

ABSTRACT

Title of Document: FORMALIZING THE INFORMAL CITY:
DESIGNING FOR DEVELOPMENT IN A PERUVIAN
SHANTYTOWN

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Resources for urban development in Third World countries are usually very limited, while population demands are increasingly higher, resulting in informal urbanism. According to recent projections, nearly 75% of the growth of Lima over the past three decades has been due to the expansion of informal settlements approximately 50% of the country's population lives in shantytowns.

This thesis maintains that urban and architectural design can promote sustainable social, economic, urban and human development. The project is located in *Villa el Salvador* (VES) a planned shantytown in southern Lima and is part of a proposed network of infill development for the 144 vacant urban spaces in the district. Each space is considered as a "core" containing mid-density infill housing, a public plaza, urban park space and an institutional/community building.

A progressive housing scheme is proposed which provides an initial basic core that is designed to support future expansion through self-help construction. The challenge is to provide a higher density model for self-help construction that replaces the predominant scheme of the single house per lot.

FORMALIZING THE INFORMAL CITY:
DESIGNING FOR DEVELOPMENT IN A PERUVIAN SHANTYTOWN

By

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Photo: Self-help construction: houses perched on a hillside in Villa Maria del Triunfo, southern district of Lima

Source: Author



Photo: Precariously built home in El Pino, northern district of Lima.

Source: www.elcomerciooperu.com

Preface

“In Latin America, the challenge is still to shorten the distances between those ‘integrated to’ and those ‘excluded from’ the benefits of urban life; (...) between those connected and those disconnected, between the formal and informal, searching to provide a connectivity of the urban system as a whole by linking all the fragments.”¹

In cities in the developing world, resources for urban development are considerably more limited, while demands are considerably higher. The result has been a rise in what may loosely be described as informal urbanism: *“The concept of the ‘informal’ is usually defined negatively, and simplistically, as a binary opposite in relation to the ‘formal’, typical characteristics being: illegal, unauthorized, unplanned, and un-*

¹ Jauregui, Jorge Mario; Conference on Strategies for Urban Articulation- Projects and Management of Peripheral Settlements in Latin America, a Transdisciplinary approach; June 26, 2002. Retrieved on September 12, 2003 from: <http://www.jauregui.arq.br/seminario.html>

regulated. [What is significant about informal institutions is that they] provide a crucially important, if officially unacknowledged, counterpoint to the formal institutional order, enabling people whose needs are not adequately served- if at all- by that order, to sustain their social existence.”²

In most large Latin American cities today, between 30 and 60 percent of the urban population lives in peripheral settlements that are not integrated to the formal service structures of the city. These neighborhoods, towns and sometimes even entire cities are built on barren, inaccessible land, without connections to the service infrastructure network of the city. Thus, inequality and exclusion have become the norm, not the exception, in the region’s urban landscape. Being an urban planner, urban designer or architect today and not acknowledging the needs of such vast sectors of our society is neglecting our commitment to making better cities.

Villa el Salvador is a singular case in Latin America in many ways. Its unique history is testimony to the determination and courage of its people. From the Social Planning perspective, VS is a cohesive community, where people have adopted a way of life based on solidarity. People share the will to improve their quality of life in the midst of a recessive economy and faced with inefficient authorities that are unable to provide their most basic needs. People work together for common goals (such as laying electrical or phone lines, building their houses, etc) and achieve things that would be impossible individually and would come too late if they were to be provided by the government. From this perspective, VS has achieved remarkable results relying almost exclusively on human and social capital.

However, as a city built without architects, the quality of the built fabric and the urban space is substandard. Finding a feasible way to reintroduce design into the

² Paul Jenkins, Peter Wilkinson, Assessing the Growing Impact of the Global Economy on Urban Development in Southern African Cities, *Cities*, Vol. 19, No. 1, pp. 35, 2002

informal city, thus improving the quality of life of its residents, is at the core of this thesis project. My interest for working in the informal city comes from my personal belief in the power of architecture to affect the quality of people's lives. During my education, somewhere between studio, and the courses on theory, history, structural design, physics, environmental technology... I understood that architecture is essentially about people, the environment (urban or natural) and improving the relationships between them. This thesis is an attempt to contribute to this exploration.

Dedication

A Pancho y Fina.

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Chapter 1: Background and Context

Lima today is a very different city than it was during its original settlement. However, many elements of the city's identity today can be traced back to its origins in 1535.

1.1 The foundation of Lima: the origin of an urban identity

"The city that St. John saw in the Apocalypse was based on the square, and the city of Lima is built upon square blocks; and even though the former belonged to Heaven and this one to Earth (a major difference between the two), [...] and since they resembled one another in the shape, we can piously presume that God Himself designed Lima so that the Spaniards could found it as the capital of the new lands and skies that were discovered and conquered."³

- Juan Melendez, Dominican chronicler, 1678

Founded on January 18, 1535, Lima was intended from its inception to be the capital of Spanish America. Its form was determined by Spanish Ordinances, which established a strict set of rules about where, how and why cities would be founded throughout the New World. Elements like the gridiron plan, the central square and the location of the most important buildings were described in the Ordinances and applied in the foundation of all new Spanish settlements in America.

³ Melendez, Juan. *Verdaderos tesoros de las Indias*, cited by Rodriguez-Camilloni, op cit p.42

1.1.a The Laws of the Indies



Figure 2: Major Spanish settlements in the New World; all these cities were founded under the Spanish ordinances.

Source: "Utopia realized in the New World: Form and Symbol of the City of Kings". Rodriguez-Camilloni, Humberto.

In 1573, Phillip the II, King of Spain drafted the Ordinances for New Discovery and Settlement, which determined the legal and working basis for urban planning in the American colonies. He outlined, in detail, the conditions that should determine the sites of new cities, specifying that they should have good ports of entry and exit, both by land

and sea. The plan of the city was based on the idea of a central plaza with regular blocks extending from it in the direction of each of its side. This plaza, called "*plaza mayor*" or "*plaza de armas*", also organized major political and religious buildings around it. The main rules for the design of cities established by these ordinances were:

- A grid of identical repeated units/blocks formed the city's plan
- The plaza was one unbuilt block
- The government palace, the *ayuntamiento* (or city hall) and cathedral were located around the plaza
- The plaza was enclosed on all sides by colonnades
- Other churches around the city had open spaces/small plazas in front of them

These rules intended to create an urbanization pattern that could be easily repeated and achieved quickly to keep up with the rate of colonial expansion. The "formula" was adopted and repeated in virtually all the Latin American colonies. Founded on January 18, 1535, Lima was the first urban settlement in South America to exhibit all of the formal elements that characterized the model of Spanish American colonial city⁴.

1.1.b The colonial grid

The gridiron represented order and permanence and the unification of the entire continent under one government, language and religion. Several authors have studied the origin of the gridiron plan for Spanish American cities and many agree that the ordinances had little influence on the geometry of the plan, either because the references made in them were too vague (as in Charles V's ordinances, which only

⁴ Rodriguez-Camilloni, Humberto. "Utopia realized in the New World: Form and Symbol of the City of Kings". From: *Settlements in the Americas*. Bennett, Ralph. P.29

briefly describe the shape of the plaza and the system for laying out streets with cord and ruler) or written after the fact, as is the case with Phillip II's *Laws of the Indies* of 1573.

Various theories that have been proposed to explain the generalized use of the gridiron plan in Spanish cities in the New World. In the case of Lima, It seems to have been the result of the application of Italian Renaissance ideas of town planning which were expressed in certain literary texts.⁵ The geometric regularity of the perfect gridiron plan most eloquently conveys the Renaissance conceptions of physical order based on Roman and classical planning principles. Thus, many scholars have interpreted the classic model of Spanish American colonial cities as the realization of the town planning ideas that in Europe remained as "mere utopias drawn on paper."⁶

1.1.c The urban tradition

In its almost 5 centuries of existence, Lima has transformed itself several times: from a modest town with a grand plaza, to the wealthiest and most influential city of the continent during the 18th century, to the sprawling, busy and often chaotic metropolis of nearly eight-million people that it is today. During these metamorphoses, some urban patterns have remained, to this day, as intrinsic elements of its urban tradition.

In Peru the word for squatter settlement or shantytown is *barriada*. The typical image which the word suggests (particularly to wealthier nations) is that of the worst kind of slums. Although this may be the case in some areas, it is important to realize that in the

⁵ Llumberes, Pedro. "El damero y su evolucion en el mundo occidental" ("The gridiron and its evolution in the Western World") cited by Rodríguez-Camilloni. Op cit p. 30

⁶ Rodríguez-Camilloni, op cit p.39

Latin American context, the image does not adequately convey the real nature of the phenomenon.⁷

The *barriadas* constitute settlements of low-income groups located on the outskirts of the city. But today, most shantytown residents are not, by local standards, extremely poor. In fact, many own their plots of land and have access to micro-loans, used mostly for homebuilding. Though this was not the case of earlier shantytowns, those that were established starting in the 1950s have developed into highly formalized urban grid constructions.

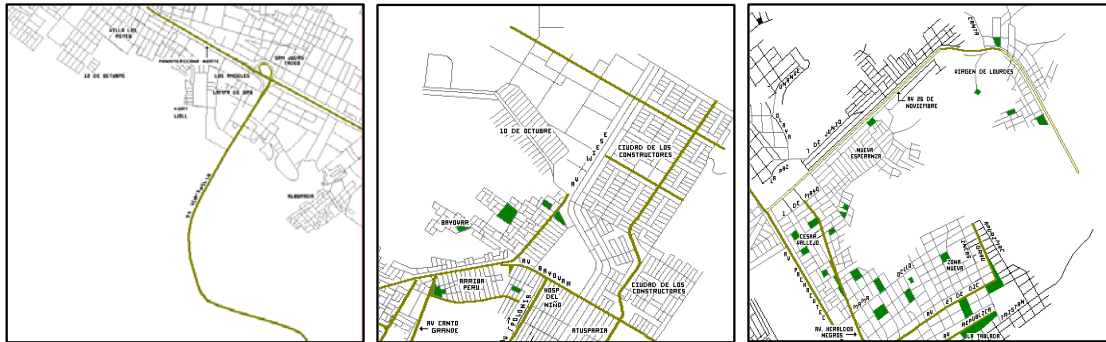
As was the case with the settlement of the first Spanish colonies in America, the need to establish possession and governance of the land as quickly as possible makes the adoption of the grid a sensible solution for emerging settlements even today.

Furthermore, in a population with low rates of car ownership, the constant street grid generates pedestrian-friendly neighborhoods. Though the new city grids are designed to accommodate modern day traffic (and allow for large garbage and fire trucks to turn corners), the basic principles of connectivity, pedestrian orientation and activation of the street as an extension of the private space, are all elements of the Colonial city that are still alive in the popular city's urban culture.

Having lived in Lima most of my adult life, it seems unusual to me that anyone could conceive of blocks that are not rectangular, or build towns without a square. Elements like the orthogonal grid and the plaza have remained as testimonies to the efficiency of Spanish urban design concepts in organizing territories. They are in fact so powerful,

⁷ Harris, Walter. *The growth of Latin American cities*, p. 216

that informal settlements or “young towns” being built today are most often born of an orthogonal grid layout. Some of these street patterns are shown below:



Figures 3, 3, 4: The block and grid are still the main components of Lima today. Street plans of different “young towns” surrounding the city: *Ventanilla* (N of Lima), *Los Olivos* (NE) and *Villa Maria del Triunfo* (SE) respectively.
 Source: <http://amarillastelefonica.com>

1.2 Lima today, a city of contrasts: formality vs. informality

The percentage of Peru’s population living in urban areas is increasing rapidly. The country’s urban population in 1961 was 47.4%. By 1981 it represented 65.2% of the country’s population, by 2002 it had reached 72.2%⁸ and it is expected to continue growing.

This trend is similar in many developing countries, where the rate of urbanization greatly exceeds the capacity of authorities to provide the necessary infrastructure. The result is an increasing expansion of informal urbanization. Berner reports that “...in most large cities in the developing world, the formal market serves only a minority of the population. It is estimated that between 30 and 70% live in ‘irregular’ settlements and that up to 85% of the new housing stock is produced in an extra-legal manner.” (Berner 2000:1) This suggests that cities are becoming increasingly “de-formalized.” In informal settlements

⁸ Source: INEI- population Census, population estimates 1950-2050. <http://www.inei.gob.pe/>

the conventional sequence of planning, providing services, building and finally occupying is reversed; people occupy land first, then build, and eventually arrange for service provision before attempting to integrate to the planned city.

The rapid growth of informal urbanization has brought with it economic, social, administrative and environmental problems. Increased urbanization has also resulted in increased urban poverty.⁹ The challenge of working in informal settlements is to reduce existing poverty while at the same time providing basic services and opportunities for a rapidly growing population.

The appearance and evolution of shantytowns over the past 3 decades might very well be the single most important phenomenon regarding Lima's modern development (Riofrio:1991).¹⁰ Understanding the processes that occur in the informal city has been a challenge for anthropologists, sociologists and planners alike¹¹ and demands a closer look at the process of creation of informal settlements in Peru.

⁹ Percentage of the urban population living in extreme poverty in Peru rose from 5.3% in 1997 to 9.9% in 2001 (Source, INEI- National Household Survey, 1997-2001)

¹⁰ Riofrio, Gustavo; Ibid.

¹¹ Riofrio, Gustavo ; "Producir la ciudad (popular) de los '90: Entre el Mercado y el Estado"; p.18

1.2.a Migration and Demographic explosion

| Year | Peru (total in millions) | Lima | % of Total |
|-------|--------------------------|-----------|------------|
| 1940 | 7.02 | 640,000 | 9.2 |
| 1961 | 10.2 | 1'846,000 | 18.1 |
| 1972 | 13.4 | 3'032,000 | 23.7 |
| 1981 | 17.8 | 4'056,000 | 26.0 |
| 1988 | 21.3 | 6'054,000 | 29.5 |
| 2002* | 28.0 | 7'748,528 | 27.8 |

Source: Urbanism for Survival, p.28
*Estimated data: GeoHive Global Statistics:
<http://www.geohive.com>

Lima is the largest city in Peru, housing almost one third of the country's population. In recent years Lima has become one of the 35 largest cities in the world. The city's explosive growth began in the 1950's, primarily due to the concentration of employment opportunities in the capital. Between 1940 and 1961, the city's population nearly tripled. The centralization of healthcare, judicial and administrative services and wealth continued to attract more immigrants throughout the 60's and by 1972 its population had nearly doubled again. During the 1980's, the spread of terrorism in the Andean provinces was the main cause behind the flight to the capital.

Though there have been several nationwide decentralization efforts in Peru over the past two decades, their results are not yet evident; for example, Arequipa, the second largest city in the country, still has a population of less than one million. And thus Lima continues to grow, mainly due to the following factors:

- There continues to be a high rate of net migration (340 new residents arrive in Lima each day¹²)
- A decrease in net and infant mortality rates

¹² Ortiz de Zevallos, Augusto; "Urbanism for Survival": p.28

- An increase in life expectancy

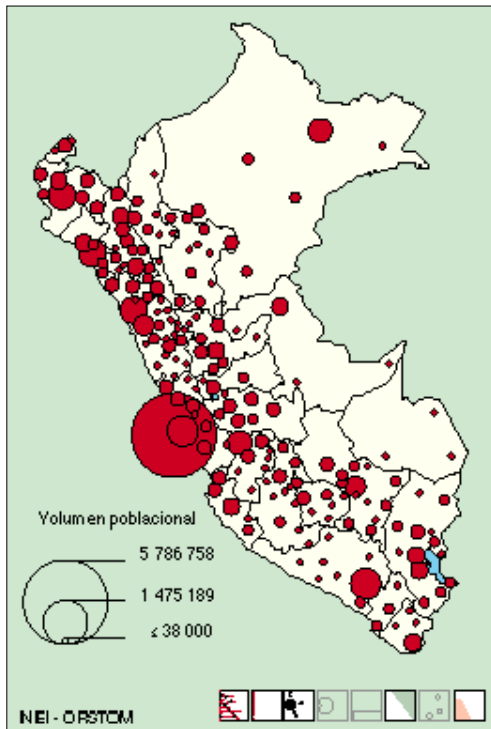


Fig. 5: Population distribution
Map showing population volumes throughout the country.
Source: INEI, www.inei.gob.pe

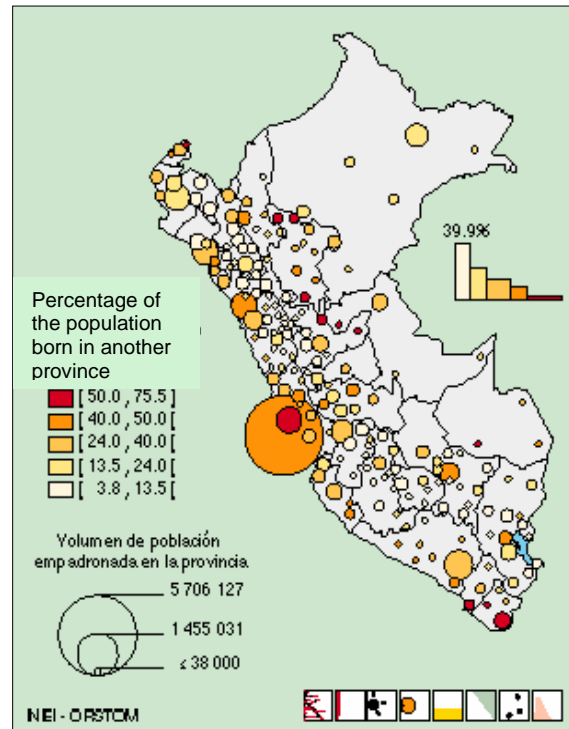


Fig. 6: Internal migration
Map showing percentage of the population born in another province
Source: INEI, www.inei.gob.pe

1.2.b Low Density, High Inefficiency

This rapid and uncontrolled growth has brought with it many problems, still unresolved today. Lima has become “...*deteriorated and predominantly informal, with insufficient land, water, electricity and surface for expansion.*”¹³ For Ortiz de Zevallos, a renowned Peruvian architect and urban designer, Lima is: “...*accumulative, precarious, segregated*”

¹³ Ortiz de Zevallos, Augusto; “Urbanism for Survival”: p.21

and unequal, insecure, polarized in social extremes, ugly, hyper-expansive and inefficient.”¹⁴

With a density of around 6,132 persons/km² (25 persons/acre), Lima is still too spread out and too horizontal. This makes the implementation of public works infrastructure extremely expensive and results in an inefficient system of service delivery. This is one of the main reasons why peripheral settlements must wait years, even decades to obtain connections to water, sewerage and electricity.

Only recently, as habitable lands have become scarce and the social cost of living in the periphery has increased, the trend has started to shift towards densification. This is one of the most important goals for the city’s urban development, and the only way in which scarce resources can be better distributed among its residents.

