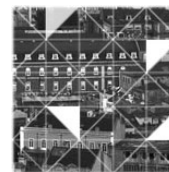

CIDADES, Comunidades e Territórios



Order in progressive construction:

Manifestation based on housing in two *barrios* (slums) of the city of Caracas

Andres Zambrano¹², Centro de Investigación Social CISOR, Caracas, Venezuela

Abstract

In Venezuela, the name of “*barrio*” is given to the housing agglomeration set without any city-planning order on a land area that, most of the times, has been illegally occupied. In the *barrio* zones it is the family that undertakes, from the beginning, the gradual construction of its house, without any intermediary and with scarcely qualified construction workers. This dynamic occupation and following house construction is part of many Venezuelan cities’ growth. In this context, featured by the absence of city planning and lack of building control, is it possible to see any evidence of housing progress? The answer to this doubt is developed in the following paper. With a sample of 251 houses, located at two *barrios* of the city of Caracas, a way of proceeding was set for the housing construction’s progress, both under its living setting and in the structural quality. Both results offer the manifestation of an order in progressive construction of housing at *barrios* located at mountainous lands.

Keywords: *Barrios*; Slums Housing; Progressive Construction; Living Disposition.

Context Setting

The efforts in studying unregulated urban settlements, in Venezuela known as *barrios*, are wide and long standing;³ the same applies to government efforts to intervene in this phenomenon.⁴ This is evidenced in a varied bibliography on the subject, a documentation where one finds characterizations, explanations and interpretations of the *barrio*. The points of view on the subject are explained at length starting from conceiving it as a

1 andresviana@gmail.com.

2 This article was finished writing in July 2012, and is the result of the study “*La construcción auto-gestionada. Estudio sobre el consumo de materiales para la construcción y el equipamiento de la vivienda en zonas de barrio*” (Self-managed construction. A study on the consumption of materials for the construction and furnishing of housing at slum zones) at the Centro de Investigación Social CISOR, in 2008. My gratitude to Alberto Gruson and Emma Pérez de Ghinaglia for their conceptual guidance, to Henry Moncrieff, Carlos Santos and Fernando Blanco for the fieldwork’s supervision. Irene Valor gave her support in the databases’ creation and Cristina Zambrano did the drawings of the housing’s living configuration. The photos were provided by Henry Moncrieff. Finally, comments by Laura Tovar were valuable when reading the text’s first versions.

3 The existence of remotely dated documents has been identified, for instance Banco Obrero (1952), *La vivienda popular en Venezuela* (Popular housing in Venezuela). See also L.R. Plattier (1968), *The view from the barrio*. The latter is an ethnographic study of the *barrio*’s housing development process of the *barrio* of La Laja, located in San Félix, Ciudad Guayana, State of Bolívar, at the starting point of this city planned by Corporación Venezolana de Guayana in Venezuela’s interior.

4 The creation of Banco Obrero in the year 1928 is a point of reference for government initiative in the theme of housing. Historical references of intervention initiatives in the city of Caracas may be seen in J. Martín (1992), “Vivienda popular e iniciativa municipal en Caracas” (Popular house and municipal initiative in Caracas), 1908-1958 “o como algunos pioneros no estaban equivocados” (or how some pioneers were not wrong), in (VV.AA.), *La cuestión de los barrios* (The *barrios*’ issue).

consequence of a general exclusion or marginalization situation of certain sectors of population in a specific collectivity, which occasionally is qualified as industrialized and modern, a marginalization mostly shown in urban places; going through the socio-demographic characterization of its inhabitants, in phenomena such as birth rate, fecundity and death rate, migration, educational level and occupation; up to defining the *barrio* through the living experience of its inhabitants, the community's symbolic limits, the feeling of belonging to a territory and, on occasions, praise and exalt community simplicity and solidarity attitudes. These are appreciations sometimes having an urbanizing feature, other times anthropological or psychosocial, frequently linked to themes seeking to characterize the formation, existence and day-to-day life of the people in the *barrio*.⁵

In this paper the focusing limits are marked by issues linked to the management by the home in building the house in which to live and, in fact, where the people live while the building process goes on: it is a strategy facilitating the family cycle's development in a house being deemed as the property of those managing who work, in spite of the fact that the land where it is set may have been invaded. Thus, the construction process begins sometimes under difficult conditions due to the appropriation occurred by the family of lots owned by third parties, whose names are unknown in most cases. In the new *barrios* or in those whose boundaries grow, the lot's appropriation is not a simple task; there may be successive confrontations and eviction intents between the group of people and the local authorities, on top of the complaint by those who live close to the invaded lot. As time goes on, the lot's definitive appropriation could be solved by means of links of those invading with government officials tolerating the invaders (Pérez and Gruson, 1976). In spite of this illegal situation, the terrain's appropriation will end with the lot's delimitation and the shack's construction, which safeguards the holding of the space to be built. The house's self-production process does thus begin (Greene and Rojas, 2008: 89).

On top of the problem appearing with the matter of the title on the land, there are other adverse conditions brought by the work performed by the family building its own dwelling in a *barrio*: insufficient family income, the lot's inadequate disposition, the lack of city-planning, the scarce technical skills of the manpower involved with the work's construction. These, among others, are elements shaping a context contributing to the appearance of certain constructing logics.

Dedicated literature on the theme is in agreement when distinguishing three kinds of houses' self-construction: 1) family self-construction, 2) hiring of masons and foreman, and 3) the mixed form in which it is set through the combination of the two former ones (Rosas, 1987). Self-construction is a form that is observed, mostly, at initial stages of the house's construction, hence, once this moment has been overcome the family rather self-manages the construction, and if the user family participates in the construction it is mainly as the work's assistant and coordinator. At this moment one observes an important relationship of the user family with the mason, seeking to improve the construction's quality. This relationship leads to the appearance of a work crew, and its nature will depend a lot on the complexity of the work to be performed.

The house and the space it takes are constantly the workshop for progressive construction aiming at improving the work. That is the feature best summarizing the aforementioned process, and it is as the authors dealing with the theme assert that the house is seldom wholly built as from the starting point, 10, 15 or 20 years may go on until the house is no longer the object of structural modifications. During that time, one may distinguish two complementary processes in the construction's progressiveness: the consolidation or hardening of the structure, and the growth or increase of the house's area. Both will be explained in this paper (Villanueva, 1992).

