

## THE ENDURING CUBAN HOUSING CRISIS: THE IMPACT OF HURRICANES

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In 2008, Cuba was devastated by tropical storm Fay and several hurricanes that caused an estimated US\$10 billion in damages. In quick succession, between August 16 and September 8, Fay and hurricanes Gustav and Ike pounced upon the Cuban archipelago, Fay and Ike in particular ravaging much of the national territory. Further coastal damage in Eastern Cuba resulted from Hurricane Hanna just a few days before Ike struck, with still a fourth hurricane (Paloma) causing limited flood damage two months later. The agricultural sector suffered enormous damage from which it will take years to recover (Messina, Royce and Spreen 2009; Mesina 2009).

The impact on the physical infrastructure was equally significant with many roads, ports, factories, utilities, public health and education facilities, and structures in general heavily battered. Consequences in the housing sector were catastrophic, official estimates indicating 444,000 housing units were damaged, of which 63,000 completely destroyed (“Información” 2008; “Insuperable” 2008). In Havana alone, Ike caused the complete or partial collapse of 67 buildings (Sánchez 2009). In regions severely impacted by the storms, concentrated in the province of Pinar del Río and Isla de la Juventud in the west, and the provinces of Holguín, Las Tunas and Camagüey in the east, the damage was widespread. In Holguín province 100,000 units were pending repairs by October 2008 (García 2008), while in Pinar del Río the housing deficit was estimat-

ed at 100,000 units (EFE 2008). Most extreme was the situation in the municipality of Los Palacios in the eastern section of Pinar del Río where, of the 13,000 dwelling stock, 10,000 were damaged, 6,000 of them being totally destroyed (Suárez Rivas 2008).

### A WORSENING SITUATION

These natural events worsened what was already an enduring housing crisis. The magnitude of the housing deficit—defined in terms of availability of housing meeting essential habitability standards—even before the hurricanes struck, can hardly be overemphasized. In the city of Havana, Eusebio Leal, an influential political leader and official city historian, has cited estimates by the *Instituto Nacional de la Vivienda* (INAV) indicating that 60% of housing units are poorly maintained, many described as in poor or deplorable conditions (Pérez 2009a; Pérez 2009c). Evidence reviewed in this paper suggests the situation may be just as dire throughout the rest of Cuba.

How Cuba is responding to this challenge, after decades of ineffective interventions and shifts in strategies, to confront the persistent adequate housing deficit is worthy of attention. Policy makers in Cuba, as around the developing world, have been preoccupied with the shelter issue for decades as demographic pressures and accumulated deficits have made the provision of adequate housing a social priority. Capital investments required to provide adequate housing have

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proved to be a nearly insurmountable obstacle. To address this capital scarcity, many interim solutions have been proposed, debated and sometimes implemented. In general, and because of the amount of resources demanded, countries have chosen to facilitate individual low-cost housing construction initiatives—to be gradually improved—while complementing these efforts by making available essential infrastructure (e.g., roads, water, sewage, electricity, schools). These options have included “sites and services” and other less ambitious schemes, often accompanied by the distribution at low or no cost of basic construction materials as well as technical support.

In the former socialist world—including the Soviet Union—and some of the wealthier developing countries (e.g., Venezuela during the 1960s and 1970s), one alternative was to mass-produce multifamily structures, often with prefabricated methods, to provide adequate (defined as offering minimum habitability standards, such as running water, electricity, sanitary facilities, and, if applicable, central heating) housing to as many people as possible. While defensible on the grounds of improving the housing stock, this approach proved expensive and bureaucratic, and well beyond the reach of the poorer countries. These housing developments were further criticized for their drabness and monotony.

### HOUSING IN CUBA

The housing situation in Cuba in 1959 was not very different from that of other countries at a similar level of development. Initial policies to address housing demand proved unsustainable because they were too costly (e.g., the “Pastorita” housing plan). In addition, the leadership decided to allocate most construction resources to other sectors (e.g., health, education, dams), although considerable attention was assigned to upgrade peasant housing in connection with collectivization policies. As shown in Table 1, during the first 25 years of the Revolution, from 1959 to 1983, only 296,616 housing units, or fewer than 12,000 per annum, were built, despite claims that in the early 1960s the housing deficit amounted to half-a-million units. The housing shortage was made even more acute by fairly rapid demographic growth, although eased by permanent emigration of hundreds of thousands of

people. By the 1970s, initial signs of deterioration of the housing stock in Havana and other large cities were evident as the consequence of improper maintenance began to raise its ugly head (for general reviews of developments in the housing sector see, among others, Arrinda 1964; Barkin, 1979; *Cuba Review* 1975; García Vázquez 1965; Gugler 1980; Roca 1979; and Segre, Coyula and Scarpaci 1997).

