Incremental Housing: The Past and Future Dwelling Solution for the Poor

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This paper briefly examines three case studies of incremental housing programs that took place over three decades in Latin America, Africa and North Africa. Incremental housing begins at its most elemental with the land, usually in the form of surveyed or irregularly occupied plots. Surveyed are the most basic form of sites and services and arguably the least-cost housing solutions that are based on the principles of self-help and mutual aid in settlements that can be easily upgraded. This paper also maintains that the most basic infrastructure networks that can enhance surveyed plots programs is a street addressing system. Addressed surveyed plot programs are therefore the most cost effective tool to harness the energy and creativity of over 1,000,000,000 urban residents that will be added to developing cities in the next two decades, and thus prevent the generation of 600,000 square kilometers of new slums.

Peru, 1970's

Venturing in urban areas for the first time since its creation, the World Bank built the first services projects in Africa in the early 1970s, Latin America and Asia. At about the same time, a progressive military government in Peru was building large-scale, least-cost housing solutions in and around Lima and other secondary cities such as Arequipa that were in the process of earthquake. The National Social Mobilization System, SINAMOS, organized low-income communities and groups of squatters, transported and settled them in vast tracts of empty land to the south and north of the capital city. These settlements consisted of nothing more than organized communities with surveyed plots, and virtually no urban

services. This was one-step down from the Bank-supported sites and services projects that usually included core dwelling units and communal water fountains. In the sites and services projects, the object was to provide "affordable" housing to low-income households, which usually put them out of reach of the poorest urban dwellers. The objective of the surveyed plots was to provide housing solutions for the greatest number of poor households who were streaming into the cities from the countryside.

Both the sites and services and the surveyed plots programs were inspired by the work and research of a British architect, John F.C. Turner. Turner was an admirer of the biologist-cum-urban scientist Sir Patrick Geddes, who in turn had been a student of Charles Darwin. While working on an earthquake reconstruction project with Peruvian planners in Arequipa in the early 1960's, Turner observed that when left to their own devices people produce the most efficient possible housing solutions for themselves, over time and through self-help and mutual aid. From his observations came his well-known "Freedom to Build". Turner went on to teach at MIT with Horacio Caminos, and became a consultant to the incipient urban development department at the World Bank, where he inspired the novel sites and services and self help approaches to low-income housing in Senegal, and Zambia, El Salvador, Peru and the Philippines. Many of his Peruvian colleagues went on to join SINAMOS[1], and launch the massive surveyed plot programs of the 1970's.

The first such settlement was CUAVES, or Comunidad Urbana Autogestionaria Villa El Salvador (self-managed urban community Villa El Salvador). The most important features of Villa El Salvador were the design of the settlement and the

[1] See interview of John F.C. Turner by Roberto Chavez and Melanie Zipperer, 2002.

fact it initially consisted only of surveyed plots. The design was a large-scale grid of adjoining neighborhoods of 400 x 400 meters. At the heart of each of these was an area reserved for community facilities. At the beginning Villa El Salvador was a vast stretch of desert dotted with plastic and cane shanties almost as far as the eye could see. SINAMOS coordinated the delivery of water by tanker trucks, and the military established a number of field clinics to provide essential health services to the population. Another important feature of Villa El Salvador was that it was built on the considerable social capital generated by worker self-managed economy model on the "third-way" of the non-aligned movement chaired at the time by Tito in Yugoslavia.