1.2.c Informal growth, marginality and urban poverty

The concentration of population in Lima has generated strong demands for housing and employment that have gone far beyond the established supply and capacity for production. While higher income groups have access to appropriately urbanized land within the formal boundaries of the city, lower income groups have resorted to occupying barren lands in the periphery. Thus, informal settlements have created a “ring of poverty” around Lima, concentrating a large part of the city’s housing stock and absorbing most of the city’s growth. By 1988, 50% of Lima’s housing stock was located on peripheral shantytowns.¹⁵

¹⁴ Ortiz de Zevallos, Augusto; “Urbanism for Survival”: p.13

¹⁵ INEI, National Statistical Institute

Informal squatter settlements around the margins of the city offer very precarious living conditions for the initial settler; however, it is in these areas where most of Lima's growth takes place, constituting the most rapidly changing urban environments in the city. Over time, local economic activities have emerged and captured part of the workforce that cannot find employment in the formal economic sector. Thus, peripheral shantytowns are not only residential suburbs but also commercial and employment centers. These qualities must be promoted to improve the city's quality of life and de-centralize its activities.¹⁶

1.2.d The evolution of Lima's shantytowns

The state is not without blame regarding the "informalization" process of Peruvian cities. The government has supported the development of shantytowns since the 1950's. During Prado's administration (1956-1962), law 13517 was passed in an attempt to make "an owner out of every citizen" (and thus drive away the threat of socialism). This law provided a legal framework that both authorized and authenticated land invasions by allowing squatters access to property titles.

Architect Fernando Belaunde Terry served his first term following Prado. During his administration there was a strong focus on construction of large-scale, mid- to high-density residential developments for the shrinking middle-class, but the provision of housing for the growing low-income urban population was vastly overlooked.

Juan Velasco Alvarado deposed Belaunde in 1968 and instituted a socialist military dictatorship. His administration not only allowed shantytowns to appear but actually

¹⁶ Ortiz de Zevallos, Augusto; "Urbanism for Survival": p.29

furthered their development. In fact, the period between 1968 and 1975 is marked by increasing investments in peripheral shantytowns. Still, no alternatives were explored for the provision of housing for the urban poor- informal settlements remained as the only “solution” to the housing shortage.

The counter-coup, led by General Morales Bermudez in 1975, gave a final blow to Velasco’s debilitated regime, which had become disunited and sluggish in its delivery of reforms. Morales Bermudez began the task of restoring the country's economy and presided over the return to civilian government with a new constitution drawn up in 1979. In terms of housing however, Bermudez’s right-wing regime altogether ignored the needs of the most impoverished sectors of the population.

Though there have been several administrations in office since Morales Bermudez, the issue of provision of mass housing for the lower income sectors of the urban population has never been addressed in a comprehensive way. The model has been self-help, and though it has become an accepted form of development and has had many successes, it is also proof of the incapacity of the government to deal with the situation: “(...) self-construction and self-help housing are no more than ways to disguise the small or null responsibility assumed by successive administrations regarding the problem of mass housing.”¹⁷ The result is a city that is every day more sprawling, chaotic, less planned and ultimately unmanageable.

¹⁷ Jorge Burga, Claire Delpech, *Villa el Salvador: La Ciudad y su desarrollo. Realidad y propuestas* (Lima: CIED, 2000), 16

1.2.e Rethinking Lima

Building in Lima is an exercise in inventiveness- to maximize resources- and industry- to finish a project along over time. The nature of the city's society and economy define a unique set of constraints, very different from those prevalent in the developed world. Despite this fact, global trends (such as Urban Renewal, International Style, Post-modernism, etc.) originating in Europe or North America have often been adopted as models for local urban developments. Only more recently has the appropriateness of this process been questioned and proposals to redefine urban practices in a way that is suitable to our reality have been considered.

Examined in this light, not all aspects of the informal city are "precarious, chaotic, inefficient and ugly," and in fact many things can be learned from local informal urbanization processes. "The capacity and ingenuity of Peruvians to respond to various challenges has been put to a test over the past few years. (...) [As a result] new ways of doing things have emerged that are only now starting to be fruitful. Though this can be seen throughout all social classes, it is in the poor neighborhoods of the larger cities where we can find the most progressive and appropriate forms of development for our reality. (...) Now that we are forced to rethink our country and our cities (...) we must lean on the processes. (...) that are now operating on the formation and development of our cities"¹⁸

In this effort, bottom-up approaches need to be taken seriously, more so than imposing solutions imported from abroad. In terms of provision of housing, for example, the practices of self-help builders have proved to be better suited for the available resources than proposals set forth by planners, politicians and specialized professionals.

¹⁸ Riofrio, Gustavo ; "Producir la ciudad (popular) de los '90: Entre el Mercado y el Estado"; p.14

Understanding these processes is a first step in being able to propose a model for intervention that will be both appropriate and realistic.

In Lima, the informal urbanization process has been particularly effective and widespread. The city's peripheral settlements have demonstrated a tremendous organizational capacity and their ability to ensure the survival of the masses that live in poverty has even called international attention.¹⁹ There is a dense network of social organizations, NGOs and neighborhood associations that have emerged over time and consolidated to become the main providers of social development. In the worst times of terrorism and violence, for example, local neighborhood organizations throughout the city's shantytowns demonstrated great organization capabilities to provide a range of support services. "This is a force that must not be neglected in trying to improve the urban environment of informal settlements. If these sectors of the population have traditionally been under-represented and excluded, there is a real opportunity for the consolidation of a 'new democracy', one based on participation and social planning."²⁰ *Villa el Salvador (VES)*, a settlement located in Lima's southern periphery, is one example of how a city was born based entirely on social participation and organization in the face of a government that did not do enough.

¹⁹ Joseph, Jaime; "Lima Mega-ciudad: Democracia, desarrollo y descentralización en sectores populares"; p.17

²⁰ Joseph, Jaime; "Lima Mega-ciudad: Democracia, desarrollo y descentralización en sectores populares"; p.12

1.3 Villa el Salvador. Peru's first planned shantytown

Villa el Salvador is located in the southern region (also called “cone”) of Lima. Though today it is considered to be within the city’s metropolitan area, at the time of its original settlement it was well outside the formal boundaries of the city.

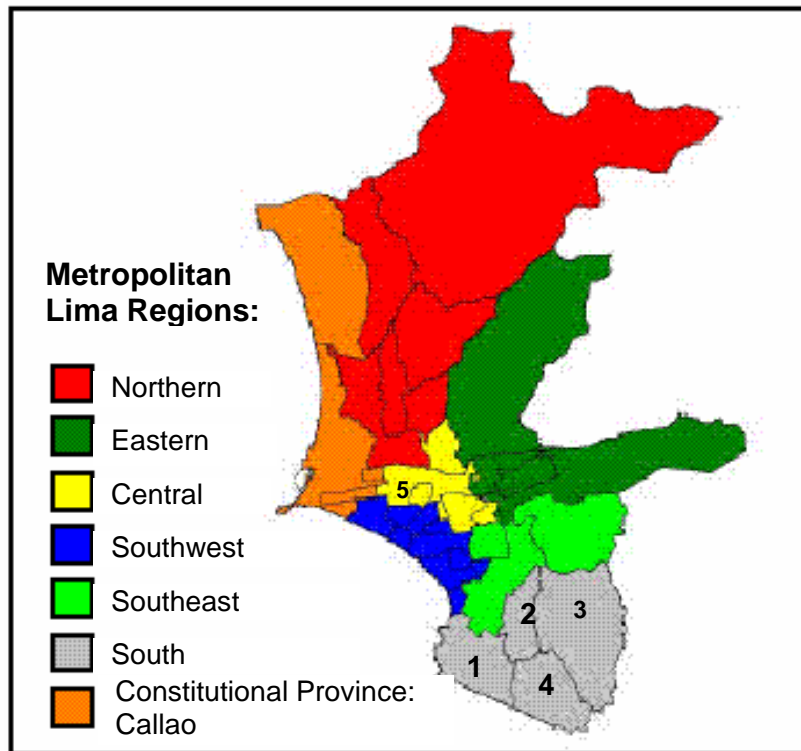


Fig. 7: Map of Metropolitan Lima and its Regions

- Districts in Southern Region:
 1. Chorrillos
 2. San Juan de Miraflores
 3. Villa Maria del Triunfo
 4. **Villa el Salvador**
- Other Districts:
 5. Historic Center

Source: INEI

1.3.a History

The history of *Villa el Salvador* (VES) began in 1971, during General Velasco’s socialist regime. Rising rates of migration and deteriorating conditions in inner city housing were generating increasing demands for housing in Lima without any active response from the government. On April 28 of the same year, in an attempt to pressure the authorities into action, a group of over a thousand city dwellers took over a piece of land in *Pamplona* (an area of desert land just south of the city). These grounds were originally destined for middle-class residential developments that would create a “social cushion” between

popular settlements of *San Juan de Miraflores* (south of *Pamplona*) and nearby high-income residential developments.

Developers who had been promised the land for a millionaire investment project were outraged and pressured the government to suppress the invasion. This led to a violent confrontation between the armed forces and the protesters that resulted in the death of one civilian. *Pamplona* trespassers presented the president with a conundrum: on one hand, the repression of a popular mobilization of this magnitude went against his socialist orientation; on the other, it was politically unwise for him to openly oppose the interests of wealthy and powerful corporations. With the media involved, and the general public's outrage, Velasco was hard-pressed to find a solution. Finally, a large plot of government-owned desert land just south of *Pamplona* was granted for the new project and a team of architects and urban planners were commissioned to design a city as quickly as possible. Two weeks later, the "Self-managing Urban Community of *Villa el Salvador*", or CUAVES ("*Comunidad Urbana Autogestionaria de Villa el Salvador*") was born as a new housing model for the poor based entirely on self help construction.

On May 11, 1971, the plan was complete and 3,000 settlers were transported by military trucks a few kilometers south of *Pamplona*, to claim ownership of their newly attained land. Settlers were issued property titles on the vast expanse of desert lands and left to fend for themselves. Thus, VES was created in 1971 during Velasco's administration as the first planned shantytown, not only accepted by the government, but actually sponsored by it.

A year later, 450 hectares (about 1,100 acres) of land had been occupied and VES boasted a population of nearly 70,000. By 1973, a local census was conducted by the

residents themselves, showing that the population had grown to 109,165 residents. According to that census, 95% of Villa's original settlers moved there from different areas of the city and 80% were not born in Lima.²¹

1.3.b CUAVES: social organization and administrative entity

What was truly innovative and progressive about the premise of VES was that its development was based entirely on "self-management" through the CUAVES. The acronym for CUAVES encompasses a few basic terms that have been determinant in the evolution of VES. The first, "community" alludes to the organization of Andean peasant communities with a long tradition in the country's rural territories. It is a solid organization based on mutual help and support where justice and solidarity are not only social characteristics but pertain to the production systems as well.²² "Self-managed" refers to the idea that through a strong organization people are capable of directing their own development. This type of neighborhood organization, with some characteristics of Andean peasant community groups, was unprecedented in the history of the country's "young towns".²³

The CUAVES is a very well structured organization in which residents are represented directly by informally elected delegates. This organizational structure is also inextricably linked to the physical layout of the city. The urban grid of VES is composed of over 100 neighborhoods, or Residential Groups made up of 16 blocks surrounding a central plaza. Each block elects a delegate, and jointly, the 16 delegates represent the Residential Group's leadership committee. These committees make decisions regarding

²¹ VES: ciudad y desarrollo, p.22

²² VES: Ciudad y desarrollo, p. 19

²³ Burga, Delpech, *VES: La ciudad y su desarrollo*, 18

neighborhood issues and also hold district-wide meetings periodically to discuss and make decisions about larger issues.

This strong social organization is what makes VES such a unique development. The hardships of life in the desert brought people together to work for common goals (such as laying electrical or phone lines, building houses, etc) to achieve things that would have been impossible individually and would have come too late from the government. From this perspective, VES has achieved remarkable results relying almost exclusively on human and social capital.

VES also played a pivotal role in the country's fight against terrorism during the late 1970's and 1980's. During this time the extreme leftist terrorist group known as the "Shining Path" carried out aggressive recruiting in urban shantytowns, where social contrasts and the authorities' neglect were felt most intensely. Thanks to its solid social structure and the actions of some of its most influential community leaders, VES was one of the strongest bastions in the fight against the Shining Path.

During its first 15 years of existence, VES was able to achieve what no other shantytown in the city could even dream of, even when their economic capacity was the same. For Michel Azcueta (former mayor of VES): "...what identifies VES is its tendency towards centralization. In every young-town²⁴ there are popular kitchens, committees of mothers, entrepreneurs and informal merchants. But in Villa they are all organized and centralized through the CUAVES. (...) In the Peruvian popular movement there have been many defeats. The case of VES, where we achieved all of our goals, has a different spirit to it. (...) Our strategy is to work first and then demand action [from the authorities]... we do a

²⁴ In Peru, words for shantytown include *pueblo joven* (or "young town" in English) and *barriada*.

lot, so the State is also obligated to respond and do its part.”²⁵

To be able to understand a little more about VES’s social structure it is important to look at the roles and activities of non-profits and community groups. An example of a particularly successful group is Lima’s first Federation of Women; this group was started in VES and now serves as a model for women’s organizations throughout the city. In VES women have been key players, implementing programs like the “*glass of milk*” which provides daily breakfast for school-age children in each neighborhood. This program was started by Alfonso Barrantes (mayor of Lima in the early 1980’s) and since then has been run entirely by the Women’s Federation with support from the Catholic Church. Organized women’s groups also implemented the first “*popular kitchens*” which provide hearty lunches and dinners on a daily basis for a minimum charge. Local women are in charge of carrying out these programs and work together with local governments, the Church, private companies and non-profits in order to keep the food coming and the stoves running.

The Women’s Federation also started a protection and awareness program for battered women called the Housewife Brigades. Its activities were particularly important during the initial settlement stages, when they distributed whistles among all women to alert neighbors in case of attacks by burglars or abusing partners. Most of these women had no formal training past basic schooling, yet some have even represented VES in Community Development and Women’s Rights Forums around the world; they have played a vital role in the development of their communities and some have even

²⁵ Burga, Delpech, *VES: La ciudad y su desarrollo*, 17

acquired significant political power.²⁶ The networks of support and self-governance established through community-based organizations have enabled VES residents to grow and improve themselves despite poverty and scarcity. The work of grassroots organizations like the Women's Federation has contributed to the immense success of VES as a social planning model for informal settlements worldwide.

In the words of Michel Azcueta, former mayor of VES: *"The VES experience is not a result of poverty and misery. If it were only a result of destitution, experiences like VES would turn up everywhere around the world. Poverty and misery generate nothing positive. It is not a sense of lacking, but a kind of mysticism [that brought about VES]. It is not the past, but the future. The value of Villa el Salvador lies in the objectives the community proposes for itself, it is the possibility of looking ahead and moving forward."*²⁷

²⁶ The most notable case of a woman leader in VES was Maria Elena Moyano, brutally assassinated by the Shining Path in 1992.

²⁷ Michel Azcueta, former mayor of VES

1.3.c The urban plan



Figure 8: Map of VES. Residential groups are arranged in sectors, organized around a hierarchy of streets.

The primary components of the plan for VES were the block, plaza, street and school. These were organized into residential groups, which were the basic neighborhood units represented at the CUAVES. Thus, the physical organization of VES was closely linked to the social organization of its residents.

The “Residential Group” is the building block for the entire city and is composed of 16 blocks arranged around a central open space. Each block is made up of 24 lots, each 140 m² (1500 sqft) in area. Each residential group was planned to include approximately 1,920 residents, yielding a population density of about 150 people/hectare (370

persons/acre). Four of these residential groups composed a sector and in turn, the group of sectors formed the district of *Villa el Salvador*.

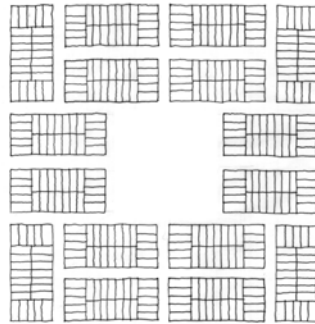


Figure 9: Typical residential group

In terms of zoning and land use, the plan allocated a portion of the territory for an industrial park, destined to generate employment for local residents. It also allocated agricultural land surrounding the western portion of the city and designated 2 large “Zonal Parks”. Commercial areas were designated along the main arteries.

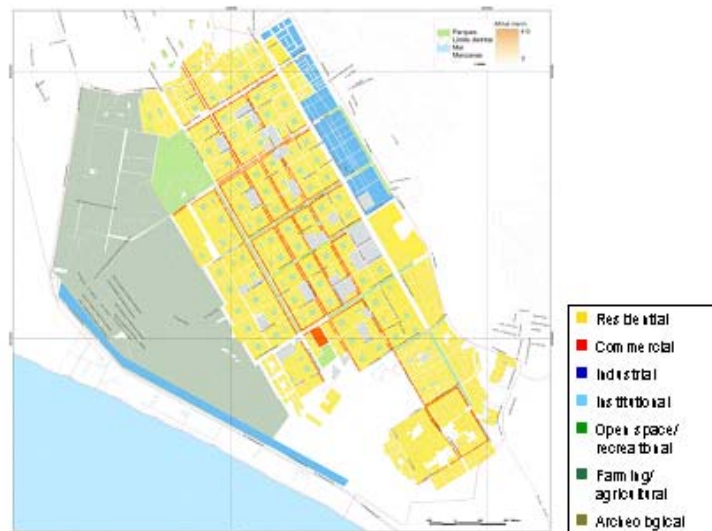


Figure 10: Land Use map of VES. Agricultural, archeological and recreational zones are adjacent to the coast. The industrial zone is located along the NE edge of the city. The rest of the city is zoned as low density residential, with higher density commercial corridors along the main avenues.

1.4 VES today: demographic profile

Not being able to hold public participation meetings within the scope of this thesis, an analysis of available demographic data can help identify current population trends, most vulnerable population groups, needs and priorities of the population of VES.

1.4.a Population: making a case for denser development

According to calculations posted by the Peruvian Statistics Institute (INEI), the population of Peru as of December, 2002, was of 27,148,000. Lima's population was estimated at 7,748,528, representing 28.54% of the national total.²⁸

| Peru | Lima | VES |
|------------|-----------|-----------|
| 27,148,000 | 7,748,528 | 388,588** |

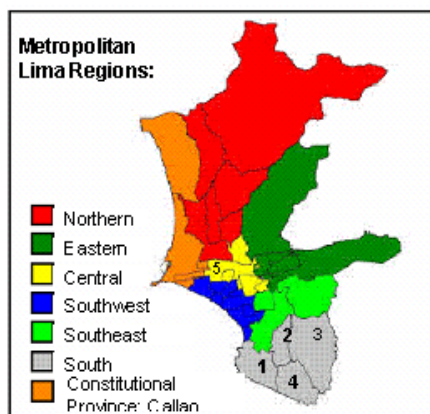
** Municipal Bulletin Number 2, May, 2003

Population is spread out unevenly throughout Lima's different regions. The central and southwestern districts are the smallest, oldest and densest areas of the city. The northern and southeastern districts have much larger areas, have been settled more recently and though they have large populations, they are also the least dense.

