

# Designing social housing but building wealth

By Justin W. Cook &  
Bryan Boyer



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## Basics

### Client

Families and individuals living in informal housing

### Core Design Team

Elemental

### Stakeholders

COPEC, Pontificia Universidad Católica, Ministry of Housing & Urbanism, various NGOs and community groups, Harvard Graduate School of Design

### Sector

Housing and urban development

### Start date

January 2000

### Status

Ongoing

### Project cost in €

~~1,000€~~

~~10,000€~~

100,000€

~~1,000,000€~~

## Key individuals

### Elemental

Alejandro Aravena, Executive Director; Gonzalo Arteaga, Architect, Projects Manager; Diego Torres, Architect; Victor Oddo, Architect, Communications Manager; Fernando Garcia-Huidobro, Architect; Maria Luisa Galmez, Administration Manager; Juan Ignacio Cerda, Architect; Rebecca Emmons, Architect collaborator; Cristian Martinez, Architect; Maria Eugenia Morales, Executive Secretary

### Elemental Alumni

Pablo Allard, Co-founder; Tomas Cortese, Architect; Andres Iacobelli, Co-founder

### COPEC

Jorge Bunster, CEO (now retired)

### Collaborators

Isabel Brain, Consulting sociologist

## By the numbers

### 1,169

Units built as of 2009  
*Source: Elemental*

### 260%

Appreciation of typical unit  
*Source: Elemental*

### 300,000

Post 2010 earthquake housing deficit  
*Source: Wall Street Journal*

## Overview

1. In the face of a housing shortage, the approach of Chile's national government was still modeled on crisis provisioning.

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2. Elemental reframed the question from housing to participation in the formal economy. Housing became an important first piece of equity. ➤ *A good strategic framework will not precisely predict a single solution, but will help the best solution seem self-evident when identified.*

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3. Using a very small budget and taking advantage of specific aspects of Chilean culture, the design team proposed a novel solution based on providing "half of a good house" and allowing the owners to self-build the rest at their own pace. They contend that "½ of a good asset is better than all of a bad asset." ➤ *Realism can greatly improve policy: self construction was ignored in government policy but instrumentalized by designers.*

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4. A multidisciplinary team employed co-design with the residents to generate well-considered housing and communities which were architecturally of high quality and responded to citizen needs. ➤ *The engagement process was designed very carefully to ensure that the outcomes would be productive and realistic for all participants.*

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5. The outcomes were not always obvious and sometimes even politically controversial, but they were justified by rigorous engagement with the future owners. This ultimately generated enough political capital to make the project viable. ➤ *Unconventional design solutions should be carefully positioned so as to avoid being perceived as politically or financially too risky before they're given due analysis.*



## Case narrative

At the end of the 20th century Chile was thriving, yet it still had a large informal sector, including many people living in slums and participating in an informal economy. The government offered housing subsidies to help raise these families from the slums by buying their own newly-constructed home, but the available solutions for doing so relied on cheap land. This disconnected families from their social networks and often their jobs, further condemning them to a life on the margins of society. By accepting the demanding constraints of the problem, the architectural “do tank” Elemental strategically redesigned social housing delivery to work within the budgetary limitations while addressing the very real needs of the residents. Their solution leverages unique aspects of Chile’s culture of self-construction to provide “half of a good house” rather than “all of a bad house.” In doing so Elemental offers the families an appreciable asset and a pathway to the formal economy, rather than condemning them to life in a social housing project where they will continue to struggle on the margins of society.

By the beginning of the 21st century, Chile had surpassed most of its Latin American neighbors in terms of economic development and political stability. Its performance according to the Human Development Index had risen to fourth highest in the Americas,

behind Canada, the US and Barbados. Since the 1980's, Chile's poverty rate had been reduced by about half as its GDP per capita rapidly pulled away from the South American average.