One must bear in mind that, occasionally, the investment made for the house by the family does not ensure an improvement in its quality inasmuch as what has been built may be lost, either because the construction has been

⁵ In literature one finds some examples of this variety of approaches: T. Bolívar (1979), *Barrios de ranchos y reproducción de la fuerza de trabajo en Venezuela* (Barrios of shacks and reproduction of labor force in Venezuela); A. Lovera (1984), *La vivienda en los barrios. La agonía de la auto-construcción* (Housing in the barrios. The agony of auto-construction); B. Sornes (1985), *Marginalidad en Venezuela*, (Marginality in Venezuela); S. Hurtado (1991), *La definición socio-política del barrio urbano. Diagnóstico explicativo de la rehabilitación de los barrios en el caso venezolano* (Socio-political definition of the urban barrio. Explicative diagnose of the barrios' rehabilitation in the case of Venezuela); E. Wiesenfeld (1998), "Entre la invasión y la consolidación de barrios: análisis psico-social de la resistencia al desalojo", ("Between invasion and consolidation of barrios: psycho-social analysis of resistance of eviction"), *Estudios de Psicología* 3 (1), pp. 33-51.

defective or by the lot's instability. Hence, it is important to consider the construction techniques, the materials and the forms of procurement, on top of the tools being used during the several stages of the house's construction. Such information helps evidencing the problems' sources and the house's deficiencies; from inconvenient lightning and ventilation, going through the structure's strength, up to piping and electric wiring. Even with deficiencies and limitations, the families who produce their house by themselves are willing to improve it and make it more comfortable and habitable, and this is the tangible expression of the meaning given by the families to their dwelling. This is a perspective aimed at understanding the concept that the family has of the dwelling, the valuations they attribute to it, the interior's physical organization, the spaces needed, the understanding of privacy and the common spaces.⁶

During the progression of the house's construction, the quality of the links to public services may vary. With greater frequency these links may be precarious at the work's beginning and the advance of its quality will depend also on how accessible the urban services may be. Illegal connections to a local aqueduct and to the power network are common, rudimentary joints to sewage water system or improvised drains and without any connection to sewage system. Moreover, in order to have access to the house, it is the neighbours who build access ways, stairs and paths, most often precarious ones. This framework of connections and access ways is not only linked to the house's structure, it also features the urban territory's construction process (Bolívar, 1988).

Once a *barrio* is dense, the reining irregularity in the house's construction quality of connections to public services leads to a habitat hardly able to be intervened when seeking its integration to the regulated urban network. In the proposals of architectural and city-planning strategies there are ideas combining *barrio* habilitation processes and population resettling; the latter in places where there is no way to improve the habitat's or dwelling's conditions, or where the settlements are recent⁷. In the ideas on the *barrios'* intervention process it has always been interesting to bear in mind the considerations on how the inhabitants organize themselves in associations in order to have access to programs, mostly governmental, of *barrio* habilitation and housing improvement. The organization may result from the will of the community, as well as from government requirement in order to provide the people's access to public resources. Commonly, this last experience is framed by participation and self-management ideas joined with technical assistance; the latter is provided by teams formed by professionals hired by the government, who give support to the organized community in order to carry on with the housing rehabilitation or that of some *barrio* zones.

Finally, the densification of the occupied lot due to the increase of self-produced housing contributes to the general urbanization process and to the appearance of an informal real property market (Echeverría and Chourio, 2000). Accordingly, the *barrios'* growth ends up making itself part of a city's growth process; it is not a previous stage of formal city-planning growth but it is rather something that evolves simultaneously with it at those places of the city where controlled urban development fails to appear due to the different limitations.

In order to complement this context of themes starting from those focusing on a *barrio* house's construction, there appears a panorama from the point of view of census data of the year 2001. In Table 1 we notice that, in 2001, for each 100 houses in the country, 53 were located at *barrio* zones and, within these, more than half (54%) required improvements, that is to say, they were still being built. One should warn that the "need for a new dwelling" by itself does not refer to housing under bad conditions, but rather one may be dealing with overcrowded homes.

6 An example can be found in E. Aponte (1991), *Un estudio cualitativo para la comprensión del significado de la vivienda en una comunidad específica* (A qualitative study for the understanding of the meaning of the housing at a specific community. El Nazareno barrio, Casalta 3).

7 Some examples are found in: B. Granotier (1977), "Ranchos" et politique de relogement au Venezuela ("Ranchos" and resettling policy in Venezuela), *Développement*, n.º 18, pp. 52-56; Fundación para el Desarrollo de la Comunidad y Fomento Municipal (1978), *La vivienda en las áreas marginales urbanas. Criterios para la interpretación del problema y orientaciones para el diseño de programas* (Housing in urban marginal areas. Criteria for the interpretation of the problem and guidelines for the design of programs); Instituto Nacional de Vivienda (1984), *Tres programas para familias de menores ingresos* (Three programs for families with lower income); J. Baldo and F. Villanueva (1995), *Un plan para los barrios de Caracas*, (A plan for the *barrios* of Caracas). See also: I. Rosas (1991), "Por un Sistema Nacional de Asistencia al Habitat de los pobladores urbanos de bajos ingresos" (For a National Technical Assistance System to the Habitat of the urban people with lower incomes), in (VVAA.), *La cuestión de los barrios* (The issue of *barrios*); and T. Bolívar (2006), "Habilitación Barrio Julián Blanco" (Barrio Julián Blanco's habilitation), in (VV.AA.), *Barrios en Transformación. Prácticas de rehabilitación. Revitalización* (Barrios Being Transformed. Rehabilitation practices. Revitalization and resettling).

Table 1. Housing diagnosis per census segment - Venezuela (2001)

<i>Type of census segment</i>	Total housing in the country		House's condition, with regard to home (%)			
	Number	%	Adequate	Needs Improvements	Needs New house	Total
<i>Barrio (a)</i>	2.752.731	53	34	54	12	100
Historical/ Central Zone	401.493	8	59	38	3	100
Urban complex (b)	1.517.585	29	69	29	2	100
Rural sector (c)	538.168	10	13	55	32	100
Total Venezuela	5.209.977	100	43	46	11	100

Source: Instituto Nacional de Estadísticas INE (2006), Censo general de población y vivienda 2001, Self-elaboration.

Notes: (a): includes consolidated and not consolidated *barrio*; (b): includes State and private built urbanized areas; (c): includes isolated and disseminated sectors.

