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**KNOWLEDGE AND SKILLS FOR
SUSTAINABLE CITIES IN THE GLOBAL SOUTH**



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**FROM THE INFORMAL
TO ELEMENTAL
THE EVOLUTION
OF THE INFORMAL SETTLEMENTS
THROUGH THE SOCIAL HOUSING
AND THE ELEMENTAL PROJECTS
IN SANTIAGO DE CHILE**

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FROM THE INFORMAL TO ELEMENTAL

The evolution of the informal settlements through the social housing and the Elemental projects in Santiago de Chile

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INTRODUCTION

Chilean public housing begins in the last decade of the 19th century, when initiatives that tried to solve the problem of popular housing arose from philanthropy and catholic charity.

The State gave an important step by promulgating the Workers Housing Law in 1906, which became the first law trying to approach that situation in an integral way.

The Cheap Rooms Law and the Renting Law of 1925 are a consequence of the application of the 1906 legislation, as well as the social and political processes that Chile experienced during the first decades of the 20th Century.

Social housing in Chile and, its capital Santiago, has a peculiar history.

In the short reign of Salvador Allende (1970–1973) this trend was temporarily reversed, and illegal occupation of land by settlers was not only tolerated, but free plots were released for creating so-called “campamentos de emergencia” of very simple wooden huts, creating at the end a great number of emergency quarters. In this way, the lower and marginal social strata temporarily reconquered central areas in the city.

During the military government (1973–1989), nearly all campamentos de emergencia were torn down and the inhabitants relocated to newly built social housing, sometimes situated in the vicinity of the old settlements. Later the new housing was again constructed on the outskirts of the city. In doing so, the military government not only reinstated 1950's policy but also heeded market forces. Land on the urban outskirts is considerably cheaper than in the core area. While the central parts of the city experience micro and meso-segregation, it must be noted that the plots made available for social housing are found in ever more peripheral locations and concentrated in poorer communities.

SOUTH AMERICA



While absolute and extreme poverty rates have declined, a new poverty has arisen, characterized by difficult living conditions, crime and drug abuse.

Social housing development on the city's outskirts was pushed by the military regime during its last years in office and also continued after the return to democracy. No new social housing was created in the upper-class districts. Since then social housing has driven dramatic suburbanization. New quarters are being constructed ever further from the city centre. Since 1990 more than twice as many units of social housing have been constructed outside the metropolitan region of Santiago than in the period from 1978 to 1989. The proportion of social housing units in peripheral municipalities is continuously increasing (8.3% during 1978–1983; 19.5% during 1996–2002).

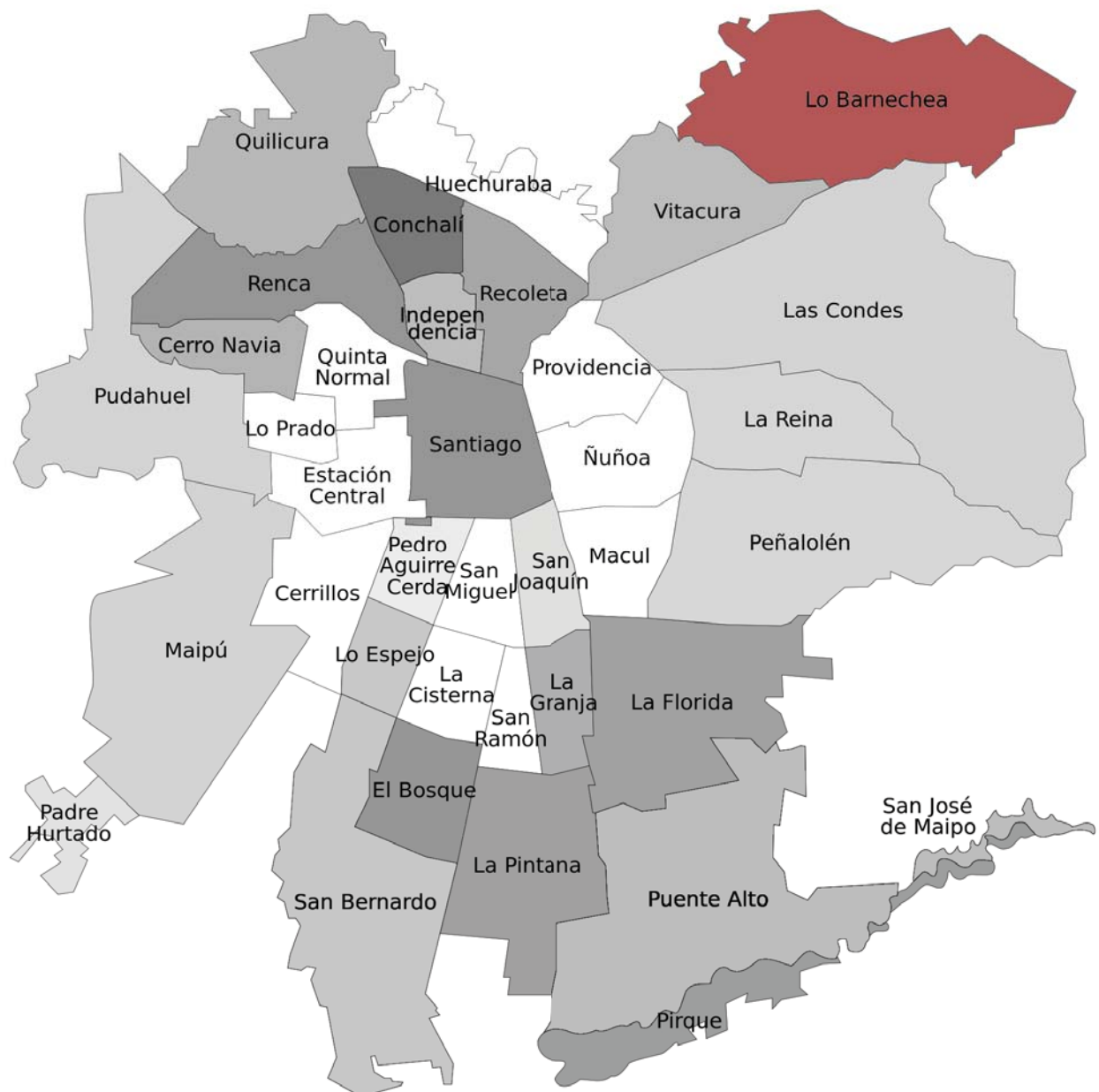
We must point out, however, that under democratic governments social housing continues to lose ground.