—Figure 1  
p. 23

Yet its government still faced the challenge of large numbers of poor families living in informal settlements. Housing and a pathway to formality were top priorities, but like its poorer neighbors, the provision of social housing was largely a product of crisis in Chile. Midrise, low quality housing blocks were the norm and led to overcrowding and declining property values that destabilized communities. In this environment, families struggled to escape poverty.

### **Housing as Precursor to Participation**

Chilean social housing was driven by two parameters: the amount of a government subsidy offered once in a lifetime to poor families and market-based real estate prices. Because the subsidy amount is fixed, cheap land and/or cheap, high-density construction were the principal factors that made the social housing equation work. Thus, the provision of social housing was above all, a budgetary exercise.

For an emerging generation of Chilean professionals isolated from the pressures of crisis mitigation, social housing was a question with many dimensions other than economic. For the poor in developing countries, a housing subsidy typically is the single largest government benefit available. On the other hand, formal housing that is visible to public and private systems of valuation is a first step into the formal economy and sustainable wealth creation. To bring the poor into the middle class, formal housing that increases in value is essential.

Thus, social housing must not only address the principal concerns of cost and demand. To achieve lasting impact, it must provide shelter to those in need and also stabilize poor communities by providing access to jobs, transport, and the formal economy.

**“Chile already knows how to make efficient housing policies. The problem is that the way we spend the money for housing is closer to the way we buy cars than the way we buy houses. When we buy a house, we expect it to increase in value over time. This is not the case with social housing; every day these houses, like cars, are worth less than their original value.”**

*Alejandro Aravena*



Most importantly, social housing must not return its occupants to poverty by sticking them with a poor quality home that becomes a depreciating asset.

At its core, the provision of social housing is one of the best mechanisms whereby the government can advance social equity for the poor. The challenge was to find a way to realize this potential and transform government subsidies from basic shelter into something much more instrumental.

## **No Longer in Crisis, but Still Thinking That Way**

Chile is neither a developing country nor a fully developed country. By most measures, it is a developed country in the western sense. It boasts political stability, a moderately diversified economy that is well integrated internationally, and a record of strong financial policy. Yet it still faces significant challenges: income inequality and large numbers of urban poor with limited access to the formal economy.

Chile's rise has been rapid. Since 1985, GDP has increased by nearly 1000%; by contrast US GDP has increased less than 200%.<sup>1</sup> With stability has come greater public investment in everything from transportation infrastructure to PhD grants for promising Chilean students to study abroad. But as recently as 1973, the government was overthrown by military coup, and runaway inflation was destabilizing Chile's economy.

Thus, civil crisis is a relatively recent challenge for Chile's government. Crises mitigation is a significant factor in public policy development and even formation of the government itself. As is true for most governments, the first response to crisis is to deliver quantity-based solutions that have an immediate impact.

For instance, in the weeks following Hurricane Katrina, the US Federal Emergency Management Administration (FEMA) deployed as many as 102,000 trailers at a cost of USD 2.6 billion. The immediate crisis of displaced families was mitigated by the government's capital expenditure on a vast number of trailers. However, the provision of trailers could not address long-term challenges such as rebuilding homes and schools and the creation of jobs. Furthermore, the trailer's composite construction materials were found to be dangerous, prompting hearings before the House Oversight and Government Reform Committee to inves-

tigate health impacts from high levels of airborne formaldehyde.<sup>2</sup> Following years of recovery efforts, those few trailers that were still in serviceable condition could only be resold at less than 30% of their original value, and many of their former occupants continued to struggle with securing housing.<sup>3</sup>

Hurricane Katrina and countless other examples demonstrate that the instruments of government established under crisis are limited in their ability to predict future challenges and provide long-term solutions. For governments facing crisis, spending is more expedient than investment.

