Sustainable Housing: A Solution for Mexico

Political instability. Drug-related violence. Poverty. Global warming. Although Mexico faces seemingly insurmountable challenges, the current government is taking innovative action to address these issues. One particularly significant step forward can be seen in initiatives to promote sustainable housing development for those most in need.

The Mexican Housing Authority estimates a deficit today of approximately 8.9 million homes -- a number that increases annually by 200,000. With a total of 24.3 million homes in Mexico as of the 2005 census, the country needs more than 35% additional homes for the current population. This deficit results from a lack of real estate development and financing options, among other factors. According to the Global Property Guide, housing financing is available to only 10% of the total labor force. As a result, in 2000, as many as 70% of new homes in Mexico were constructed by individuals rather than developers. This number has since dropped to 30% due to government initiatives.

The deficit is expected to increase over the next two decades, while the population is projected to grow from 37.8 million people between the ages of 25 and 45 (the prime home-buying age group) in 2005 to 45.8 million by 2030, resulting in a dramatic upsurge in the number of potential buyers. The Global Property Guide indicates that the mortgage market represents only about 10% of GDP, which is "significantly smaller than other Organisation for Economic Co-operation and Development [OECD]-member countries," suggesting that the market is underserved based on its potential.

In addition to housing deficit concerns, Mexico is already suffering from the effects of year-round climate change in terms of higher temperatures and lower rainfall. The Fourth Assessment Report of the Intergovernmental Panel on Climate Change predicts that temperatures could increase in Latin America by 0.4 to 1.8°C by 2020 and by 1 to 4°C by 2050, which would significantly increase the number of consecutive dry days and the length of heat waves in Mexico. Combined with reduced rainfall, this would intensify water shortages, which have become a serious national problem, particularly in Mexico's urban centers.

In response, Mexico must move from a carbon-intensive to a carbon-neutral economy. At present, the country emits 715 million tons of carbon dioxide into the atmosphere each year. Total greenhouse gas emissions exceed the per capita emissions in Brazil and India and on par with those of China. Left unchecked, the consequences of climate change and water scarcity are expected to have adverse effects on social and financial conditions in Mexico.

Sustainable housing can help reduce these problems. In the context of Mexico, sustainable housing refers to the homes and communities developed with the objective of (a) reducing environmental impact through the use of ecological materials, equipment and practices; (b) improving the quality of life for society by creating a social fabric that fosters prosperous societies, as opposed to simply building commuter cities with little to
no interaction among inhabitants, and (c) increasing access to financing for those in need while promoting savings through the efficient use of water and energy.

Through public-private-sector partnerships and attractive incentives, the sustainable housing initiative innovatively addresses several of Mexico's problems, namely, the massive housing deficit, the marginalization of low-income families, a lack of social integration, and growing environmental concerns. To this end, the Mexican government, along with private-sector firms, have instituted sustainable housing-development initiatives as a means to ensure the country's economic, social and environmental viability.

An Innovative Public Sector

When President Felipe Calderón took office in late 2006, his administration proactively began to address deficiencies in the housing market. In response to this new mandate, in early 2007, the federal housing commission, CONAVI, initiated the National Housing Program -- an aggressive plan to construct six million homes by 2012, roughly one million of which are to be sustainable. The government soon elevated the program to legal stature and developed a multi-pronged execution strategy targeting several issues, such as access to financing, options for low-income residents and the availability of "green" (i.e., environmentally friendly) housing.

To promote economic and social sustainability, the National Housing Program has put forth objectives to expand financing coverage for low-income families and marginalized groups, such as indigenous populations, single mothers and senior citizens. For example, in 2007, CONAVI launched Ésta es tu Casa ("This Is Your Home"), a program to provide subsidies worth 20%-25% of the acquisition costs of homes for families earning up to four times the minimum wage (74,000 pesos or roughly US$6,000 per annum). To help fast-track such initiatives, the government granted contracts, credits and favorable financing terms to private developers constructing green or low-income homes.

In addition, CONAVI also partnered with INFONAVIT (the National Workers Housing Institute) to ensure the provision of approximately 500,000 mortgages per year, including funding for low-income families. To reach the lowest-income populations, organizations such as FONHAPO (the National Peoples Housing Trust) and SEDESOL (the Secretariat for Social Development) provide mortgages to those without credit histories, to seasonal or temporary workers and to those participating in Mexico's large informal economy.