Social housing is still controlled by the state and thus – apart from transport infrastructure and public services – the only form of direct state impact on the spatial structure. It is the private economic sector, which adheres to the rules of globalization, that is responsible for the new fragmented structures, while the state follows more the polarized patterns which dominated the cities up to about the 1970s.

In Santiago de Chile the marginal sectors have almost disappeared.

Chile made records on housing both at the beginning and end of the 20th century, being the first country in America to sanction a national law about housing and the first country in Latin America to reduce the housing deficit.

COMUNAS OF SANTIAGO DE CHILE



THE FACADE OF SEGREGATION

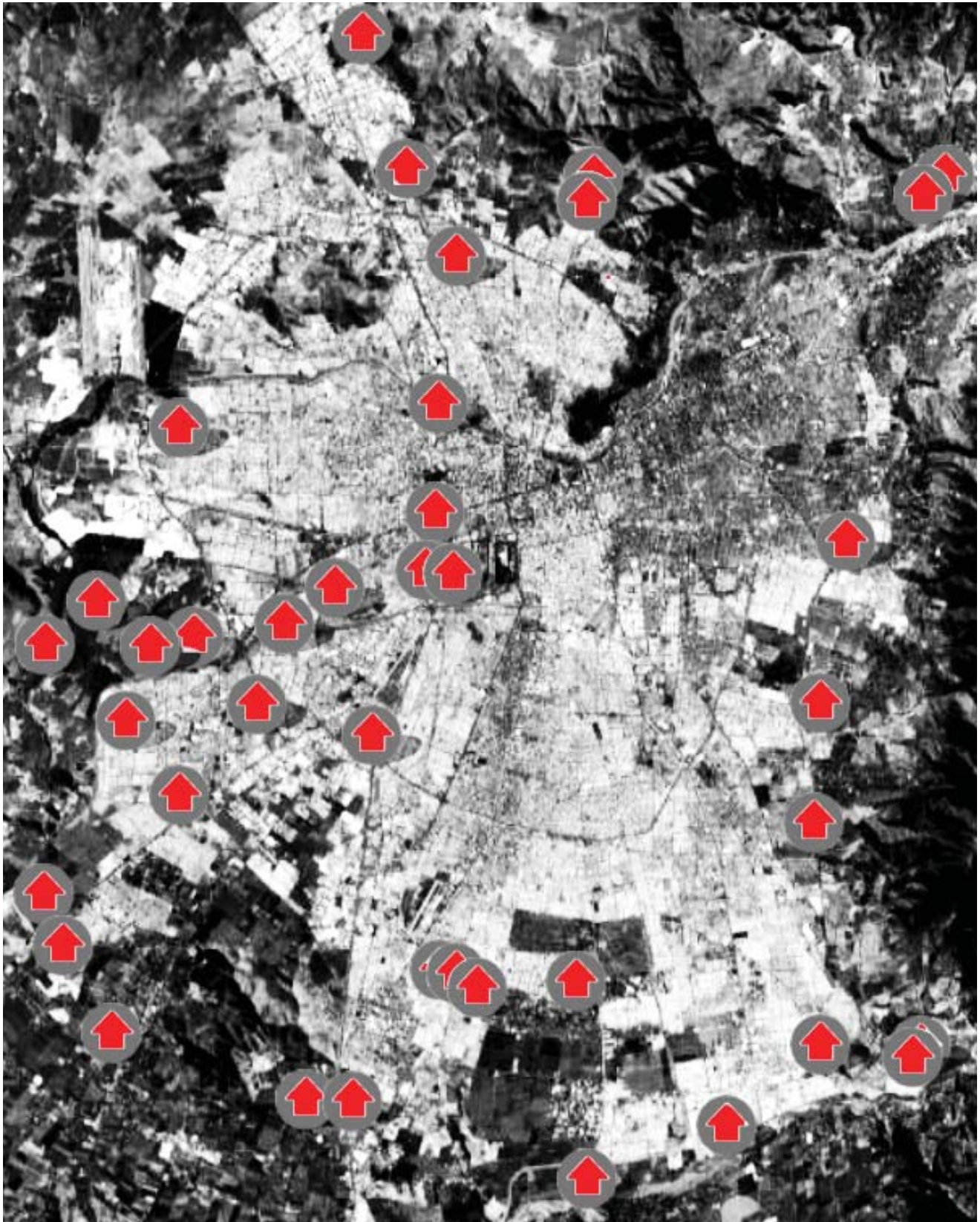
Santiago is a very segregated city in socioeconomic terms.