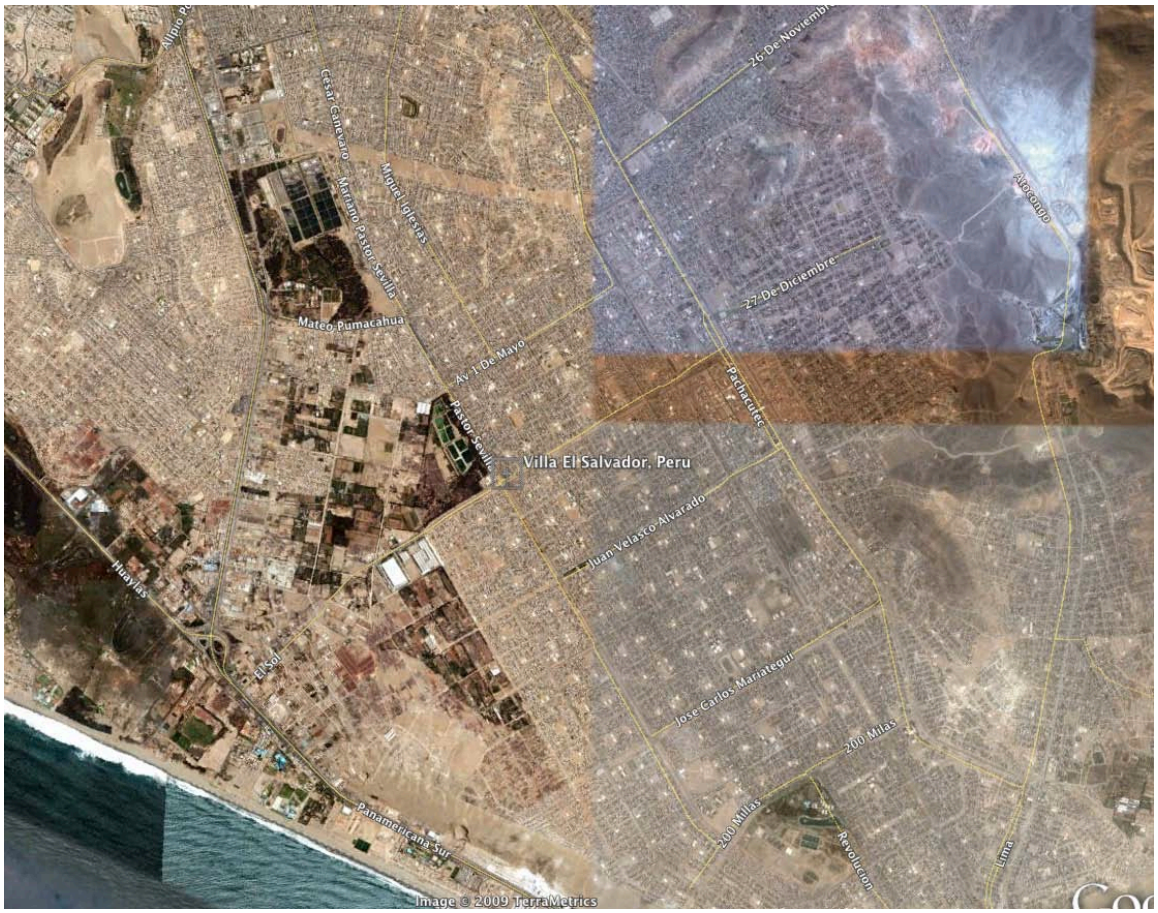
The World Bank was invited to upgrade some of these settlements in 1975. It was agreed that Bank-supported Sites and Services project[2] would provide water and electricity Villa El Salvador and Canto Grande to the northeast of the Metropolitan area. Upon visiting Villa El Salvador however, the team of bank experts was surprised to find that the community insisted upon having an underground electrical system, like the much higher income downtown Lima and upper income neighborhoods like San Isidro. The Bank staff argued that it was too expensive-- even many cities in the developed countries did not have the luxury of underground wiring. The CUAVES representatives insisted in that in the long term it would be greatly more cost effective, since the illegal connections that plague most low-income settlements would be avoided. In the end, they won the argument and the Bank financed the underground wiring, although no

[2] Peru First Sites and Services Project Appraisal Report, 1975.

reference to it can be found of this breach of orthodoxy in the project appraisal report or anywhere else[3].

