

1

399

70

803/16

REBUILDING MANAGUA

Managua, Nicaragua is unique among the capitals of the world: twice within a lifetime it was destroyed by an earthquake--first in 1931 and then again in 1972.

The second quake and the fires that ravaged the city afterwards left 10,000 people dead, 20,000 injured and 50,000 families homeless. 600 city blocks were totally destroyed. The entire center of the city, which had contained all the government offices and most of the city's stores, restaurants, hospitals, banks, schools and residences, had been wiped out. Managua lost 90% of its commercial life, 100% of its hospitals, 95% of its public markets and 65% of its classrooms. Estimates of physical damage ranged from \$350 million to \$850 million. By the spring of 1973, 50,000 people were unemployed.

Given these circumstances, why rebuild Managua? Why not abandon the city and start someplace else?

These were the first question asked, and over half the population did abandon the city, but after private citizens, government officials and outside experts had time to study the situation and weigh the alternatives, they decided there was no better place. No town in Nicaragua is earthquake-proof. The country lies in the geographical area known as the Pacific Ring of Fire which extends from America through Asia and is marked by earthquake, flood and fire.

As most of the outlying sections of the city and its industrial sector were largely intact, the economic loss of moving, coupled with the historical appeal of Managua as the capital, outweighed the reduced risk. The Banco de America building towering among the ruins proved that a safer city could be built.

Within days after the earthquake, A.I.D. provided \$12.5 million in food, medical relief and temporary shelters to house 50,000 of the city's poor who were left homeless. Six weeks later, A.I.D. made a program loan of \$15 million to help the Government remove rubble, clear drainage canals, build two new hospitals and remodel a third, and rebuild arterial roads by-passing the center of the city. Some of the funds went to the Central American Graduate School of Business Administration (INCAE), a Harvard-related institution located outside of Managua that was asked by the government to study the economic capacity of the country to support reconstruction. Half of an education loan*originally intended for rural school construction was earmarked for rebuilding Managua's classrooms.

* of \$5.3 million

\$300,000 of a health centers loan also was reallocated for Managua. In late 1973, A.I.D. authorized \$15 million of Housing Guaranty funds to build middle-income houses.

Over \$4 million was contributed by U. S. voluntary agencies and hundreds of thousands of dollars more were donated by smaller organizations and private U. S. citizens. The U.N. reported that 62 countries donated a total of \$8.6 million.

In May 1973, the Inter-American Development Bank made an emergency loan*to restore telephone service, build temporary university facilities, and provide credit for manufacturing, and industrial and rural development. The World Bank gave a \$20 million loan also for industrial credit and for building homes, high schools, and restoring water and electric service.

Experts from all over were brought in to advise the Nicaraguan Government. A U. S. Geodetic Survey team reported that because of the protection the volcanic chain bordering the city affords, no earthquake would ever exceed 6.5 on the Richter Scale; this level of intensity could be withstood by buildings conforming to anti-seismic standards. Through an A.I.D. grant for equipment and training, an Earthquake Hazard Reduction Center was established to continue this research. Staff from the U. S. Bureau of Standards came to help the Nicaraguan authorities study the causes of building failures and design better buildings in the future.

A team of Mexican planners recommended spreading out the city towards the south and east, and internationally renowned planning experts from Harvard, the U. N., and other prestigious institutions confirmed their judgment. The general principle was "deconcentration": reduce the density, especially at the core of the city where the fault lines lie so that if a disaster strikes again, there will be enough open space to provide "safe-havens."

Also, the general consensus was that the Government of Nicaragua lacked the capacity to do the planning that reconstruction required. Prior to the earthquake, all that existed was an urban planning office in the Ministry of Public Works with some 60 people; by the end of 1973, the Government of Nicaragua had established a Vice Ministry of Urban Planning (VMUP) that grew to a staff of 750, responsible for establishing and enforcing building codes, developing a Master Plan and Capital Budget and formulating a series of guidelines to set up priorities for an Immediate Action Reconstruction Program. A.I.D. provided almost a million dollars to finance technical services.