Although conditions for the poor have improved markedly since 1990, the spatial distribution of poverty in the city has not changed much. In urban areas where poverty persists, there are low levels of education, under-employment, low self-esteem, weak networks for access to opportunities, and a population that is socially stigmatized by crime, violence and drug addiction.

The Santiago urban area is clearly differentiated according to family income. Higher-income groups are concentrated in six of the city's 34 'comunas' (municipalities or districts), and this results in major differences in both the quality and quantity of infrastructure and services, as well as housing.

There are large variations between 'comunas' in the proportion of the population who have below poverty line incomes.

MAP OF THE INFORMAL SETTLEMENTS IN SANTIAGO



PREVI

Proyecto Experimental de Vivienda

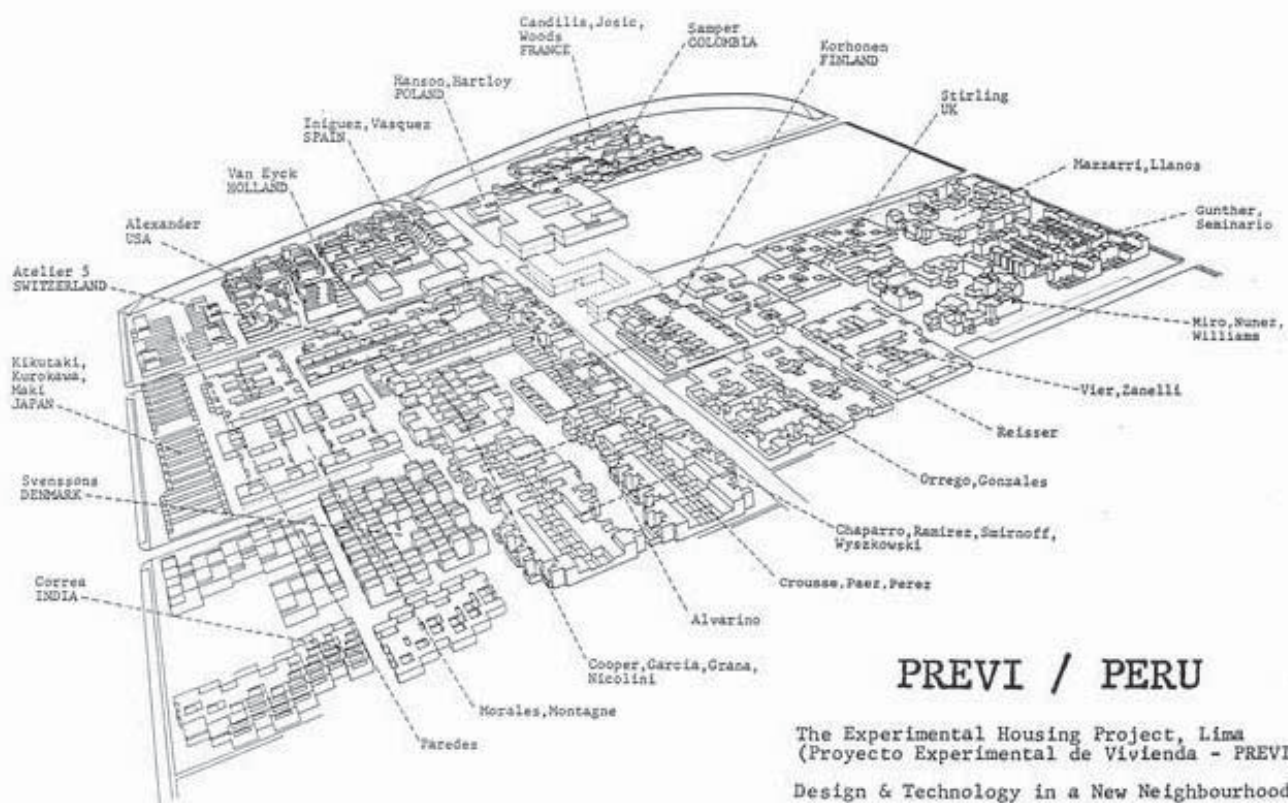
The Experimental Housing Project made in Lima (Peru) in the late 1960s, known as PREVI, is one of the most ambitious experiments, regarding to social housing ever built. It was a pioneering attempt to reconcile the conflicting forces of informal growth and top-down planning. There were an enormous number of variables proposed and, also, the project was able to avail of the most outstanding architects of its time such as Aldo van Eyck, James Stirling, Christopher Alexander, Atelier 5, Candilid, Josic and Woods.

