of the graph, where less space but "detachable units" and "finish" are provided, making it, in theory, comparable to what INFONAVIT provides (FIG. 25), but also providing greater flexibility.

**FIGURE 26**

![Diagram](image3)
This picture of the trade-offs gets further complicated by the cost of structural systems in Mexico. These costs are often as high as 20% of the total cost of the building, representing 1/3 of the construction costs (see Table 1). The reason is that Mexico, and Mexico City in particular, present singular problems for the design and cost of structures. A large portion of the territory is subject to seismic activity, making additional structural reinforcement necessary. In addition, soil conditions in Mexico City require specially designed and costly building foundations. For these reasons, some studies have concluded that "open" structures are more expensive than structures based on bearing walls. This suggests an intrinsic conflict between the various factors in play. Bearing walls would limit flexibility in the provision of less and more open space, as well as in the amount of "detachable units" (partition walls).

Moreover, that intrinsic conflict, when translated into the graph of trade-offs, suggests that the possibility of having "just a support" is only theoretical, and that in fact a support under Mexican circumstances would have to be a wall-bearing structure with limited flexibility and few "unfinished" features in order to be affordable by our lowest income group. Graph 3 illustrates this situation.

13. The Instituto Nacional para el Desarrollo de la Comunidad y de la Vivienda (INDECO) recently studied this particular aspect, concluding that it was more expensive to provide an "open" structure than a structure based on bearing walls. A study for the application of "supports" in Mexico by FOVI (SIPROVI project) concludes that the provision of an open (no bearing walls) "support" structure without "detachable units" can only be afforded by those earning above twice the minimum wage. (From a conversation with the Director of SIPROVI.)
A support might look like the floor plan depicted in Figure 27. What I suggest in this drawing is the translation of my original support design into a more "realistic" one, given all the previous considerations. Obviously, it is just an illustration of the argument, not a design statement. The idea is also to show that in spite of a wall-bearing structure, there can still be the possibility of some flexibility of internal spatial arrangements and space allocation. This flexibility is important because it allows families to buy as much space as they can afford without having to buy a fixed built area. This can be illustrated by comparing this example to a housing project recently built by INDECO (Figure 29). The project can be afforded by those who earn from 1.5 to 2 times the minimum wage. It is basically an INFONAVIT "triplex", but without any finishing (no flooring, doors or plaster on walls). In this case, INDECO considered it more economical to build a complete wall-bearing structure; therefore, its flexibility is limited to changing the function of spaces, since the only openings provided are the doors. Also, the amount of space that can be designated per family is fixed, something which in the case of Colonia Guerrero was flexible, and actually allowed a family to have only 30 sq. mts, while others may have up to 60 sq. mts.
FIGURE 27  Additional elements

FIGURE 28
1  TWO BEDROOM  2  ONE BEDROOM

FIGURE 29
INDECO TYPE
We have so far concluded that the "support" concept might be attractive to those housing policy makers or interest groups who might regard it as a way of meeting the housing demand of those who earn 1 to 2 times the minimum wage. On the other hand, those minimum wage earners might accept it as their only possible access to public housing. Finally, I have indicated that "supports" are likely to be built with wall-bearing structures given the cost of structures on Mexican soil conditions. This last point reduces the "detachable units" to mostly "finish" elements. In this case, two interrelated questions seem appropriate: first, what is the relative importance for the total dwelling cost of not providing "detachable units" (including less walls), and second, what is the likelihood that those who will buy "Mexican supports" will provide "detachable units" themselves. Obviously, both considerations are a function of the amount and cost of the space provided and the buyer's income. Nevertheless, its relative importance may be a decisive factor in the acceptance of "supports" by government agencies. For instance, if the savings of providing wall-bearing support are not significant for the total dwelling cost as was the case in Colonia Guerrero, officials might not see any advantage in the adoption of "supports". In fact, they even argued that it is better to provide a dwelling like INDECO's than to risk on the user's inability to afford the "detachable units", which might turn government unfinished wall bearing supports into "slums".