## Old Models of Housing Delivery

By the early 1960s, Chile faced a housing deficit of over 300,000 units (more than 1 in 25 Chileans did not have access to housing) and demand was growing rapidly. Presidential candidate Eduardo Frei Montalva promised housing reform and 360,000 new units built in 6 years as part of his campaign platform. In 1964, he was ushered into office with a record turnout. Following a massive reform effort, the Ministry of Housing and Urbanism (MINVU) was formulated to direct housing efforts and city planning in Chile.<sup>4</sup>

Even under significant pressure for rapid results, Chilean housing advisors recognized that housing is about more than just protection from the elements:

**"Housing' meant not only houses, but also the social infrastructure making up the total community. The services of health, education, recreation, and personal security were necessary for the creation of an integral residential community."**

*Cleaves, 140*

This ideologically sound perspective did not translate easily into administrative divisions of the government and social housing was specified in terms of its most easily quantifiable feature: shelter. With a goal of 60,000 housing units per year, MINVU

2—"Congress names in FEMA trailer probe," MSNBC, accessed March 2010. <http://www.msnbc.msn.com/id/25610001/>

3—"FEMA Sells Post-Katrina Trailers," NPR.org, accessed March 2010. <http://www.npr.org/templates/story/story.php?storyId=8955278>

4—Cleaves, Peter S. *Bureaucratic Politics and Administration in Chile*. Berkeley: University of California, 1974

necessarily developed around quantity-based housing solutions to tackle the deficit; budget was the dominant design tool.

Political instability during the 1970s and 1980s complicated the economic and administrative priorities of the government as it continued to face a persistent housing deficit. By the mid 1970s, MINVU began to employ a system of subsidies (one-time cash payments) to finance new housing construction. This so-called enabling markets housing policy<sup>5</sup> was pioneered in Chile as the government sought a balance between state intervention and private sector housing delivery mechanisms. The government would issue a one-time subsidy to qualifying families but was not involved in delivery of housing units. The families would have to buy their homes from the private sector and they become owners of the property and home. Despite this positive reform, few resources were devoted to housing and the deficit reached a high point following the March 1985 earthquake at more than one million units. By 2001, just a quarter of MINVU's resources were going to poor families when it was projected that the housing deficit would not be eliminated until 2025.<sup>6</sup>

Prior to 2001, there were generally three types of social housing units built in Chile, each with its own challenge:

—**Medium/high rise buildings:** apartments provide each family with a maximum area of 40-45 m<sup>2</sup> often leading to illegal expansions and additions that compromise interior public space, public land around the building and structural integrity.

—**Row houses:** building lots, apartments and rooms are all typically 3m wide creating walk-through rooms that affect privacy and result in windowless "blind rooms." In addition, row houses do not use building lots efficiently (low-density development), yet are commonly associated with overcrowding in Chile.

—**Single-family houses:** popular during the 1990s, 36 m<sup>2</sup> single-family houses on larger individual lots appeared to provide middle class amenities to the urban poor. But budgetary constraints typically required the residences to be located at the edges of the city away from jobs and public transportation where land is inexpensive.

5—Navarro, Mario. "Housing Finance Policy in Chile: The Last 30 Years." *Land Lines* 17.3 (2005): 12-14

6—Navarro, 13

Often, in this stigmatized periphery<sup>7</sup> families would self-construct additions to the edges of their lots, resulting in an urban condition that resembles the slums from which many moved. Of greater consequence, the value of homes "swallowed" by self-construction would approach zero, depreciating the resident's one-time government benefit and providing little sustainable wealth for the family or an asset that was visible to the formal economy.

### **Who Pays?**

The Chilean state offered a one-time cash payment from the government (USD 3,700) which is combined with family savings (USD 300) and a private bank loan secured by the family (USD 7,000) for a total per-unit budget of USD 11,000.<sup>8</sup> Land, infrastructure, building materials, labor and design costs were all to be covered by the budget. Housing policy also dictated a minimum level of amenity provision for each unit, such as an in-unit water heater. This was intended to provide the basic comforts of a "middle class" home to the poor but put additional pressure on the already limited budget and, in effect, directed resources away from solutions that could have long-term positive impact such as purchasing land near the city center.