In 1965, Peru's 'architect-president' Fernando Belaúnde Terry, began consultations for a social-housing programme that would regulate the unstoppable flow of people seeking an urban destination (in the mid-1960s, the informal city, with its *barriadas*, seemed to have overwhelmed the "urbanised" part of Lima). Under the leadership of Peter Land, and with the support of the United Nations, the project for an experimental neighbourhood was born; it involved the best radical avantgarde international architects chosen from among those who had a solid reputation for social housing.

These architects were invited to participate in the creation of this dense urban collage.

In PREVI, thirteen internationally renowned architects, along with as many Peruvian architects, were commissioned to develop a model neighbourhood of 1,500 dwellings, so as to develop prototypes of urban housing that would internalise programmes for any future transformation.

Thus each unit contained the terms of its own growth. This was perhaps the first act that recognised the value of the dynamics of growth adopted in the informal slums.



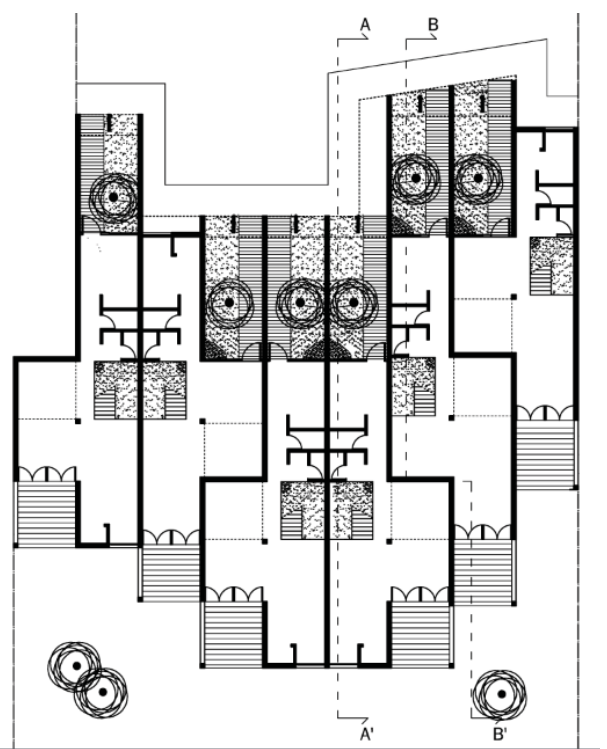
In contrast to a growth model based on large, out of scale gestures, from megastructures to gigantic superblocks, the PREVI experiment fielded new dynamics based on a model of low-rise, high-density housing.

“Without malleability you cannot have cultural expression, all you can get is a top-down notion of how people should live”

After more than three decades since the construction, the residents adapted the dwellings to their needs and wishes. In some, we can still recognize the remains of the original dwellings, while in others all initial traces have been lost. Some find this architectural loss regrettable, but the cultural-based aesthetics are not being questioned here.

This pioneering and experimental low-cost housing project influenced other developing countries, especially in Latin-America, in solving their own housing problems.