The Study's Objective

Differently from housing solutions or offers of finished houses commonly acquired through the loan and mortgage system, the construction of the house in the *barrio* is done in a self-managed manner by the family, there are no intermediaries in the work's management. Homeowners manage the real estate constructions at the *barrios*. This management is done progressively, where the initial construction commonly turns out to be a house, sometimes more, sometimes less precarious. Built with unsuitable materials, the house may be small for the number of family members and it may be located at unhealthy places, ones with difficult and inadequate access ways. Thus, self-construction is the most frequent option at this initial moment. The family deems itself unsatisfied with what it initially built, and with its own effort it keeps improving the house as time goes on. Now then, on a second moment, it is common that the family self-manages the construction, frequently hiring manpower suitable to what it seeks to do. One then observes a relationship between the family and the local masons who dedicate themselves to the construction of housing at the *barrio*. The study of this construction dynamics is this paper's interest; the processing of data and their subsequent review offer the possibility of identifying an order in the housing progress in spite of the fact that the *barrios* are featured by the absence of urban planning and non-existing civil construction control.

The input condition to include a house in the study is that the family living in it is its owner, so that he may make (or has made) investments in construction. Two concepts were considered for the choice of housing to be studied: (1) the home is "that formed by one or more persons, with or without family links, living together in the same dwelling, sharing the same services and maintaining economic dependence through common expense exclusively in order to eat" (Instituto Nacional de Estadística, 1999: 6); (2) the house is deemed as the structurally separated living quarter (it is a unit by itself), with independent access (from the public road or common circulation area), and it shows walls and separations allowing to distinguish it from another building (Ibidem). It is important to consider the independent entrance in order to avoid confusion with homes living in different houses.

Data Collection and the Analysis Method

The selection of houses was made in the city of Caracas and, accordingly, the surveying work at the homes, too. Two localities were chosen in which the surveys were distributed according to the sample's design: (1) homes that are beginning their house's construction at the Colinas del Pinar *barrio*, and (2) homes with houses whose construction is in course, or has virtually been finished at the La Vega *barrio*.

Colinas del Pinar is the name that has been given to a recent grouping of houses located at a steep section of land in the city of Caracas. The day of the lot's invasion sets the date of this *barrio*'s foundation: 27 May 2006. Colinas del Pinar is found at an urban framework of the city of Caracas, it is located at parish of El Paraiso, at the fringe of Antonio Guzmán Blanco Avenue, commonly known as Cota 905. On the date of the study, data were gathered for almost 200 dwellings; these have been built on a land whose potential *barrio* growth is scarce, first due to a topography featured by an inclination angle that does not facilitate construction, then North and Northeast of Colinas del Pinar there is an urban set of buildings; to the East, there is a consolidated *barrio*, and, South, one finds the club of a Caracas sports team.

Picture 1. Current location of the Colinas del Pinar *barrio*



Source: Google Earth. Viewed in 2013.

The *barrio* of La Vega is the other place where work was done. It is hard to locate this *barrio*'s date of creation; inasmuch as the La Vega sector was part of a sugar cane plantation old *hacienda* since the 18th Century and, in all events, it is estimated that La Vega may be deemed as an urban *barrio* since the first decades of the 20th Century, when the city of Caracas already encompassed these lands. Currently, its magnitude is considerable, and as a matter of fact, in terms of administrative socio-political division, it is a parish of the Capital District. In 2008 its population was of 143,718 inhabitants, according to population projections of the National Institute of Statistics; in view of this population size and its spatial dimensions, one may affirm that La Vega is not just a *barrio*, but that it is rather formed by a variety of adjacent *barrios*. The sectors of La Vega where work was done were: El Petróleo, San Miguel, Las dos Rosas, La Amapola, La Ladera, San Martín and la Entrada principal. An aerial shot of the *barrio* follows, in which one considers the above-mentioned *barrios*, taking note that, in view of its dimensions, the whole of La Vega is not included in the photo.

Picture 2. Partial photo of the La Vega barrio



Source: Google Earth. Viewed in 2012.

After visiting several zones of the *barrios* in the city of Caracas, the choice of the formerly mentioned *barrios* is due to the fact that: (1) in them one finds houses in the three stages of construction; (2) in these houses one may

find mononuclear and plurinuclear homes (the latter mostly at La Vega); and, (3) these *barrios* are easily accessible, both by vehicles and pedestrians, and one may work in them without great risk.

The sample consists of six variables or cases constituting the universe, those resulting from crosschecking two types of home (mononuclear and plurinuclear⁸) with three kinds of houses (construction beginning, in course and finished⁹). The surveys' distribution among the universe's variables does not answer to a statistical representation calculus in spite of the fact that the universe of houses could be known through the census data (already obsolete for our purposes). The representation, more than quantitative, is qualitative, that is to say that it seeks to consider the different qualities forming the study's universe; for such reason, the fundamental procedure in order to establish the sample is to encompass the whole of the criteria set in the technical considerations as they are distributed in the surveying.

The surveying was done to the head of the home, mostly housewives, since they were found at home during the day. Once the places for the fieldwork were selected, the form of distributing the number of surveys was established according to the formerly mentioned sampling parameters (types of homes and type of houses). It was decided to do 250 questionnaires, a figure due to the available resources. Finally, 251 completed questionnaires were obtained. The planned and obtained results after surveying are described as follows:

Table 2. Sample distribution

Subject to surveying according to dwelling's constructive moment	Planning		Obtained	
	Type of home		Type of home	
	Mono nuclear	Poli nuclear	Mono nuclear	Poli nuclear
Dwelling in the beginning of construction	57	20	71	12
Dwelling in the course of construction	57	27	55	34
Virtually finished dwelling	57	32	50	29
Subtotal	171	79	176	75
Total	250		251	

Sources: homes' data bases at *barrios* La Vega and Colinas del Pinar. CISOR, 2008.

⁸ It is important to distinguish among them the family nucleus, where the family relationship is essential. The nucleus is fundamentally defined as father and mother, with the single children living with them, then adding the restrictive variables (a couple without children; or a single parent nucleus, where one of the parents lives alone with some single child) or widened (another person added to the nucleus). There may be, then, homes with one or more nuclei; an example of the latter is a couple with one child (forming a nucleus), who lives in the same house with the couple of grandparents of the child (a couple forming another nucleus) (Gruson, 2004: 4-7). The homes with one nucleus are known as mononuclear and the homes with more than one nucleus are known as plurinuclear.