The Mexican government and CONAVI have made environmental sustainability another clear priority. CONAVI's National Housing Program includes the regulation and standardization of green-housing modifications and norms to maintain high-quality, environmentally sustainable housing options. It also promotes green mortgages and subsidies, and has led to the launch of pilot training programs to educate the population on the benefits and operation of sustainable homes.

To standardize and promote green housing development, CONAVI developed the Paquete Básico ("Basic Package"), a set of environmentally sustainable criteria that address site and terrain viability, water and waste management, and energy usage and insulation. CONAVI offered families purchasing homes that complied with the Paquete
Básico an additional subsidy of 20%, in addition to the potential 20%-25% from the Ésta es tu Casa program. In 2008, CONAVI further expanded its commitment to environmental sustainability by modifying the subsidy program to make the Paquete Básico a requirement of all homes eligible for a single subsidy of 20%.

In addition to subsidy programs for homeowners, INFONAVIT has committed to offering green mortgages to some low-income families. These mortgages contain (a) higher up-front costs to acquire green modifications and (b) a payment plan that takes into account the long-term utility savings, allowing low-income families to purchase green homes that have larger capital requirements.

With this government initiative in place, Mexico needed the participation of the private sector to boost the supply of sustainable housing options. CONAVI, in conjunction with several other organizations, instituted the DUIS (Integrated Sustainable Urban Development) certification program, whereby certified developments are eligible for government financing for infrastructure and housing construction, equipment and land acquisition, bond structuring, promotion of private investment, and technical assistance.

According to CONAVI's Director of Construction and Technology, Cristina Gonzalez Zertuche, "The DUIS doesn't only address the concept of the home, but as the name suggests, it addresses the entire community while integrating the home with its environment." DUIS certification allows private developers to undertake sustainable housing projects under more favorable financing terms. This is particularly significant given the restricted capital markets and otherwise sparse government loans -- financial conditions that often leave housing projects at a standstill. The overriding goal of this model is to promote the coordinated participation of federal, state and local governments to develop holistically sustainable projects that address infrastructure, transportation, public-space utility and the green nature of the homes.

The benefits of a multi-tiered approach involving several public-sector organizations and private-sector developers quickly became apparent through a test run of the National Housing Program in 2007-2008. The pilot program built 5,000 homes in the northeastern state of Nuevo Leon and bordering Tamaulipas. These modular, replicable homes were constructed in conjunction with state-level organizations, private developers and top universities as an opportunity to test new technologies, measure economic and environmental benefits, study the broad-scale feasibility of the DUIS program and promote inter-organizational cooperation. Private-sector developers took an active role in determining how the private sector would set the pace for sustainable housing development in the future. According to Gonzalez Zertuche, the pilot program's success and the extent of cooperative involvement of such a diverse range of entities has created a strong sense of optimism toward achieving the National Housing Program's goals for 2012.

Scaling the Initiative Through Private-Sector Collaboration

Following the success of the pilot program, the private sector seized the opportunity to undertake large-scale sustainable housing developments. The five biggest independent developers in Mexico are Urbi, Geo, ARA, Homex and Sare. Urbi, with a 7% share of the market, pioneered the first government-backed sustainable housing project and has since been setting standards for other developers.
Urbi's DUIS-certified project serves as an instructive example of the private sector's role in implementing the government's vision and subsequently promoting social, economic and environmental sustainability. In 2007, the government approved Urbi's proposed macro sustainable housing project in Valle de Las Palmas (Tijuana, Baja California), calling the "sustainable city" a new development paradigm. The goal over the next five years is to build 100,000 homes there and, over the next 20 years, enough homes to support a population equal to the size of Tijuana today (i.e., more than a million inhabitants). The housing development targets the "social-interest" segment of the population, comprised of workers who earn less than four times the minimum wage.

With the unified support of national government agencies, Urbi was able to bring on board the local government of Baja, California, the municipal government of Tijuana, and other outside organizations, such as the World Bank. The resulting public-private partnership allowed the project to move forward efficiently in all aspects of its development, from legal hurdles -- such as building permits -- to more technical considerations, such as the system design of the water supply.