It is a great example of what can be done. In fact, Chile also referred to Peru’s example when conceiving their projects.



ELEMENTAL

Elemental is an international initiative born in Chile to promote innovation in architecture, building techniques, urban planning and development of the design and construction of low cost housing.

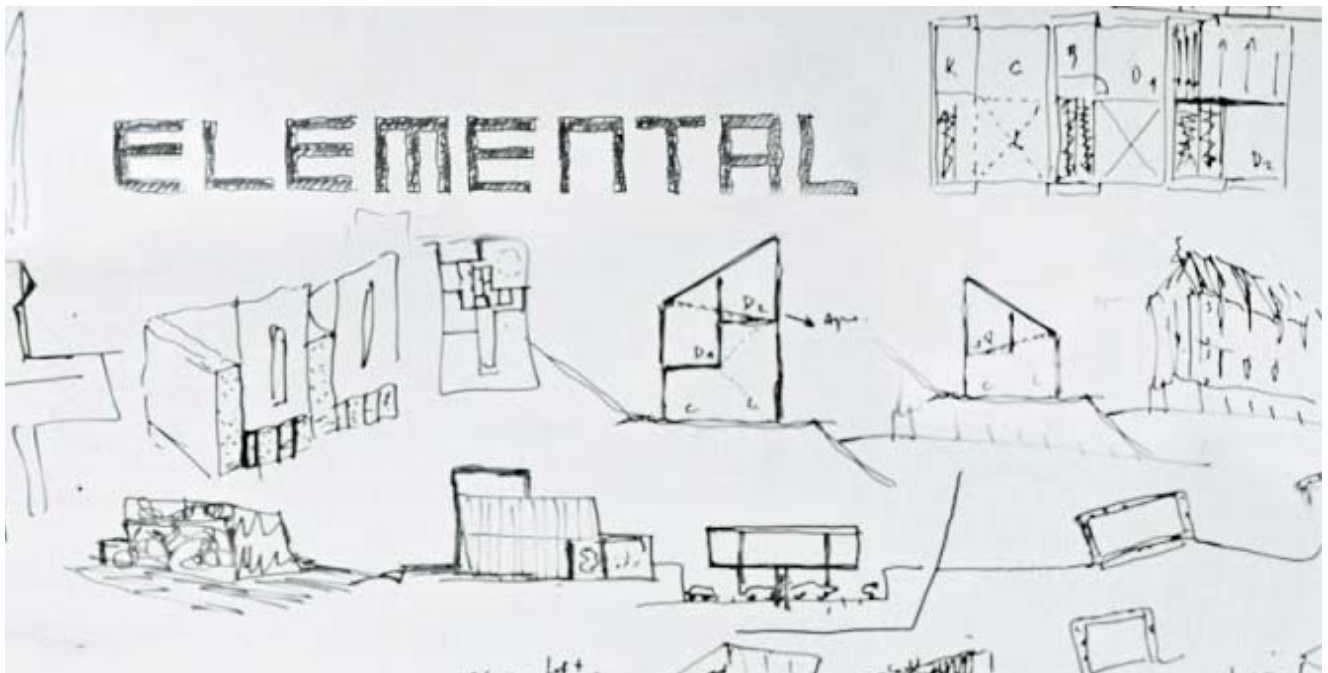
Elemental's "ABC of Incremental Housing Statement" (emphasis in original): it is a fact that available resources are not enough.

To face such scarcity of means, the market tends to do two things: Reduce and Displace. This means to reduce the size of the houses, threatening the quality of life of its inhabitants, and to displace them to under served peripheries, where land costs nothing, but so doing segregating people from the opportunities that made them come to cities in the first place.

In order to face scarcity, we propose a principle of INCREMENTALITY.

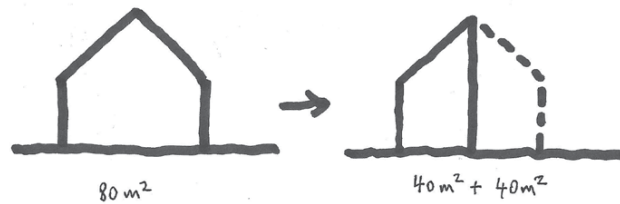
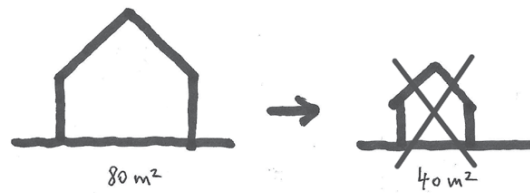
The "ABC of Incremental Housing Statement" identifies 5 'designing' conditions:

- *Good location*: 'Dense enough' projects, able to pay for expensive well located sites.
- *Harmonious growth in time*: Build strategically the first half (partition structural and firewalls, bathroom, kitchen, stairs, roof) so that expansion happens thanks to the design, and not despite of it. Frame individual performances and actions, so that we get a customization instead of deterioration of the neighbourhood.
- *Urban layout*: Introduce in between private space (lot) and public space (street), the collective space, not bigger than 25 families, so that social agreements can be maintained.
- *Provide structure for the final scenario of growth* (middle class) and not just for the initial one.