The private sector was also a necessary partner in social housing delivery and was mobilized to profit from government spending. For construction companies in Chile, social housing was made profitable by providing increasing amounts of interior finishes that typically have a higher margin than structural components such as bricks and concrete. Thus, from the perspective of the construction industry, the most attractive housing solution was one on cheap land with minimal logistical challenges, and extensive use of interior finishes.

The limited budget available for social housing projects would have to account for buying the land, providing highly regulated housing units, and accommodating the infrastructure shared by all residents. Since the budget, infrastructure and quality of unit are fixed by housing policy, the market forced land costs to be as low as possible.

The system was delivering middle class style homes, but miniaturized and displaced from the established community networks

7—Aravena, Alejandro. Interview by authors November 2009

8—Aravena, Alejandro. "Social Housing in Chile." Lecture. University of Wisconsin-Milwaukee, Milwaukee. 27 Jan. 2010. Social Housing. Web. 10 Apr. 2010.

that the families had built. As a result, social housing often carried a heavy human toll: communities were unstable and unsecured; far from transportation, schools, and jobs; and what could have been a key wealth-building asset, their house, was actually depreciating. In other words, social housing was not building stability and wealth for those families who needed it most.

Meanwhile, three emerging Chilean professionals coincidentally teaching and studying at Harvard began to discuss the challenge of social housing in Chile and its potential as a shortcut to equity and wealth.

## **Redesigning the Problem**

Alejandro Aravena (architect), Andres Iacobelli (transport engineer) and Pablo Allard (doctoral student) met while at Harvard in 2000 and began a seminal conversation about housing, economic opportunity and equity that would eventually lead to founding the "do tank" Elemental. At the time, all three shared an interest in potentials afforded by the city and in their own ways were investigating how to help the city do more for its occupants. Through their conversations, they began to understand that a greater opportunity could be unlocked if the social housing equation in Chile could be solved in a different way.

To "solve an old equation in a new way," especially in the politically charged environment of social housing, the constraints of Chile's government housing program would have to be accepted as a baseline. Changing subsidy amounts, reducing real estate prices, or finding resource donors were "easy outs" that would not lead to sustainable, replicable solutions even if they could be achieved for a specific project. Neither could their approach preference architecture, engineering or economics. An integrative, coordinated effort with a clear outcome would be necessary. But what should the outcome be? From a certain administrative perspective, Chile's existing solutions had been successful because they helped eliminate the housing deficit. From the point of view of shelter alone this may have been the case, but building equity—and rising out of poverty—was still beyond the reach of many families living in social housing.

Aravena, Iacobelli and Allard knew that by accepting the constraints of the subsidy and market conditions (by holding costs constant), their investigation would be well calibrated to the challenge. In addition, a deeper political conversation would be

possible where a housing proposal that did not reference current conditions would be derailed by perceptions of idealism and/or activism and could not realistically challenge business as usual. A new outcome of the social housing equation would need to be forged from the needs of families together with resources available from stakeholders and a commitment to the potential instrumentality of housing well deployed. With this perspective, they returned to Chile to begin the work of Elemental.

Elemental began their reformulation of housing delivery with a few precepts:

- Quality was possible in social housing in addition to quantity.
- Occupants and the government should see social housing as an investment in a tradable asset rather than an expense.
- It should be possible for social housing to increase in value over time.

These precepts were strategic in nature as they did not necessarily predict or define any singular design outcome. Rather, they were intended to move social housing out of the humanitarian territory of social discourse and the administrative territory of political discourse, and posit it as a question of merit for economists, public administrators, lawyers, engineers, and architects, as well as community organizers and charities. In other words, Elemental's approach to social housing came from outside the discipline of architecture and resisted a discussion of it in terms of the typical humanitarian frame. As Aravena and Iacobelli would later say, the non-specific issues of social housing (such as asset appreciation) were their principal interest.

To these non-specific issues, the design team could bring specific tools, such as the calibration of floor plans and the design of urban blocks that are directly linked to the social cohesion of the housing projects. Designers and engineers, in collaboration with a multi-disciplinary team, were able to explore the non-specific issues of wealth, opportunity and stability through a synthetic process to yield specific outcomes.