In 1975 a highly organized squatter movement made up of families who had migrated from other parts of the country and settled into dense tenements on either side of the Rimac River in downtown Lima was systematically organizing illegal land invasions hazardous areas, under high-tension wires and floodplains, in the knowledge that SINAMOS would relocate them. And indeed, SINAMOS systematically gathered and relocated the squatters to an area of several hundred hectares that was being surveyed in a large valley, Canto Grande, to the north east of Lima. On paper, Canto Grande was designated as residential as a large residential area with light industry and commerce, as per the strategic development planned for the city. On the ground, Canto Grande was a huge dust bowl, where the future streets and avenues were marked off and settlers built their shanties. A small boy from one of the squatter families approached a young Bank consultant who was taking photographs of the process from a low hill. The boy asked him what he was doing, looking serious and just checking that nothing was amiss. The consultant asked the boy what he did. "I'm an engineer", he said. "An engineer – how so?" asked the consultant, somewhat skeptically. "Well, I help draw the chalk lines of the streets and the lots", said the boy, " I'm building my barrio".

[3] Villa el Salvador has been the recipient of support from multiple donors and the subject of a good number of studies. And yet, a thorough, well-documented case study has not been the subject of any Ph.D. thesis as far was we know. In any case, it is long overdue.



Forty years later, Villa El Salvador has become the second largest city in Peru, now conurbated with Lima at the southern end of the extended urban region. The shanties have evolved into one to three story, brick and mortar dwellings, often with a small business on the ground floor. The communal areas in the middle of each barrio have evolved in different ways. In most cases they hold a school or a health center, and they almost always serve as a playground. Contrary to other of parks and public spaces in Lima, while not very green from the lack of water, these areas are free of urban crime and violence since they are surrounded by residential areas with a strong sense of community and the watchful eyes of their occupants. Canto Grande is a series of middle-class neighborhoods with paved streets, community facilities and even parts and

gardens. It's hard to believe the same place of such humble origins four decades ago.