**Table 1. Housing Units Constructed, 1959 to 1983**

Year	Units
1959–63	17089
1964	14200
1965	5040
1966	6271
1967	10257
1968	6458
1969	4817
1970	4004
1971	5014
1972	16807
1973	20710
1974	18522
1975	18602
1976	15342
1977	20024
1978	17072
1979	14523
1980	15462
1981	16794
1982	22282
1983	26320

Source: Gary Fields. 1985. “Economic Development and Housing Policy in Cuba.” *Berkeley Planning Journal*, Vol. 2, Nos. 1–2, Spring and Fall, Table 2, p. 59.

By the 1980s, the housing issue had gained added urgency due to the prior neglect of the sector, plus the limited output and low quality of units built under the micro-brigade experiment and other policies implemented to provide more and better quality housing. Even efforts to limit the deterioration of the existing housing stock yielded limited results, although the state budget for that purpose was increased significantly (Hamberg 1986:60). In 1988 in the city of Havana alone, 71,876 houses were propped with wooden beams to prevent their collapse (Construction Challenges 1988). The 1985 Housing Law was partly intended to address the dearth of adequate housing by facilitating self-built housing through private efforts

and establishment of temporary cooperatives to build multifamily housing. Additionally, professional construction brigades were assigned a greater housing sector role. Table 2 suggests these policies met with some success as the number of housing units, particularly those built by the non-state sector, began to make an important contribution to the country's housing stock. Between 1984 and 2007, 998,953 housing units were built, or 41,623 per annum, more than three times as many per year as between 1959 and 1983.

**Table 2. Housing Units Constructed, Total and State and Non-State Sectors, 1984 to 2007**

Year	Total	State	Non-State	Non-State			
				UBPC	CPA	CCS	Private
1984	39393 <sup>a</sup>	25393	—	—	—	—	—
1985	41170	27265	13905	—	2053	—	11852
1986	70914	25841	—	—	—	—	45073
1987	67187	26248	—	—	—	—	40939
1988	39449	28958	10491	—	3127	—	7364
1989	39589	28296	11293	—	2899	—	8394
1990	36326	22510	13816	—	1654	—	12162
1991	—	—	—	—	—	—	—
1992	20030	12334	7696	—	429	—	7267
1993	27128	16933	10195	—	1993	—	8202
1994	33465	21813	11652	—	3288	—	8364
1995	44499	24034	20465	6561	4763	—	9141
1996	57318	30206	27112	8013	4672	—	14427
1997	54479	26504	27975	5911	3476	—	18588
1998	44963	21267	23698	4127	1783	3585	14201
1999	41997	19347	22650	3249	922	2166	16313
2000	42940	20670	22270	2783	854	2559	16074
2001	35805	17202	18603	1879	656	1462	14606
2002	27460	19643	7817	365	96	195	7161
2003	15590	7318	8272	120	39	26	8087
2004	15352	8295	7057	168	63	65	6761
2005	33919	14585	25334	452	392	132	24538
2006	111373	29692	81681	1473	1392	676	77480
2007	52607	22419	30188	1108	831	874	27375

Source: Oficina Nacional de Estadísticas, *Anuario Estadístico de Cuba 2008*, Tabla 12.1, <http://www.one.cu/>

a. It was assumed 14,000 units were constructed under private initiative in 1984.

As discussed below, many questions surround the interpretation of the housing data. There are inconsistencies from one data set to another, one overarching conclusion being that the official construction statistics cloud the reality of the housing situation. Furthermore, the analysis presented in this paper suggests that the housing situation may be even more alarming than

generally portrayed by official Cuban sources. This is particularly so when the focus shifts from the perspective of “sufficient” housing to that of “adequate” housing, a far more robust indicator of how well a population's housing needs are being met.

### ESTIMATING THE DEFICIT OF ADEQUATE HOUSING OVER TIME

Table 3 provides a crude approximation of the extent to which population growth and the deterioration of the existing housing stock contributed to the pressing housing situation in Cuba as early as the 1970s. It presents official estimates of the country's housing needs over the period 1970–85 using as a baseline housing information gathered in the 1970 census and a series of official assumptions regarding the expected useful life of dwellings, projected population growth rates, and average household size (Departamento de Demografía 1976:54–63).

To err on the conservative side, the figures in Table 3 correspond to the one of two assumptions projecting the lower housing demand. This projection was adjusted by subtracting the official number of housing units built by the state sector during each subsequent five-year period and therefore do not consider housing units built under private initiative. Given the situation in Cuba—particularly during the 1970s when private housing construction was discouraged and construction materials were scarce—it is safe to assume that few housing units were built independent of state auspices, and those that did were most likely of substandard quality. Thus, private construction should be excluded from the stock of adequate housing—defined in Cuba as consisting of 25 square meters and three separate rooms presumably equipped with basic utilities (Coyula and Hamberg 2003:11)—as a majority of the units built under individual initiative probably failed to comply with this standard.