* \$16.7 million

Experts in sociology, economics, architecture, engineering and planning, under contract with A.I.D., OAS and the U. N., worked with VMUP to help train and guide its staff. Later, another half a million dollars was appropriated to employ technical advisors in the Ministry of Public Works and other agencies executing reconstruction plans.

By the middle of 1975 this "emergency phase" of reconstruction was just about completed. In October VMUP reported results, including the following:

More than 27,000 housing units for temporary and permanent use built.

More than 7,000 middle and upper-income units built.

More than 52 kilometers of primary and secondary roads constructed.

More than 120 kilometers of sewer lines constructed.

More than 12 kilometers of major drainage channels cleaned and repaired, and another 12 kilometers built.

More than 250 kilometers of water tubing completed.

64,000 electrical connections made.

Two new hospitals built, one expanded, and in total, 1,362 additional hospital beds made available. Four medical warehouses also constructed.

Classroom construction resulting in the provision of 1,845 units.

A temporary commercial center of 200 shops established and expanded, and four other major shopping centers completed.

Compared with pre-earthquake Managua, there were 46% more classrooms, almost 20% more water pipes, 12% more telephone subscribers and 67% more people receiving electric power in their homes. Hospital capacity was up to 86% of what it had been before the earthquake, and commercial space was about 65%.

Looking at the center of the city, it appeared as if nothing had been done, but as planning experts noted, "in fact, a functioning city has rapidly been organized around an entirely

new, less visible and perceptible pattern. Housing developments have been established, some of which provide better accommodations for poorer segments of the population than had been available in the past. Journey to work relations have actually been improved for some of the residents of these developments. The city has been 'working' despite the lack of a symbolic focus of the reconstruction." *

Even before final plans for the reconstruction were made, strategic actions were taken that moved the city away from the center and toward the suburbs. For the temporary shelters for poor families that A.I.D. was financing, the Government of Nicaragua chose sites on the eastern edge of the city. This project, known as Las Americas, was built on large tracts of vacant land near the North Highway, a major industrial zone. From the beginning, there was the intention of converting these temporary wooden structures into a permanent housing development for low-income families. Also, World Bank, IDB and HIG funds for housing were being used in the same area. Private developers, too, were building houses and shopping centers near Las Americas.

The first commercial space available after the earthquake also was on the outskirts of the city towards the southeast. This area had been a fairgrounds that was immediately converted into a shopping center of some 200 stores. Again, a temporary convenience became a permanent facility, for although many new shopping centers later were built throughout the city, this "Centro Comercial Managua" remained because it was the most popular.

To steer construction away from the center, the Government fenced off the old downtown and issued no building permits there. As new roads by-passing the center were completed, private developers naturally gravitated to adjacent land, and for its temporary civic center the government chose a site along the major by-pass.

Because of the government's policy, rapid, ill-advised construction in the dangerous part of the city was avoided. Building on vacant land in the outskirts made construction move faster and reduced land values in the old center, making it cheaper for the government later to reassemble land for redevelopment.

* Managua Reconstruction Program Evaluation: 1976-77 and 1973-77, John W. Dyckman and Lawrence D. Mann, June 1977, Mimeo, p. 21.

As emergency reconstruction neared completion, VMUP with the help of its planning advisors issued guidelines for the Immediate Action Program that became the government's policy. In summary, they called for: (1) reconstructing Managua on the same site but in line with strict building codes and zoning regulations; (2) investing in reconstruction in peripheral areas of Managua and developing new sub-centers in outlying sections of the city; (3) initiating programs to improve the "barrios"; (4) stimulating the private sector to participate; (5) refining plans for the center of the city, reserving it for largely non-residential use--parks, playgrounds, boulevards, museums and other civic buildings that could meet rigid antiseismic standards; and (6) decentralizing urban growth by developing other cities in Nicaragua. The aim would be to limit the population of Managua to 600,000 by 1980 and 700,000 by 1985.