Beyond logistical advantages, this public-private partnership was instrumental in making the project financially viable. According to the head of Urbi's Corporate Communications, Alma Beltran Rosales, and the project leader for Urbi's Innovation and Sustainable Growth Program, Fernando Mayagoitia, four key factors support profitability. The first, and most significant, is scale. In the first phase of construction, from 2007 to 2010, Urbi built 10,000 houses. The company plans to add continually to this number over the next 20 years, allowing it to take advantage of significant economies of scale. The second factor relates to access to capital and favorable interest rates. The government provides capital at favorable interest rates that, in turn, encourage private-sector banks to offer lower rates because government support often translates into lower risk.

Accordingly, during the first phase of development, Urbi received 100 million pesos (US$7.7 million) from public funds and 350 million pesos (US$27.0 million) from private funds. The third factor relates to the perceived appreciation of Urbi's land, given the 20-year commitment to the macro project. The final factor is revenue generated from carbon-emissions trading. Urbi earns credits through its developments by reducing carbon emissions, which it can then sell on the open market.

These favorable political and financial conditions have given rise to Valle San Pedro of Valle Las Palmas -- the seed community of a modern, sustainable city recognized in August 2010 as one of the 15 most innovative macro projects in Latin America. After phase one is completed this year, 10,000 homebuyers will have the opportunity to buy subsidized, high-quality homes designed to be environmentally, socially and economically sustainable.

Valle Las Palmas' environmental impact is significant, as the city has extensive infrastructure for water treatment and reuse, renewable energy and waste recycling. The water supply comprises a mix of reservoir water, treated salt water and recycled water, all processed at a hydraulic facility. The city's energy sources are just as diverse, incorporating solar energy, wind energy and methane gas. These varied resources, in turn, help to fuel the on-site waste-recycling facilities.

In the area of social sustainability, Urbi encourages all community members to share the
right and obligation to maintain a clean and organized environment, with the objective of raising the collective standard of living. On a more practical level, the Valle Las Palmas developers have also incorporated employment and educational opportunities into the community design. The site was chosen, in part, for its proximity to the Tacoma automobile factory, where Toyota recently invested 461 million pesos (US$37 million) in plant expansion. In addition, Urbi designated 500 of 1,900 acres to an industrial complex that has the potential to generate 8,000 new jobs. Moreover, the federal government has promoted investment in new industrial plants in sectors already active in the area. With regard to education, in 2007 Urbi donated land to the Universidad Autónoma de Baja California. The new Valle Las Palmas campus opened this year with an initial enrollment of 4,000 students.

With regard to economic sustainability from the consumer standpoint, CONAVI and INFONAVIT offer targeted buyers favorable financing terms. For an average Valle Las Palmas home priced at 212,000 pesos (US$16,500), the typical buyer will make a small down payment of approximately 7,400 pesos (US$600) in savings, which is then complemented with a subsidy of 34,500 pesos (US$2,800) and a credit of 162,000 pesos (US$13,100) through the green-mortgage program. Reduced utility bills over the long term are expected to compensate for sustainable housing price premiums not already covered by the subsidy.

The initial success of Urbi's federal, regional, and local government partnerships is paving the way for private-sector developers to undertake more sustainable housing projects while, at the same time, achieving sustainable profitability. As noted by Cuauhtémoc Pérez Román, general director of Urbi, "Without a doubt, in Mexico we have the historic opportunity to develop a model for sustainable communities ... through the joint effort of society and government, which can be transformed into a motor for growth and job creation."

The Challenges Ahead

While the Mexican government has made a bold decision to address the ongoing housing deficit and environmental deterioration, many challenges persist. Perhaps the greatest threat to the sustainable housing program is the instability of Mexico's political system. In the recent state and local elections of July 2010, the opposing political party, the Institutional Revolutionary Party (PRI), won the majority of the neutral states and could potentially regain the presidency in 2012. Many wonder how a political turnover will affect the sustainable housing projects and whether a new government will choose to continue to pursue the goals set by CONAVI and the Calderón administration.

Considering the global financial standstill and the constrained access to liquidity and credit, it is questionable whether the Mexican government has sufficient funds to continue financing these housing initiatives. Approximately 40% of the national revenue is generated by PEMEX, the state-owned petroleum company. Revenues are plummeting as a result of the company's inefficient management and the rapid depletion of the country's petroleum reserves. It is unclear how this will affect the budget in the medium term.