⁹ For the purpose of the sample, the houses were selected discriminating three large stages in their construction process bearing in mind the quality of their structure with regard to the predominant material in walls, roof and floor. The stages are: 1. House initiating its construction: the house's floors are of earth and/or any other similar material: the walls are of "bahareque" (baked mud), adobe, plates or other similar material; the roofs are of zinc plates, "acerolit" (specially treated steel plates), planks or similar; 2. House in the course of construction: the house's floors are made of cement, there are block walls or untreated/ treated brick, and the roofs are of cement fibre plates, light cement or clay blocks; 3. Virtually finished construction house: the house has granite, mosaic, vinyl floors, the walls are made of blocks or treated brick, and the roofs have tiles or are flat. These criteria are a simplification of the Housing Structural Quality prepared by CISOR from data of the Survey of Homes by the National Institute of Statistics, INE. The original work is found in A. Gruson (1996), *Vivienda y habitabilidad. Diagnóstico de la situación en Venezuela 1995. Realizado a partir de la Encuesta Hogares* (Housing and habitability. Diagnose of the situation in Venezuela, Done from the Housing Survey).

Moreover, sketches of the structures of 245 houses were drawn, from which a database of dwelling environments was designed. The resulting distribution in both parameters of the sample is the following:

Table 3. Distribution of dwellings with sketches obtained in sample

Dwelling's constructive moment	Type of home		Total
	Mono nuclear	Poly nuclear	
Dwelling in the beginning of construction	71	12	83
Dwelling in the course of construction	54	33	87
Virtually finished dwelling	48	27	75
Total	173	72	245

Sources: homes' data bases at barrios La Vega and Colinas del Pinar. , CISOR 2008

The distribution of the surveys under the criteria for the sampling indicates that more diversity has been considered between the houses and homes living in them. Both the data obtained from the home surveying and those from the sketch of the house's structure were used and processed with SPAD (Système Portable pour l'Analyse de Données) software. The data analysis was performed with descriptive statistics and multivariable factorial analyses and cluster analysis. The last two statistical calculi were useful in the shaping homogeneous groupings at the internal level and heterogeneous when compared with the other groups being formed, a procedure allowing: 1) to summarize the diversity of the field-collected data and 2) to set an order helping to interpret the obtained results.

Two processes feature the house's progress: the increase of the number of environments and the improvement of the structure's quality. In order that both processes could be ordered by means of the above-mentioned statistical calculi, a previous task had to be done. In order to convert the sketch of the 245 into data to be entered into a database, use was made of the connections existing between the different environments of the house, that is to say, those parts that are connected by a door; for example: hall with kitchen (then one obviates kitchen with hall, since this connection has already been recorded in the database). All possible connections were established between the environments found in the house and they were recorded as dichotomised variables (yes/ no). The good thing about using the "connection" variable is that it allows to describe an order in the environments' disposition and to identify the house's central environment, that is to say, the one through which one connects (or goes through) to most of the available environments. The cluster analysis formed groups differing by the amount of present connections, that is to say, the number of environments available in a house; thus, 4 living configurations were observed featuring houses wider and more elaborated than others.

In order to analyze the quality of the structure of the 251 visited houses, all and each of the houses' predominant materials in walls, roofs and floors were formulated as dichotomy variables (for example presence/ absence of cement on the floor), the same was done also with the connections to potable and waste waters, along with electric power service; inquiries were also made in order to verify if these were embedded or not. The materials

of walls, roof and floor were corroborated in all and each of the 251 visited houses and the order resulting from their correlation (cluster) is linked to a grading of the quality of the connection to urban services, in this case, the presence of electric power and plumbing for potable and waste water. Finally, the different calculated correlations show that one distinguishes other clusters or groupings when considering whether the plumbing and electricity are embedded in the house, which is an indicator of better levels of structural quality. These processes observed a scale of 11 quality levels, which may be reduced to the following 5: precarious, basic, intermediate, advanced and consolidated. The simultaneous progression of the houses' environments and the structure's quality is described in the following chapter.

Order in Progressive Construction

The home must combine opportunities and capacities when seeking to have its house progress both in quality and size of the structure and the suitability of the connection to public services; these are necessary decisions required in order to live in the house; these decisions establish a logic of construction progress. From the data of the homes' surveying and the house's structures sketches a logic has been laid composed by: (1) a progression in its environments including the way to set them, accompanied with, (2) the advance of the house's structural quality. The available rooms were identified and described in order to avoid confusions when giving descriptions of the obtained results. A list of the identified environments of the house follows accordingly:

Ground floor: Where one finds the house's main entrance door. The house's second floor is not always on top of the ground floor, since the houses may have been built on steep lots of land where the edification is widened downwards.

Room: Space between panel walls meant to accommodate sleeping, eating, etc.

Hall: Room meant for recreation, in most cases connecting two environments.

Kitchen: Room used to prepare food.

Dining room: Room used to serve and eat food.

Hall/ dining room: Hybrid area where two conditioned environments converge for the house's members' recreation and dining.

Kitchen/ dining room: Hybrid area where two conditioned environments converge for the house's members' food preparation and dining.

Bathroom: Room meant for personal sanitation, it has a water closet, shower or bathtub. It may be found inside or outside the house.

Main dormitory: Room meant for sleeping used by the heads of the family nucleus.

Secondary dormitory: Room meant for sleeping used by any member of the family who is not the head of the family nucleus.

Laundry room: Room used to launder cloth and linen.

Garage: Used to park autos.

Porch: Place for open-air relaxation, generally found on the house's front.

Patio: Closed space with walls or galleries, in the house, generally left unroofed.

Terrace: Last floor or top of the house, roofed or not, used for several purposes.

Deposit: Room used to store and keep house's objects.

Shop: Room found in the house or house annex used for commercial activity.