These same guidelines became the basis for A.I.D.'s future support. In July 1974, a \$15 million loan was made to the Government of Nicaragua to turn the temporary shelters of Las Americas into a permanent residential community. Administered by the government's Housing Bank (BAVINIC), the project was designed to enable poor families to own their own homes. They were given a choice of nine different housing solutions, priced from \$1,200 to \$4,500. Six would be the converted temporary shelters that would have new foundations, bathrooms, sewer, and water hookups, differing according to size and additions. Three would be entirely new masonry houses.

Unique to the project was a home improvement fund, administered by the Housing Bank, enabling home owners to take out small loans to fix up their already converted shelters. Residents who wanted to start or expand their own businesses could also get credit from the new savings and loan cooperative administered by the Banco Popular.

Under sub-contract with the Government Social Welfare Board (JNAPS), a civic action program was included calling for home owners' associations, health clinics, day-care and pre-school programs for young children and athletic teams for older ones. With the cooperation of the Ministry of Labor and its new Manpower Development and Employment Service, created with A.I.D. technical support, special training was offered for the unemployed and a placement office set up to find them jobs afterwards.

Las Americas was to be the first of the decentralized residential communities recommended in the Mexican Urban Plan.

original sites, offering the full range of programs planned, and the home owners are meeting regularly; letting their voices be heard. In the words of the planning experts, "Las Americas is one of the very rare unambiguous success stories in U.S.-promoted low-cost housing for a developing nation--anywhere, anytime." *

The public and privately supported middle-income housing projects near Las Americas are helping to make an economically integrated community. Eventually, some 80,000 people will be living here, equal to the population of Nicaragua's second largest city. With the public sector providing a district center, a health complex, schools, transportation, lighting, water, sewage; and the private sector supplying the shops, restaurants, theatres, everything that makes city life attractive, Las Americas is a self-sufficient community.

For the reconstruction program as a whole, more needs to be done, but there have been significant accomplishments. The fund for small business loans, in the words of one A.I.D. authority, "has been one of the most successful...in the AID-financed program. To date (February 1978) 1,618 small enterprise loans averaging \$2,859 each have been made. Project evaluation indicates that these loans are not only reaching very small entrepreneurs, but also have created about 2,500 jobs." **

Over 2,200 water and 2,300 sewer hookups have been put into the "barrios." Five of the eight storm drains that A.I.D. financed have been built, and the remaining three should be finished before the end of 1978.

Construction of the subcenters, the health complex and the wholesale market has not begun yet, but the plans have been done, the land cleared and contracts are about to be awarded to the firms that will be doing the work. The various transportation projects--paving bus routes, widening highways and building access roads--are also at this same stage of development. By June 1979 the A.I.D.-financed work should be substantially completed. The government's Temporary Civic Center is now finished and fully occupied, and two new major by-pass roads are handling a steady stream of traffic.

Density in the old downtown has been reduced from the pre-earthquake figure of over 140 people per hectare to less than

* John W. Dyckman and Lawrence D. Mann, op. cit., p. 25.

** Status of Managua Urban Reconstruction Sector Loan, 2/8/78, American Embassy Managua Telegram to A. Valdez, drafted by A. W. Mudge and J. A. Sanbrailo. p. 3.

25. On the other hand, density in the outskirts of the city has increased; in one area it is up almost 200%. Nowhere, however, is it even half so concentrated as it was in the old center.

The pattern of "deconcentration," therefore, has been set, but whether this city of almost half a million people that is spread out over some fifty miles can be unified into a thriving metropolis is a question that only the Nicaraguans can answer as they continue to build for their future.