## Build Half of a Good House

In this early stage of Elemental's investigation, the result was a new set of factors to guide the development of social housing.

First, social housing must have a good location in the city close to the "opportunity networks" that were especially valuable to the urban poor. Satisfying this factor would initially put great pressure on the budget of the project, but it was essential to the long-term wellbeing of the future residents that they not be displaced.

Second, Elemental's study of leading sociologists such as Isabel Brain suggested that in order to maintain security and preserve the capability of collective decision-making, groups of 20-30 families should be enabled to form sub-communities within a larger development. Furthermore, sociologists had found that extensive families are critical to providing stability and networks for the poor. Elemental reasoned that cohesive sub-communities sharing a collective space would prove a more viable economic unit than social housing occupants without any shared relationship.

Third, Elemental's observation of existing social housing solutions made clear that housing units must be structured to "develop harmonically over time"<sup>9</sup>rather than expand haphazardly. Uncoordinated and illegal expansions were depreciating real estate values and impoverishing the community.

Fourth, with respect to the fact that self-construction is very common, government benefits should be directed toward elements of the house that are the most difficult for families to self-construct on their own. Elemental's key observation was that it was better to provide some parts of a house at a higher quality, rather a cartoon version of a middle class home with all of the typical parts but at a lower quality.

Fifth, social housing solutions should have the built-in ability to be expanded. Elemental recognized that the structure and massing of a housing unit should be designed and constructed from the outset with a final, expanded scenario in mind. Subsequently, more would need to be invested in the structure of a unit to support a new expansion, and that any expansion activities should require only low-tech solutions the families could construct themselves. In



—Figure 2  
p. 23



—Figure 3  
p. 24

**9—Iacobelli, Andres. "Elemental: Housing as an Investment Not a Social Expense." Lecture. 2nd International Holcim Forum for Sustainable Construction – "Urban\_Trans\_Formation". Tongji University, Shanghai. 19 Apr. 2007. Elemental Chile. Web.**

this way, the subsidy would be applied to the parts of the home that families could not do on their own.

Factors 3-5 would become Elemental's most heralded achievement. The new social housing solution was to build half of a good house rather than a whole bad house.

## Applying the New Factors

By 2002, working between Harvard and Pontificia Universidad Católica, Elemental had fleshed out the critical factors of a new social housing equation. Some months later at a seminar on the future of housing organized by MINVU, Aravena presented Elemental's early thinking without formal examples. In attendance was Silvia Araos, Executive Director of Chile Barrio, a program with independent financing that was tasked with delivering housing to over 100,000 families that were living in squatter settlements.<sup>10</sup> Excited by what she saw, Araos approached Aravena with a challenging settlement in the coastal town of Iquique, 1600 km to the north of Santiago. Around 100 families were illegally squatting on 0.5 hectares of private land near the center of the city in a settlement called Quinta Monroy. During their tenure, the families had established community networks and linkages to employment and education that would be seriously disturbed by re-housing them at the edge of the city where land was affordable. Araos and the families faced an acute need for a housing solution that would preserve their community. Elemental had found a test case in the Iquique project.

## Staying Rooted in Reality



—Figure 4  
p. 25

The Elemental design team went to the Quinta Monroy families and conducted workshops to determine how best to meet their needs. Even construction projects for wealthy clients often go over budget, so Elemental was careful to design the workshops in a pragmatic manner that was realistic about costs. One key technique in this process was using pairs of alternative options to discern preferences, rather than asking families to describe their dream homes. For instance, Elemental asked each family whether they prefer a bathtub or water heater, two items of approximately

10—MINVU website, accessed March 2010. [http://www.minvu.cl/opensite\\_20090203165631.aspx](http://www.minvu.cl/opensite_20090203165631.aspx)



equal cost. Workshops were held with different segments of the Quinta Monroy settlement to give individuals the opportunity to express themselves in situations where they would feel free to be honest about their preferences, even if those choices differed from their immediate neighbors or family members.