During the 1971–75 quinquennium (Table 3) the adequate housing deficit, which was estimated at 1,045,000 units by the 1970 census, increased by some 62,000 units annually, while in 1976–80 it rose by 55,000 units yearly. The deficit would have been even more severe had it not been tempered by emigration, as some 200,000 individuals left the country between 1971 and 2000 (Mariel and earlier emigration). Their

**Table 3. Estimated Adequate Housing Deficit in Cuba, 1970 to 1985 (thousand units)**

	1970	1971–75	1976–80	1981–85
Estimated housing deficit according to 1970 census	1045			
Estimated units needing replacement due to deterioration (annual average)		230 (46)	172 (34)	81 (16)
Estimated units required to accommodate population growth (annual average)		162 (32)	186 (37)	200 (40)
Estimated units required to replace deteriorated units and accommodate population growth (annual average)		(78)	(71)	(56)
Cumulative housing deficit		1437	1715	1914
Housing units built (annual average)		80 (16.0)	82 (16.4)	146 (29.2)
Net deficit at the end of five-year period		1357	1633	1768
Absolute increment/decrease in housing deficit (annual average)		312 (62)	276 (55)	135 (27)
Net housing deficit in 1985 after rough adjustments for emigration, housing built under private initiative, slower population growth				1768

**Source:** Data from the 1970 Cuban Census of Population and Housing and estimates from Departamento de Demografía, Dirección de Estadística, de Población y Censos, Junta Central de Planificación (República de Cuba), *La situación de la vivienda en Cuba en 1970 y su evolución prospectiva*, Editorial Orbe, La Habana, 1976, pp. 54–63 and data in Table 2.

departure reduced housing demand by approximately 40,000 units, assuming five persons per dwelling.<sup>2</sup> The number of emigrant-vacated units was less than the average annual housing deficit increase for any given year during the decade.

Allowing for the construction of an unspecified number of private sector housing units, the large scale upgrading of a sizable number of previously-inadequate housing units (highly unlikely), and a drastic decline in the population growth rate since 1973 (not likely to be a significant factor either since most of the demand for housing is tied to the segment of the population reaching family formation age), the adequate housing deficit could have reached 1.5 million units by the end of 1980. Even under the rather generous assumptions used, the adequate housing deficit may have increased by close to 600,000 units, or by about 60 percent during the decade of the 1970s.

As the baby boom generation began to reach marriage age in the 1980s, housing demand escalated. The increase, in the hundreds of thousands of units, was inevitable even in the absence of housing unit losses due to aging and deterioration of the stock. This demographic pressure is reflected in Table 3, as the data suggest demand started to peak during the 1981–85 quinquennium, even as the overall housing stock deterioration rate may have declined. The latter is a tenable assumption since Cuba had experienced a quality housing construction boom during the 1950s and units built since 1959 were still of relatively recent vintage. Counteracting this development was the continued loss of the older housing stock. By the 1970s, estimates began to surface indicating that thousands of housing units were being lost each year because of poor maintenance. By 1985, the adequate housing deficit may have stood at close to 1.8 million units.

During the 1985–89 quinquennium, as suggested by the estimates in Table 4, as a result of policies enacted to address growing housing demand, some success was achieved in reversing the deteriorating housing trend. This was the only period since 1959 when in fact the accumulated housing deficit was reduced, if marginally. It can be grossly estimated that the deficit declined by about 13,000 units, since more than 50,000 units per year were built, a number never reached previously. Lingering questions remain as to whether the improvement was real (the construction of adequate housing) or resulted from a politically-induced statistical manipulation. The political objective may have been achieved by inflating the number of units constructed under private auspices, even if they did not meet the adequate housing standard (see Table 2). This possibility is suggested by the official 1986 and 1987 statistics: they claim that in excess of 40,000 units per annum were constructed by the non-state sector. Such figures are well above the long-term average, other than for 2006, a year for which there is irrefutable evidence of statistical tampering (see below).

The adequate housing estimates for the 1990s—the years of the Special Period—are more tenuous. While

2. This was the average number of inhabitants per dwelling used in the projections, an average consistent with the relatively high fertility level prevailing in Cuba at the time.