²⁸ Source: INEI

| Zone | Persons/ sq.km. | Persons/ block | House-holds/ block |
|------------------|----------------------------|---------------------------|-------------------------------|
| North | 3,770 | 124 | 28 |
| East | 6,573 | 113 | 27 |
| Center | 18,018 | 208 | 47 |
| Southwest | 12,784 | 176 | 39 |
| Southeast | 4,592 | 116 | 24 |
| | | | |
| South | 7,719 | 109 | 24 |
| Callao | 7,078 | 143 | 29 |

Source: Apoyo



- Districts in Southern Region:
 1. Chorrillos
 2. San Juan de Miraflores
 3. Villa Maria del Triunfo
 4. **Villa el Salvador**
- Other Districts:
 5. Historic Center

Figure 11: Map of Metropolitan Lima and its Regions

VES is one of the districts with the largest populations in the southern metropolitan region. In 2002, the population of VES represented 5.01% of Lima's population and 1.43% of the national population.

| Year | Lima | Peru |
|-------------|-------------|-------------|
| 1999 | 4.13% | 1.19% |
| 2002 | 5.01% | 1.43% |

Source: INEI

Though VES experienced its most dramatic growth between 1972 and 1973 (49%), the district has steadily continued to attract new residents at an average annual rate of about 5%.

| Year | Total Population | Growth Rate (%) |
|-------------|-------------------------|------------------------|
| 1972 | 73,203 | n/a |
| 1973 | 109,165 | 49.0% |
| 1981 | 133,566 | 2.8% |
| 1984 | 168,077 | 8.6% |
| 1993 | 254,641 | 4.7% |
| 1997 | 313,218 | 5.8% |
| 1988 | 324,907 | 3.7% |
| 2000 | 355,050 | 4.8% |
| 2003 | 388,588 | 5.6% |

Source: INEI

In terms of density, however, it is considerably less dense than *San Juan de Miraflores* (its older northeastern neighbor). VES is also considerably less dense than the older consolidated neighborhoods in the city.

| District | Population | % of Lima's population | Density (Persons/ha) | Density (Persons/acre) |
|-------------------------|-------------------|-------------------------------|-----------------------------|-------------------------------|
| Villa El Salvador | 324,907 | 4.5 | 91.63 | 36.652 |
| San Juan de Miraflores | 350,529 | 4.9 | 146.18 | 58.472 |
| Villa Maria del Triunfo | 314,572 | 4.3 | 44.58 | 17.832 |
| Subtotal | 990,008 | 13.7 | | |
| Total Lima | 7'209,710 | 100 | 25.64 | 10.256 |

Source: "Global Fight Against Poverty: Solutions Exist. The Villa el Salvador Experience", p.28

Michel Azcueta. - Escuela Mayor de Gestión Municipal UNESCO / July 2001

VES has a large resident population that continues to grow at a steady rate. This, combined with local urbanization trends (which tend towards denser urban patterns with age), supports a densification strategy.

The vast majority of VES residents are new immigrants from different regions of the country. Most of them come from the Andean region, primarily from the southern departments of *Ayacucho* and *Apurimac*.²⁹ Approximately 62% of the heads of household in the district were born in the Andes while only 35% in the coast. This suggests that the typical resident of VES is a new immigrant to the capital, and very likely a new urban dweller as well. Typically, rural immigrants maintain certain customs of rural life (such as growing animals in their backyards, having vegetable gardens, performing “payments to the earth”³⁰, etc.) as they adapt to life in the city.

However, even though a large portion of residents are new to the area, evidence shows that they are here to stay. According to a district-wide survey conducted in 1998, more than half of the sons/daughters who leave their parents’ home in VES move within the district. This shows that the population of VES is not transient and is committed to the area.

²⁹ Source: INEI, National Statistical Institute

³⁰ During the month of August in the Andes it is customary to perform offerings to Mother Earth through a ritual ceremony involving a *shaman* and close members of the community. This is customary in the rural areas as well as the major Andean cities and is a tradition that appears to date back to the time of the Incas.

| Table 7: Place of residence of sons/daughters who leave their parents' home | |
|--|-------|
| Villa el Salvador | 55.9% |
| Other Southern Districts | 14.7% |
| Northern Districts | 5.9% |
| Eastern Districts | 4.4% |
| Inner City | 13.2% |
| Provinces outside Lima | 5.9% |

Source: "Villa el Salvador: the city and its Development. Reality and Proposals"

In terms of age composition, the population in VES is fairly young. In fact, 45% of residents are under the age of 20 and 51.5% of the population is between the ages of 20 and 59. Only 3.7% of the population is 60 or older. This age structure points to a population made up mainly of working people.

| Table 8: 1998 Population by Age | | |
|--|-------------------|----------|
| Age Group | Population | % |
| Age 0 to 9 | 73,803 | 22.7 |
| Age 10 to 19 | 71,816 | 22.1 |
| Age 20 o 29 | 68,531 | 21.1 |
| Age 30 to 59 | 98,606 | 30.4 |
| Age 60 and up | 12,151 | 3.7 |
| Total | 324,907 | 100 |

Source: INEI

1.4.b Employment: making a case for the need for more employment for women

According to 1993 Census data, VES has an Economically Active Population³¹ of 90,436, representing 4% of Lima's Labor Force. Of the total labor force, 32% are women

³¹ Economically Active Population (*PEA: Poblacion Economicamente Activa*) is defined as the number of people who are 14 years or older and are capable of engaging in productive activities.

and of these, only 27% receive a regular income.³² In terms of occupations, the highest group is of construction workers, representing 10% of the total workforce. The second largest groups are of textile workers and public transportation conductors, each representing 5% of the workforce.³³

The population that lives and works in VES represents only 17% of the district's total population, despite the presence of important industrial and agricultural areas within the district. The remaining 83% commute to other areas of the city for employment. This creates increased pressures on an already very impoverished population, by imposing on them high costs (both in time and money) for transportation.

Furthermore, beyond accessibility to employment, the problem is in a generalized shortage of jobs. Unemployment is defined by those people who are 14 years old or older who at the time of the survey, were actively looking for a job but could not find one. Unemployment rates in Lima are high and though data for VES was not available at the time of this research, citywide statistics are indicative of the overall situation. According to a household survey conducted by the INEI between 2000 and 2001, the unemployment rates in Lima were the following:

³² VES: Environmental Profile 2000, Municipality of VES

³³ Pefil ambiental p.8

| Table 9: Unemployment rate in Lima, 2000-2001 | | | | | | |
|--|-------------|---------------|--------------|-------------|---------------|--------------|
| Variable | 2000 | | | 2001 | | |
| | Male | Female | Total | Male | Female | Total |
| Total | 8.2 | 7.4 | 7.8 | 7.6 | 10.3 | 8.8 |
| According to age group | | | | | | |
| age 14 – 24 | 12.8 | 16.9 | 15.4 | 14 | 18.2 | 15.9 |
| age 25 a 44 | 8.5 | 4.5 | 5.6 | 4.7 | 7.7 | 6.1 |
| age 45 a 54 | 5.8 | 5.5 | 4.2 | 7.4 | 7.1 | 6.1 |
| age 55 and up | 8.6 | 10.5 | 7.9 | 7.7 | 10.3 | 8.5 |

Source: INEI

With high un- and under-employment rates, a strategy for employment generation seems a priority. Women appear to be particularly vulnerable, showing higher unemployment rates than men. For 2001, the unemployment rate for men decreased in 0.6%, while for women it increased almost 3%. Throughout all age groups, unemployment rates were higher for women than men.

To understand more about the levels of employment in the informal city, it is worth analyzing underemployment levels as well, since this is the kind of employment that is most prevalent in the informal sector. According to the INEI Household Survey for 1996-1998, the underemployment rates in the country were the following:

| Table 10: Underemployment rates 1996-1998 | | | |
|--|-------------|-------------|-------------|
| | 1996 | 1997 | 1998 |
| Nationwide | 42.7% | 41.8% | 44.1% |
| By Gender: | | | |
| Male | 37.3% | 35.5% | 37.9% |
| Female | 50.3% | 49.9% | 52.0% |
| By Age Group: | | | |
| Age 14-24 | 50.9% | 47.4% | 49.9% |
| Age 25-44 | 40.8% | 38.9% | 40.6% |
| Age 45-54 | 37.0% | 37.4% | 40.7% |
| Age 55 and over | 41.0% | 36.6% | 50.4% |
| By Region | | | |
| Lima Metropolitan Area | 41.8% | 38.3% | 39.3% |

Source: INEI

These figures represent a large portion of the population with little or no job security or benefits (such as health insurance, social security, etc.). Traditionally, underemployment refers to casual, seasonal or temporary employment as well as employment with low income returns; according to 1993 Census Data, income levels in VES were the following:

| Table 11: 1993 Household Income Levels in VES | | |
|--|---|----------|
| Income Category | Monthly household income (in US\$) | % |
| Ascending low/ typical low | \$ 480 - \$ 380 | 27 |
| Very low/ poor | \$ 380 - \$ 230 | 19 |
| Extremely low | \$ 230 - \$ 200 | 26 |
| Extreme poverty | < \$ 200 | 28 |

Source: INEI

The table shows that the entire population of VES is considered to be in the lower income tiers. The highest percentage of the population is considered to be in extreme poverty.

1.4.c Housing: defining most important housing needs

VES has a total of 56,942³⁴ housing units, erected primarily through self-help construction. To measure housing conditions, the National Census Bureau determines the number of households with unsatisfied basic services. Basic services are defined as connections to water, sewerage and electricity. According to 1993 census data, there are high percentages of households in VES with unsatisfied basic service needs. The data show that nearly half (48.4%) of VES' households has at least one unsatisfied service. Though this is still slightly lower than the national average (a staggering 53.9%, explained by the inclusion of both urban and rural areas), it is considerably higher than both the average for Lima (29.4%) and the average for the southern districts (37.1%).

| Geographic area | Total number of households | Households with at least one unsatisfied service | % |
|------------------------|-----------------------------------|---|----------|
| Perú | 4'762,779 | 2'566,549 | 53.9 |
| Lima | 1'380,466 | 405,563 | 29.4 |
| ▪ Southern districts | 275,572 | 102,196 | 37.1 |
| ▪ Villa El Salvador | 56,097 | 27,154 | 48.4 |

Source: Environmental Profile of the District of Villa el Salvador, Municipality of Villa el Salvador, July 2000.

³⁴ Source: 1993 census data, projected to 1995

Furthermore, according to 1999 estimates, 8.6% of all households do not have connections to any of the basic services.

| Units with running water | 32,483 | 57.0% |
|--|--------|-------|
| Units with electricity | 39,810 | 69.9% |
| Units with sewerage | 30,728 | 54.0% |
| Units without running water, electricity or sewerage | 4,897 | 8.6% |
| Total number of dwelling units | 56,942 | 100% |

Source: Environmental Profile of the District of Villa el Salvador, Municipality of Villa el Salvador, July 2000.

In a survey conducted in 1998 by the Municipality of VES, residents were asked what they felt the most urgent problems in the district were. Despite insufficiencies in the existing service infrastructure, residents did not consider these to be the most pressing issues. According to the survey, almost 27% (the highest response rate) of residents perceived that trash collection was the most urgent problem in VES.

| Most urgent problem in VES | % |
|-----------------------------------|----------|
| Trash collection | 26.8 |
| Crime | 21.7 |
| Lack of running water | 19 |
| Gangs | 4.9 |
| Drugs | 4.4 |

Source: Environmental Profile of the District of Villa el Salvador, Municipality of Villa el Salvador, July 2000.

In a similar survey conducted in *Pachacamac*, a sector of VES, 28% of the residents responded that paving of roads and sidewalks was a primary need for the district. In this survey as well, street cleaning earned second place with 21% of residents.

| Table 15: 2001 Survey conducted in Pachacamac regarding urgent needs | |
|---|----------|
| Primary needs of the district | % |
| Paving of roads and sidewalks | 28% |
| Street cleaning | 21% |
| Safety and order | 21% |
| Green recreation spaces | 10% |
| Water and sewerage | 5% |
| Others | 15% |

Source: Environmental Profile of the District of Villa el Salvador, Municipality of Villa el Salvador, July 2000.

It is interesting to note that despite a widespread deficiency of service provision within their homes, most residents placed physical conditions of their surroundings at the top of their list of priorities for improvements. Furthermore, in a household survey conducted in VES regarding the most important development objectives the city should pursue, the responses overwhelmingly favored improving physical conditions as well.

| Table 16: What is the most important development objective for VES? | | |
|--|--------------------|----------|
| Goal | Respondents | % |
| A city that is healthy, clean and green | 25,405 | 52.8% |
| An educational community | 16,368 | 34.0% |
| A district of manufacturers, a city that generates wealth | 13,931 | 29.0% |
| A community with leadership and solidarity | 9,879 | 20.5% |
| A democratic community | 8,344 | 17.3% |

Source: Survey conducted on November 14, 1999

1.4.d Summary of findings

The population of VES is growing at a steady rate, and the district is continuing to expand horizontally, as shantytowns around the original planned city have started to appear. This only makes the problem of provision of basic services even larger.

However, the trend in the older parts of the district is towards densification, and new initiatives should strive to achieve higher density in order to reduce per-capita costs of infrastructure for services.

A large percentage of the population is composed of new immigrants from the Andean region of the country. Cultural traits and activities that are typical of the Andean culture can be incorporated into the program of public spaces and other design elements to create a design more appropriate to the site.

The large percentage of the population is within working age, yet the un- and under-employment rates are very high. Furthermore, the numbers show that women are at a greater disadvantage and therefore are more vulnerable and dependent on employment. These numbers suggest that an employment generation initiative would be appropriate, particularly when geared to women.

Finally, the previous analysis shows that there are widespread needs regarding adequate housing and infrastructure. Despite this fact, the wide majority of residents place the physical condition of the urban environment as a high priority.

Chapter 2: Strengths and shortcomings of the plan for VES

“The plan of Villa el Salvador has won many awards, both nationally and internationally. (...). But frankly, I don’t understand what all the praise is about. In my opinion Villa el Salvador is what it is today in spite of its plan.”

- Arch. Luis Soldevilla del Prado, VES Planning Department

VES was a city planned almost overnight, based on a repetitive unit that could be easily and efficiently replicated throughout a vast expanse of land. In terms of efficiency, the plan did an excellent job in organizing the rapid layout of the city. Now, 30 years after the plan’s original inception, it is worth analyzing its shortcomings to determine areas of improvement. The areas in which the plan was not as successful are the following:

2.1 Failure to define a strong center

The District of Villa el Salvador lacks a central square, a well defined, centralizing space that can be considered a main plaza. This is one of the most important elements of the region’s urban tradition and is fundamental in the organization of Latin American cities. Recognizing the need for a central space, the municipality created the “*Plaza de la Revolucion*” or “Revolution Square”. However, this space is tucked away and virtually invisible from any of the main entrance roads; it fails to act as a place of arrival or distribution. It is also an unattractive space, with no landscaping or gardens, no urban furniture and is surrounded by municipal buildings which are open only during office hours. Its design and location fail to make it a viable center for the city.



Figure 12: Location of Revolution Square. The space is tucked away, surrounded by municipal buildings and removed from main arteries.



Figure 13: Photo of Revolution Square. Source: Author

2.2 Gridiron plan and Topography

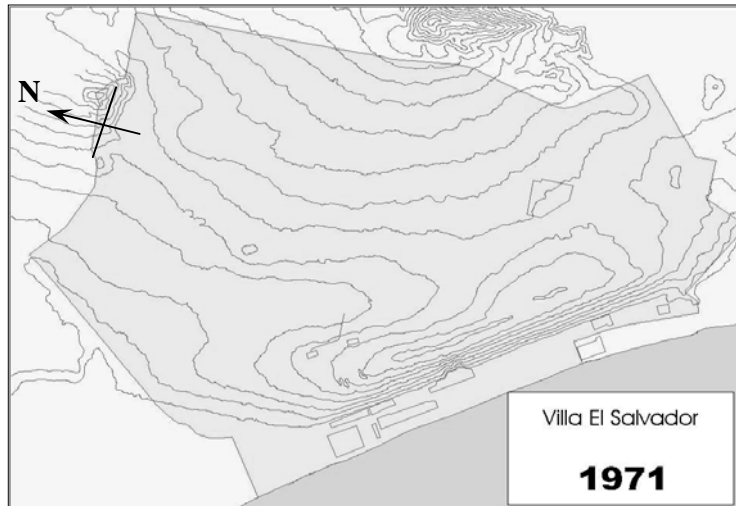


Figure 14: Site for VES, topography lines every 20 meters (66 ft).

The repetitive quadrangular grid disregards changes in topography. At first glance, one has the impression that the whole city is laid out on flat ground. The plan makes no reference to topography, views of the landscape or geographical features of the terrain.

2.3 Barriers

To the north, there is a strong barrier that goes along the Industrial Separator Avenue: the electric train. The train runs at street level but is separated from traffic by a fence that runs along its entire path. This creates an impenetrable wall between the industrial and residential areas. There are also strong barriers between the recreational and residential areas of the city. These are constituted by tall walls that surround the two Zonal Parks of VES. These parks are open to the public, but only on a limited schedule. Though people use the grounds quite intensively, particularly during the weekends, the parks do little to enhance the urban environment of the city.



Figure 15: Barriers along Industrial Separator Ave. and around Parks.



Figure 16: Electric train right of way along Industrial Separator Ave.

2.4 Traffic

The boulevards with the widest section run along the northeast-southwest axis, while the most intense traffic movement actually occurs along the north-south corridors (towards the center of the city). This creates severe traffic congestion in the two main points of entry to VES from the northern districts.

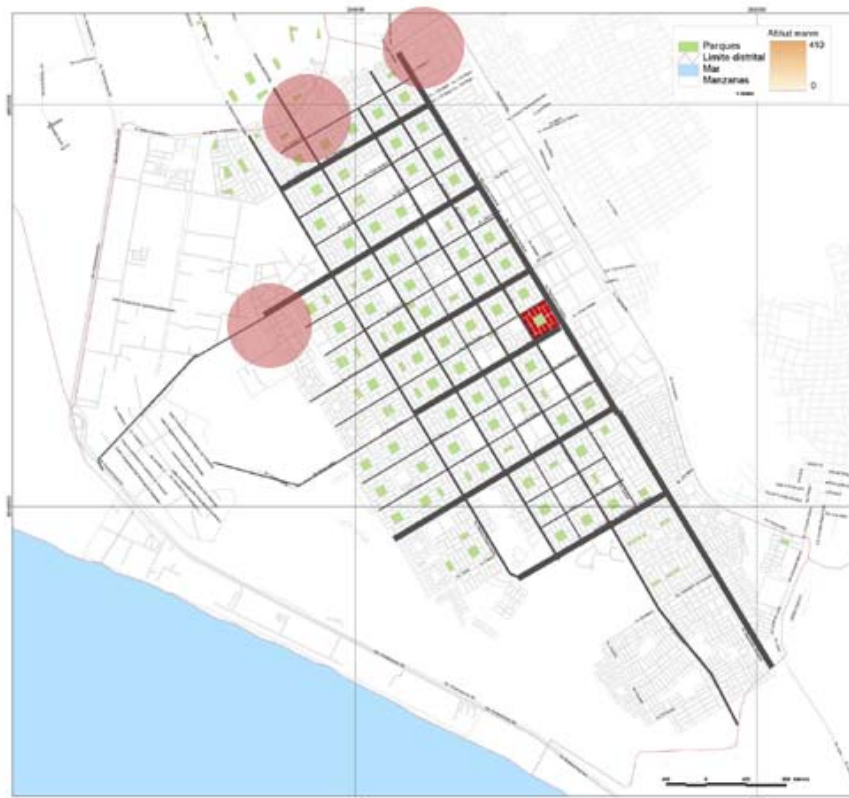


Figure 17: Traffic bottleneck areas.

2.5 Weak connection to the metropolitan street grid

Connections to the metropolitan arterial corridors to the north and west (Pan-American Highway) are weak and indirect, usually achieved through smaller, winding streets connecting to larger avenues.

1. *The public transit system is not interconnected:* neither local nor metropolitan bus routes stop at the train stations, and the train only runs along 3 stops within the district, without connecting to any other form of transport. Thus, the public transport system in this area is not an integrated network, and as a consequence, ridership on the train is minimal. This is particularly true within VES, where the only way to reach the train stations is by walking, thus limiting the public's access.
2. *Weak connections to the coast:* There are no physical or visual connections to the ocean and the beaches that are part of the city's jurisdiction and which could be used for recreational purposes.