For some observers of this process, the ‘half of a house’ concept appeared to ignore the dignity and needs of families who were trying to move into the middle class. But for the families, half of a house provided them with what they needed most right at that moment, and offered a platform upon which to build as their wealth increased or their needs changed. For this, the families of Quinta Monroy had to defend their interests in public.

The families’ choice to forgo a water heater was contentious. Water heaters cost around USD 300 and were required by housing policy as a baseline amenity in new units. Yet experience had shown that in most cases, the water heater would be sold by the family to raise needed cash and then repurchased later when their financial condition had improved. A bathtub was preferred over a water heater as it was nearly impossible for families to retrofit their units after construction, and the tub would provide space for infants to be bathed where a shower stall would not. Elemental and the families of Quinta Monroy worked with Chile Barrio to redirect resources from what was prescribed to what was needed.

## **Designing a Pathway to Formality**

While their informal housing provided shelter, the families of Quinta Monroy lacked assets that were visible to financial institutions and the state. Without legal assets, loans and credit were unavailable to the families and the formal economy was beyond their reach. Their acute need was thus actually two-fold: a financial instrument that would allow them to build wealth, and stability afforded by permanent housing that strengthened family networks and maintained connections to economic and educational opportunities.

Compounding the challenge was a change to housing policy that reduced the total budget to USD 7,500 (USD 7,200 subsidy + USD 300 family savings) by eliminating the bank loan that left families saddled with debt. The Quinta Monroy settlement was located on half a hectare of private land that was valued at three times the budget for social housing provided by the subsidy system.

If Elemental were to build single-family houses on single lots as was the norm at the time, just 32 families could be accommodated, forcing out the other 68. Yet the combined subsidies from 32 families could not afford the high-cost real estate they were currently squatting on. Building row houses would provide space for only 60 families at Quinta Monroy. Medium-rise buildings could re-house all 100 families, but because of the stigma of medium rise social housing, the families threatened a hunger strike if this option were to be proposed. It was clear to Elemental that current methods and typologies were inadequate to provide housing that could address the non-specific issues faced by the families. A new approach was needed.

Applying their new factors for social housing, Elemental set out to deliver housing that would increase in value over time.

1. The prime location of Quinta Monroy was to be maintained and the community would be preserved. The additional costs would be accounted for.
2. Rather than build 100 homes for USD 750,000, they would build one USD 750,000 building.
3. By providing upper and lower floors with offset units, the building could be expanded in a harmonized fashion.
4. In agreement with the families, the building would be fitted with the elements that were most difficult for the owners to provide (including bathtubs and structure for expansions). Interior finishes, paint, and plaster would be initially omitted to reduce cost and could be installed by the families later on.

As Elemental developed the construction plans, their next challenge was to find a builder that was willing to take on the project. Without high-margin interior finishes included in the plan, it was difficult to find a willing builder but Elemental was able to find one that would take on the additional risk of an untested project out of goodwill and interest in working with the design team. As construction commenced, Elemental conducted workshops with the families to familiarize them with their new homes and provide instructions for safely expanding individual units. By 2004, the Iquique project was complete and the families of Quinta Monroy were moving in.



—Figure 5  
p. 26

## Bootstraps Disguised as Housing

As intended, self-construction made expansion possible for the families at a pace set by their own finances. Within two years, many additions had been made at an average cost of USD 750 per family, providing evidence of the community's growing wealth. Not only did this provide families with more space, it also increased the size and value of their now-legal asset to an estimated 60 m<sup>2</sup> and USD 20,000 respectively. Thus, sweat equity had yielded a new equation:

$$\begin{aligned} & \$7,500 \text{ (subsidy)} \\ & \quad + \\ & \$750 \text{ (value of self-build additions or improvements)} \\ & \quad = \\ & \$20,000 \text{ (home value)} \end{aligned}$$

In other words, the housing unit built with a one time housing subsidy and expanded with personal funds or, in some cases, small additional subsidies had appreciated to an estimated value of USD 20,000.