Aaron L. Benjamin
USAID/Nicaragua
March 14, 1978

Las Americas

On December 23, 1972, an earthquake leveled Managua. 10,000 people were killed, another 20,000 were injured and 50,000 families were left homeless. The entire center of the city was destroyed.

Within days of the tragedy, the U. S. Government donated over \$12 million in emergency relief--food, clothing, tents, medicines and medical equipment; \$3 million of that money was used for temporary wooden shelters to house some 11,000 poor families who were living in tents and were sure to be left homeless again once the rainy season began.

Sites were chosen on the Southeastern fringes of the city, close to the North Highway, a major industrial belt, which was minimally affected by the earthquake, and in the direction where the city's major expansion had been planned. The basic purpose was to reestablish the living areas of the poor people away from the most vulnerable old center of Managua. The middle and upper classes already lived in the suburban areas and were therefore least affected by the earthquake.

The Government of Nicaragua provided the land and was responsible for the installation of infrastructure, electricity, water and access roads, while the U. S. Government, acting through A.I.D., financed the houses. A contract was awarded to the Foundation for Cooperative Housing (FCH) to provide technical services to the Nicaraguan Housing Bank (BAVINIC), which was administering the project. Thus was born "Las Americas," a program to serve basic human needs of the poor disaster victims.

The Agreement to build the temporary shelters with grant funds was signed early in January, and six weeks thereafter the first thirty families moved in. Three months later, the total project was completed.

Each duplex structure contained two 20 square meter living units. The construction was of rough pine with a corrugated steel roof and shuttered wooden windows. Communal latrines and laundry facilities were provided. Eventually, water faucets were installed outside of each unit and cement floors were built in each shelter.

Rents were kept as low as possible to accommodate the poorest families. For a single unit, the rent was \$6.00 per month; for the double unit, \$9.00. Three dollars paid for services; the balance was put in a special fund for use as a down payment on a future improved house.

From the beginning, Las Americas was conceived as a project that would first house the homeless cheaply and quickly; then become a permanent settlement of low income families in a larger planned community. Initial thinking confirmed by the opinion of planning experts in the months that followed the earthquake recommended that the only economically feasible solution was to rebuild Managua in its present location, but spreading out toward the east and south. With one fast blow, the earthquake "deconcentrated" the city.

Since Las Americas was aimed at the poorest of the poor, rather than tearing down the temporary structures, it was felt that it would be more economical to rebuild them as permanent shelters. The future home owner could benefit from the basic structure, as a gift from A.I.D. To make his house permanent required replacing wooden studs that were becoming termite-ridden, with steel and concrete footings, and by adding a masonry toilet and shower facility.

In July of 1974, a \$15 million loan agreement was signed between A.I.D. and BAVINIC. The A.I.D. \$15 million was matched by a \$15 million counterpart from the Government of Nicaragua. The purpose of the loan-financed programs was to make Las Americas a permanent community.

In addition to remodeling the temporary structures, about 2,000 masonry homes were to be built, some interspersed with the older dwellings but most to be located on a new site, near the others. Construction on the new site would only be initiated after the work on the first four sites was substantially completed.

To conform to the range of family income--from \$40 to \$300 per month, the future home-owners were offered a choice of eight types of houses, priced at approximately \$1200 to \$4500 with a 5% down payment and a 25-year mortgage with annual interest rates ranging from 4% to 8%. They ranged in size from the single unit (20 sq. meters) basic remodeled structure, to a double unit (40 sq. meters), plus a variety of combinations ranging up to 50 sq. meters. The various design solutions provide the foundation for additions or the actual additions themselves--an extra room or a cooking porch. The seventh and eighth options are new houses varying in size from 25 sq. meters to 50 meters. A new ninth option provides for a house with 32 sq. meters, at a price between Type 7 and 8.

Now, three and one-half years after the Loan Agreement was signed, the project of permanent shelters in Las Americas, on the original four sites is virtually completed. Only on Site 5, a project of completely new houses and infrastructure does there remain substantial work to be done; and that will be completed by May 1978.