**Table 4. Estimated Adequate Housing Deficit in Cuba, 1985 to 2010 (thousand units)**

	1985	1986–90	1991–00	2001–10 <sup>a</sup>
Estimated housing deficit at end of 1985	1768			
Estimated units needing replacement due to deterioration (annual average)		40 (8)	300 (30)	400 (40)
Estimated units required to accommodate population growth (annual average)		200 (40)	80 (14)	-158 (-16)
Estimated units required to replace deteriorated units and accommodate population growth (annual average)		(48)	(44)	(24)
Units lost to 2007–08 hurricanes				-63
Cumulative housing deficit		2008	2135	1947
Housing units built (annual average)		253 (50.7)	367 (36.7)	350* (35.0)
Net deficit at the end of period		1755	1768	1597
Absolute increment/decrease in housing deficit (annual average)		-13 (-2.6)	13 (2.6)	-171 (-17)
Net housing deficit in 2010 after rough adjustments for emigration and negative population growth				1600

**Source:** Tables in the paper and author's estimates.

a. For 2008 and 2009, it was assumed that the average number of units built between 2000 and 2007, after correcting for inflated 2006 figure, were constructed.

suggesting a reversal in the favorable adequate housing trend of the second half of the 1980s, it masks what in reality may have been a far worse sectoral performance. It again rests on housing construction figures that assign great significance to construction through private efforts, including those initiated by agricultural cooperatives. The nagging suspicion is that many of the reported housing units built in rural Cuba may amount to upgraded (cement floors and more durable roofs) traditional *bohios*. The quality of privately-built housing during this period and the early 2000s is equally suspect given the known shortage of construction materials.

The policy momentum of the 1980s to improve and increase the housing stock could not be sustained with the arrival of the Special Period, despite the considerable easing of demographic pressures fueled by low fertility and resumption of large-scale emigration. Estimates for 1991–2000 suggest that during this period little progress was made in reducing the deficit despite data in Table 2 indicating housing construction consistently exceeded, except for a few exceptions (1986

and 1987), earlier decades' annual averages. Furthermore, on the basis of what is known about economic conditions during the Special Period, the accuracy of the official housing statistics is suspect. The answer to the riddle probably lies in the authorities' willingness to record as "adequate" units that would have been classified as substandard in other years.

Even more questionable is the robustness of the statistics when it is recalled that the 1990s was a period when domestic production of construction materials (e.g., cement) was severely curtailed and so were imports. In addition, the limited quantities available were mostly directed to strategic sectors, such as tourism, to prevent a complete economic collapse (Coyula and Hamberg 2003). Former First Vice-Minister Carlos Lage validated this suspicion when (before being ousted in early 2009) he revealed less than half of the officially-claimed 111,000 housing units built in 2007 (see Table 2) were in fact real ("Insuperable" 2008). This disclosure, and evidence in this paper, indicates that at least during some periods, official housing construction figures have been inflated. For some years at least they include "imaginary," as well as purposively misclassified substandard housing.

The housing situation in the first decade of the 2000s, up to the 2008 hurricane season, may have begun to improve somewhat, but not necessarily as a result of government policies. While further housing losses may have continued due to the constant deterioration of the existing stock, demographic drivers considerably dampened the demand for new housing. Fewer new households were established as average family size declined to 3.16 (ONE 2002), following decades of below replacement fertility. In addition, nearly 500,000 persons will have permanently emigrated from Cuba between 1993 and 2010, the equivalent of 158,000 households. Further, by 2005 Cuba's population began contracting in absolute size. Thus the much lower assumption for housing units required to accommodate demographic change in the tentative projection in Table 4. The average number of adequate housing units "built" between 2000 and 2007 is claimed to have been about the same as during the previous decade, but barely sufficient to replace the number of units lost to lack of maintenance and other reasons.

The impact of the hurricane damage—as mentioned above, an estimated 63,000 units destroyed and 440,000 units damaged—must be assessed within this context. The very significant demographic contraction may well offset housing demand associated with storm damage to the housing stock and the adequate housing shortage in 2010 may be well be lower than in the 1990s or even 1985.

### DRIVERS BEHIND THE GROWING ADEQUATE HOUSING DEFICIT

My views regarding the current adequate housing deficit are buttressed by even a cursory examination of developments in the sector over the past several decades. These developments have been documented by first hand accounts and a variety of reports regarding the deterioration of the housing stock and the inability of state policies to effectively deal with the housing question. Especially alarming are:

- Continuing reports of collapsed buildings—and not exclusively in Havana;
- Growing evidence of defective construction practices;
- Resiliency and expansion of urban congested housing (e.g., *solares*);
- Establishment of temporary, but de facto long-term, residential shelters to house victims of *derrumbes* and natural disaster victims;
- Reappearance in many of Cuba's major cities of slum housing; and,
- Persistence of traditional housing (*bobios*) in rural sections of the country.

A selected review of evidence and accounts regarding these assertions follows.

#### Building Collapses

Notorious have become the photographs of sections of Old Havana reminiscent of cities subjected to aerial bombardment during the Second World War. As early as the 1970s, estimates indicated 25,000 housing units were being lost annually because of poor maintenance (cited by Roca 1879:72).

The intentional neglect of the capital city in favor of other urban areas and rural regions during the early decades of the revolution, and the consistent inability to give proper maintenance to pre-1959 structures, have

been cited often as major reasons for the gradual and intensifying loss of innumerable buildings over the years (Coyula and Hamberg 2003). This inattention to maintenance greatly aggravated the legacy of faulty construction that was common in Havana during the first quarter of the XX Century when the city experienced a building construction boom, particularly between 1915 and 1920. This was the period when Cuban sugar fetched extraordinarily high prices in the international market as a consequence of the First World War.