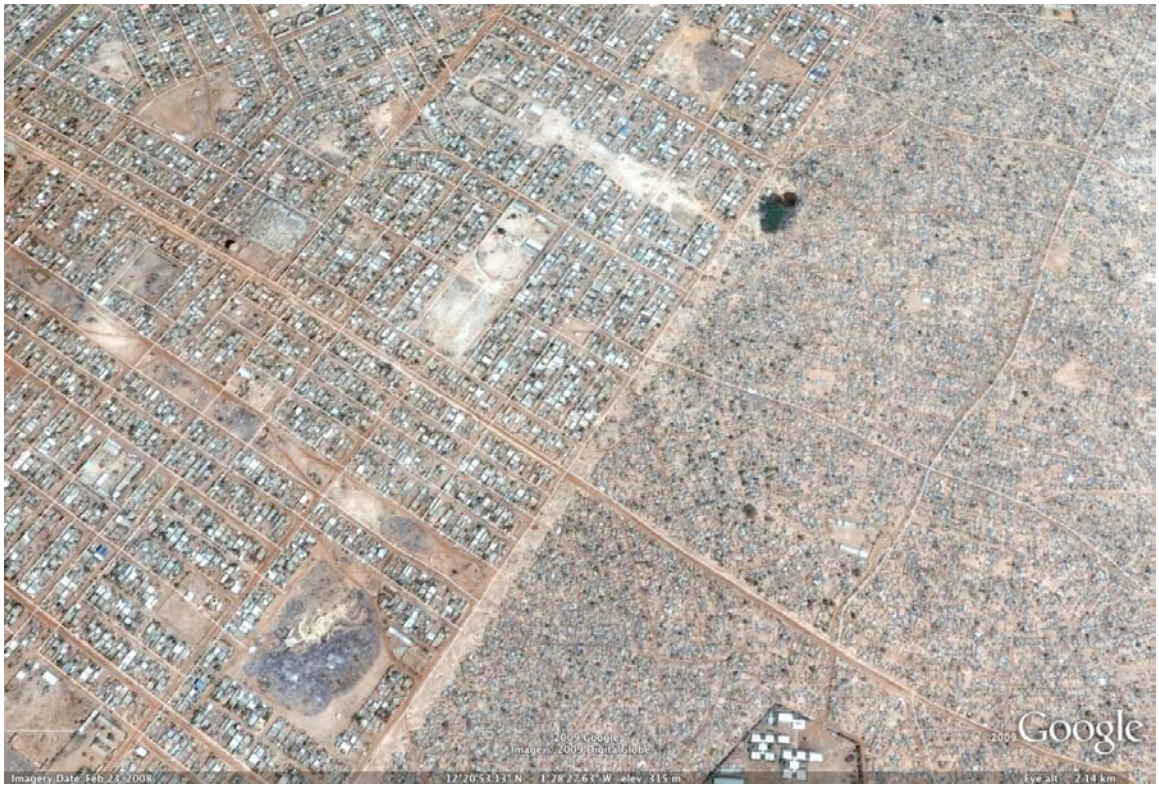
Burkina Faso, 1980's

A second example of successful survey plots programs supported by the World Bank took place in Ouagadougou in the mid 1980s. In this case the government was headed by a brilliant young lieutenant, Thomas Sankara – something of an African predecessor to Barak Obama. Under the Sankara regime, the government launched a large-scale surveyed plot program following a master plan that had been developed with the assistance of the Dutch cooperation. Poor families arriving from the countryside were directed to the future residential neighborhoods, where they were given a plot of land. As in the case of Peru, the most essential services such as water and fuel for cooking (wood and charcoal), were soon provided by the informal sector. The Bank-supported project [4]eventually provided communal water fountains.

In the case Ouagadougou, there was an important innovation to the surveyed plots program. In addition to the surveyed plots, a street address also provided. This was an important improvement, as it allowed the government to collect a very small tax, about 380 francs CFA at the time, which was enough to cover the cost of operating and maintaining the street addressing system. But perhaps more importantly, the street address gave the new residents a sense of belonging. This was no accident – it was intended to instill a sense of citizenship, of the poor having the same rights and responsibilities as any other 'citoyens'.

[4] Burkina Faso: Second Sites and Services Project Appraisal Report, 1988

As the surveyed and addressed 'quartiers' gradually consolidated over time, the benefits of the street addressing system increased. When electricity was installed, the power company did not have to develop its own system for locating its meters; it simply used the street addresses, and thereby lowered its marginal operating costs. The same was true for municipal services such as road maintenance (even if the streets were only packed earth), for garbage collection and eventually for the water system. The census taking and voter registration were equally expedited, as were other municipal social services.



Unfortunately Sankara was assassinated in 1987 under circumstances that are still not clear today by his right-hand man, Blas Campaore, the current president of Burkina Faso. What is clear is that the surveyed plot program for the urban poor was suspended. Urban growth reverted to its old organic squatter process (see satellite image above). Needless to say, it was virtually impossible to extend the successful street addressing system to the contorted squatter settlements and

extremely costly to upgrade their infrastructure. When you fly over Ouagadogou aboard Google Earth from downtown to the periphery, you see the built-up colonial downtown first, then a band of orderly, well-designed low-income neighborhoods, and last a sea of chaotic slums. Most streets in the planned neighborhoods are still not paved, but the dwellings show varying degrees of consolidation, and the neighborhoods have a sense of permanence. Nowhere else is the tragic death of a visionary more clearly delineated in the fabric of the city.

Mauritania, 1990's

When the mayor of Noauakchott decided to address the twin issues of upgrading existing slums and preventing new ones, the Mauritanian's had a lot going for them. They already had a sophisticated street addressing system through which the managed municipal taxes, which they had acquired from Doula, Cameroon, through a city-to-city knowledge exchange. Secondly, they also had some experience with sites and services, although it had not been very successful because they located the new settlement to far from town, with very inadequate public transportation. And when the Bank and Habitat took to long to come to their assistance, the mayor had launched a homegrown but very successful City Development Strategy. Last but not least, the mayor, a former minister of public works, was a dynamic and charismatic politician and he wanted things done before the next election.