Figure 18: Weak connections:

1. The electric train operates on a very limited track along the Industrial Separator Avenue. Train stations do not coincide with bus stops and are therefore only accessible to those within walking distance of them.

2. Ave. Pachacutec is one of the main access points to VES, yet it does not connect directly to any arterials.
3. Ave. El Sol is a long winding secondary avenue that connects to the Panamerican Highway, major North-south corridor.
4. Lack of visual connections to the ocean, no access to the beaches.

2.6 Use of public spaces

The original purpose for having large squares at the center of each residential unit was to contain urban parks, community rooms and public infrastructure, such as daycare centers, churches, health care facilities, shelters, etc. Though many squares have concrete slabs for soccer courts (which are heavily used), and a few have one-room multi-purpose community halls, the provision of community facilities has generally been very slow and inadequate due to the lack of municipal resources. As a result, the vast open spaces are ill-equipped and under-utilized.



Figure 19: Open spaces in VES

Chapter 3: A Masterplan for VES

3.1 Elements

In order to address these issues, this thesis outlines the following main elements for a masterplan for VES:

3.1.a A green network:

A network of parks, boulevards and landscaped plazas. To introduce and maintain vegetation an irrigation system needs to be put in place by the municipality to ensure the maintenance of greenery in public spaces. A low-technology irrigation system can be implemented using recycled sewage water from the sewage treatment center located in the northern Zonal Park. This water, though not safe to drink, can be used to irrigate plants and trees along boulevards and parks. Vegetation plays an important role in improving the urban environment and the air quality and can also be used to delineate paths, create edges and shaded areas for pedestrians.

3.1.b Center

The creation of a clear and identifiable center, visible from the main avenues and accessible from the district's main entry corridors. To turn the "Revolution Square" into more of a main plaza, the masterplan proposes to open it onto the Boulevard. Doing this places the square in a much more visible position, since it would be accessible from one of the larger avenues.



Figure 20: New proposed orientation of Revolution Square

3.1.c A network of designed public spaces

VES is organized around a system of open spaces composed of residential squares (at the center of every residential group) and boulevards (wide and long expanses of open space along the main northeast-southwest corridors).

As they stand now, most of these spaces are barren pieces of desert land. To use the existing open spaces more effectively this plan proposes to consider the open spaces at the center of each residential unit as opportunities for infill development. New constructions would be organized around smaller, more manageable urban squares, creating a network throughout the entire district. This proposed networked is explained further in the following section.



Figure 21: Proposed network of plazas and pedestrian paths.

3.1.d A network of infill development

The core element of this proposal is a strategy for infill development aimed at increasing the built density, providing quality urban spaces and needed infrastructure for the district on the only vacant sites in the area: the open spaces at the center of each residential unit. These spaces are large enough to include 3 main zones: mid-density infill housing, landscaped urban plaza and mid-scale institutional/educational/service facility.

The physical elements that create the network are the following:

- *Towers*: tall, distinctive elements that tower over low-density residential buildings. These towers can be seen from a distance and help pedestrians orient themselves, much in the same way that church towers do in the colonial city.
- *Paths*: describe circulation and movement. Asphalt paving is both expensive and not environmentally conscious. However, some kind of paving is necessary to cover the sandy soil. Low-cost, durable materials can be considered for paving of pedestrian paths and streets.
- *Courts*: landscaped open spaces that serve as gathering spaces and lead to the service facilities on the site. Soccer courts are maintained wherever possible, since they seem to be the most successful amenity in the spaces as they exist today.
- *Infill building blocks*

Chapter 4: Creating public space in VES, following an urban tradition

The purpose of an urban plaza is to provide a quality urban space for passive recreation, social interaction and the general enjoyment of residents and visitors alike. The urban plaza in VES serves a series of purposes within the proposed Masterplan:

1. It is an element within the network of infill development
2. It is a place of assembly and interaction; serves as the vestibule for the community hall and the craft center.
3. It embodies a link to the city's urban tradition
4. It creates a link to the greater Lima, if not physically, at least typologically.

Designing an urban space in VES presents a specific set of challenges. One of these is a contextual issue- how does a new design fit within a city that is half-built and haphazard? What design elements should the new building make reference to? On the

other hand, Villa is, relatively speaking, a very new development and in many ways its urban environment is still being formed.

In this case, a typological approach to design might help create an urban environment that does not feel foreign. By appealing to the collective memory of residents- not the memory of what the place was before they arrived, but rather the plazas, atriums, passages and promenades that are part of the regional urban tradition. The goal is to create a space that will not seem strange or foreign and that will be embraced by its users, regardless of what part of the country they are from.

Typology acknowledges that the act of building is more than just creating shelter, and that architecture is more than just “decorated shed”. It is the observers’ way of relating to their environment, and as such, also a reflection of society. In this sense, typology, as the junction of history, memory, society and environment helps us bring theory, practice and place together. It helps us tie thinking and experience... the new paradigm might be: *“I think, therefore I am, therefore I dwell, therefore I build.”*³⁵ Thinking typologically allows the architect to observe and be critical about the complex circumstances that surround a site and integrate them to the design process. Though this will not guarantee architectural quality, it brings into the design process the profound motivations that, beyond building codes, difficult clients and commercial developers, are what architecture is all about. For, as Frank Lloyd Wright wrote:

“What is architecture anyway? Is it the vast collection of the various buildings which have been built to please the varying taste of the various lords of mankind? I think not.

³⁵ Paraphrasing Guido Francescato, professor

"No, I know that architecture is life; or at least it is life itself taking form and therefore it is the truest record of life as it was lived in the world yesterday, as it is lived today or ever will be lived. So architecture I know to be a Great Spirit..."

"Architecture is that great living creative spirit which from generation to generation, from age to age, proceeds, persists, creates, according to the nature of man, and his circumstances as they change. That is really architecture."³⁶

³⁶ Bruce Brooks Pfeiffer and Gerald Nordland, ed. Frank Lloyd Wright: In the Realm of Ideas. p7.

4.1 Designing familiar places: Typological precedents in Historic Lima

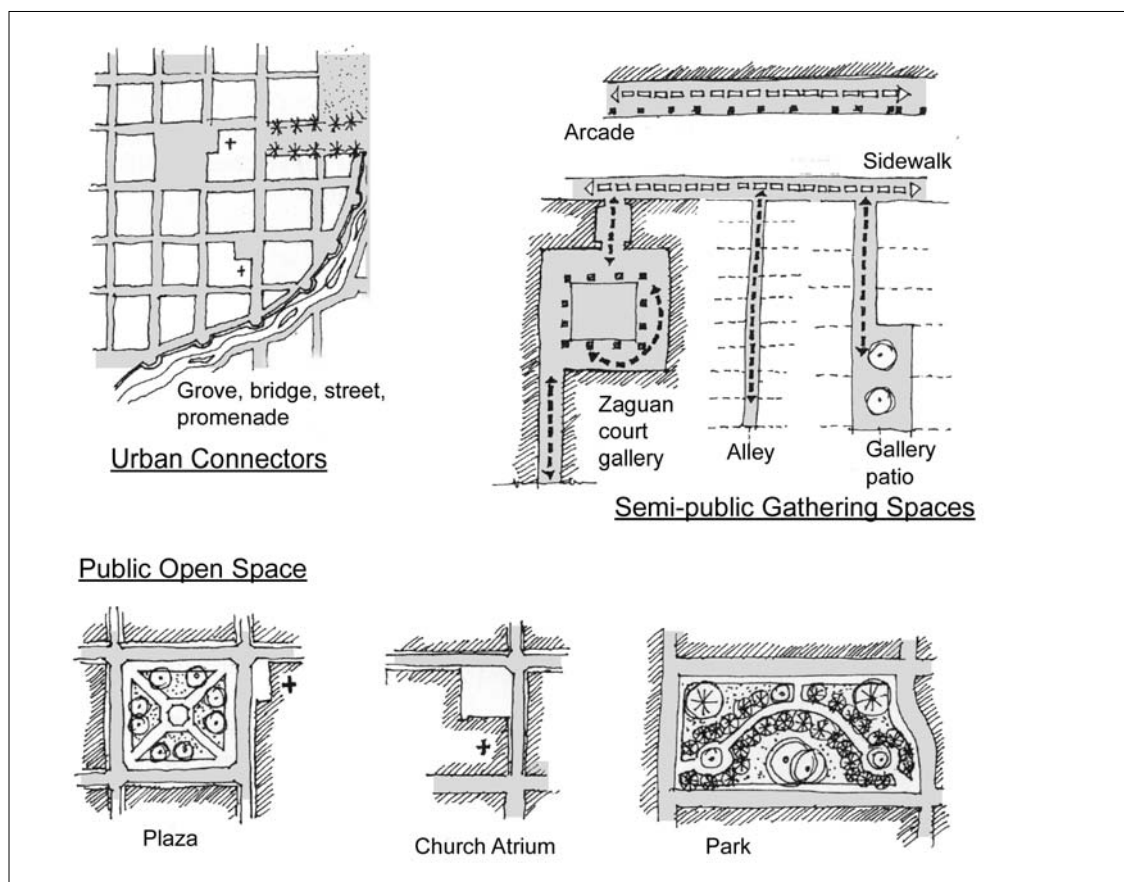


Fig. 22: Typical urban connectors, public open spaces and semi-public gathering spaces in the Colonial city.

The spaces depicted on the top are contact or connection spaces of varying scales. At the city/neighborhood streets, bridges, groves and promenades are the primary connective spaces. At the block level, courts, galleries, alleys and patios serve as connectors. The spaces depicted at the bottom are gathering spaces of different scales. The plaza acts as the principal gathering space at a metropolitan level. The Church atrium is designed to welcome congregations usually within a district. Neighborhood parks have a smaller radius of influence, usually determined by walking distance.

Source: Popular Architecture in the Peruvian Coast, p.115

4.1.a The Plaza

“The plaza is an essential element of the city. Without it, it is impossible to conceive of a city [...] visiting cities is [in fact] visiting plazas.”³⁷

The Latin American urban tradition is based on the plaza which was introduced by Spanish colonists. The Spanish plaza is an ordered, formal, centralized and centralizing urban space. A principal square, or *plaza mayor* also organizes around it administrative, political and institutional buildings. It is a stable, static space that at the same time sponsors traffic and activity. It is place of reunion of multitudes, stage for festivals and feasts. The plaza is the heart of the city and is its generator and the module that defines its entire urban structure.



Fig. 23: Aerial view of Plaza San Martín in Lima. Spanish plaza is a well defined, centralized urban space. The facades around the plaza are a continuous plane that contains the space.
Author: Nelson Vela, “El Comercio”

³⁷ Bonet, op cit p.175

Lima's main plazas were designed according to Charles V's ordinances or later, Phillip II's Laws of the Indies. The latter established that plazas should measure from 60m x 80m to 150m x 220m, golden section proportions like those of Madrid's *Plaza Mayor*. However, since this was established after the foundation of most American cities, it was not the most widely used model in the New World. Most American plazas are in fact, square.

The distribution of building sites around the plaza was also determined by the Spanish Crown. In Phillip the II's Ordinances of 1573, it was established that the first buildings to be erected in the city would be those around the plaza, that would be the Church (first and foremost), the seat of the city council and the seat of the Crown's government- the Royal Palace. No sites would be distributed to individuals.



Fig. 24: View of Lima's Cathedral through the arcades that surround 2 sides of the Plaza Mayor.
Author: Domingo Garibaldi

Because of its central location, the plaza is a tour de force when visiting any Hispanic city; it therefore constitutes an essential node, a point of arrival, orientation, and/or distribution. The architecture that surrounds it is what gives it character and function. In the main squares of Hispanic-American cities, the main institutional buildings are located on its 4 sides:

- *East:* the church and Episcopal palace
- *West:* city council seat
- *North:* Viceroy's Palace
- *South:* homes for the nobility or distinguished citizens

Arcades were to surround the remaining sides of the square, creating, together with the main public buildings, a tight and well-defined skin around the open space.

4.1.b The Street

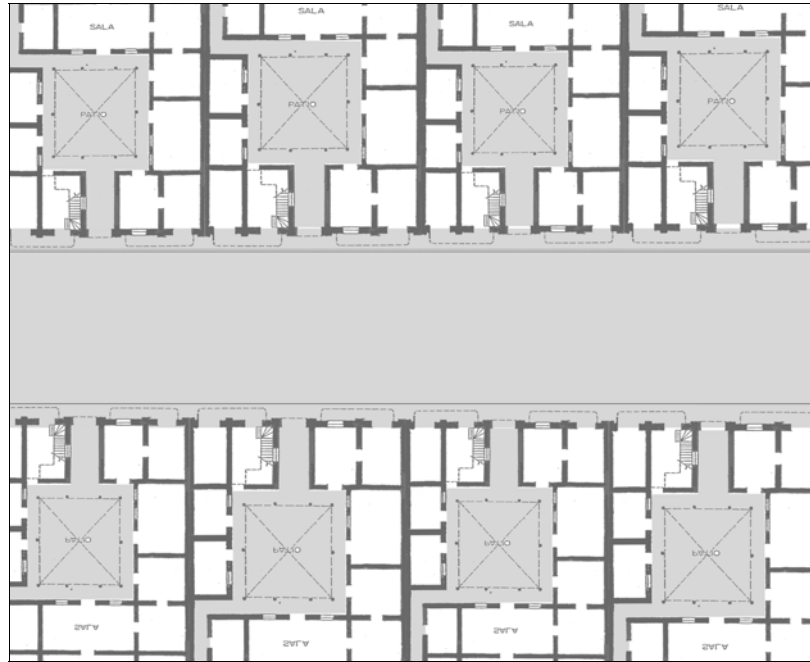


Figure 25: Diagram of semi-public spaces on a typical colonial street. Shaded areas show the public street space and the semi-public courtyard, connected through the “zaguan”, or entrance hall.

If the layout of Spanish American cities is inherently Renaissance, the development of the street space is essentially Baroque. The typical colonial street in Lima was 10 meters wide and was flanked by 1 meter wide sidewalks. Facades were aligned with the sidewalks, creating a strong, continuous plane along the length of the street. However, the interior courtyards, visible from the street through open doors or ornate gates, were part of the space of the street, creating a kind of pod-diagram of open spaces.

Creating a sort of canopy above the sidewalk were the typical enclosed balconies, which were influenced by Moorish architecture. These enclosed balconies were meant to allow

the women to view the activity on the street without being seen (since this was considered inappropriate).

Though Lima's plan suggests a very severe grid pattern, in reality it allows for the creation of various types of urban spaces, mainly at the corners of Churches. Thus, the street widens and contracts, modulating the spatial flow and creating finite, well defined spaces that are typically Baroque in their conception.



Figure 26: Typical street in Lima's Historic Center.
Photo: Author

4.2 Typological Survey of VES

4.2.a The Street

There are 3 basic types of streets in VES. The First is the Boulevard:

The Boulevards in VES are 80 meter-wide (264 feet) streets with two lanes in each direction and a vast median in the middle. They are very straight and have a very clear geometry. However, they are so wide that the 2-4 story constructions that flank them are not enough to contain the space.



Figure 27: Typical boulevard in VES. Right of way: 80 linear meters

The second type of street is the Commercial Avenue:

Commercial avenues are less wide and more crowded than the boulevards. The zoning plan allows for strips of commercial zoning along these corridors, at a higher building height. So these are the most dense areas of the city, and also some of the most chaotic.

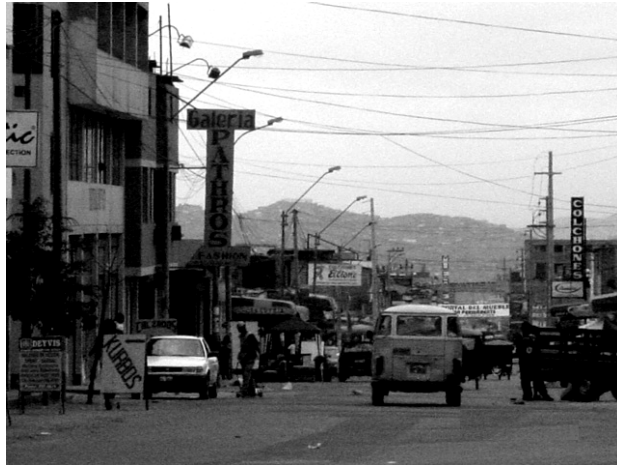


Figure 28: Typical commercial corridor

The third type of street is the residential street:



Figure 29: Typical residential street

Residential streets in VES are narrower than the previous types, about 12 meters (40 feet) wide. They are usually flanked on both sides by low-density housing, usually 1-3 story houses. Almost all residential streets in VES are unpaved and lack sidewalks.

Buildings are placed close to the edge of the sidewalk. This is reminiscent of the colonial city, where there is a tight relationship between the house and the sidewalk.

Chapter 5: Housing then and now

5.1 The courtyard house: a succession of interior spaces

If the city is organized around the plaza, in much the same way, houses were organized around the courtyard, or *patio*. Colonial life in Hispanic America concentrated around two fundamental spaces: the plaza and the patio. “Family life, public life, intimacy and community, the plaza is the *patio* of all *patios*.”³⁸ As the patio was a space for the congregation of people and distribution of circulation, the plaza performed the same functions for the city. If the city was modeled after the Roman *castrum* plan, the precedent for the courtyard house was the Roman *Domus*.

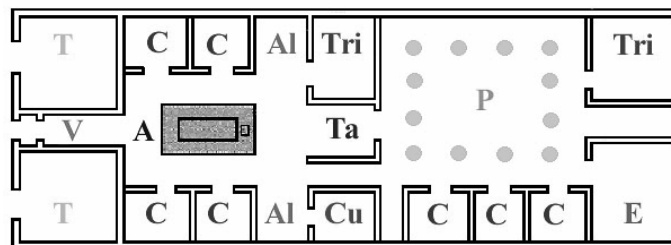


Figure 40: Plan of a Roman Domus.

| | | |
|-----|------------|-----------------------------|
| A | atrium | formal entrance hall |
| Al | ala | "wings" opening from atrium |
| C | cubiculum | small room; bedroom |
| Cu | culina | kitchen |
| E | exedra | garden room |
| P | peristylum | colonnaded garden |
| T | taberna | shop |
| Ta | tablinum | office; study |
| Tri | triclinium | dining room |
| V | vestibulum | entrance hall |

³⁸ Bonet, op cit p.178

The typical Spanish colonial house occupied one fourth of a block (or *solar*) and was organized around a series of open spaces. The first open space was called the “patio” and it was visible from the street through a passageway called the *zaguan*. This first open space was a semi-public space where guests were received and packages were delivered. This space was usually surrounded by a colonnade that served as hallway to the rooms on the ground floor (usually offices and dining rooms). The main staircase to the second floor would be located in this courtyard and would lead to the main parlor (facing the street) and the bedrooms (facing the interior court).

At the ground level, a passage connected the first court with the second court: the *traspatio*. This was mainly a service area, with access to the kitchen, servants’ quarters and the back garden or orchard.