According to Nicolás Quintana (2009 personal communication), a professor of architecture with years of experience designing buildings in Havana, improper procedures were followed in the first quarter of the century in removing impurities from construction sand. As long as roofs were sealed with regularity, the structural soundness of buildings was preserved. But once maintenance was neglected, water started seeping in and structural metal beams began to rust, leading to the compromising of buildings' integrity. This explains why, according to Quintana, building collapses in Old Havana usually occur from the top down. Construction sand quality control issues were eventually addressed, with more stringent standards accounting for the more limited structural problems found with buildings constructed in the following decades.

Aside from the UNESCO-led efforts to salvage buildings of historical interest, particularly in the colonial core of the city of Havana, there are few indications the political will or necessary resources are present to reverse the trend. According to a *Juventud Rebelde* report cited by Botín (2009:56) in April 2008, in the city of Havana alone, 28,000 people resided in buildings about to collapse. Equally ominous is that what has been happening with older buildings in Havana may also be occurring with increasing frequency in other Cuban cities. According the reports, the 2008 hurricanes accentuated the collapsing building risks in Guantánamo, Santiago de Cuba, Camagüey and Holguín (“Fuertes lluvias” 2009; García 2008).

#### Shoddy Construction

There is general consensus that the deterioration of housing stock, particularly structures built prior to 1959, responds to a consistent lack of maintenance, ag-

gravated by deficiencies in pre-revolutionary construction practices noted above. There are, however, several additional explanatory variables accounting for why much of the post-revolutionary housing, in particular Soviet-inspired multifamily dwellings, is befalling to a comparable fate. Part of the answer is lack of maintenance: poor up-keep following construction of these housing units. But there is also compelling reason to believe that poor workmanship in construction has much to do with the subsequent rapid deterioration of pre-fabricated, multi-family buildings, as documented for the *microbrigadas* of Alamar (Coyula and Hamberg 2003:26). This conclusion is not startling to students of the Cuban economy familiar with its shortcomings. Just as inefficiency has historically characterized many other sectors, so it has in housing construction.

While the evidence of poor construction is solid regarding the *microbrigadas* experience, it is also present regarding other experimentation with pre-fabricated construction methods in vogue since the 1970s. The former were eventually faced out, largely due to their inefficiency, but also because of the realization that construction quality was poor partly because voluntary workers lacked required skills (Fields 1985).

But poor construction quality has been a constant. In 1978, defective construction practices were being blamed on lack of technical knowledge, administrative inefficiency and poor equipment maintenance, problems associated, in turn, with quality of building materials, assembly and finishing processes (Roca 1979:72). This recurrent issue was highlighted in a September 2009 *Granma* report describing conditions in a Havana building recipient of an entrepreneurial excellence award. The article reports the structure was eventually found to be poorly built, its stair steps were defective, and exterior passage ways not built to specification. All those involved in the project were blamed for its shortcomings, including those deciding to bestow the award on this particular building (EFE 2009). One has to wonder about the quality of buildings not recognized for their “quality.”

A worrisome account of the consequences of defective construction practices and failure to properly maintain multilevel, pre-fabricated housing comes from

Santiago de Cuba (Pardo 2009). According to this reporter, aside from maintenance issues, questions associated with the efficacy and durability of construction techniques imported from the Soviet bloc are warranted. More than three-quarters of the city’s multifamily structures are said to be affected by water filtration, which in turn impacts the electricity supply, as water seeps within walls. While conceivably routine maintenance could have prevented these problems, it has seldom been provided. So serious is the problem that apartment dwellers—according to a resident—sometimes abandon their units when there are heavy rains. With so much filtration, he said, the building looks like a “waterfall.”

Problems associated with defective construction are certain to intensify and become more apparent in the future since 70% of Cuba’s housing stock was built since 1970 (ONE 2002, Table V.7). Additional indications of anticipated further deterioration are census statistics suggesting close to 568 thousand housing units were built between 1990 and 2002, a number only exceeded during the 1982 and 1989 period (601 thousand). Given the severe impact of the Special Period on the Cuban economy during the 1990s, the scarcity of domestic building materials (e.g., cement) and imports, and the allocation of those available to priority sectors, it is inescapable to conclude that a high percentage of the units built during these years are of substandard quality. They resulted from private efforts reliant on the use of whatever resources were available.

### Slums, *Solares* and *Bobios*

Highly visible indicators of the housing shortage are the *solares* in Havana, slums adjacent to Cuba’s largest cities (Coyula and Hamberg 2003), and traditional pre-Columbian *bobios* in rural settings. Early revolutionary housing policies were intended to do away with all three substandard forms of dwellings, yet all three types of structures have survived and seemingly slums and *bobios* are making a comeback.