MONEY

NO MONEY



- *Middle-class DNA*: Plan for a final scenario of at least 72m² or 4 bedrooms (3x3m) with space for a closet and a double bed. Bathrooms should not be at the front door (which is the typical case to save pipes), but where bedrooms are and they may include a bathtub, and not just a shower receptacle. There should be space for a washing machine. There should be the possibility of parking space for a car. None of this is even close to be the case in social housing nowadays.

In other words, make sure you balance: Low-rise high density, without overcrowding, and with the possibility of expansion (from social housing to middle class dwelling).

QUINTA MONROY

In the city of Iquique, Alejandro Aravena has developed a pilot project of building “to be complete” that affects 93 families, and that will serve as the first model for the verification of these intentions. Since its opening in December 2004, “Quinta Monroy” of Iquique was paid successfully gradual expansion and adaptation of its original volume, at a cost of only US \$ 7,500 per unit, corresponding to the government subsidy for purchase area, the urbanization and the construction cost burdens.

The main points of the project, required by the inhabitants were:

- Planned growth to 72 m²;
- Ventilated kitchen and toilet;
- Definitive structure and external walls;
- Crossed ventilation;
- No corridors or shared stairs;
- Modular rooms 3x3 m;
- Collective space for 20-30 families.



This method was able to reduce the cost of construction by building only half the house and infrastructure, so that the residents could easily complete the second half. This was not only beneficial to the government because it could build more units, but also to the inhabitants that could finish the house accordingly to their individual needs, and make it feel more their 'home'.

The other important factor was the participatory aspect in the project procedure between the residents and the architecture firm.

A lot of Elemental's projects replace informal settlements which complicates the process socially and politically.

To gain the trust of residents and to assure an acceptable final solution, the firm meets with all the residents and works with them to finalize location, program, and typology. They felt a commitment to their community because they were instrumental in shaping both the neighbourhood plan, as well as their own homes through construction. The sense of home and family are very strong, so they linked well.

A negative aspect, however, is that if the neighbour builds the new part with poor materials the whole quartier (area) or group of houses will have a negative value on the market, vice versa if the neighbour uses good materials the selling prices for each house in that area are higher.

LA BARNECHEA

The Commune of Lo Barnechea, located in the northeast sector of Santiago near the Precordillera Valley adjacent to the Mapocho River, is one of the most expensive areas of the city. However, its urban tissue is filled with contrasts, because there are areas with luxury homes and also dense zones of social housing, as well as self-built settlements. In this area, there are located three populations of low socio-economic level.

The constructions there were established in the late 80's as a housing solution for homeless families living in camps on the banks of the Mapocho River. Houses of 40 m² approx., narrow steep roads and lacking, mostly urban trees with no gardens, trace the hill.

Not much public space, so most of the vacant sites are taken over by the local people. In these populations, there are problems associated with crime (domestic violence, drug addiction, micro trafficking, kidnapping and theft of households). There is also recurring clashes between rival gangs composed of young people who inhabit them.

On each side of the river bank, there are two Elemental housing projects. Aravena wanted to build houses plus a community centre (77 m²). These dwellings, raised in two phases, were developed to rehouse a large number of families living in two large informal settlements, creating a complex of 363 houses.

The project's premise was to ensure that the families could stay in their usual area of residence, close to their workplaces and schools, avoiding the risks of social exclusion. The constructions are organized around collective patios for an average of twenty houses, which created a territorial association between public and private space, something essential in this type of residential project.



To make the best use of land and avoid overcrowding, the house prototype proposed goes up three heights and can be extended inwards. Though starting out from a very basic original situation (starting from 44 m²), each unit can eventually include a living-dining room, two bedrooms and a bathroom on the second floor, and finally the main bedroom on the third floor (69 m²).