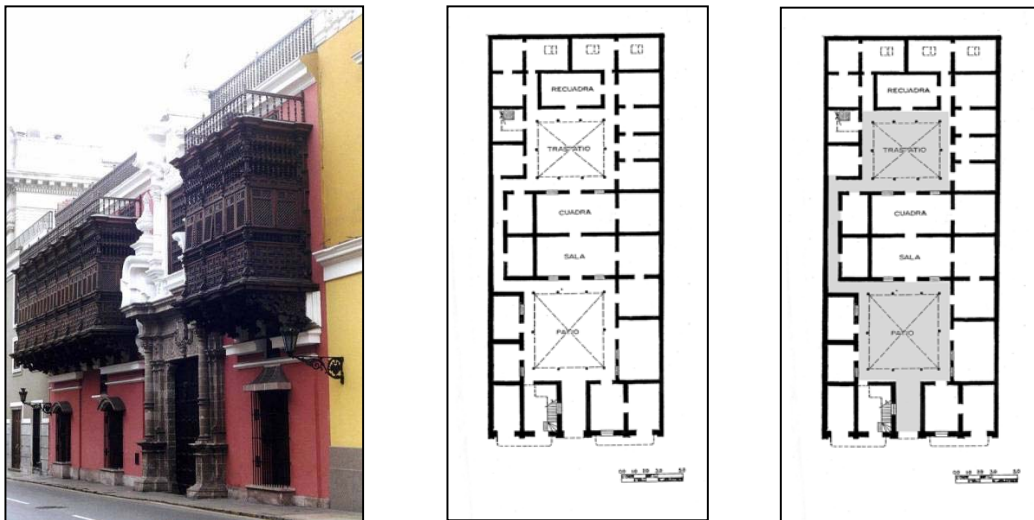


Figure 31: Façade and floor plans of a typical courtyard house in Lima.
Source: Author



Figure 32: View from the street of an interior courtyard, looking through the “zaguan” or entrance hall. Source: Author

5.2 The Coastal Ranch: Architecture suited to the environment

The coastal ranch was a more modest house than the courtyard house. Originally it was the typical house of fishermen and port workers. Later, more and more houses in beachfront neighborhoods became vacation homes for wealthier sectors of the population; however they always maintained a more modest configuration than the city courtyard houses.

In the ranch, the house opens directly to the street through a narrow porch, which is also the main gathering space of the house. Tall ceilings and clerestories make the house a very fresh and well ventilated structure- ideal for the hot summer months on the coast.



Figure 33: Watercolor drawing of typical coastal ranch houses side by side.
 Source: Popular Architecture of the Peruvian Coast, p.54

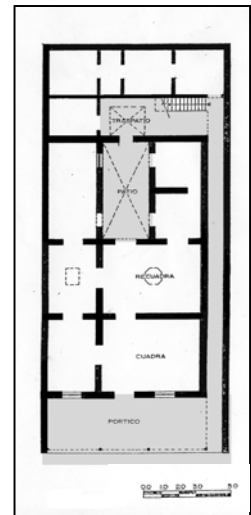
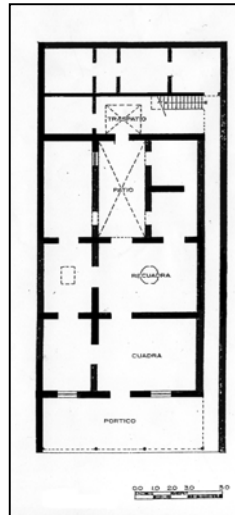
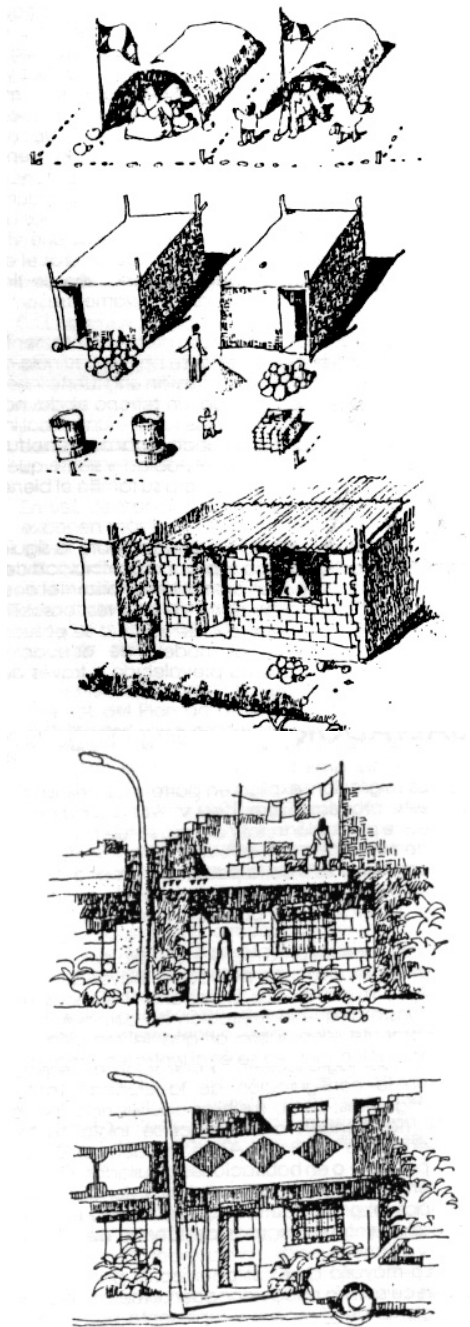


Figure 34-35: Typical plan and sequence of spaces in a coastal ranch.
 Source: Popular Architecture of the Peruvian Coast, p.57

5.3 Evolution of Housing in VES



The sketches on the left show the typical evolution of housing in informal settlements in Lima, such as VES. The initial form of lot occupation is the shack. In time structures become more solid and basic services are gradually implemented.

The typical house in VES is built flush against the sidewalk and rooms are arranged along the narrow, long lot similar to that of the coastal ranch. However, the porch- semi-public, transitional space- is no longer present.

However, many times the sidewalk begins to act as that space, when children sit at the front step and play with friends or neighbors gather to talk.

Figure 36: Evolution of housing in informal settlements
Source: VES: The city and its development, reality and proposals; p. 14.

5.4 The parallel house: A model for mid-density self-help housing

The model for self help housing in Peru to this day has been that of the single unit on a lot. It is also typical that the original single-family house progressively expands vertically to reach up to 3 stories, each housing an individual apartment. However, the model rarely reaches a density of 4 stories and the slow process results in a few problems as well. The first is that due to the way in which these houses expand- in phases, haphazardly, according to the particular needs of a certain time rather than to the final design of the building as a whole- the quality of the final structure is usually quite poor. This affects not only the quality of life of the families who inhabit them, but also affects their investment since the final building has not appreciated in value and will probably not be able to be sold for a profit. This has been the result of the lack of participation of architects and engineers in the production of housing in the informal city. A new concept has been developed recently in Latin America for the creation of a new typology: the parallel house. It was born from a design competition funded by the Chilean government to solve the following problem: designing quality neighborhoods within the city, with safe structures with the flexibility of planned growth, each for US\$7500 (the amount of the housing subsidy). Given the construction and land costs, this is enough to create a housing "core" of about 30 sqm. (about 270 sqft) that can later be expanded by each family through self-help construction.

The idea of the “parallel house” aims to do the following:

- abolish the single-family per lot system
- increase the density and efficient use of land
- maintain the possibility for growth of each unit

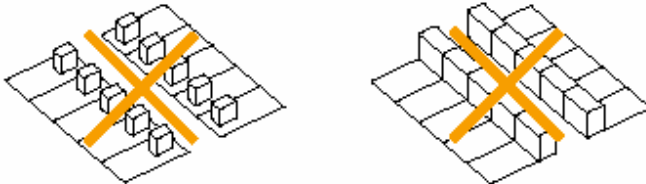


Figure 37: Different single-family lot options leading to sprawl and overcrowding.
Source: www.elementalchile.org

ELEMENTAL SCHEME OF THE PARALELL HOUSE

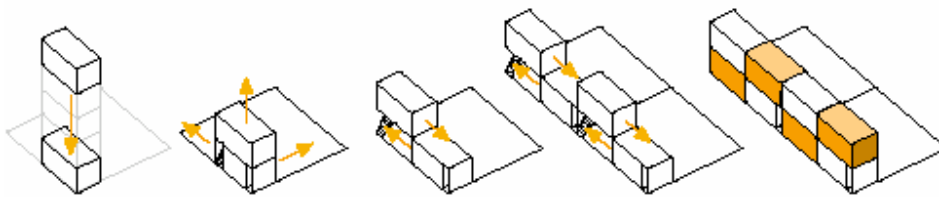


Fig. 38: Units grow within planned spaces so the final structure is conceived as a whole from its inception.
Source: www.elementalchile.org

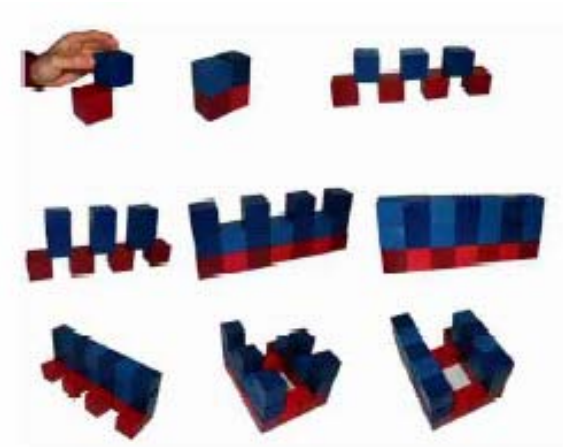


Fig. 39: Blocks showing different grouping options.
Source: www.elementalchile.org



Fig. 40: Design of a core parallel housing block.



Fig. 41: Housing block after the self-expansion process.
Source: www.elementalchile.org

Though at the moment there is no housing subsidy of this type in Peru, the model can be adapted to the existing financing mechanisms and local technologies. Thus, the mid-density housing proposed in this urban core corresponds to 4 story units produced under the progressive housing model.

Chapter 6: Design for Development- addressing program and process

“We recognize the imperative need to improve the quality of human settlements, which profoundly affects the daily lives and well-being of our peoples. There is a sense of great opportunity and hope that a new world can be built, in which economic development, social development and environmental protection as interdependent and mutually reinforcing components of sustainable development can be realized through solidarity and cooperation within and between countries and through effective partnerships at all levels ”

- Preamble, Habitat Agenda, Istanbul, 1996

This thesis argues that urban planning and urban design in the informal city can be motors of economic growth and poverty reduction. The following section attempts to outline a framework within which urban planning and design can be conceived in order to bring about sustainable development and thus alleviate poverty.

6.1 Defining sustainable development: Agenda 21

The concept of sustainable development has been around for several decades, but more recently it has become the core of a comprehensive framework for improving urban environments in the developing world. Though sustainability is often referred to in the context of ecological conservation, it does not only refer to the natural environment. More and more sustainability is referred to in terms of the built, urban environment. In either case, the basic idea is to ensure a better quality of life for everyone, now and for generations to come. According to the World Commission on Environment and

Development, sustainable development “...meets the needs of the present without compromising the ability of future generations to meet their own needs”³⁹. Although the concept is simple, sustainability encompasses a very wide range of issues.

During 1990s the attitude regarding sustainable urban development shifted from a previous technical focus on infrastructure and environment to a more holistic strategy involving capacity building and social development.⁴⁰ This approach promotes good governance, job creation, capacity building and strengthening of institutions through the creation of partnerships between the private sector, civil society, and government. These views were described in the World Bank’s 1991 Urban Policy Papers, which identified four key objectives for urban programs:

1. To increase understanding of urban issues
2. To improve urban productivity
3. To alleviate urban poverty
4. To protect the urban environment

The Urban Policy Papers outline a framework for urban development grounded on local initiatives and citizen participation, favoring bottom-up approaches to development projects.

6.1.a Sustainability at the city level

The Urban Policy papers and the growing interest in sustainability have helped shape the City Development Strategies (CDS) framework proposed by the Cities Alliance.

Cities Alliance is an organization launched by the World Bank and the UNCHS (Habitat)

³⁹ Source: Global Development Research Center website: <http://www.gdrc.org/sustdev/definitions.html>

⁴⁰ Literature Review p.16 Sanderson

in 1999 creating "... a global partnership to help cities meet the challenges of the 21st century: pro-poor policies; good urban governance; and prosperous cities without slums."⁴¹

Community participation at all levels, starting from the formulation of the vision for a city, is at the core of CDS. These strategies represent holistic approaches that go beyond physical planning and infrastructure upgrading to promote sustainable cities, upward mobility for the poor and contribute to national economic progress. This is particularly significant in the context of developing countries, where urban planning is not usually considered as a motor for economic growth and/or job creation.⁴²

To achieve these goals, CDS are structured around the following principles:

1. *Good governance*: CDS are sustainable and decentralized approaches that create opportunities for civic participation and aim to deliver equitable and transparent solutions to urban problems; they also emphasize community ownership of development projects through participatory planning processes.
2. *Enablement*: CDS provide a legal framework that empowers local governments to implement poverty reducing initiatives. They also promote partnerships between government, private sector, civil society and international agencies as tools for development.
3. *Capacity building*: CDS include development of human resources.
4. *Vibrant markets*: CDS promote and support active markets, including the informal sector. They focus on poverty alleviation and social equity.

⁴¹ Cities Alliance website: www.citiesalliance.org

⁴² Literature review p.15

6.1.b Sustainability at the local level

At the local level, sustainability is addressed by the Agenda 21, a Program of Action adopted by over 170 nations at the Earth Summit in Rio in 1992. The Agenda recognizes that quality of life and the quality of the environment are inextricably linked. As well as dealing with traditional environmental concerns, the program addresses the social aspects of sustainable development, including socio-economic issues (e.g. combating poverty and promoting human health), inclusion of vulnerable sectors of the population (e.g. women, indigenous people, the disabled) and provisions for implementation strategies (e.g. international aid, public awareness campaigns, education).

Local Agenda 21 (LA21) refers to the development of smaller scale sustainable development action plans. Much like the CDS, LA21 plans are drawn up by local communities based on their own priorities and goals. These plans are then implemented through partnerships with local stakeholders.

6.1.c Addressing Urban Poverty

The three frameworks described above, from the macro to the local level (Urban Papers, City Development Strategies and Local Agenda), have poverty alleviation as one of the paramount goals for development. In order to accomplish this, it is necessary to understand more about poverty in cities in the developing world.

Poverty in developing countries is prevalent both in urban and rural areas. However, the conditions that perpetuate poverty cycles differ between both settings. Understanding some of the conditions that promote urban poverty will help in developing more appropriate responses. According to Satterthwaite (1997), some of the issues that contribute to poverty that are specific to the urban setting are:

- *Higher costs of living.* Urban dwellers face higher costs for transportation, education, housing, food, healthcare and childcare.
- *High cost of infrastructure provision:* though it is true that urban dwellers have access to a greater range of services, it also comes at a higher cost. This is particularly true in informal settlements, where introducing the level of infrastructure required by conventional urban development makes it unaffordable for the urban poor (Mitlin, 2002). Thus housing provision and employment services have been provided almost exclusively through the informal sector. The inclusion of informal processes and activities has become a necessary component of poverty reduction strategies in developing countries
- *Exclusion from public services and institutions:* Often the poorest urban citizens, those who do not have steady employment or land tenure do not have access to social security, education, health, etc.

Mitlin (2002) points out additional barriers to development of the urban poor in the third world. Among them is the lack of Municipal resources for infrastructure or development projects. This is particularly true in informal settlements, where municipalities cannot rely on property or service taxes as a source of income.

6.1.d Pro-poor growth: economic growth and redistribution of resources

City Development Strategies are based on the assumption that economic growth is a necessary condition for poverty alleviation. However, Economic growth does not directly result in poverty reduction if profound inequalities exist and therefore the distribution of wealth is uneven. Thus, the impact of economic growth on poverty reduction is dependent upon both the initial situation and the emphasis given on the redistribution of

resources.⁴³ Evidence from a number of countries suggests that labor intensive programs are particularly suited to providing economic growth and poverty reduction, developing human capital at the same time.⁴⁴ Furthermore, sustained economic growth demands a skilled and flexible workforce. This outlook on development strategies has developed into “pro-poor growth”⁴⁵.

An important component of pro-poor growth is the proposal of local level initiatives supported by municipal governments (Amis, 1999). Though economic policies are designed at the national level, local municipalities can play a key role in facilitating equitable growth acting as mediators between macro policies and local initiatives.

Another important component of pro-poor growth is the support of the informal sector. “Poverty reduction efforts must take into account the fact that the majority of the urban poor secure livelihoods through the informal sector, either through self-employment or wage employment.”⁴⁶ In developing countries government departments are often incapable of responding to the needs of poor communities. In such situations, more importance should be given to the informal processes, which are more flexible and thus adapt to the varying needs of the poorest citizens.

One example of an initiative in which support for informal processes proved to be the more favorable solution is the Orangi Pilot Project (OPP), a low income housing development initiative in Pakistan. This project proposed to involve the government in

⁴³ Amis, Philip (1999) Urban Economic Growth and Poverty Reduction, in Urban Governance Partnership and Poverty Theme Paper 2, IDD: Birmingham

⁴⁴ World Bank (2000) Development Report: Attacking Poverty, World Bank: Washington D.C.

⁴⁵ World Bank (2000) Development Report: Attacking Poverty, World Bank: Washington D.C.

⁴⁶ Tayler (2000:11)

the people's processes rather than the other way around. Initiatives like the OPP have recognized that in informal settlements, people are their own planners, builders and financiers, and that such processes need to be encouraged and facilitated by the authorities. Proposals like these redefine the role of government in developing countries from service provider to "enabler." (Hasan 1997)

Empowering local governments and supporting the informal sector are two ways of ensuring greater distribution of economic growth. A third way is to promote local economic development through the support of micro-businesses. In recent years, many urban upgrading projects around the world have included an enterprise development component. The goal here is to reduce poverty by increasing citizens' opportunities for direct involvement in economic activities, particularly at a small scale. Hopkins (1995) suggests 4 requirements for a successful local economic development strategy:

1. A comprehensive view of community needs
2. Action focused on critical social needs sector
3. Availability to develop experience and technical skills to make these interventions
4. Advocacy skills and political awareness

In order to further ensure a more equitable distribution of economic growth, there is a need for greater emphasis on efforts to link community businesses and local government into economic development strategies.

6.2 A Craft Development Center in VES: Poverty alleviation and sustainability strategies

Though the documents and cases described above cover a wide range of situations and talk about sustainability in varying scales and geographic locations, there seem to be underlying principles that are common to all. One constant element that is pivotal to successful initiatives is public participation. Though participatory processes lie beyond the scope of this thesis, it is important to note that in a real scenario, the process would begin with direct community participation.

At the broader scale, taking advantage of existing open spaces as sites for development aims to improve the quality of the environment and to promote a less wasteful use of land, thus helping to curtail sprawl. The 144 residential squares are currently mostly vacant, zoned for passive recreational uses and owned by the Municipality of VES. However, due to very limited funds and resources, the municipal government is unable to embark on any large scale planning or development projects. This project proposes that the urban spaces be considered as assets by the Municipality to establish partnerships with the private and non-profit sectors to encourage needed development. This would empower the local government by monitoring partnerships that would promote local development. These partnerships create mutually beneficial scenarios for all partners involved and grant the municipal government the necessary tools to bring about new development. In terms of strengthening assets, the creation of a network of urban cores would help to increase the value of the land through the improvement of the urban environment. It also allows for the provision of much needed facilities that are assets for the neighborhood.

The Craft Development Center proposed in one of these cores aims to bring employment and training opportunities to the periphery of the city, closer to the textile artisans. This allows local residents to avoid high commuting costs, thus improving their

individual economies. Bringing the center to the periphery also provides opportunities for social interaction between groups of people that might not otherwise have a chance to interact: designers with artisans, co-workers with neighbors, center's community with the local residents.