A recent independent Cuban press article alludes to the presence of 1,492 *solares* in the Centro Habana Municipality alone, many of which collapsed during the last ten years (Domínguez 2009). According to Coyula and Hamberg (2003:7), in 2001 there were 60,754 tenement units in 6,932 Havana buildings,

mostly located in the city's central areas. About half of the population of these neighborhoods is said to reside in *solares* (Botín 2009:55). If *solares* are on the decline, it is simply because they are crumbling.

According to architectural experts cited in an article published in a South Florida newspaper, "every three days, there are two partial or total building collapses in Central Havana alone" (Sánchez 2009). Some are being substituted by emergency shelters "temporarily" adapted to house families displaced from their homes by collapsing buildings or natural disasters. Due to their permanence, they have become, in effect, Twenty-First Century versions of the historical Havana *solar* (see, for instance, Alcides 2009). The government is reputed to have improved many of these permanent "temporary shelters" by adding private bathrooms and cooking facilities. In 1997, more than 9,000 residents grouped in some 2,700 households occupied such shelters (Coyula and Hamberg 2003:12). The permanent nature of these units is reflected in the fact the government has provided occupants with property titles. In Botín's (2009:58) view, this was a political "solution" designed to downplay the persistence of the temporary shelter problem and a means to inflate the number of new housing units made available.

Most notable is the persistence and expansion of *llega y pon* slums, the Cuban version of the Brazilian *favela* and related *villas miseria*—makeshift neighborhoods common in proximity to most large developing country cities. Revolutionary rhetoric long attributed their pre-1959 existence to the evils of capitalism; they were doomed to disappear under socialism. While the number of people currently living in slums is unknown, some estimates—likely exaggerated—suggest that they house as many as 450,000 inhabitants in the Havana region alone (Ríos Otero 2009), grouped in some 60 sites (Pérez 2009b). A more conservative and perhaps more realistic estimate, based on local level social service studies conducted by the *Instituto Nacional de la Vivienda* (INAV), cited by Coyula and Hamberg (2003:11), is that:

By 1987, Havana had 15,975 units in shantytowns ..., representing less than 3% of all Havana dwellings. But by 2001, the city had 60 barrios and 114 *focos insalubres* with a total of 21,552 units.

The term *focos insalubres*, as used by INAV, serves to distinguish surviving or reappearing slums in Cuba from those generally found in other developing countries "to make clear that the issue was the quality of the housing and settlements, not the economic status of their residents" (Coyula and Hamberg 2003:10). When the term was coined in the 1960s, it was assumed, as noted, that slums would soon become a thing of the past.

Be that as it may, the number of housing units in slums in Havana increased by 50% between 1987 and 2001, in part due to the internal migration of residents of the country's Eastern provinces into the capital. If it is assumed each slum unit housed 3.16 inhabitants, the average household size in Cuba according to the 2002 census, in 2001 68,000 Havana residents lived in slums, or 3.1% of the city's total population (2,201,610 in 2002). In contrast, prerevolutionary Havana is said to have had 13 *villas miseria* housing 6% of the metropolitan area's population, a percentage twice as high as it is today. In absolute terms, however, the number of Havana slum dwellers in 1959 and today is about the same.

While the actual number of slum residents in Havana may be in dispute, it is apparent that slums across Cuba have mushroomed in recent years. Migration from Eastern to Western Cuba does not explain the establishment of marginal neighborhoods in other Cuban cities, including many in the eastern region of the country itself. In the municipality of Moa, for example, on October 30, 2008, it was alleged that 200 families were forcibly removed by government authorities from the Viales 8 slum ("Desalojan" 2008). This slum's establishment preceded the hurricanes, but as a result of the damage created by the hurricanes, more recent migrants from nearby localities were forced to resettle in Moa's outskirts. Similar forcible slums removals in other Cuban cities, Bayamo for example, continue to be reported (Rojas 2009) despite official claims that "individual evictions are rare and mass evictions unknown" (Coyula and Hamberg 2003:21). More notorious is how generalized slums are becoming in Santiago, Cuba's second largest city, where violent removal incidents are reported to have occurred as well (Pardo 2009).