The House's Progress

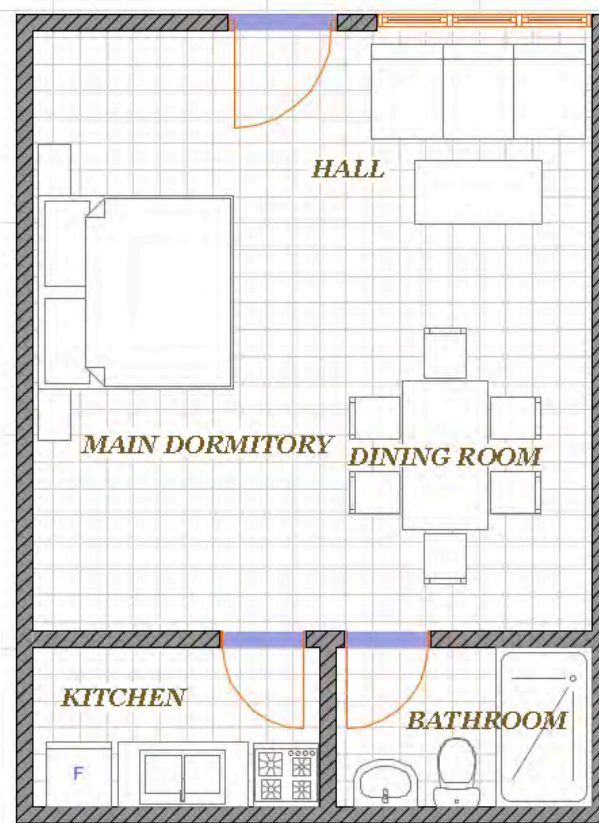
The geometric shape of the lot is (mainly) given by the informal urban settlement resulting from the *barrio's* creation or during its growth, in spite of the limitation that supposedly may arise from it, the homes cause the widening of the house's structure, adding environments, and becoming harder from the use of materials of better quality. The house's progress is evidenced in a series of living configurations allowing them to appear on a

progressive manner, with each configuration being featured also by the structure's quality according to the predominant materials in it. The following text describes each living configuration according to its structure's quality, next to its respective drawing in which the furniture is included for the purpose of illustrating the use of the different environments by the home, besides a photo of a surveyed house.

The house's construction starts with a hybrid environment to be used as a dormitory, a kitchen and dining room with a bath built as an independent environment (the bathroom may be used as a space to wash the dishes and as a laundry). As soon as (economic, spatial and building security) conditions allow it, an environment fit for the kitchen is built. This disposition is considered as an initial living configuration, in which the main room is the dormitory, through which there is access to the house and one goes to the bathroom and kitchen. A variable may appear when the main entry to the house is through a shop then connecting with the dormitory.

This house configuration starts with a precarious structure quality, in which the floors are made of earth or any other similar material: the walls are made of boards or similar and the roofs are zinc plate, steel covered boards (acerolit) or plain boards. The piping for potable water and wastewater is absent or not yet connected to the urban piping system and sewers, respectively. With time the floor is reformed with adequate cement coating, and the improvements in the bathroom lead also to progress in the plumbing, that is to say, with it being connected to the urban system, having the house moving towards a basic structure quality, as depicted in following illustrative drawing.¹⁰

Figure 1. Initial living configuration



Source: Author elaboration.

¹⁰ In spite of the fact that the connections between the rooms are given as the drawing indicates, the house's general shape here shown is merely illustrative as it will depend (among other things) on the terrain's characteristics.

Picture 3. Exterior of a house with initial living configuration and precarious to basic structure quality



Source: *Barrio* (slums) Colinas del Pinar. Photo by Andrés Zambrano.

It is usual that, as a technique in order to add environments and improve the structure's quality, a new house is being built around the initial one and once the former is ready the old one is torn down left interior and the home keeps living at the same place, avoiding cumbersome moving; as an example, the following image has been placed and on it one observes a house with an initial living configuration within a work under subsequent construction.

Picture 4. Progressive construction technique in order to add environments and improve the structure quality

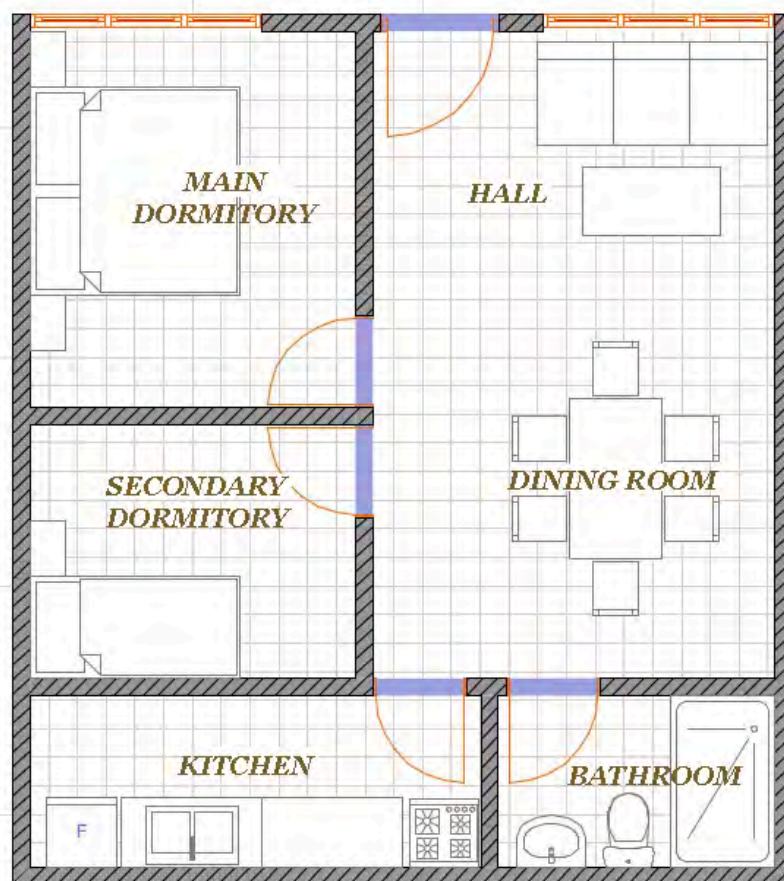


Source: *Barrio* (slums) Colinas del Pinar. Photo by Andrés Zambrano.

As the construction progresses, the main entrance connects to a hall-dining room, an environment becoming central in the house, which allows more privacy to the dormitory. When the hall-dining room is the house's central environment it is because the kitchen, a bathroom and a dormitory are already separately available (each), that is to say that they have walls turning them into independent environments. At this moment, the following step is to build a second dormitory, which allows having a main dormitory (for the home's head) and a secondary one (more frequently for the children). The house still has a single floor and (depending on the lot's dimension) the following variables are given: (1) existence of a patio to which there is access through the hall-dining room and (2) the house's main entrance is through a porch just ahead of, and connecting with, the hall-dining room. One is then in the presence of the house's basic living configuration.