As was found in previous sections of this document, women are a vulnerable sector within the working population. The center employs and trains hand-knitters, who are traditionally predominantly female. Thus, the center targets training and employment opportunities mainly for vulnerable sectors of the population, complying with Local Agenda 21 best practices.

In terms of pro-poor growth, a center of this nature in VES would contribute to the decentralization of employment and training opportunities; it is a local-labor-intensive initiative which also supports the informal sector, by allowing opportunities for seasonal and self-employment. The center itself addresses issues related to human capital, by promoting opportunities for employment and capacity building within a very impoverished sector of the population. It also supports grassroots organizations and by placing itself under the CITE model and joining forces with *Proartex* and *Rosimplex*, the project contributes to the strengthening of existing initiatives described in the following section.

6.2.a Local Assets

The Peruvian government, in an attempt to use Information Technology to promote national industries, has recently passed a law initiating a set of public-private partnerships in various sectors. These specialized Centers of Technological Innovation, called CITEs (acronym for "*Centros de Innovacion Tecnologica y Empresarial*"), are

“...public or private entities whose purpose is to promote innovation, quality and productivity, as well as to provide information for the competitive development of the different stages of production of national industries.”⁴⁷

The CITEs represent a juncture between the State, academia, International Cooperation agencies and the private sector. Its goals are:

- To facilitate and promote improvement, quality and product differentiation in national industries;
- To increase the efficiency of small and medium-sized industries so they will be competitive in the global market.
- To provide quality control, certification services, specialized technical assistance and advising and develop technical training programs.

⁴⁷ From: Law Number 27267: Regulations of Center for Technological Innovation: Chapter I, General Provisions.

6.2.b Rosimpex and Proartex

Proartex is a pilot project for the city-wide handicrafts industry. The goal of the project is to promote productivity in the different areas of the industry, thus contributing to poverty alleviation. Part of the project deals directly with textile handicrafts and this initiative so far has consisted in organizing the city's 3188 female knitters, bring them together through seasonal trade fairs and offer training for disabled persons in hand knitting and other textile handicraft skills.

From the information they have gathered, a significant portion of the city's knitters lives in VES, including 10 leaders out of a total of 68 for the metropolitan area. Many of them work from home and commute to fairs or companies they are working for. One of the companies that works directly with knitters from the different corners of the city is *Rosimpex*.

Rosimpex is a company that produces high quality sweaters and knits for the international market. They produce the label "Cotton for Fun", which has become a household name in several high-end clothing catalogs in Europe. They have been developing innovative designs using traditional techniques for years and found that it is a growing international market. However, they are a small company and this does not allow them to take large orders or put together a permanent professional design team.

PARTNERSHIP FOR THE VES CENTER FOR DESIGN AND DEVELOPMENT OF TEXTILE HANDICRAFTS

PRIVATE BUSINESS

ROSIMPEX
"Cotton for Fun"

- Runs the production and business management aspects of the partnership. It continues to function as a private, for-profit entity and brings its international clients with it.
- It is in charge of overseeing design development in the studio, production management, marketing and promotion of products, quality control, coordination with knitters, etc.

NON-PROFIT ORGANIZATION

PROARTEX

- Is involved in the center as the entity that congregates all the knitters in the region. It is the connection between the artisans and the center in VES and any other centers that may be involved in the same kinds of activities.
- It is also in charge of the educational and training aspects of the center, coordinating courses, seminars and lectures, organizing fairs, etc.

CIVIL SOCIETY

KNITTERS OF VILLA EL SALVADOR

- Receive training and employment opportunities

RESIDENTS OF RESIDENTIAL UNIT

- Make a commitment to make appropriate use of the community space, oversee its upkeep, etc.

STATE: FUNDING AND INTERNATIONAL COOPERATION

CITE

- Provides the link to international cooperation entities and both state and international funding sources. It outlines the legal framework for the establishment of the partnership.

LOCAL GOVERNMENT

MUNICIPALITY OF VILLA EL SALVADOR

- Allows use of open spaces to non-profit and for-profit organizations involved in the partnership
- Implements low-tech irrigation system for using water treated in the brown water treatment facilities in the Northwestern Zonal Park.

Fig. 42: Partnership for infill development

Chapter 7: Site Analysis

7.1 Survey maps and plans of site and surrounding area

7.1.a Weather and Climate

VES is located on the Tablada de Lurin Desert, characterized by having sandy soil. The climate is arid and temperate, with an annual average temperature of about 18°C.

Relative humidity varies between 85% and 95%, occasionally reaching 100% during the winter. Winds blow from north to south-west during the day, and from southwest to north during the evening. Winds have an average velocity of 2-4 meters/sec.

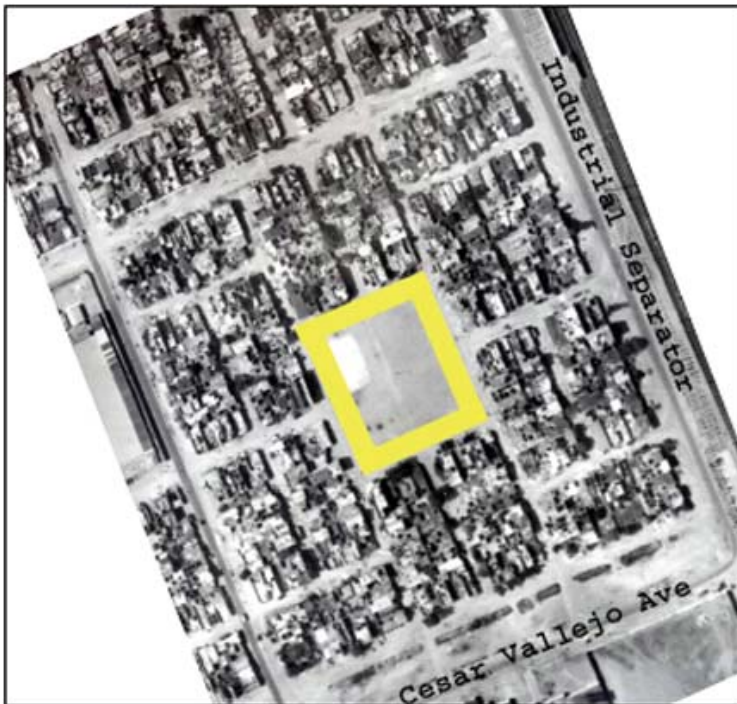


Figure 53: Aerial Photo. This photo shows the site and its immediate context. All the blocks surrounding the site are occupied, with varying levels of development. The only paved roads are the Industrial Separator Avenue, one lane of the Cesar Vallejo Blvd. and Central Ave.

7.1.b Existing land use and transportation patterns

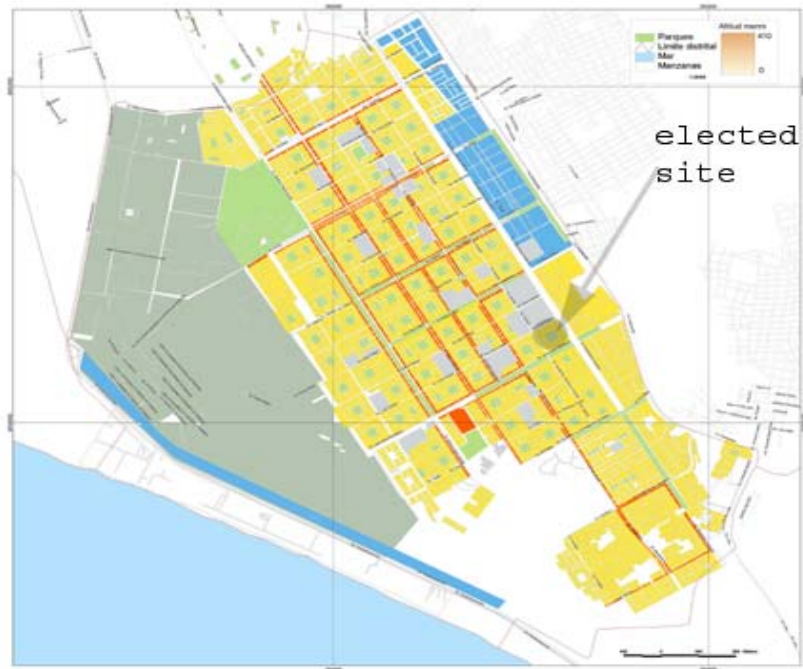


Figure 44: Zoning map of VES

7.1.c Site boundaries, topography and existing structures

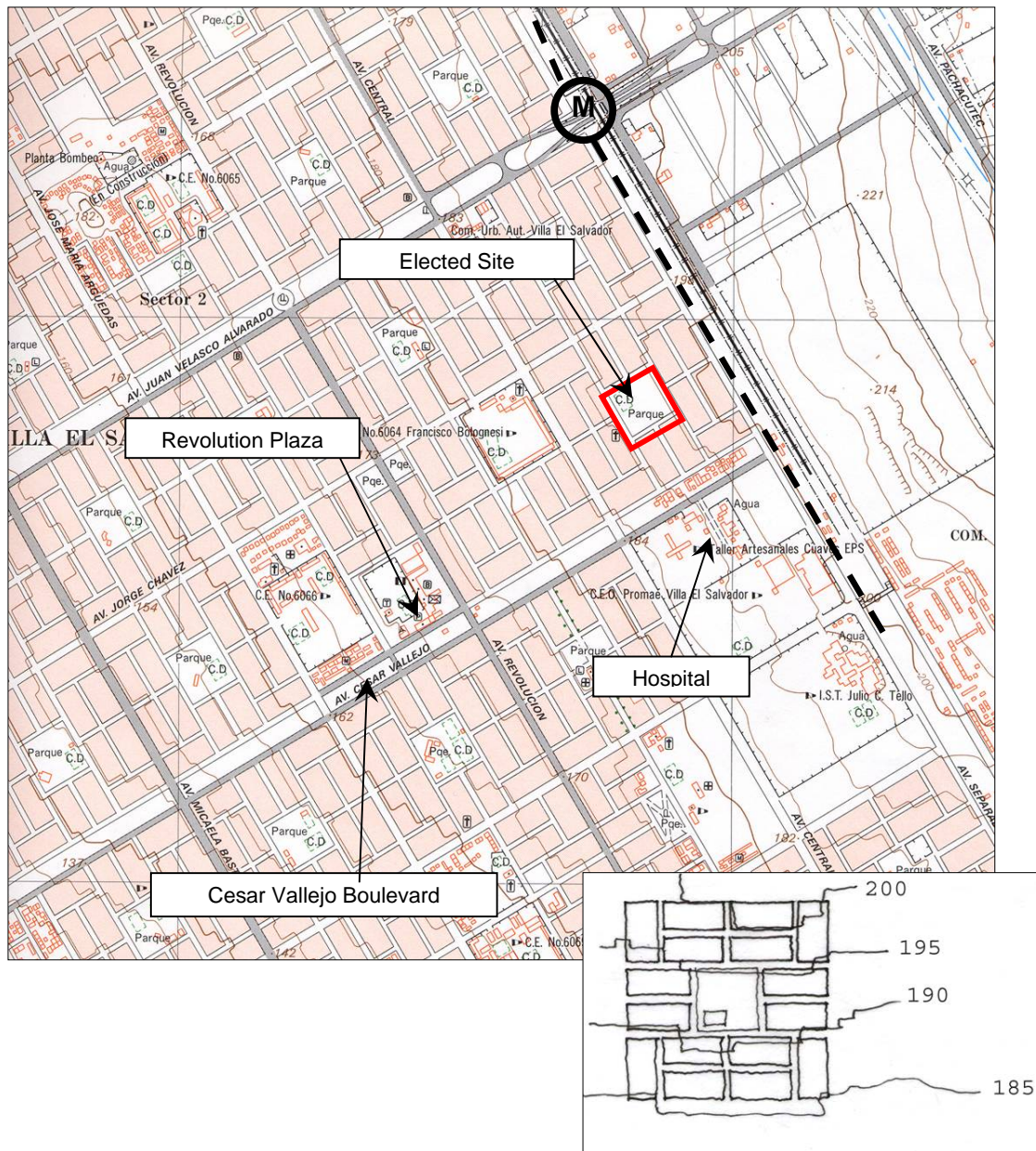


Fig. 45: Map

This map shows the site in its context. Topography lines are drawn every 5 meters. This site was chosen because of its location, close to the Cesar Vallejo Blvd. which is a major East-West connector; it is also within walking distance of the metro station, a Hospital and is across the street from the Industrial Sector. For these reasons, it is a very accessible site, both for local laborers and commuters. It is also a visible site, both from the Boulevard and the Industrial Separator Avenue.

Detail: Diagram of topographic lines crossing the site

7.1.d Photos of site and surrounding area

Fig. 46: Diagram locating views



Fig. 47-49: View 1
Approaching the site from the Boulevard.

Fig. 50: View 2
View past corner store



Fig. 51: View 3
Approaching the site on axis



Fig. 52: View 4
Approaching the space from the Industrial Separator Avenue.



Fig. 53: Facades Side A1



Fig. 54: Facades Side A2



Fig. 55: Facades Side B1



Fig. 56: Facades Side B



Fig. 57: Facades Side C



Fig. 58: Facades Side C



Chapter 8: Infill Strategies

8.1 Scale Comparisons

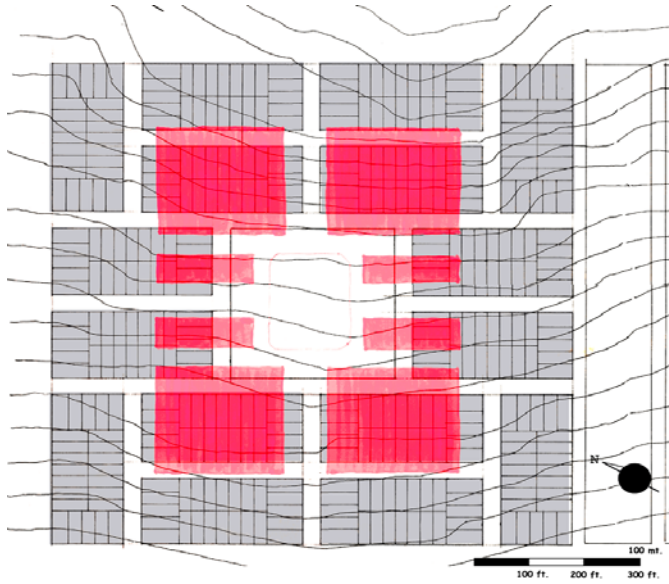


Fig. 59: Scale overlay of Savannah, Georgia.

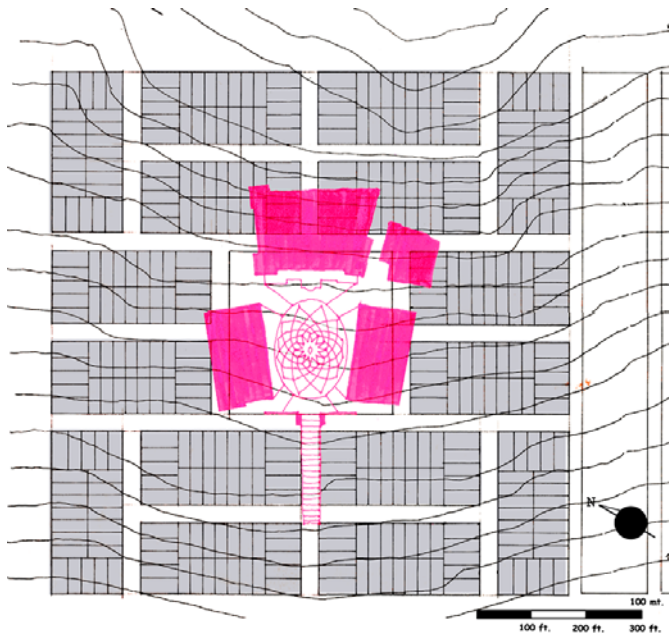


Fig. 60: Scale overlay of the Campidoglio.

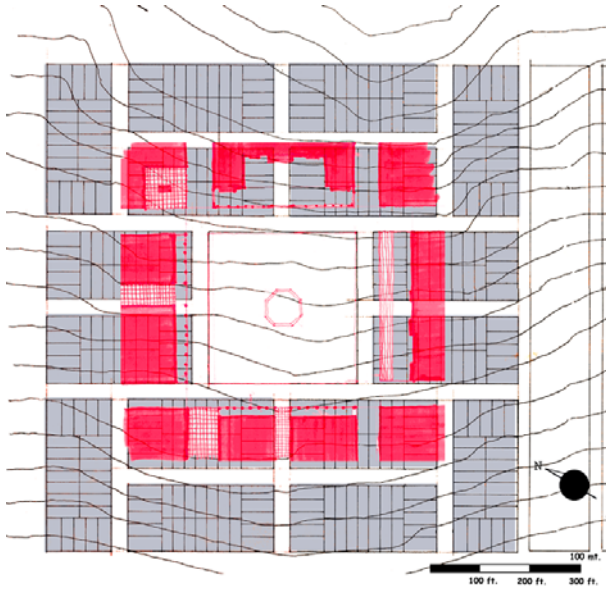


Fig. 61: Scale overlay of Lima's Plaza Mayor.

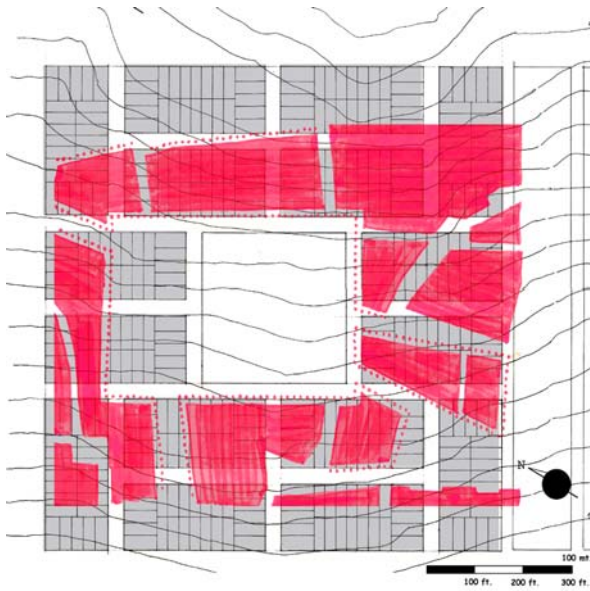


Fig. 62: Scale overlay of Madrid's Plaza Mayor.