Another advantage that Noukchott had was the state of most of the land in the city, that had not been leased to private developers and individuals. Having a master plan, we designated low-income residential areas, went a long way toward solving the problem of preventing future slums. More difficult to resolve was a large slum area directly to the southwest of the city center, near the central

market. The squatters have settled in this area over the past two decades. They had a very strong sense of cultural identity and were grouped by ethnic origin in several clans. The upgrading of this area required a great deal of social work and consultations by the municipal government. While the squatters gradually came to accept the idea of upgrading, it was a lot less clear out to go about it. The clans were not segregated, but were intermixed in a highly "organic" design settlement, with plot sizes varying according to tribal hierarchies.

The agreed upon option was a radical upgrading, where a 400x400 meter grid would be overlaid on the squatter settlement, and the main avenues would be bulldozed through the community. An interesting feature of the project was that in the interior of the 400 x 400 meter grid, the organic layout of the plots of varying sizes would be maintained. This design worked because the water fountains would be located only in at the intersections of the streets. The electrical network initially would consist only of public lighting along the street network along the streets. The dwellings that were removed from the main thoroughfares, were relocated to an adjoining surveyed plot area, continuing the 400 x 400 m grid, and linking the squatter settlement to the road network of the city. The design of the new surveyed plot settlement included clusters and cul-de-sacs, as per the Caminos method[5].

And of course, the first network installed in both the upgraded slum and the surveyed plots settlement was the street addressing system. The next was the electrical system. Eventually, the water system with communal standpipes would be installed, once a major new trunk line brought water the parched Nouakchott metro area from some 400 Km away.

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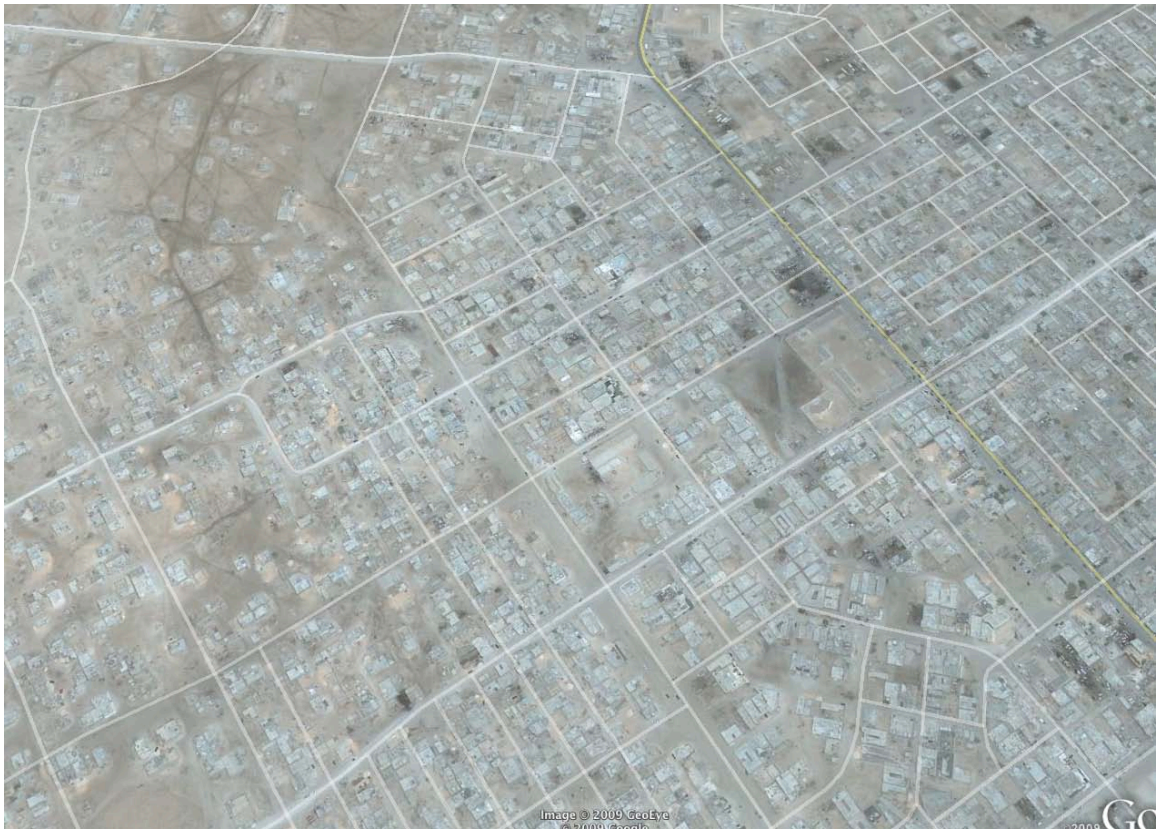
[5] Urbanization Primer, H. Caminos and R. Goethert. MIT Press, 1976. 15