Regarding this point, an INFONAVIT official stated the following:

Generally, the designer of flexible dwellings thinks about sophisticated materials for the division of space. On the other hand, given the income level of most recipients of INFONAVIT housing, "what" is likely to be used is board or some other inexpensive materials. Thus, INFONAVIT housing could easily end up resembling those slums on the periphery.
Also, officials from INDECO stated that the income of the group who would buy their project was such that if it had included less walls, their subsequent provision would have imposed an unrealistically heavy economic burden on the buyers. It was then better for the buyer to have INDECO build it and include it in the total loan to be paid in 18 years.

Summarizing, for "supports" to be acceptable within the context of INFONAVIT, they would have to present advantages in terms of cost. The support structure proposed in this study appears to be expensive because of the seismic and soil conditions, and the cost of housing technology in the country. An affordable "support" would be a wall-bearing structure, with limited flexibility. Under those circumstances, there are no obvious cost advantages in the implementation of supports. One advantage, however, is that the flexibility of supports, even if limited, would provide a variety of floor space to members of the working class that are worse off. Finally, research on construction techniques and methods, like the one presently carried out in the SIPROVI Project, could be useful in making clear the relationship between cost and "flexibility" of supports.

Implications for standards

Some of the issues referred to in the previous section are closely related to standards. Less flooring, less surface or less walls mean lower standards. This section deals with the standards of the "detachable units", that is, what materials and building systems could be used in the construction of "detachable units" either by the dweller or by a developer.

During the interviews, INFONAVIT officials expressed their fear about building "supports" that may never become more than slums, similar to those shanty towns that never consolidate. Their concern focused mainly on the self-help actions which would result from the provision of "unfinished" dwellings.
Two main preoccupations surfaced: first, that the materials used for the internal completion or modification of dwellings were not appropriate, given a specific structural design of the building—in particular the use of stone or other heavy materials, and second, that dwellings might never be completed, and if so, that dwellers might use cardboard, paper or other very low-standard materials.

These observations seem to be relevant if the design of the "support" was likely to be implemented as "open" or "flexible", as it was suggested in the design showed to INFONAVIT officials. However, as I pointed out in the previous section, a feasible "support" structure would have to have very few and small openings besides doors and windows. Thus, it seems that neither the weight, nor the type of "detachable units" selected would be very significant with regards to the overall cost of dwelling. The case of Colonia Guerrero shows that clearly. Most partitions ("detachable units") were made using either furniture wood, or standardized elements such as doors. The reason is that many of those elements are already in the market. A custom-made wooden partition would add a touch of decoration, and also be the most efficient use of a small space (even if "unfinished", the amount of space that people earning the minimum could afford is small; approximately 40 to 60 sq. mts.).

If the flexibility of the "support" is to be used in order to provide different space arrangements, but dwellings are to be finished by the constructor, it was recommended that the "detachable units" were made of traditional non-sophisticated materials. Some officials observed how INFONAVIT's first housing schemes provided some flexibility with partition walls made out of board, which were, nevertheless, rejected by the users because they felt they were not good enough or strong enough.
Similarly, some of these schemes had pre-fabricated plexibaths which were also strongly opposed by the users. One can conclude, then, that given the type of "support" that could be implemented, "detachable units" are recommended to be of a standardized size and made of traditional non-sophisticated and inexpensive materials.

Financial Implications

This section deals with the possibility of financing supports given the lending system and regulations of INFONAVIT (and other public housing agencies).

INFONAVIT's system of credit has already been described in Chapter 2. There, it was mentioned that those workers registered in INFONAVIT have access to a number of different credits (to buy or repair a house, etc.). Therefore, in principle, if a worker registered in INFONAVIT wants to buy a piece of "support", there is no objection. This seems also to apply to other public housing agencies (FOVI, INDECO, FOVISSTE and FOVIMI). An example of this is Colonia Guerrero, where some individuals were originally financed by INFONAVIT, and thereafter by other (FOVI and FOVISSTE) institutions that gave them loans to finish their dwellings. Not only individuals, but also groups, seem to be able to acquire a "support" structure financed by INFONAVIT. Such would be the case of an "external promotion" where a group would like to buy a "support" to be personalized and finished by each individual (one of the first examples of an "external promotion" was Colonia Guerrero). In that case, INFONAVIT would require the "support" to be built according to its standards as well as retain some control over the standards of the "detachable units". Colonia Guerrero was a case in point.
Management Implications

Finally, under this section, we shall look at the question: is there anything attractive in the use of "supports" for INFONAVIT, in terms of management?