At this moment of the construction's progression the structure is of intermediate quality, which means that the walls are improved resourcing to block and brick, occasionally with finished quality; however the roof is still made up of zinc or partial steel plates. The bathroom is not yet ready since the plumbing has not been embedded and on occasions potable water does not come from the urban service system. See the following illustration for detail:

Figure 2. Basic living configuration



Source: Author's elaboration.

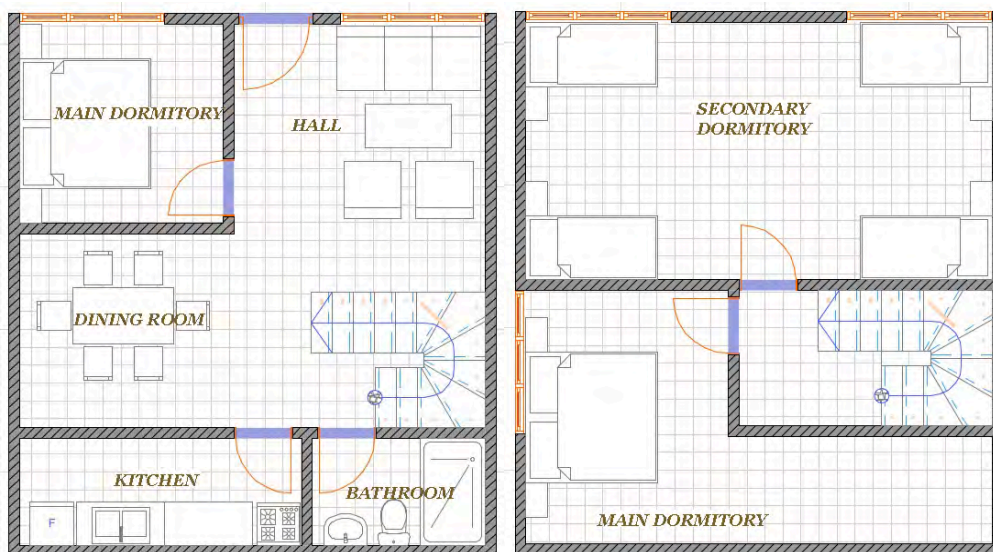
Picture 5. Exterior of a house of basic living configuration and intermediate quality structure



Source: *Barrio* (slums) La Vega. Photo by Andrés Zambrano.

The setting of environments progresses with the separation of the hall and the dining room. Then one observes an advanced living configuration when the hall is the central environment in the house and around it are other environments and with access to them; at this time there are hardly any environments with hybrid function (however, one may still see cases such as kitchen-dining room and surely kitchen or bathroom with a space for the laundry). At this moment other dormitories are built on an upper floor, with the presence of stairs and corridors; on occasions the existence of corridors on the second floor allows for the house's widening when adapting its structure to the terrain's features. It is possible that the space used as porch no longer exists and that it may have been used for the construction of the environments proper to this configuration. In the same manner, the structure is of advanced quality. The roof is improved building it with *tabelón* slabs or light cement, the plumbing's fixation and the electric wiring are predominant; the floor is improved, it is now covered with granite, mosaic or similar. The following illustration is enlightening.

Figure 3. Advanced living configuration (ground and second floors)



Source: Author's elaboration.

Picture 6. Building the second floor of a house with advanced structure living configuration