The World Bank supported project[6] included the slum upgrading and slum prevention programs in the capital and in the next largest city, the port of Nouadibou, and a series of small public works in several smaller towns. And in both large and small cities, the street addressing system would be extended to cover the entire urban areas. Up to date maps at a scale of 1:2,000 are the basis for the street addressing system, and a local company developed an innovative approach for mapping urban areas at a fraction of what conventional aerial photography would cost. It consists of using a conventional 35 mm camera from low-level flights in a small aircraft, fitted with a trap door. The digital images are then assembled into a mosaic, with the assistance of inexpensive GPS devices. The mosaic is then 'rubber sheeted' with off-the-self drawing software, over an older orthogonally corrected aerial photograph. The final maps are then produced on a large format printer.

The Mauritania project focuses on dealing with the stock, existing slums and squatter settlements, as well as the flow of new migrants to the urban areas on countrywide basis. As such it is perhaps the first national low-income housing project supported by the Bank that truly addresses the issue, now and in the future.

[6] Mauritania: National Urban Development Project Appraisal Document, 2001



Conclusions

The case studies discussed above span a period of three decades at the end of the 20th century. Together, they provide a glimpse of what it takes to deal with the enormous challenge before us. They have demonstrated that incremental housing / surveyed plots can work in different countries with different cultures, and that they are resilient in the face of economic and political change. They have demonstrated that over time these settlements tend to consolidate into cohesive communities with the most appropriate housing. They have also shown to be well suited for incremental improvements in infrastructure and services. The most affordable and cost-effective service network of all service networks is street addressing, which also has the greatest impact in terms of sense of identity, community organization and municipal management.

Addressed surveyed plots give low-income families the greatest freedom to build, at their own pace and responding to their own needs (back to John F.C. Turner). They also require the least amount of government intervention and international financial support. As opposed to the one-size-fits-all approach of conventional low income housing, surveyed plots allow the provision of goods and services by the informal sector, generating jobs and giving the poor more options to choose from. Finally, compared to conventional sites and services or other public housing projects, surveyed plot projects seem to be more amenable to going to a large enough scale to meet the enormous demand of rapid urbanization in least developed cities.

Addressed plots are the least cost, incremental housing solution to prevent developing countries from becoming a planet of slums. The main obstacle, aside from know-how and political will, has been and will be the availability of an adequate supply of land. Polices that have been discredited by the development banks and bilateral agencies such as land banking and urban planning need to be revisited. In the meantime, policies that tend to increase pressure on the supply of land, such as destruction and relocation of slums and squatter settlements must be permanently discarded in favor of urban upgrading in situ. Slum upgrading and slum prevention must be addressed simultaneously on a global scale, and from the bottom up, with all hand on deck, at the local level. The dawn the 21rst century may be our last chance to get it right.