INFONAVIT is perhaps the only case of a public housing institution which gives the user total control of the administration and maintenance of the housing scheme. Most government housing institutions keep the administration and maintenance of the dwellings until loans are paid back. By contrast, INFONAVIT gives title of ownership to the worker immediately after the dwelling and credit have been assigned. This makes INFONAVIT only a management and administrative advisor. In practice, the idea of self-management is not easy to implement, so that INFONAVIT has been required to participate actively in those functions through its Department of Social Promotion. In fact, the problem of self-administration of housing schemes has been such that INFONAVIT is considering changing legislation, among other alternative solutions.

In the case of Colonia Guerrero, no management or administration advice was required from INFONAVIT. This might be explained by the fact that it was a co-operative, already organized before the completion of the project. On the other hand, based on the information from the interviews with some of the co-operativists, it seems that the idea of individual participation in the design process made possible by the use of "supports", facilitated their consolidation as a group and their appropriation of the design. All this seems to have resulted in users' closer identification with the housing scheme, which later facilitated its administration and maintenance.

Presently, given the now generalized practice of "external promotions", the previous conditions seem to apply. A union leader or a developer, already in contact with a community or with a group of individuals, presents INFONAVIT
with a housing package. Such a package may include a greater or lesser degree of involvement on the part of participants in the design process, and may, perhaps, eventually facilitate individuals' involvement in the management and maintenance of their housing scheme, with the subsequent advantages or disadvantages for the agency involved. However, given user acceptability of the housing which is presently provided, the possibility of developers or union leaders promoting larger user participation in the design process seems unlikely.
CONCLUSION

The purpose of this study was to highlight the implications of implementing the "support" idea in the Mexican context. Generically, it is a study of the implementation in Mexico of a housing idea developed in The Netherlands. Therefore, the "support" idea and the basic assumptions behind it, as well as their level of specificity to the context where they were generated, were dealt with in Chapter One. Chapter Two analyzed INFONAVIT as the particular context where the idea would be implemented. This included INFONAVIT's relative importance in national housing production, as well as its history, goals, organization and structure. INFONAVIT was compared to other public housing agencies wherever possible. Chapter Three presented the case of Colonia Guerrero. Finally, Chapter Four presented the analysis of the implications the implementation of support designs in INFONAVIT, generalizing to other agencies.

Chapter One concludes that the "support" idea is largely bounded to the context (The Netherlands) and the profession (architect) of his originator (Prof. J.N. Habraken), questioning from the outset the extent of its applicability in countries as different from The Netherlands as Mexico. Habraken's main concern is the decay of the physical environment brought about by the introduction of mass housing. Mass housing destroys what makes a healthy environment -- the "natural relationship" between dwelling and dweller -- that is, the possibility that space be personalized, appropriated, and transformed by the user. "Supports" are introduced as the means to restore such a relationship. "Supports", therefore, address a basically qualitative notion more than a quantitative one. In other words, the problem is not access to mini-
mum space but the characteristics of that space. It is therefore an architectural solution, implemented with the use of the existing Dutch technology: "support" structures made of reinforced concrete (perhaps pre-fabricated) and "detachable units" to be industrially produced very much like motor car parts. This chapter finally indicates that neither the problem (environmental decay), nor the diagnosis (destruction of the "natural relationship"), and even less the technical means for solving it, have a close relation to developing countries.

Chapter Two supports the first statement, in particular for INFONAVIT, and to a large extent for Mexico as a whole. This chapter first indicates that government housing accounts for only 18% of the total production of housing in the country. In fact, 65% of the population still houses themselves "informally". INFONAVIT is the leading government agency (in terms of assets, credit conditions, housing programs, costs, etc.), and is therefore highly representative of the prevalent government housing ideology which promotes a middle-class housing image for economic and political reasons involving the interests of labor, government and private enterprise. It represents a typical image of housing imported from developed countries in the demagogic effort of government to show modernization. Moreover, it determines housing practices in which supply is inversely related to demand in favor of the less poor among INFONAVIT members. This practice makes access to housing very scarce and transforms the housing provided into a precious and miraculous gift.1 Finally, housing in Mexico is built with traditional designs and technology for economic and political reasons, mostly that of creating jobs and

1. Indeed, during the time that the computer selected beneficiaries, getting an INFONAVIT house was compared to winning in the lottery.
saving on capital. Obviously, this housing situation is strikingly different from that which generated the support idea, and its complexity goes beyond the realm of architecture. When the problem is the structural scarcity of housing perpetuated by the social system, access to a dwelling is the first priority, and its appropriation and personalization will follow, although in a different way than Habraken suggested.