8.2 Partis

8.2.a The Courtyard Plaza

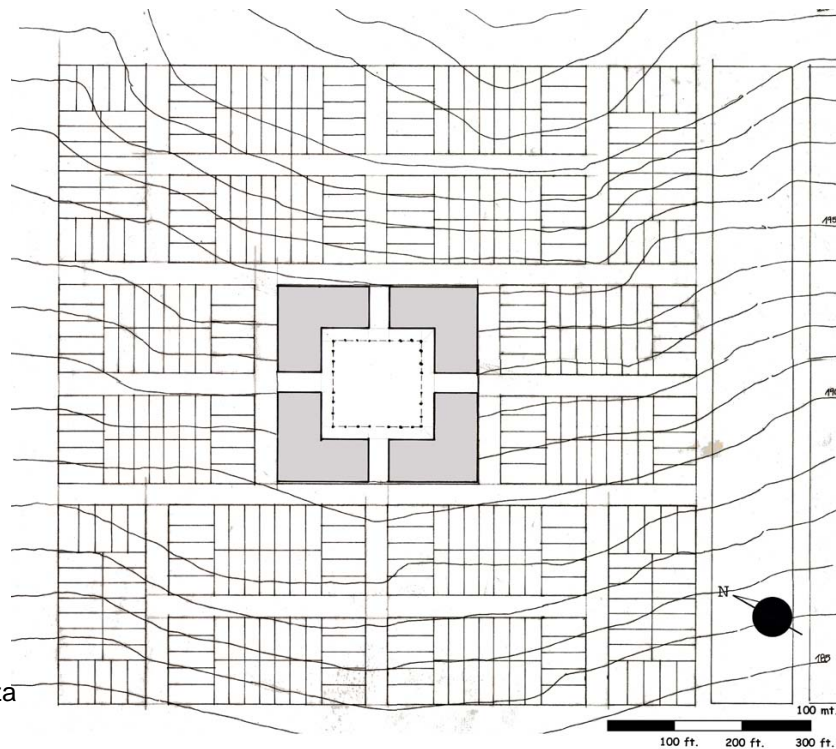
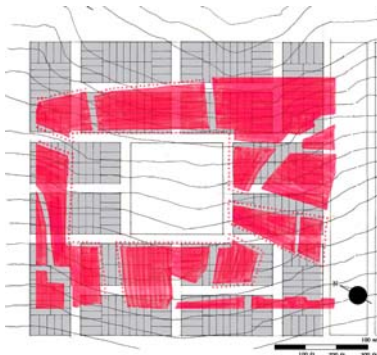


Fig. 63: Courtyard Plaza Plan. Below: scale overlay of Madrid's Plaza Mayor.



The courtyard plaza follows the design principles of the Renaissance, particularly modeled after Madrid's Plaza Mayor. The buildings clearly define the more intimate residential square within.

The commercial and institutional buildings are located on the ground floor while the upper floors are made up of housing.

Phasing: the urban elements (loggia, paving, etc.) would be built first along with commercial/institutional elements. The housing would be built progressively.

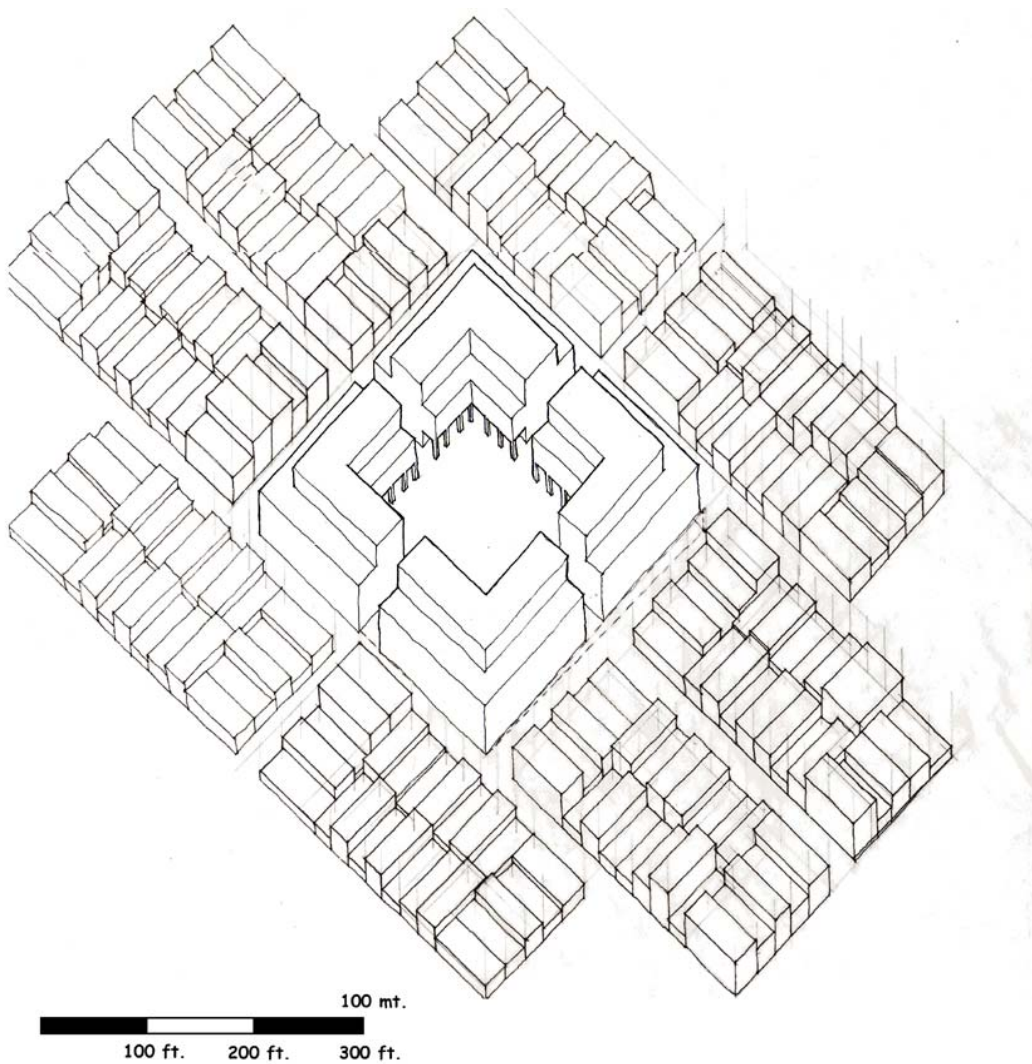


Fig. 64: Courtyard Plaza Axonometric. Massing steps down towards existing neighborhood to create a smoother transition between the 4 story core and the 2-3 story surrounding structures.

8.2.b Savannah

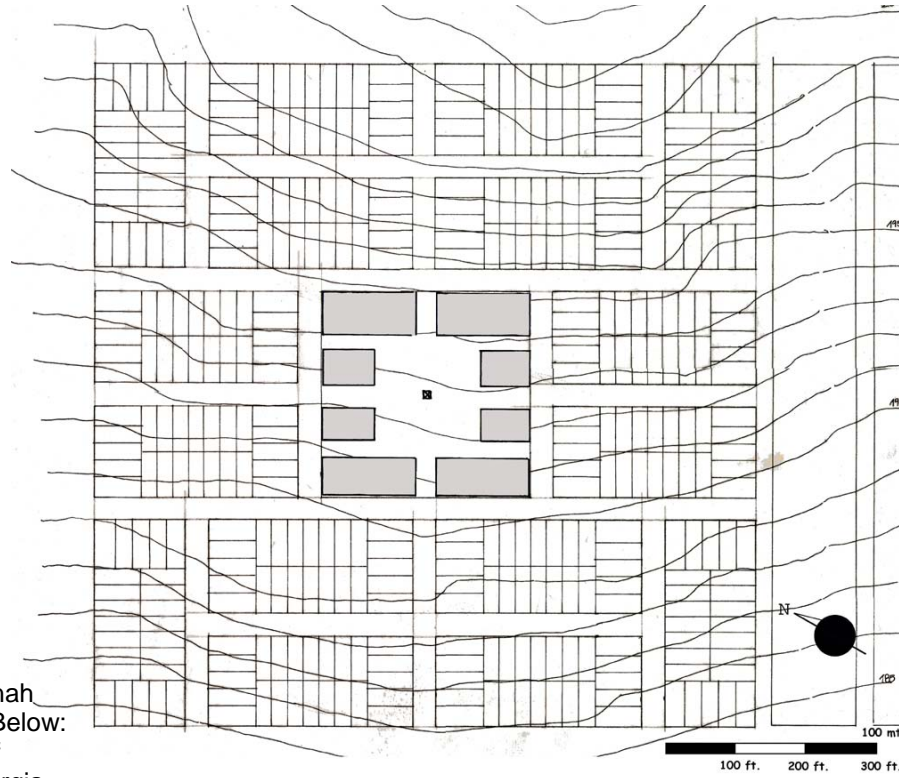
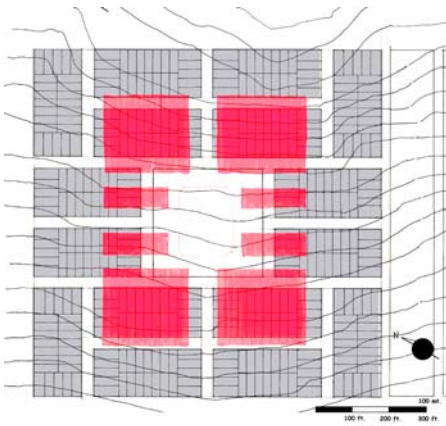


Fig. 65: Savannah Scheme Plan. Below: scale overlay of Savannah, Georgia.



This scheme inserts an entire new module into the existing square. This scheme can be repeated throughout the district, maintaining its original character and structure. The commercial and institutional buildings are located facing the square as detached buildings. These are ideal sites for churches and other “object” buildings.

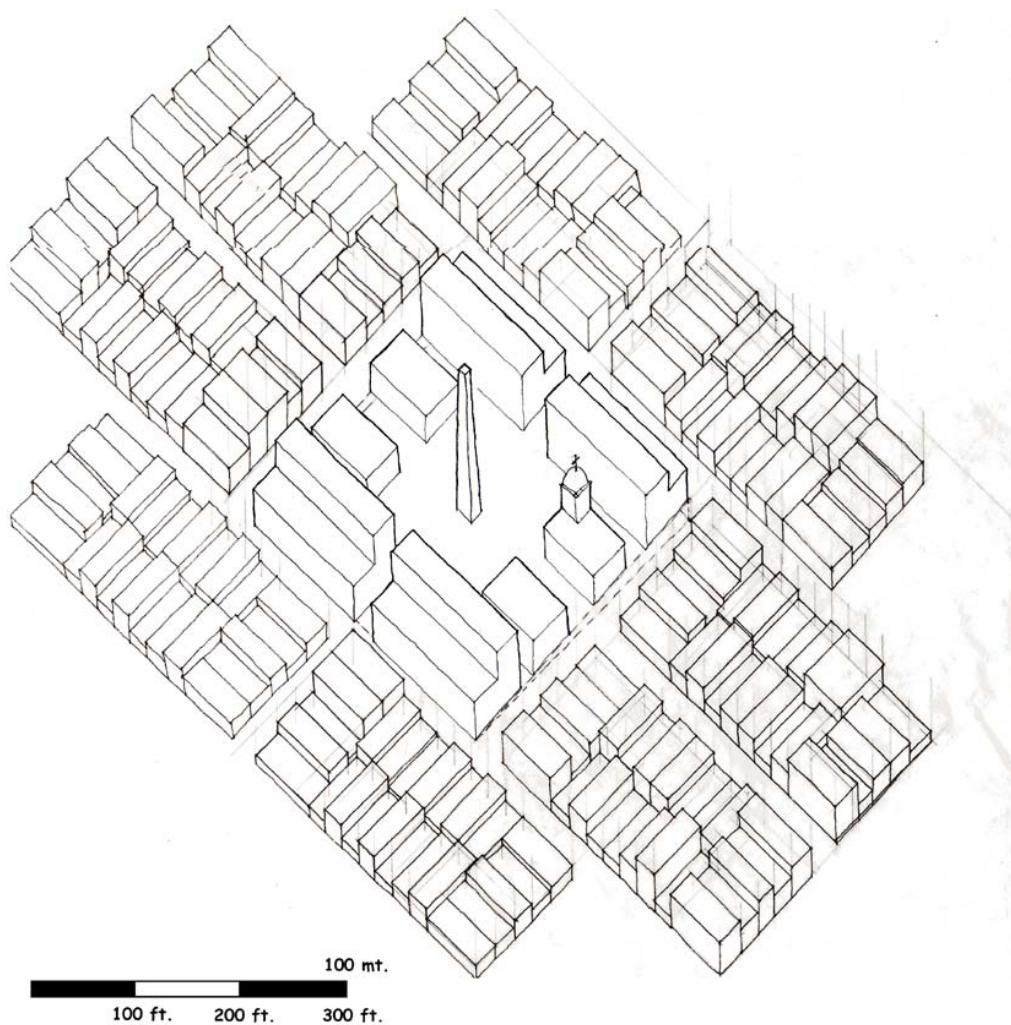


Fig. 66: Savannah Scheme Axonometric. Massing steps down towards existing neighborhood to create a smoother transition between the 4 story core and the 2-3 story surrounding structures. The taller pieces are infill housing, while the buildings facing the plaza are institutional/community facilities.

8.2.c The Urban Park

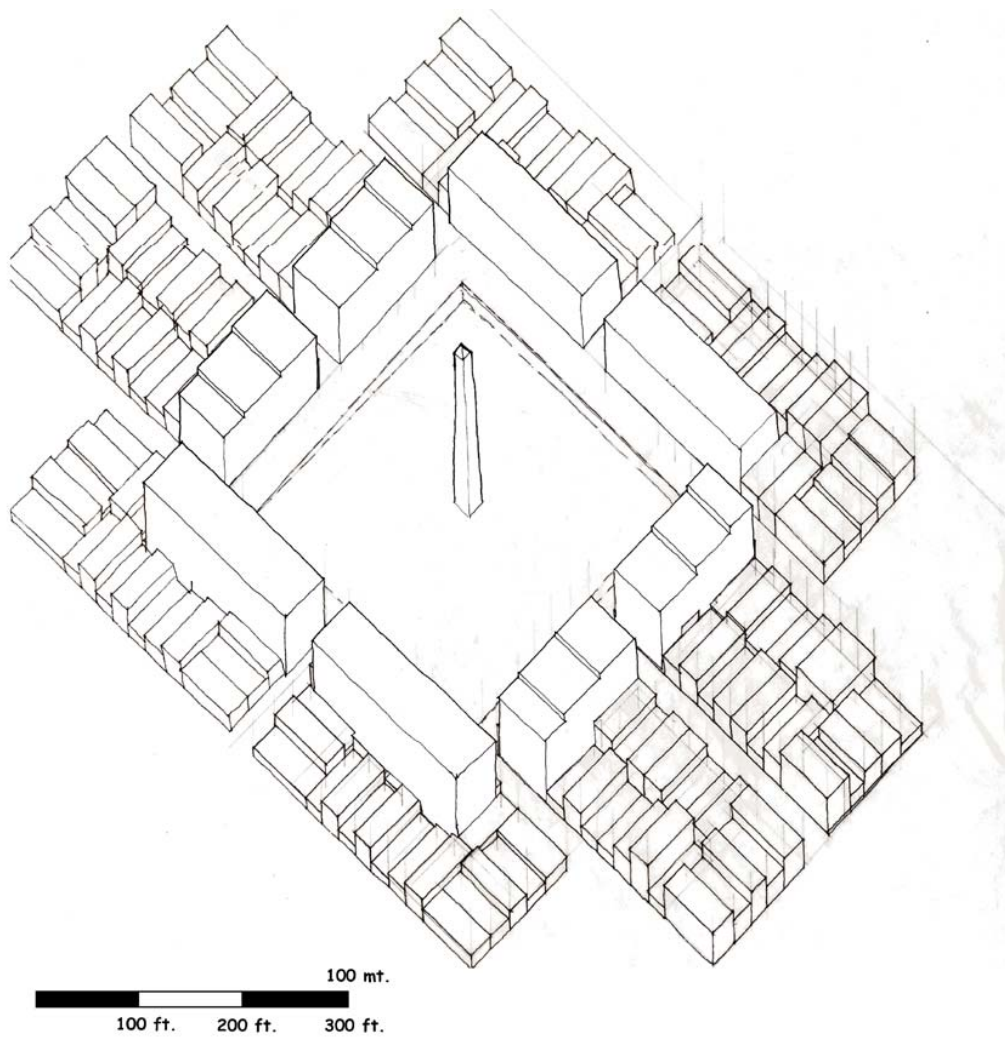


Fig. 67: This scheme preserves the entire residential plaza as an urban park. Denser development is proposed along the edges of the space, defining it and containing it. Institutional/community facilities. Community facilities, institutional buildings and commercial spaces are located along the ground floors of the “outfill” buildings.

8.2.d Symmetrical Blocks

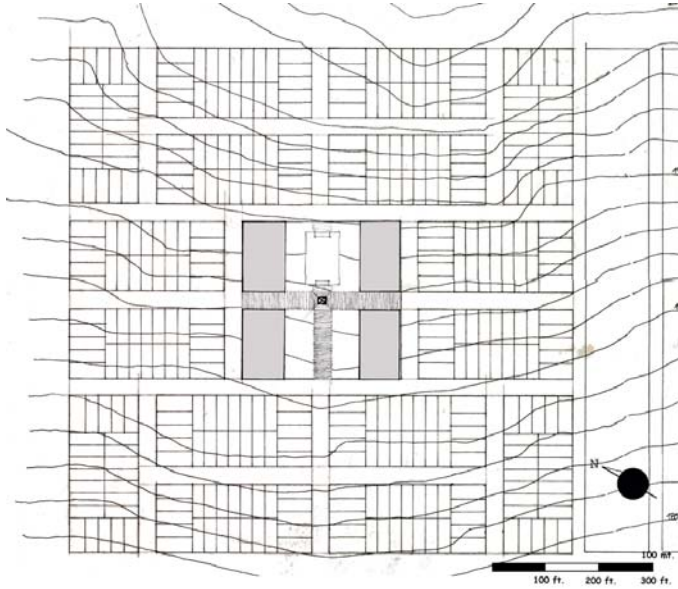
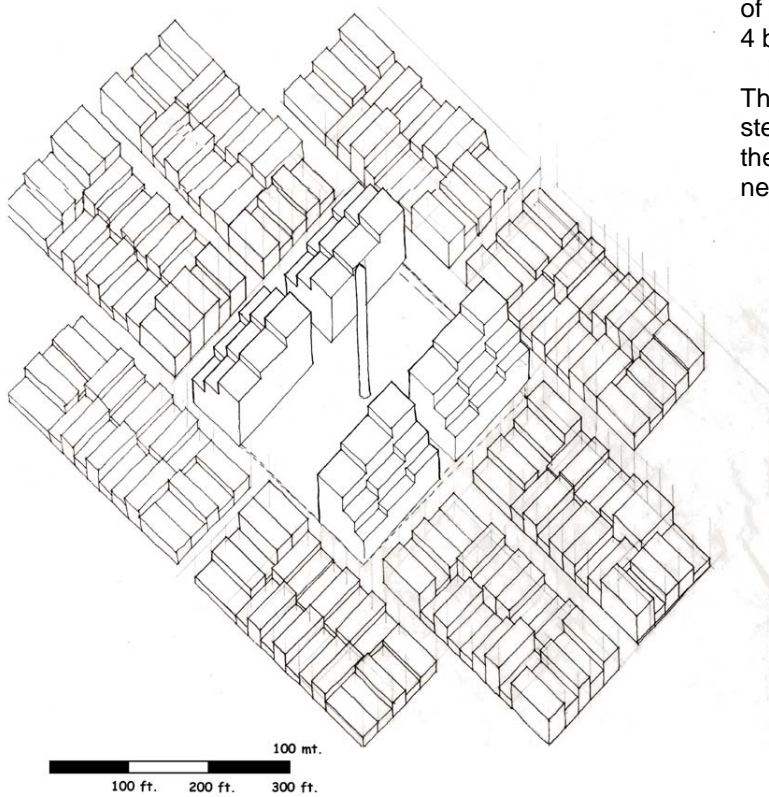


Fig. 68: Plan

Fig. 69: Axonometric

This scheme shrinks the size of the original plaza by adding 4 bar buildings flanking it.