**Table 5. Houses and Apartments by Period of Construction and Predominant Wall Material,<sup>a</sup> 1981 Census of Cuba**

	All periods	<1920	1920–1933	1934–1945	1946–1958	1959–1970	1971–1975	1976–1981	Don'tKnow
<b>Absolute distribution in thousands of units</b>									
All	1927	168	121	158	410	416	212	281	161
Concrete	1185	108	80	107	300	236	117	152	87
Wood	641	58	41	48	103	156	77	98	60
Palm bark	74	0.5	0.7	1.5	5	17	15	26	9
Adobe	27	1.2	0.4	1.0	3	7	4	5	6
<b>Percent distribution</b>									
All	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Concrete	61.5	64.6	65.5	67.7	73.1	56.6	55.0	54.1	53.8
Wood	33.3	34.4	33.5	30.7	25.2	37.6	36.3	34.8	37.0
Palm bark	3.8	0.3	0.6	1.0	1.1	4.2	7.0	9.3	5.3
Adobe	1.4	0.7	0.3	0.6	0.6	1.6	1.7	1.8	3.8

Source: Oficina Nacional del Censo, 1983. *Censo de Población y Viviendas de 1981*, República de Cuba. Comité Estatal de Estadísticas, La Habana. Volumen XVI, Tomo 2, Tabla 7, pp. 403–429.

a. Concrete stands for “paredes de hormigón y mampostería”; Wood for “paredes de madera bien elaboradas y protegidas”; Palm bark for “paredes de tabla o yagua”; and Adobe for “paredes de adobe y otros.”

**Table 6. Houses and Apartments Occupied by Permanent Residents by Period of Construction and Predominant Wall Material,<sup>a</sup> 2002 Census of Cuba**

	All periods	<1920	1920–1933	1934–1945	1946–1958	1959–1970	1971–1981	1982–1989	1990–2002	Don'tKnow
<b>Absolute distribution in thousands of units</b>										
All	3199	128	90	131	300	317	498	602	568	563
Concrete	2420	101	71	110	258	238	379	472	384	406
Wood	613	25	17	20	37	63	91	97	138	125
Palm bark	127	0.6	0.8	1.4	4	12	24	27	36	22
Adobe	38	1.6	0.4	0.6	1	4	5	6	11	9
<b>Percent distribution</b>										
All	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Concrete	75.6	78.9	78.9	84.0	86.0	75.1	76.1	78.4	67.6	72.1
Wood	19.2	19.5	18.9	15.3	12.3	19.9	18.3	16.1	24.3	22.2
Palm bark	3.4	0.4	0.9	1.1	1.3	3.8	4.8	4.5	6.3	3.9
Adobe	1.2	1.2	0.4	0.5	0.3	1.3	1.0	1.0	1.9	1.6

Source: Oficina Nacional de Estadísticas, 2005. *Censo de Población y Viviendas—Cuba 2002*. La Habana, Tabla V.7.

a. Concrete stands for “paredes de hormigón, mampostería”; Wood for “paredes de madera”; Palm bark for “paredes de yagua o tabla de palma”; and Adobe for “paredes de adobe o embarre u otro material.”

Finally, the problem of inadequate housing in rural areas is tied to the government's inability in many instances to offer alternatives to the typical *bohío* (Ravsborg 2008). These primitive dwellings still dot the Cuban landscape and although many are equipped with cement floors, more sturdy roofing materials, and other improvements from the traditional form, they are far short from meeting contemporary adequate habitability standards. Furthermore, they are particularly susceptible to hurricane damage. According to the 2002 Census, close to 800,000 of the existing housing units had wood, palm bark, or other low quality material walls, many with earthen floors. More

than 300,000 of these had wood, paper and palm leaf roofs (ONE 2002, Table V.7). The census data show, as well, that close to 50,000 *bohíos* and adobe structures were built between 1990 and 2002. As indicated, the number of substandard housing units increased considerably following the 2008 hurricane damage.

An examination of housing data from the 1981 and 2002 censuses presented in Tables 5 and 6 is revealing. Most notable is the inconsistency between census results and official housing construction data shown in Table 2. Whereas the official construction figures indicate 389,000 dwellings were constructed between 1981 and 2002, the number of inhabited apartments

and houses enumerated between the two censuses yields a 1,272,000 dwellings increase, a discrepancy of close to 900,000 units. The difference is indicative of the 2002 census' ability to record the existence of slum and other low-quality housing not built by the state or beyond state oversight, an assumption corroborated by Coyula and Hamberg (2003:2), two noted observers of the Cuba housing situation. It is also interesting to observe, when analyzing the data by period of construction, that the percentage of dwellings with concrete walls was rising over time, the trend reversing for the 1959–70 period. This is partly an artifact resulting from the longer durability of concrete structures, a conclusion suggested by rising percentages across time periods according to the most recent census data.

The large discrepancy between the intercensal total housing stock increase and housing construction data, together with the rising trend of housing units built with materials other than concrete, confirms that many Cuban households, on their own, with and without government oversight or support, have built their own dwellings. This conclusion is consistent with official and unofficial accounts indicating the growth of slum housing around Havana and many other Cuban cities. Particularly interesting is the large number of houses and apartments built between 1990 and 2002 (Table 2), almost as many as during 1982–89 when, with generous Soviet support, a major drive was made to increase the country's housing stock by relying on pre-fabricated construction techniques and other policies. As noted earlier, during the early years of the Special Period, the country suffered a severe economic contraction accompanied by supply chain disruptions from which no sector—construction included—escaped unscathed. Additionally, the few available construction inputs available at the time were assigned to priority sectors, such as development of the tourism infrastructure. The inescapable conclusion is that the increase in the housing stock can only be attributed to self-help initiatives beyond state control. It is also reasonable to conclude that the quality of much of the housing built since the 1990s fails to meet minimal adequacy standards.