Chapter Four indicates from the outset that "support" implementation has to be looked at in a context where housing programs are decided on economic and political grounds and where the user has little to say. It is a context where the user is less interested in saying something than in having access to a dwelling that is, after all, the best offer low-income groups can get. In such a context, and given the prevailing "housing ideology" (middle-class type), the "support structure" which I propose do not seem politically acceptable to INFONAVIT officials. From my own speculation about a middle-class type support, it appears that it might be politically acceptable, although neither its need, nor its advantages would seem to be obvious to users or officials. This, however, should be tested out. To be acceptable, a "support" would therefore have to present cost advantages. A low-cost "support" would be a wall-bearing structure, with limited flexibility and "unfinished". Under those circumstances, there are no obvious cost advantages in the implementation of supports. However, one advantage is that the flexibility of "supports" might make it possible for the lowest income group among INFONAVIT members to have access to less than minimum floor space (if acceptable to INFONAVIT officials). The limitations of a wall-bearing support as well as INFONAVIT regulations, reduces "detachable units" to a few elements such as doors, closets, etc., considerably altering Habraken's original vision. Those elements are recommended to be of traditional non-sophisticated and inexpensive materials.
Finally, if the Mexican version of supports was accepted (case of Colonia Guerrero), most government housing agencies could finance their implementation. Also, if such implementation involved user participation, advantages in the management and maintenance of those projects are to be expected (case of Colonia Guerrero). However, given the structure of the prevailing "housing ideology" the likelihood of INFONAVIT implementing other projects like Colonia Guerrero seems small.

One may conclude that the idea of introducing "supports" into public housing, no matter how powerful and appealing it may appear in its own context, or no matter how attractive to professionals from different contexts, seems to have little impact among those who shape housing policies in INFONAVIT and in Mexico in general. There is nothing inherently wrong with the idea; it is just that ideas can hardly be disassociated from the context and the time which have generated them. Therefore, the applicability and attractiveness of a housing idea when transferred from a developed country to a developing country, is likely to be questionable. By now, the structural differences between developed and less developed countries have been well discussed and amply documented, as they have also become evident in this study. We found that housing ideologies for The Netherlands and Mexico differed, and that both had an underlying logic which responded to different power and economic relations. These, in turn, serve individuals with different priorities and for different reasons, and are implemented through different (technical) means.

Nevertheless, the analysis of the possible implementation of supports in Mexico has brought up a number of issues which, in themselves, should be regarded as positive outcomes of the idea. The analysis has made evident the prevailing housing ideology in Mexico which serves interests other than those of the houseless. It has also shown an ideology which serves and is imposed...
by the few in the name of modernization, and social justice which disregards 
the creativeness and power of Mexican human resources, and which disregards 
the potential of the organizational and participatory features of the support 
idea as implemented in Colonia Guerrero for the provision of low-income hous-
ing.

One could think then, that if the prevalent housing ideology were to 
change² and people's housing initiatives were to be capitalized the "support 
idea" is there to be used and learned from, although more as it was transla-
ted for the Colonia Guerrero than as originally presented by Habraken in 1961.

Thus, powerful ideas like "supports" should not be disregarded a priori 
because the context in which they have been successful is different. On the 
contrary, they should be analyzed and serve as a means for questioning the 
prevailing housing ideology. Moreover, they should serve as sources of in-
spiration of possible solutions that would nevertheless have to be produced 
locally.

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² Although this is hardly likely to happen because a housing ideology under-
lies the logic of the country's political and economic structures, one can 
think of a change in the power relations of the various interest groups 
controlling public housing agencies (e.g. INFONAVIT), which could result 
in a different policy where self-help housing, of the support type, could be promoted.
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