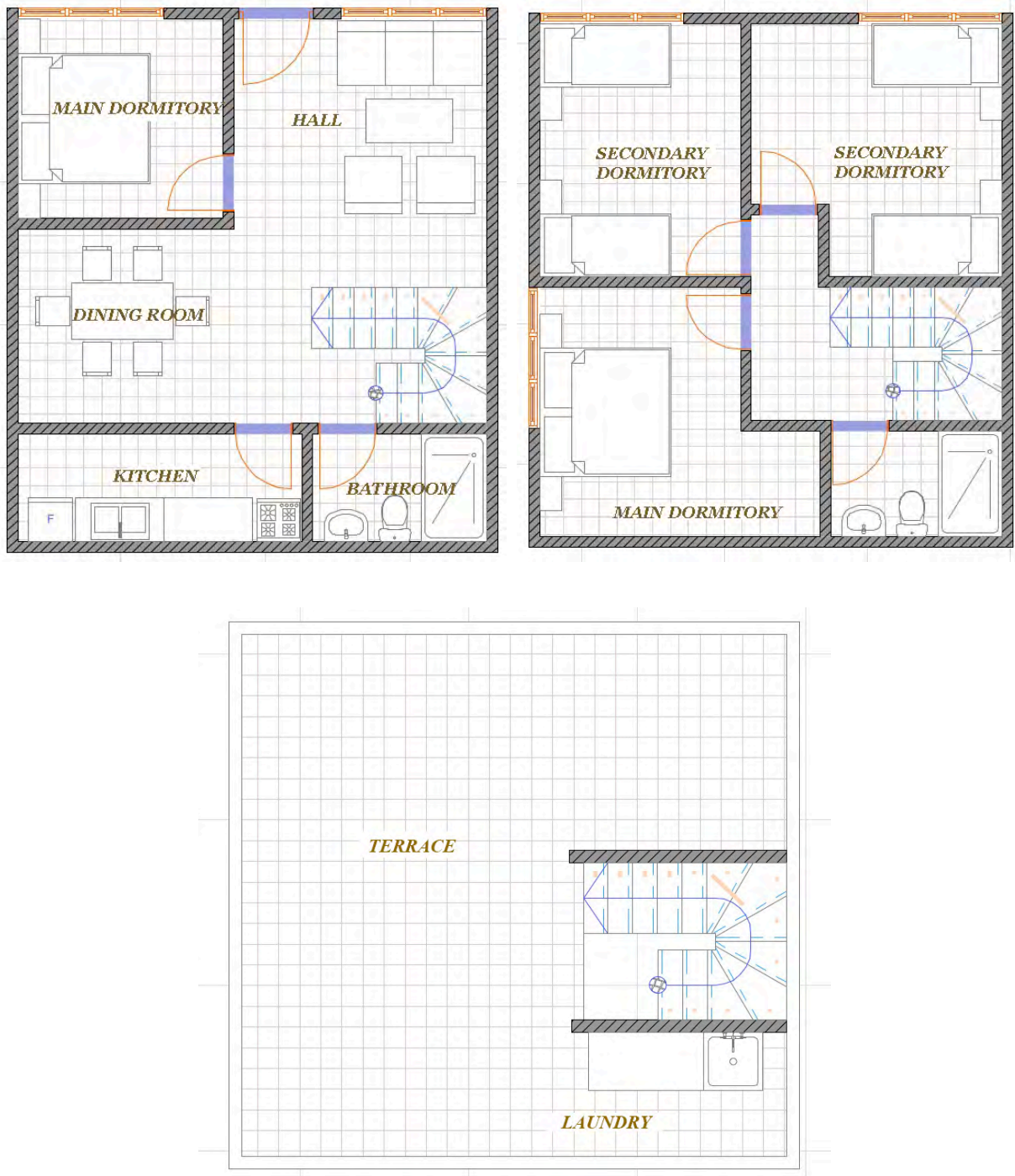


Source: *Barrio* (slums) La Vega. Photo by Henry Moncrieff

The transition to the final stage of progression of the environment occurs when in the second floor, adding to available additional dormitories, one or more bathrooms are built. The trend is that all the dormitories move to the second floor, however, in plurinuclear homes at least two main dormitories were found: one on the ground floor and another on the second. Finally, a laundry room is built as an independent environment on the ground or second floor, and serves, also, as a terrace (allowing for the building of more environments in the future).

The house finds itself then in a (virtually) definite configuration, with a variable in which an extra kitchen and hall-dining room are built, on the ground or second floor, in order to more comfortably lodge a second family nucleus (accordingly this is a plurinuclear home). Assuredly, the structure is of optimum quality, the roof's quality has been improved building it with tile or flat, the walls' structure is solid and culminated, the plumbing has all its connections embedded, as is also the case of the electric service, which is revealed in the upcoming illustration.

Figure 4. Living (virtually) definite configuration



Source: Author's elaboration.

Picture 7. Exterior of a house of (virtually) definite living configuration and optimum quality



Source: *Barrio* (slums) La Vega. Photo by Henry Moncrieff.

At this stage, the construction of a patio, porch, garage, deposit or any other environment is present if the lot's dimensions and the terrain's topography, and the living configuration in which the house is found, allow it.

Conclusions

According to the last census, for the year 2001, in Venezuela, 2,752,731 from a total of 5,209,997 houses were located in *barrio* zones, that is to say, 53 of every 100 and, among these, more than half (54%) required improvements, in other words, they were still undergoing construction (Instituto Nacional de Estadísticas, 2001). In the *barrios* where these houses are located, features such as public roads system for vehicles and pedestrians, public transportation, the disposition of potable and waste water system and their connection to the city's general system, electric power and public lighting availability, gas supply; garbage collection, recreational, resting and sports areas, business services, daily care homes, multiple services communal houses, ambulatory clinics, formal educational centres, and so on, are characterized by lack of organization and city-planning ordering on which to depend. However, the situation is different when focusing on the steps taken by families to improve their house's quality. The houses being studied here made it clear that there is an order in progressive construction, an order where one distinguishes three complementary processes: (1) the structure's consolidation or hardening (Villanueva, 1992), (2) the improvement in the connection to electric power and water (potable and waste) utilities and, (3) the living area's growth or increase.

These three processes shape a progress logic in which one may observe some key indicators. In the first and second processes, the connections' improvement and the plumbing system's disposition (both of potable and waste waters) turn out to be the more illustrating indicators of the structure's improvement, above all its embedding, which means that walls and floors have reached a (practically) optimum level of quality. In the third

process, progress is shown above all by the construction of environments with an independent functionality, that is to say, non-hybrid (which allows the house to go from a configuration to another one, with the hall as the central environment of the house) and, that the dormitories moving to an upper floor. One should bear in mind that the studied houses are found in *barrios* located in mountainous terrain, more or less steep and with high population density, determining a vertical growth of the structure. In spite of the fact that these progress rationales about the structural quality and the house's living disposition were obtained in this study, with an empirical basis, they do not represent any specific case, they seem to be a good composition of a sequence of actions leading the typical *barrio* self-managed house to an almost definite construction status.

Hence, the obtained progression model recognizes how the homes are capable of heading the construction of their house, not only financially, but starting from the decision on how it will progress and how the distribution of spaces will be shaped. What the home lacks is the technical expertise of the civil engineer or the architect, but it doesn't actually require it because the home manages the construction but does not build the house directly. This work is carried out by hired manpower, mostly after the initial stage of the lot's invasion and the setting of the lot's boundaries have been overcome. What the home requires are expert builders, something not too available among those doing public works in *barrio* sectors. A survey done in 2007 among apprentices, masons and work foremen clearly identifies this labour activity and some of its technical deficiencies (Zambrano et al., 2008).¹¹ As an example, among these workers, being able to read the scales on an architectural drawing is a sign of some advanced knowledge that surely implies that the person formerly worked at an enterprise where he communicated with some engineers or architects, all of these not very frequently conditions among those who work building houses in a *barrio*.

The idea of a housing solution starting from the progressive and self-managed construction leads to the home's economic effort project, and this fits with the process of combining expectations and possibilities of the family. The appreciation of this house construction's strategy reminds us of the habitation solution founded on the construction of the "bathroom unit", within the framework of housing construction addressed to less favoured sectors of the population. Here the initial structure set on a lot of land has a basic sanitary setting (plumbing connections for bathroom and kitchen) and a multiple-use space allowing the family to have common and individual activities (dining room, dormitory) (Herrera, 2004), then the family manages its investment capacities and interests in order to allow the progress of the house's structure, implying, also, that notice has been taken of the fundamental problem of urban development (road planning, connection to potable water, sewage and electric power, recreational settings, trade, health, education, among others). The housing construction strategy based on the bathroom unit is within the frame of the idea of progressive urban developments with some historical examples in Venezuela.

REFERENCES

Aponte, E. (1991), "Un estudio cualitativo para la comprensión del significado de la vivienda en una comunidad específica. Barrio El nazareno, Casalta 3", Paper presented to "Encuentro internacional Rehabilitación de los barrios del tercer mundo", 24-29 November 2001, Caracas: UCV.