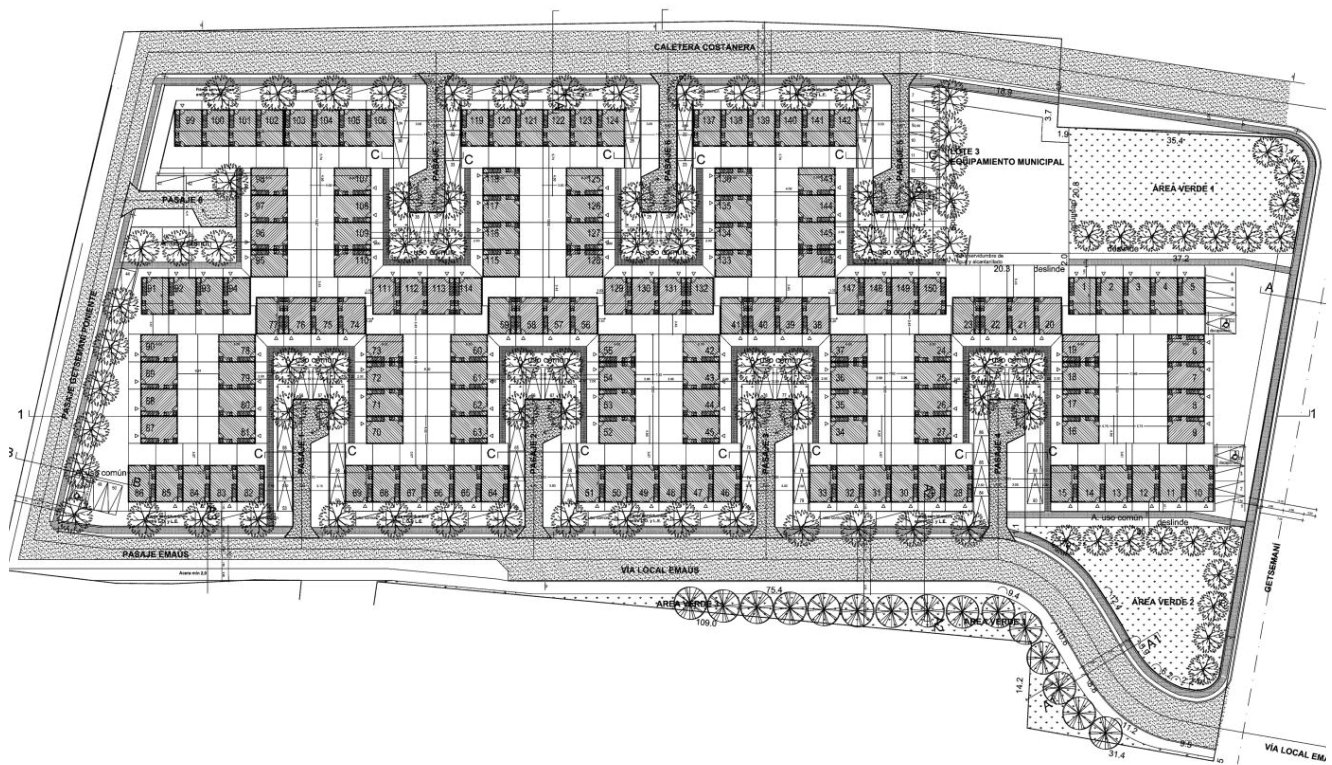
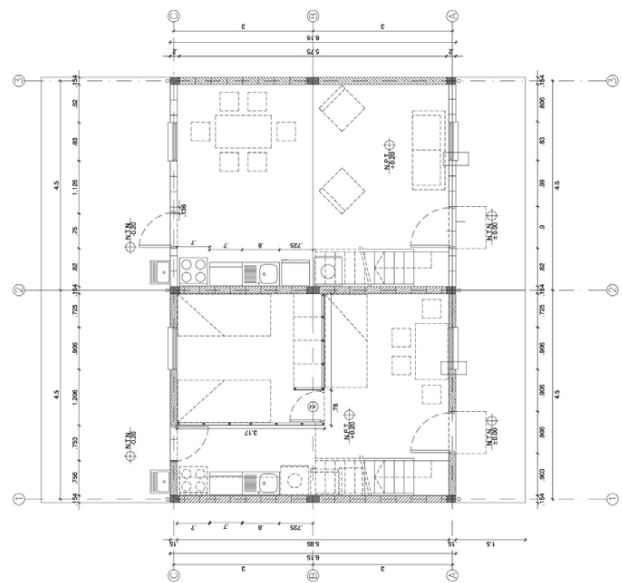
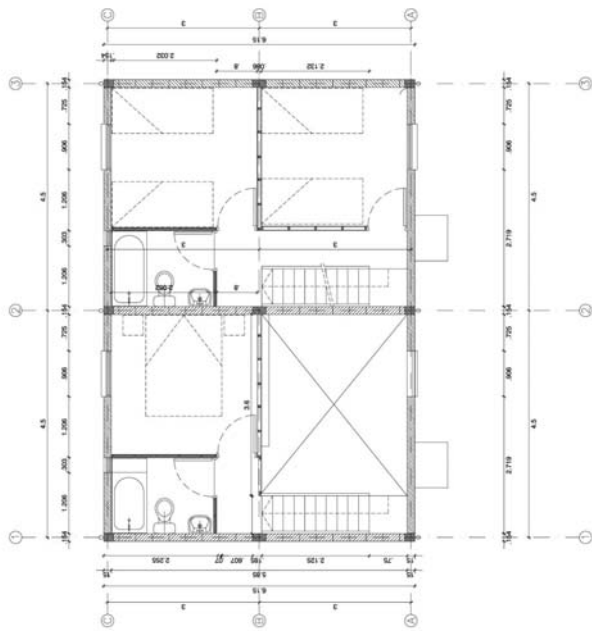
As funding per household was extremely limited, decisions had to be taken as to what to include and exclude from the dwellings: this came down to what was defined as a 'necessity'.