Furthermore, one should also consider the social implications of building sustainable housing developments away from city centers. As Gonzalez Zertuche noted, "The demand definitely exists, especially due to new young families and a growing
population -- this has been studied. In addition, there is an abundance of homes that need to be improved, generating additional demand for renovation. If such homes are sustainable and compliant with the requirements, they, too, will receive credits and subsidies." Given worldwide urban migration trends, it is quite possible that said demand will be concentrated in Mexico's most populated cities, leading to decreased occupancy rates in housing developments outside city limits. This could be troublesome for public safety and the maintenance of theoretically "sustainable" communities. Alberto Chaia, a McKinsey Partner based in Mexico City, challenged CONAVI's decisions, arguing that Mexico should focus on building vertically -- rather than horizontally -- since commuting is both a financial burden on the worker and an environmental burden on the atmosphere.

An additional concern relates to homebuyers' receptiveness to maintaining the sustainable communities. Professor Pablo Rene Ramírez, director of communication and development at el Instituto Tecnológico de Estudios Superiores de Monterrey (ITESM), noted that lower-income families are not always cognizant of the concept of sustainability. Due to daily economic constraints, many think only in the short term. According to Ramírez, "Those targeted for these large-scale, low-income developments are unable to comprehend the advantages--the beneficiaries do not see the benefit." To illustrate he adds, "The main challenge is to understand the incremental cost of a home with green components, such as solar water heaters, as compared with normal homes, as well as the associated long-term utility savings. When INFONAVIT finances the cost through green mortgages, people are more willing to acquire the sustainable homes. However, what occurs is that people then sell the heaters for quick cash, and then do not benefit from the long-term utility savings and thus are unable to pay the mortgages or make ends meet."

This then begs the question of how well CONAVI, INFONAVIT, the private-sector developers and other intermediaries are able to cooperate and provide the necessary education and training to mitigate this. Ramírez continues, "Overall, the integration of solutions for sustainable housing represents serious hurdles for INFONAVIT. Those taking on the mortgages are not sufficiently educated to understand or value the positive impact they are having. There isn't a legal body tasked with supervising the maintenance and proper use of green modifications." Ramírez, in association with ITESM, has proposed the implementation of community training centers to conduct programs to educate such communities about the culture of sustainability. In addition, he has also questioned (a) the ability of the government and the homebuilders to perform adequate quality control on the sustainable technologies incorporated in the projects and (b) whether these green technologies are transferrable across Mexico's distinctive climates, from the northern deserts to the southern tropics. In general, it is unclear whether these large-scale housing projects are, indeed, replicable across Mexico and the rest of Latin America.

Despite these questions and concerns, the initial achievements and anticipated long-term impacts of the program arguably outweigh the challenges. After all, risk is an essential component of any large-scale, innovative initiative. With regard to social sustainability, the sustainable housing projects have already succeeded in offering homes to individuals who were previously unable to obtain mortgages. The concept of integrally sustainable communities has significant potential to generate a positive cycle whereby higher-quality houses, cleaner water, cheaper utilities and improved access to education and employment opportunities will start replacing the cycle of poverty that fuels deep social
problems.

From an economic perspective, all the parties involved have access to appropriate financial incentives. For instance, INFONAVIT guarantees homebuyers' mortgages and covers their down payments on sustainable houses, which in turn generate savings from the efficient use of water and electricity. Likewise, DUIS certification assures developers access to more attractive financing solutions and indirectly introduces these companies to a large pool of potential clients.

As of 2010, five DUIS-certified sustainable housing projects are underway across Mexico. These developments are already having an environmental impact, with reductions in carbon emissions, water contamination, and other pollutants. The wave of sustainable housing projects is expected to gain strength in the near term, Greener communities are expected to serve as models for housing development, subsequently encouraging other communities to adopt best practices for water, energy, and waste efficiency.

A Sustainable Future

Large-scale sustainable housing developments in Mexico are proving to be a creative and inspiring approach to addressing the housing deficit, environmental degradation, and the lack of access to home financing for Mexico's lower-income families. Projects such as Urbi's Valle Las Palmas incorporate the social, economic, and environmental elements necessary to achieve long-term sustainability. The Mexican government has successfully managed to align the interests of private-sector developers with those of numerous public-sector entities. Although it is difficult to truly quantify this impact, it is hoped that the material successes to date will inspire public confidence and set an example for collaboration that will propel Mexico's sustainable housing initiatives into the future.

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