When we look at Las Americas now, we see a developing community of some 8,000 families. What has made the project work is a philosophy that BAVINIC expresses as "Home Improvement," "Economic Improvement" and "Civic Improvement."

Capitalizing on the natural tendency of poor families to improve their own homes little by little, the project planners included in the proposal, a fund for home improvements. \$700,000 was provided so that home owners could take out loans ranging from \$70 to \$2,000 at an annual interest rate of 9 3/4% for 10 years, to improve their homes.

And they have been doing just that at about \$1,400 each, an average of 100 loans are being processed each month. So that they can use the money more effectively, BAVINIC and FCH technicians are advising the home owners. A field laboratory is testing such home improvements as fiberglass, louvered windows, brick stoves, space saving, folding furniture and a solar water heater. Specially prepared training manuals are guiding people in making their own home repairs.

As for "economic improvement," in the three years between 1973 and 1976 among project residents, family income rose from an average of \$100 per month to \$170 per month, almost a 60% increase. While the general growth of the economy obviously contributed to this rapid rise, the program itself has helped.

A system for making loans available to residents of Las Americas who wanted to start or expand small businesses was included in the original package. BAVINIC contracted with the Banco Popular to organize a Savings and Credit Cooperative among the residents of Las Americas.

Contrary to the usual cooperative, members did not first have to build up savings in order to take out loans: instead, the Bank provided the initial capital so that loans could be made immediately. In paying back the loan, the member would pay 10%, half is retained in an account as his personal savings and half is used for working capital and to pay administrative expenses for the Cooperative. Paralleling the experience with the Home Improvement Program, the Banco Popular appointed staff to guide the new cooperators, meeting with them and offering courses in business practices, filing, accounting, and business management.

Since April 1976, when the program started, until March 1977, more than 500 people have joined "Las Americas United," as the new Cooperative is called. Almost 600 loans have been taken out, during that period, averaging \$350 each, for such enterprises as shoe repair, grocery stores and beauty salons.

Other residents who were not going into businesses of their own have been helped through special training and employment programs, conducted under sub-contract with the National Social Welfare Board (JNAPS). Working with the Ministry of Labor and its newly established Division of Manpower Development and Employment that was planned and guided by an A.I.D. technical advisor, JNAPS offered a course for women to become power sewing machine operators. Through the Division's Employment Service that was set up in a special office in Las Americas, these women were then placed in jobs with clothing manufacturers who were starting new companies in the Free Zone on the North Highway near the Project. For women who needed to stay at home and care for their families, a course in handicrafts was offered. Shoe making and shoe repair have also been taught. Once the Ministry's new manpower training center is built near Las Americas, project residents will have the opportunity for a wide variety of training.

JNAPS also has been instrumental in securing for the people of Las Americas, a broad spectrum of social welfare services that BAVINIC designates as "Civic Improvement." JNAPS organized neighbors' associations that are meeting regularly to hear residents' complaints and to work out solutions. As a result, remodeling of the temporary shelters will now include painting of the outside wooden walls (the A.I.D. Loan is supplying the paint; the tenants, the manpower), and installing cement walkways, also by self-help. JNAPS has organized clean up campaigns and tree planting; athletic teams in volley ball, basket ball, soccer and baseball, and educational and recreational programs for school age children, while on vacation. Helped by Peace Corps volunteers, JNAPS staff have trained some thirty women to assist in day-care centers and pre-school programs for young children. Health clinics also have been established to provide basic medicines, education in health care and inoculations. Initially, these services were offered wherever space was available. Now community centers built through counterpart funds have been constructed throughout the Las Americas and house all of these activities.