### Building Elemental: Business or Non-Profit?

While Elemental was building its intellectual capital leading up to the Iquique project, the organization was sheltered from fund raising by being embedded within Harvard's Graduate School of Design and Pontificia Universidad Católica. These institutions not only provided the intellectual freedom necessary for Aravena, Iacobelli, and Allard to dimensionalize the social housing challenge, but also the political and financial cover to operate in a contested space.

Thus, zero-phase funding for the Elemental project was externalized for the first several years after its founding in 2000. With successful implementation of Elemental's core ideas in Iquique, the organization found itself at a crossroads: it could become either a for-profit business, or a nonprofit NGO. For Elemental's leadership, the transition into an NGO would have been natural, as the organization had operated as such since its inception. However, they also knew that there were certain advantages to incorporating that derived mainly from the leanness and accountability (to markets and shareholders) that businesses faced. Despite not having a fully formed business model, Elemental decided to pursue incorpora-



—Figure 5  
p. 26

tion while maintaining academic ties to its sponsor institutions. Developing as a business was in keeping with Aravena's insistence that Elemental was not a humanitarian project, but a profitable organization rigorously pursuing better solutions to complex challenges in the built environment.

In 2006, the Chilean Oil Company (COPEC) bought a 40% stake in Elemental as part of its corporate social responsibility activities. COPEC was not interested in funding the delivery of more social housing as it believed this was the responsibility of the government, but was interested in investing in new thinking about the social housing challenge. Elemental's approach of accepting the constraints and working within the real parameters of the problem was appealing to COPEC's leadership.

To capture some of the intellectual property inherent in Elemental's work, a patent was applied for in Chile. This helped to determine a "value" of Elemental and thus, how much COPEC's share would cost. The funds raised from this sale were used to build Elemental's intellectual and human capital to take on more, larger projects and ultimately to become profitable.

COPEC's stake brought strategic leadership and stewardship to Elemental with deep business experience as Chile's largest private corporation to back it up. Stewardship would be critical to Elemental's long-term success since the reform of social housing would be a "marathon, not a sprint"<sup>11</sup> as the market forces that dominate housing in Chile will shift only very gradually and the success of new solutions would unfold over time.

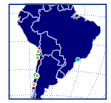
## **Beyond Housing**

With success at Iquique and many subsequent housing projects using a similar strategy, Elemental began to tackle larger scale issues in Chile's built environment. Government spending on a new metro line in Santiago, infrastructure, and public spaces were viewed through the same prism of social equity as Elemental's housing projects to ensure that the goals of Chile's housing advisors from decades earlier could be realized: an integrative built environment. Elemental realized through their work that cities were strategic reserves for their occupants, and if built and managed correctly, cities could provide shortcuts to equality for the poor.

**11—Iacobelli, Andres. Interview by authors. November 2009.**

Chile's growing wealth made possible new reforms to their housing policy, including larger subsidy amounts and new provisions for design and community development. With these changes, Chile became "too rich for Elemental's half a house solution"<sup>12</sup> and a whole house could be delivered with the government benefit.

However, countries from Mexico to India have recognized the power of Elemental's strategic approach to housing, wealth and equity and have commissioned similar projects. In New Orleans, Elemental has developed a housing solution for the victims of Hurricane Katrina still in need of housing in partnership with the Make it Right Foundation. As a testament to the strength of the half a house principle, the New Orleans solution is also half a house, but a different half than what was built in Iquique due to a different market, policy environment and context. Enabled by the perspective of social investing over social spending, governments will achieve lasting positive impacts for their citizens.



—Figure 7  
p. 27

## Finding The Right Balance

Elemental's unique solution improves on social housing's principal objective of sheltering the poor by helping families also build equity from their government benefit, thus delivering value at a new—and critically important—order of magnitude. Their innovative approach is highly calibrated to public policy and thus works with given constraints and budgetary limitations to strategically realign and reallocate expenditures based on providing long-term value. This approach is supported by a broad and thorough process of fact-finding and investigation into the needs of all relevant stakeholders including government, private sector construction companies, NGOs and the future owners.

