

Shelter Report 2011

# Housing and Health: Partners Against Poverty

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Dao Thi Hai and her son, Dao Van Bien, brush their teeth using water from a river while on their fishing boat near Dong Xa, Vietnam. Hai and her husband make a living from fishing.

## Foreword *By Jonathan Reckford*

# A healthier life and home for Alexandra- Gabriela

Nearly 10 million children die every year from preventable causes. That's about 27,000 daily—or roughly half the capacity of Yankee Stadium.

Imagine the feeling of helplessness if you, like Aya Koffi of Cote d'Ivoire, had lost two siblings to cerebral malaria—a mosquito-borne illness—and then watched your child exhibit symptoms of the same deadly disease.

Now imagine that you can do something to change such dreadful situations.

Studies clearly show how directly linked health outcomes are to housing and housing-related basics such as water and sanitation. In Mexico, for example, researchers at the World Bank and the University of California, Berkeley, found that replacing dirt floors with concrete floors directly improved the health of children, including a 20 percent reduction in parasitic infections, a 13 percent reduction in diarrhea and a 20 percent reduction in anemia.

I saw firsthand the difference that a healthy home can make when I visited a young family in



MINKEL FLAMM

Romania shortly after they had moved into one. Nicolae Angelescu, his wife, Ioana-Mariana, and their then 2-year-old daughter, Alexandra-Gabriela, once lived in a small 2-by-3-meter apartment that was cold, damp and entirely inadequate. The baby had contracted pneumonia twice when they lived in the old, gray building left over from the days of communist rule.

After their move into a modest, clean apartment that is five times larger but a quarter the cost of what they formerly had paid in rent, Alexandra-Gabriela was healthy and thriving. The family worked hard with Habitat for Humanity in Romania to build a better way in a better home.

Nicolae and his family are the fortunate ones. And, thankfully, Aya Koffi's daughter received the medicine she needed. Her family moved into a new brick Habitat house where mosquito nets hang over the beds and where they have their own bathroom with a good drainage system. The children are no longer fearful of becoming sick, and Aya is very happy.

Stories like these touch our hearts and inspire action—because we can make a difference. For example, the World Health Organization said in 2008 that for every dollar invested in water and sanitation improvements in Vietnam, \$8 in benefits and savings could be realized. Such improvements would translate annually into 500 million productive days at work or at

school and savings of more than US\$7 billion in health care costs.

Dr. Jean-Marc Olivé, a WHO representative in Vietnam, emphasizes that solutions need not be high-tech. “Simple latrines combined with frequent hand washing with soap can be very effective in reducing infections,” he says. “When people can access clean water close to—or in—their homes, there are significant health benefits.”