In my conversation with a resident, he spoke about the problems about the 'quartier', the location and the building itself.

I got the sense that the resident wanted more than what had been given, that is, a more comfortable and rational dwelling.

He told me that the area is not well served by the infrastructures, the public services and even the emergency units. The house was given without the interior elements, such as floor coatings, a kitchen etc. He also told me that, because of the very low ceilings, the second floor was not liveable.

On the other hand, listening to an official institution such as the university, the story is a little bit different, the inhabitants are now there from three generations and in time became a community, which proves that, all in all, this type of project, with its particular logistics planning of both the house and the neighbourhood favoured the community growth, and people continue to live in the dwellings.

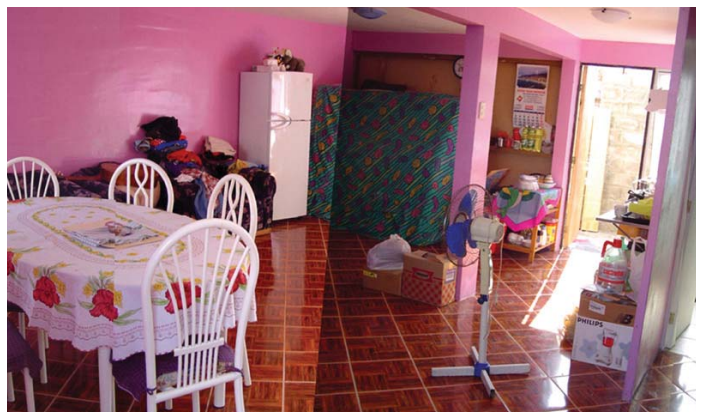


CONCLUSIONS

After visiting, talking and researching on some social houses designed by Aravena, I came to the conclusion that he used an intelligent compromise with the inhabitants and the government, using less funds he was able to construct more, and the people were able to take part in the planning and process of these constructions. The family's strong relationship, and the opportunity to design the interior, as well as to have the possibility in the future to 'extend' part of their home, is an excellent idea to keep families bonded together.

This method can have some negative aspects as it is not controlled in a 'collective way'. Each individual can, partially, design part of his home, and use the materials he chooses. This means that some houses could give 'value' to the whole neighbourhood, while others, done improperly or not appealing to the eye, could damage the market value of that whole 'area'. Perhaps this could be avoided by offering some kind of guidelines to the house owners, or giving technical assistance, or imposing certain rules regarding the external part of the home, including colour or measures, as done in some countries for certain areas. Of course it would be great to have the finished product with all the interiors and external finishes, but many people would prefer to have the opportunity to decide on how to finish, at least for the remaining half of the house, on the basis of their necessities and personal taste, and above all accordingly to 'their' type of dream house!

I noticed that the public space is considered in the design project, even the collocation of the civic centre. However, I think that there are other missing spaces to consider in order to integrate the differences in the various inhabitants and different ages.



The civic centre has the minimum space required to be classified with that function, and most of the time it is closed or even unused. The Church is highly considered by the population. In fact, it is the only place where different people with different backgrounds can meet and connect, it is a “safe” ground so everyone goes there.

There are different urban strategies and designing carried out to reactivate the banks of the Mapocho River. In the Lo Barnechea area, there is a beautiful linear park on one side, with spaces for sport, various activities and playgrounds. I could see the effort being done to create areas where people can socialize and unite, but in reality there is still many differences and contrasts among the population. People need to feel secure and only then will they start to integrate with others. It will take time, and perhaps more measures will have to be taken by the government to create the right conditions in accelerating the process for a peaceful and secure environment.



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