The massing of the buildings steps down to transition into the existing lower density neighborhood.



8.2.e Asymmetrical Block

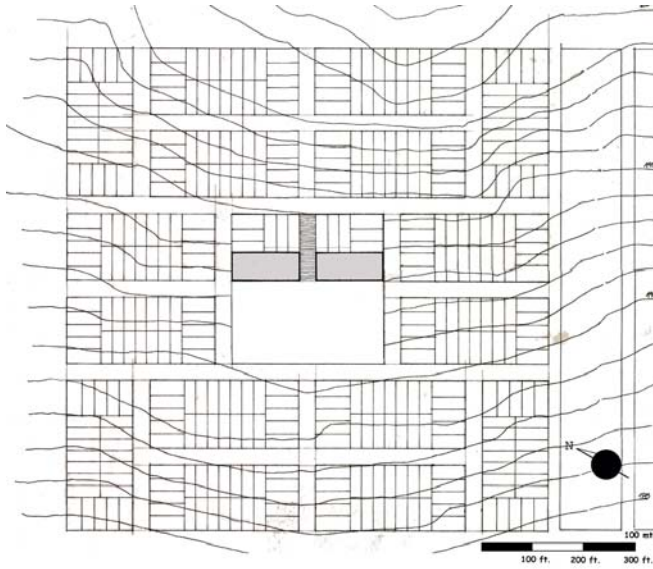
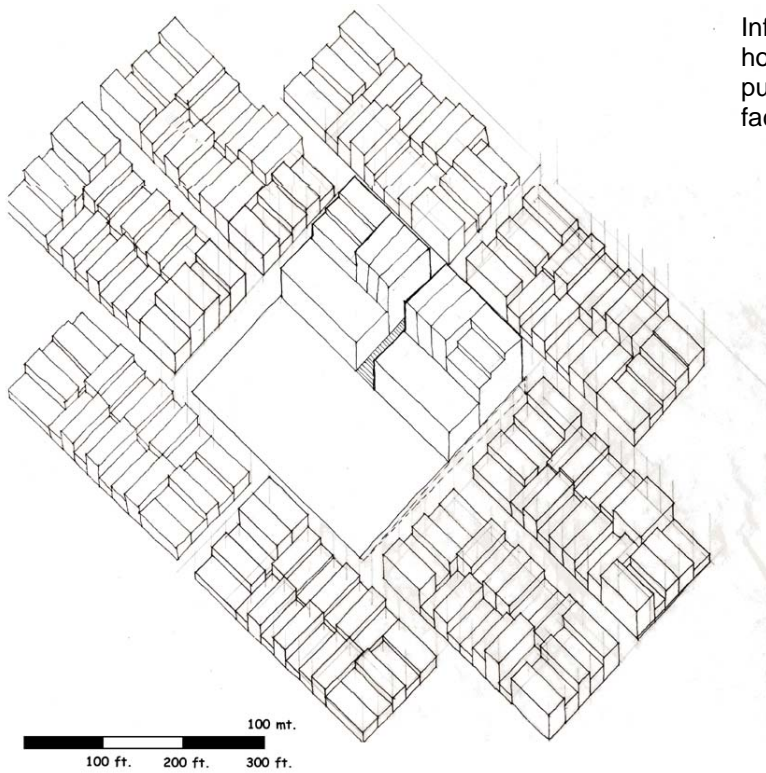


Fig. 70: Plan
Fig. 71: Axonometric

This scheme shrinks the size of the original plaza by infilling half of it.



Infill housing faces existing housing while public/institutional buildings face the square.

Chapter 9: Architectural Precedents

9.1 Women's Center, Rufisque, Senegal.

The Women's Center is a bright red building located in a growing shantytown in the north side of the city of Rufisque in Senegal. The Women's Center is a "...focus



Fig. 72: View of the urban square

for local groups, a reception organization for rural immigrants and a powerhouse for empowering women in a traditionally male oriented culture."⁴⁸

The project was designed by Saija Hollmen, Jenni Reuter and Helena Sandman, and developed through a partnership between the Finnish Foreign Ministry, Finnish foundations and local non-profits. The City of Rufisque provided the site for the project.

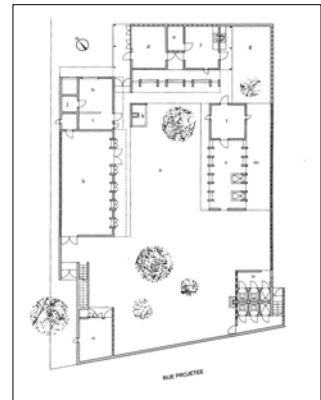


Fig. 73: Plan

The *parti* follows the model of traditional West African "compounds" in which a perimeter wall surrounds a series of buildings overlooking a central courtyard. The courtyard is flanked on one side by a communal hall, and on the other by workshops.

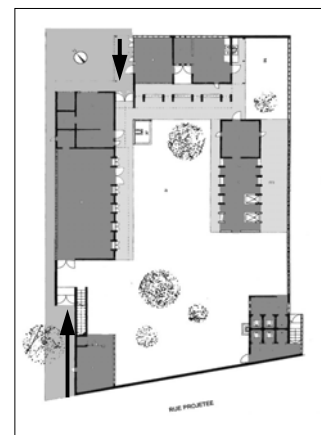


Fig. 74: Diagram of buildings around the courtyard.

⁴⁸ The Architectural Review, July 2002, p.50

There are two main entrances to the complex (marked with arrows on the diagram), one on the southwestern corner of the site and another on the northwest corner, facing a



Fig. 75: Open structures allow for cross ventilation

small public square. The center's shop and restaurant open out to the public space. The definition of the rest of the square will depend on how adjacent buildings will face the space.

The center is made up of thick walls with a high thermal mass, making them a good protection against the desert heat. Overhanging roofs provide shade, and the structures are all open to allow natural ventilation.

Materials:

Walls: concrete frame and concrete blocks, locally produced.

Roof: wood is very scarce and expensive so recycled steel structures hold corrugated galvanized metal roofing.

Reed matting ceilings are used to create a void between the metal roof and the interior space, cooling it through convection.



Fig. 76: View of exterior circulation. Wide eaves provide protection against the sun.

9.1.a Relevance to thesis

The Women's center in Rufisque is "... dignified and noble public architecture created with few means, and a building which may have a profound effect on the society for which it has been made."⁴⁹ It is a building that draws form local building typologies and construction materials to create a building for the service of the community. It also shows a commitment to the future development of this town by offering an urban public space that might start to shape development around it.

⁴⁹ The Architectural Review, July 2002, p.54

9.2 Community Center, Marcovia, Honduras⁵⁰

The community center designed by Jae Cha/Light Inc. in Marcovia, Honduras, is an example of how limited resources do not have to translate into poor design. In this case the creative use of materials and a strong aesthetic sense result in the design of a space that is functional, beautiful and appropriate.

The center was built after a hurricane decimated the town of Marcovia, Honduras, in 1998. The hurricane leveled most of the area's buildings and left the town without electricity and with limited access to water. As reconstruction efforts began, a new community facility was needed; it was intended as a place where residents would be able to carry out everyday activities sheltered from the strong heat and humidity.

The new building is open to breezes on all sides and provides shade from the sun throughout the day. Screens can be moved

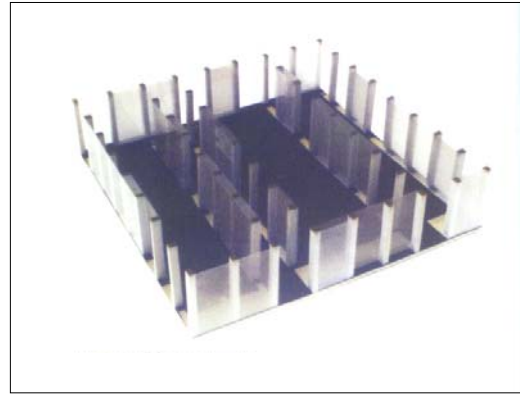


Fig. 77: Axonometric of one possible configuration.



Fig. 78: Exterior view



Fig. 79: Interior view of children playing during the day

⁵⁰ All images were acquired from The Architectural Review, December 2001: AR+D Emerging Architecture

around to create different spatial configurations to accommodate a variety of activities. In this way, the center can function as a church as well as a gathering space and education center for the community.

The structure was built over a period of 3 months. Material donations were received from local and foreign contributors and construction was carried out entirely through communal labor.

Materials:

- *Structure:* concrete blocks reinforced with ordinary steel bars
- *Roof:* steel channels support corrugated metal sheets
- *Screens:* polyethylene monofilament fabric used for agricultural shading



Fig 80: Construction underway

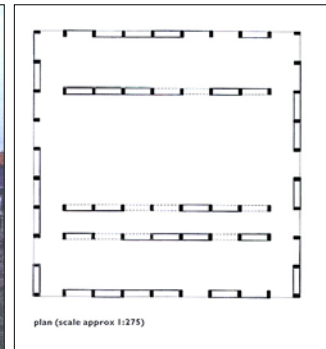


Fig 81: Plan

9.2.a Relevance to thesis:

This project is a multi-purpose community room in which everyday materials are used in an innovative way to create a poetic and functional space. These are the same principles that will be applied in the design of the community room in the Craft Development Center.

9.3 Teaching Workshops, Lyons, France

The Teaching Workshops outside Lyons, France, are a warehouse/laboratory facility for 13 art, architecture and engineering colleges and local schools. The project was designed by the French architects Florence Lipsky and Pascal Rollet and funded by the French government.

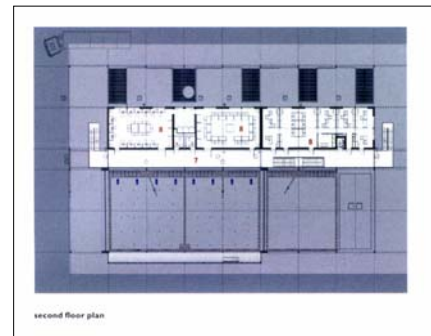
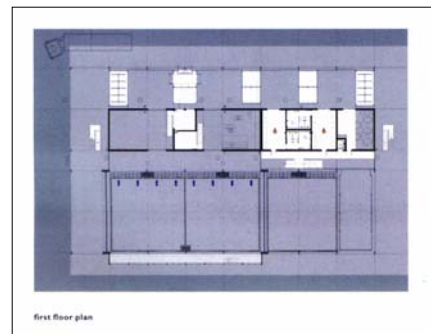
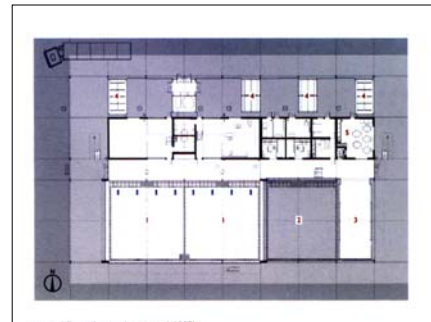
The building is testing site for construction materials and the design of the entire scheme is based on this concept: "Rollet describes the building in terms of a 'neutral architectural machine' dedicated to the cause of prototype experimentation and the demystification of disciplinary differences."⁵¹

The building is stripped bare leaving only the purest possible materials in a diagrammatic layout of spaces; "...all of the studio's organs and skeletal members are visible"⁵²



Fig. 82: Exterior view showing the outdoor spaces created by the canopy. It also shows the duality between solid heavy construction and light and airy design.

Fig. 83-85: Floor plans



⁵¹ The Architectural Review, August 2002, p.46

⁵² The Architectural Review, August 2002, p.46

The structure of the facades allows for the display and experimentation of different construction materials.

The basis of the scheme is a 70mx50m concrete slab on which the building sits. Spaces are organized along an east-west corridor which is the main axis of the building.

The studios are located on the southern side of the building and are enclosed by movable planes that can be opened during the summer, doubling the working space. The transparent and flexible qualities of the southern areas of the building are counterbalanced with the concrete structures that house offices, studios and services on the opposite side of the corridor.

9.3.a Lessons:

Spaces are flexible, transparent, spaces that sponsor creativity and constant exploration. Also, the choice of materials expresses the “laboratory” functions of the building

Strong inside-outside relationships make a building that might initially seem cold and uninviting, more hospitable.

Fig. 86-87: Exterior and interior views.



Chapter 10: Final Project

The final project consisted of 3 different urban schemes composed of the same elements: a housing component, an urban plaza, a public park, a community building and an institutional building. All housing schemes were arranged from the same basic module.

Casa: The Housing Module

- Set on a 9 by 9 meter lot, there are two individual houses stacked over each other. It is a 3-story structure, with the second level "punched out". The bottom unit expands on to the second floor; the top unit expands on the fourth floor.

Cuadra: The Block

- The module can be arranged in different ways to create different kinds of buildings surrounding semi-public spaces intended as extensions of each home- near home spaces.

Plaza: The urban space

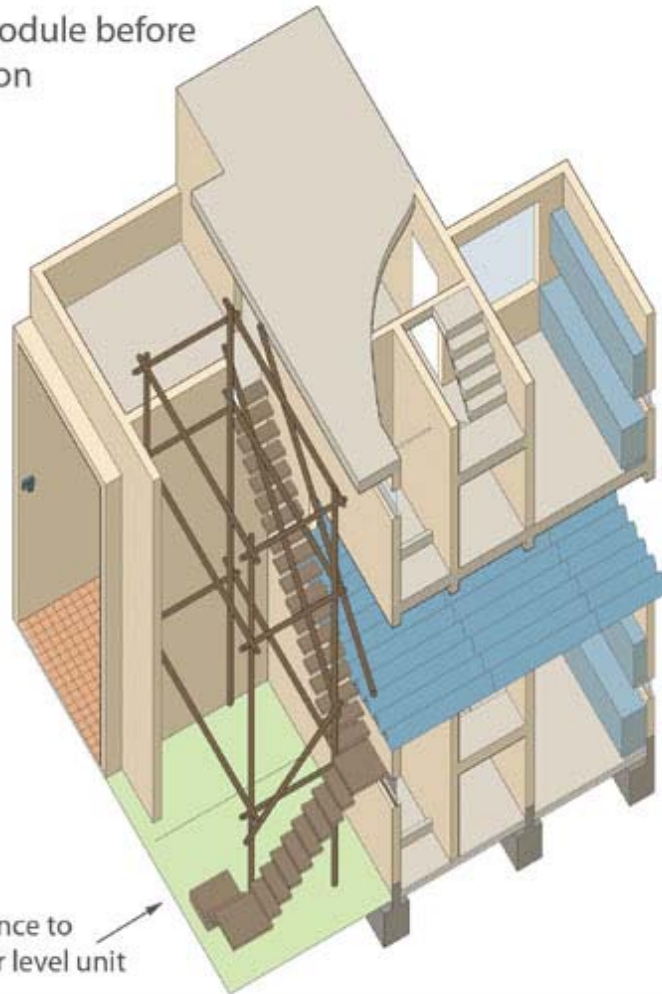
- The blocks are then arranged in different ways to create different types of public plazas.

ISSUE: The existing housing subsidy allows for the construction of one 40 m² duplex, 800 sqft and 200 sqm lot.

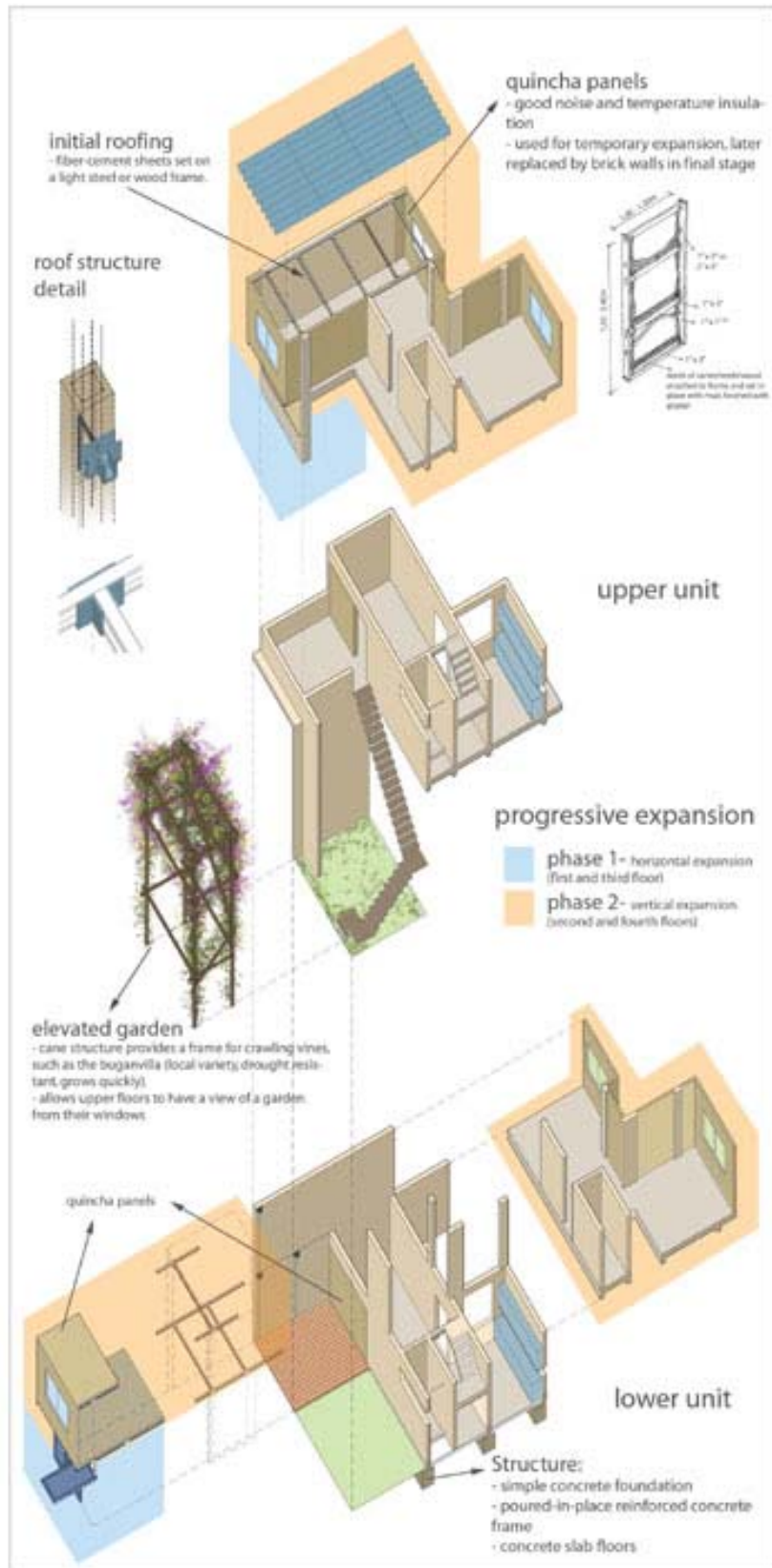
GOAL: To design a housing module that...
 ... is habitable at 40m² and expandable over time.
 ... can be expanded using low-tech construction methods and local materials and expertise.



initial module before expansion



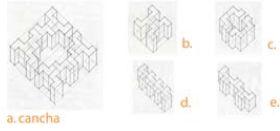
entrance to upper level unit



CUADRA

ISSUE: it is more cost-efficient to build a 10-unit building than 10 individual homes.

GOAL: achieve multiple configurations of the same module, creating a range of semi-public spaces.



cancha



pasaje



patio



calle



calle









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