The success of Elemental's process is in its ability to make sense of a complex set of inter-related issues and identify the weighted balance of these relationships, yielding a decision making framework that is rooted in actual needs, and is keenly aware of actual consequences.

The power of this framework is evidenced by the peculiar decision to deliver houses at Quinta Monroy without water heaters. From the perspective of human dignity alone it's a clear decision to mandate that all new homes must have a water heater. However, once this basic social policy decision was seen within the context

of a poor family's economic reality, and further illuminated by recognizing Chile's culture of self construction that makes the later addition of a water heater very likely, it is clear that the different sets of policy intersecting to govern housing delivery were not designed in concert.

Elemental's design process made this blind spot visible, offered a clear pathway to resolution, and supported that decision with irrefutable evidence. When the solution, a house with a tub instead of a heater, met with political opposition the team benefitted from their thorough needs-finding process and could direct the objecting politicians directly to the families who requested the purportedly "inhumane" solution.

Blind spots arise when boxes are perfunctorily ticked, as opposed to the application of rigorous problem solving. By eschewing a checklist approach to housing delivery, Elemental was obligated to interrogate every aspect of the challenge at hand. Rethinking the issue from first principles, they tested solutions available in the market against the observed challenges faced by poor families. Who are the players, what are their motivations, what are the constraints, and from this where can opportunity be found?

The quality of the Elemental team was a critical success factor for this approach. As a multi-disciplinary group, the core team and their close collaborators ensured that any possible solution they develop was considered from multiple points of view before being exposed to outside stakeholders. The design process created a space of opportunity where this diverse set of expertise could be integrated and applied. In addition, the Elemental team maintained a professional distance from the challenge to strengthen the rigor of their observations and design decisions. Treating the challenge of social housing delivery outside of its typical humanitarian territory permits a high quality interrogation of this difficult and charged environment.

As Elemental now begins to apply their way of working to challenges at the scale of the city and Chile's post earthquake recovery effort, a new set of constraints and opportunities will naturally be discovered. The promise of their work in this area has, in effect, been validated by the unlikely investment of COPEC and the uptake of the 'half of a house' solution around the world, but it's still too early to estimate Elemental's impact. Nevertheless, with a proven team, a rigorous and tested design process, and a demonstrated finesse for achieving strategic value, Elemental appears poised to take another step towards their goal of delivering equality in Chile.







## Figures



**Fig. 1** Quinta Monroy, as seen here before Elemental's project, is representative of Chile's informal urban settlements. Source: Elemental



**Fig. 2** Collage depicting three stages of development. Left: models used in a co-design session with future residents. Middle: completed construction. Right: after being lived in for some time, showing modifications by the residents. Source: Elemental



**Fig. 3** Interior views of a unit in Quinta Monroy showing before (left) and after (right). Self-constructed modifications include windows, floor surfaces, and painting. Source: Elemental



**Fig. 4** Future owners were involved in the design process through a series of workshops. These sessions included the group making difficult choices about what to build now and what to leave for later. As construction began, the workshops focused on how the owners would be able to make best use of the new homes and expand them safely. Source: Elemental



**Fig. 5** Quinta Monroy as it appeared when construction was complete. Source: Elemental



**Fig. 6** Quinta Monroy after self-construction. Source: Elemental



**Fig. 7** As of writing (March 2010), Elemental had completed numerous projects in Chile, with one project under construction in Mexico, and one in design phase for Brazil.

# Credits & contacts

## Credits

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by Justin W. Cook &  
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In this case study...

**A multi-disciplinary team led by the architects of Elemental design a radical new typology of social housing that is able to grow over time, both in size and in value. We see how they practice strategic design, discovering along the way that:**

**A realistic look at the status quo can inspire new design solutions that address higher-order challenges**

**Participatory processes should be carefully designed not to make promises that are too big to keep**

**Savvy engagement with the media is useful to generate political capital necessary to launch an unconventional design**