Baldó, J. and Villanueva, F. (1995), *Un plan para los barrios de Caracas*, Premio nacional de investigación en vivienda, Caracas: CONAVI.

¹¹ The survey was done also in the framework of the study "La construcción auto-gestionada. Estudio sobre el consumo de materiales para la construcción y el equipamiento de la vivienda en zonas de barrio" (Self-managed construction. A study on the use of materials for the construction and equipment provision in barrio zones). In the surveys there is evidence of the fact that the formality in executing work activity and formal education in the occupation is not considered an indispensable requisite in order to do construction work. The fact was reaffirmed when 68% of the 251 interviewed homes disclosed the need to find better skilled builders.

- Bolívar, T. (1979), *Barrios de ranchos y reproducción de la fuerza de trabajo en Venezuela*, Caracas: UCV.
- Bolívar, T. (1998), *Análisis de los diversos agentes intervinientes en el proceso de urbanización de los barrios de ranchos*, Caracas: FAU-UCV, CONICIT.
- Bolívar, T. (2006), “Habilitación Barrio Julián Blanco”, in VV.AA, *Barrios en transformación. Prácticas de rehabilitación. Revitalización y reasentamiento*, Caracas: CYTED.
- Caldera, R. (1975), *5 años de cambio, pacificación y desarrollo en el gobierno de Rafael Caldera 1969-1974*, Caracas: Presidencia de la República.
- Díaz, J. (2007), “Procesos de organización social y su incidencia en la formación del hábitat popular”, Master’s Thesis in Urban Planning at Instituto de Urbanismo, Caracas: FAU-UCV.
- Echeverría, A. and Chourio, M. (2000), “La dinámica barrial y el sector inmobiliario informal en Maracaibo. Apuntes para la reflexión”, *Espacio Abierto* 9, (4), pp. 579-606.
- Ejecutivo Nacional (1989), *Gaceta oficial*, n. 4.085, 4-05-1989, Caracas.
- Fundación para el Desarrollo de la Comunidad y Fomento Municipal (1978), *La vivienda en las áreas marginales urbanas. Criterios para la interpretación del problema y orientaciones para el diseño de programas*, Caracas: Fundacomun.
- Granotier, B. (1977), “Ranchos et politique de relogement au Venezuela”, *Actuel Developpement*, (18), pp. 52-56.
- Greene, M. and Rojas, E. (2008), “Incremental construction: a strategy to facilitate access to housing”, *Environment and Urbanization*, (20), pp. 89-108.
- Gruson, A. (1996), “Vivienda y habitabilidad. Diagnóstico de la situación de Venezuela 1995. Realizado a partir de la Encuesta de Hogares”, Caracas: CISOR.
- Gruson, A. (2004), “Hogar y núcleo familiar en la encuesta de hogares por muestreo de Venezuela”, Paper presented to Segundo Encuentro Nacional de Demógrafos y Estudiosos de la Población (UCAB), November 2004, Caracas, available at <http://www.cisor.org.ve>.
- Herrera, J. (2004), *Vivienda Social Evolutiva y Equipamiento Comunitario*, Santiago de Chile: Universidad de Chile, Facultad de Arquitectura y Urbanismo.
- Hurtado, S. (1991), “La definición socio-política del *barrio* urbano. Diagnóstico explicativo de la rehabilitación de los *barrios* en el caso venezolano”, Paper presented to Encuentro internacional Rehabilitación de los barrios del tercer mundo, 24-29 November 2001, Caracas: UCV.
- Instituto Nacional de la Vivienda (1984), “Tres programas para familias de menores ingresos”, Paper presented to Seminario Mejoramiento urbano integral para grupos de bajos ingresos, 12-17 November 1984, Republica Dominicana: INAVI.
- Instituto Nacional de Estadística (1999), *Manual de definiciones técnicas*, CENSO 2001, Caracas: INE.
- Instituto Nacional de Estadísticas (2006), *Censo general de población y vivienda 2001*, Caracas: INE.
- Lovera, A. (1984), “La vivienda en los barrios. La agonía de la auto-construcción”, Paper presented to Primera jornada sobre la producción de los barrios de ranchos en Caracas, Caracas: FAU-UCV.
- Martín, Juan (1992), “Vivienda popular e iniciativa municipal en Caracas, 1908-1958 (o como algunos pioneros no estaban equivocados)”, in T. Bolívar (Ed.), *La cuestión de los barrios*, Caracas: Monte Ávila Editores Latinoamericana, Fundación Polar and UCV.

Pérez, E. and Gruson A. (1976), *Cómo surge y evoluciona un asentamiento urbano no regulado. Estudio de un caso, barrio Julián Blanco en Petare*, Caracas: Instituto Nacional de Vivienda.

Redfield, L. (1968), *The View from the barrio*, The University of Michigan Press.

Rosas, I. et al. (1987), *Estudio de indicadores de producción y calidad de la habitación popular*, Caracas: IDEC-FAU-UCV.

Rosas, I. (1991), “Por un Sistema Nacional de Asistencia Técnica al Hábitat de los pobladores urbanos de bajos ingresos”, in T. Bolívar (Ed.), *La cuestión de los barrios*, Caracas: Monte Ávila Editores Latinoamericana, Fundación Polar and UCV.

Sornes, B. (1985), *Marginalidad en Venezuela*, Caracas: Fundacomun.

Villanueva, F. (1992), “La vivienda de tipo progresivo”, in T. Bolívar (Ed.), *La cuestión de los barrios*, Caracas: Monte Ávila Editores Latinoamericana, Fundación Polar and UCV.

Wiesenfeld, E. (1998), “Entre la invasión y la consolidación de barrios: Análisis psicosocial de la resistencia al desalojo”, *Estudios de Psicología*, 3, (1), pp. 33-51.

Zambrano, A., Blanco F. and Moncrieff, H. (2008), *La construcción auto-gestionada. Estudio sobre el consumo de materiales para la construcción y el equipamiento de la vivienda en zonas de barrio*, Caracas: CISOR.

Zambrano, A. (2005), “La calidad de la vivienda en Venezuela I”, *Reporte Venescopio* n.º 9, (online), available at <http://www.venescopio.org.ve>.

Zambrano, A. (2005), “La calidad de la vivienda en Venezuela II”, *Reporte Venescopio* n.º 3, (online), available at <http://www.venescopio.org.ve>.