## THE AFTERMATH OF THE HURRICANES

The difficult housing situation faced by many Cubans was considerably aggravated by the 2008 hurricanes. The government has responded in the only way it could by relaxing housing construction regulations. It legalized a de facto situation whereby citizens on their own, no longer willing to wait for government intervention, have been building their own homes, even if of substandard quality. Raúl Castro said as much when on January 4, 2009, he authorized citizens to build homes through their own efforts and resources (Agence France Presse 2009).

In effect, Castro expanded policies long adopted by other countries, some of which were already in effect in Cuba before the 2008 hurricane season (Coyula and Hamberg 2003), whereby self-help housing schemes are supplemented by government initiatives to provide basic services. In the Cuban context, the problem with this approach is the unavailability of markets where potential private home builders could acquire construction inputs legally and at reasonable prices. The predictable result of the absence of such markets will be the continued deviation of state sector resources for private uses accompanied by a further surge in black market activity. Another option—relied on by many Cubans—is to complement black market inputs with construction materials salvaged from collapsed buildings (Saludes 2009).

Other palliatives, such as so-called *petrocasas*, being built in Cuba courtesy of President Chávez of Venezuela, could hardly be expected to make a dent on the housing crisis. They are part of the Bolivarian Alternative for the People of the Americas (*Alternativa Bolivariana para los Pueblos de Nuestra América*) and are patterned on initiatives by Chávez to construct similar housing in other countries such as Bolivia (“Bolivia acelera” 2008) and the Dominican Republic, Guatemala, Nicaragua and other Caribbean region countries (Molina 2007).

Reminiscent of the “Pastorita” housing of the early days of the revolution, in Cuba's scarcity context, the *petrocasas* concept can be viewed as costly and inadequate, likely to satisfy the housing needs of only a privileged few. Consisting of prefabricated panels built with PVC, a petroleum derivative, and anchored on a

concrete foundation, the houses have three bedrooms, two bathrooms, kitchen-dinning room, living room, and a water tank mounted on the roof (Molina, 2007; Torres and Batista 2008). These features exceed by a considerable margin the nationally established housing adequacy standard. Panels are to be produced at the former plastic manufacturing facility of *Empresas Plásticas* adjacent to the joint PDVSA/CUPET Cienfuegos petrochemical complex (Navarro 2007). The construction technology is German and Austrian, and incorporates Brazilian inputs. The panel factory is anticipated to produce materials for 4,430 houses in 2010 (“En fase final” 2008). The first 100 *petrocasas* were completed in the Cienfuegos area in 2007, with components imported from Venezuela (Navarro 2007). A similar community of *petrocasas* is planned for Ciego de Avila (Torres and Batista 2008).

What is remarkable is that Venezuela would initiate such a shelter assistance program in Cuba, when the latter, facing a dire housing situation and shortages of construction materials, in 2006 exported to Venezuela half-a-million tons of cement. These exports had been negotiated to help Venezuela repair the most deteriorated Caracas neighborhoods, as announced by Hugo Chávez in his February 5, *Aló Presidente* T.V. program (reported by Botín 2009:57). Yet, in January 2008, months before the hurricanes struck, Victor Ramírez, President of INAV, while blaming the enduring housing crisis on continuing logistical, transportation,

technical and bureaucratic problems—and even though nearly 50 years had passed—the legacy of capitalism, was still referring to the bogeyman of material shortages to explain the country’s continuing low housing construction rate (Mayoral 2008).

### CONCLUDING REMARKS

Fifty years of promises, the inability to implement effective housing construction policies, failure to maintain the existing housing stock, and more recently hurricane damage have resulted in an enduring housing crisis in Cuba. Two “positive” trends are minimizing the adverse consequences of the Revolution’s failed housing policies:

- emigration of half-a-million citizens since 1994. Emigration masks the depth of the crisis by making available vacated housing that is occupied by those remaining behind. This is not a new phenomenon as it has been at play almost continuously since 1959; and
- continued low, and currently negative, demographic growth, which curtails the demand for new housing.

Under Cuba’s present economic conditions, it will take more than emigration and low demographic growth rates to resolve the housing crisis. Massive investments, far beyond what Cuba can afford now and may be able to afford for many years to come, are needed.<sup>3</sup>

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3. According to a former Havana city planner, properly housing all Cubans will require an investment of some \$50 billion (“Insuperable” 2008).

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