The people of Las Americas are also benefitting from the community at large around them. Rather than being isolated in a ghetto, they are integrated into a total planned community that includes lower-middle and middle income families. Through BAVINIC, A.I.D.'s Housing Guarantee Programs, the World Bank and the Interamerican Development Bank, over 4,000 more houses are being built in the immediate area, the majority for lower middle and middle income families who can afford homes from \$3,200 to almost \$12,000. Another 400 houses nearby are being built by the private sector, each costing \$20,000. By the time

all of these homes are built, Las Americas and her neighboring projects will comprise a community of some 80,000 people, roughly the size of León, Nicaragua's second largest city. Thus, within the space of four years, a city-within-a-city will have been built.

Such a task has meant more than constructing houses. It has meant building streets and roads; putting in lighting, sewage, water connections; building schools, fire stations, shopping centers; providing more buses. Much of this work was done under the A.I.D. supported Immediate Action Reconstruction Program. Under the same program, a new medical complex and a district center, with a popular market Bus Terminal, Telephone station, and government offices are now being constructed to help make the Las Americas community a complete city in itself.

One criticism that has been leveled against Las Americas is that it has the earmarks of a slum-wooden houses, without glass windows, on unpaved streets. This was the initial reaction of the GAO auditors who came to examine the project, but they found some basic differences that clearly established Las Americas as a community different from squatter settlements..."each home had concrete floors, water and electrical connections and some had sanitary facilities. In addition, all the homes have front and rear yards and most, side yards." They noted, too, the variety of services and amenities that made Las Americas different from the usual squatter settlements and the attempts by residents to beautify their houses.

The home improvement program is helping to make Las Americas more pleasing aesthetically, but it is unlikely that these rough wooden houses of different sizes and additions will ever look so neat as the more typical project of masonry row houses. One factor is cost. In BAVINIC's own low income project, Villa Esperanza, with 24 sq. meters and a price of \$3300, built with World Bank funds, houses are far more expensive, relatively, in terms of size, than that of Las Americas remodeled structures. Villa Esperanza also took three years to build as opposed to four months for the Las Americas temporary shelters.

Surveys of Las Americas residents indicate that before the earthquake almost all were renters paying about \$14 per month for a "cuarteria," a room around an open courtyard with communal cooking, laundry and latrine facilities. Now, for half that amount they have at least the same amount of space, their own washing, sanitary and cooking facilities, and, most importantly, they own their own homes.

No wonder, then, that to the majority of people living in Las Americas, the question of aesthetic appearance is secondary. When given a choice between new masonry homes and more

space, most opted for more space. A random sample of residents indicated that only one in seven thought the wooden structures should be removed and replaced with the typical masonry houses. On the other hand, almost 75% thought they should be painted and were willing to assume this extra cost to make the houses more attractive. "The majority (73%) believe that if painted, the Las Americas community can be one of which they can be proud without eliminating the wooden dwellings." (Noren, p. 29)* It is interesting to note that as soon as residents knew definitely that their temporary homes would be made permanent, and they would be home owners, "spontaneous home improvements increased by nearly three times, to a total value of \$282 per family." (Noren p. 35)*

Las Americas proves that a way can be found to house poor families that neither calls for highly subsidized public projects, nor the alternative of squatter settlements. It enables the poor to buy their own homes at a price they can afford and allows them to rebuild to fit their own needs. The emphasis is on letting the people themselves improve their own community with the Government providing the back-up support to make the community work.

In Managua, the experience of Las Americas is being transplanted to other barrios on the edge of the city where large numbers of poor people live. Through the Immediate Action Reconstruction Program the essential services that characterize Las Americas--the water and sewer connections, access roads and community facilities--are being extended to two of the largest barrios, along with the program of home improvement and small business credit. Toward this objective, District Centers and Sub-Centers providing basic services, shopping and community facilities are being strategically located throughout the city in order to promote deconcentration and replicate the Las Americas model of a city within a city.

The success of this program may suggest an approach to rebuilding the homes and lives of the poor that may apply throughout Latin America and elsewhere in the developing world.

USAID:HUD:3/1/78

* FCH Project Assessment - April 1977