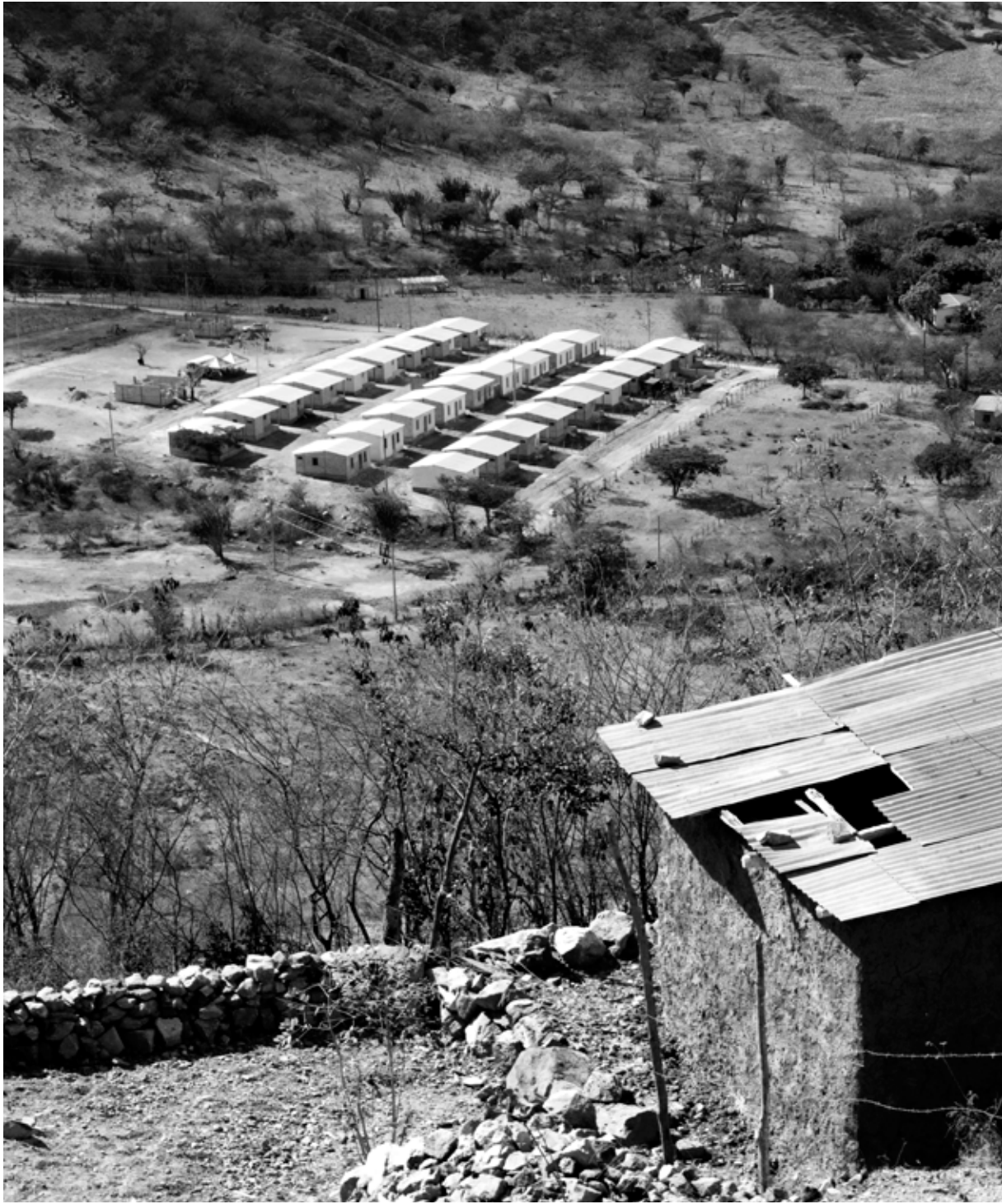
Habitat for Humanity Vietnam, which specializes in the implementation of integrated and sustainable community-based shelter and water and sanitation solutions, had served 6,660 families by April 2010.

With 1 billion people around the world now living in city slums and projections that these numbers will double over the next 25 years, more public, private and nonprofit partnerships must be created to address holistic global health issues. When families experience the security and dignity of adequate shelter, they often become creative entrepreneurs who create opportunities for themselves and their neighbors. New markets also emerge when low-income communities are connected with the basic amenities of decent shelter, water, sanitation and energy.

Shelter plays a critical role not only in the health of individual families but also in the well-being of communities and ultimately our larger global connection. What will you build?

*“When people can access clean water close to—or in—their homes, there are significant health benefits.”*

*— Dr. Jean-Marc Olivé, a WHO representative in Vietnam*



Substandard housing, coupled with poor public health access, tainted water supplies and inadequate sanitation, puts whole communities at risk.



EZRA WILLSTEIN



A community of safe and decent Habitat houses in a valley in Guatemala's Zacapa region stands in stark contrast to the dilapidated shack in the foreground.

A safe and secure home provides more than just shelter from nature's harshest elements. It is also a bulwark against disease—not only for the family who dwells within it, but also for the community in which they live.

Advances in the prevention of disease and disability have, for years, been linked to better housing. Public health advocates have understood, as Florence Nightingale, the founder of modern nursing, concluded more than a century ago, that “the connection between the health and the dwelling of the population is one of the most important that exists.”

“A comprehensive, coordinated approach to healthy homes will result in the greatest public health impact,” Dr. Steven K. Galston, acting U.S. surgeon general, declared in his 2009 report to the nation. “Directing resources toward a single disease or condition rather than working to improve the overall housing environment is inefficient and does not address residents’ health and safety risks holistically.”<sup>1</sup>

As improved housing reduces the risk of disease, the reverse is also true: Substandard

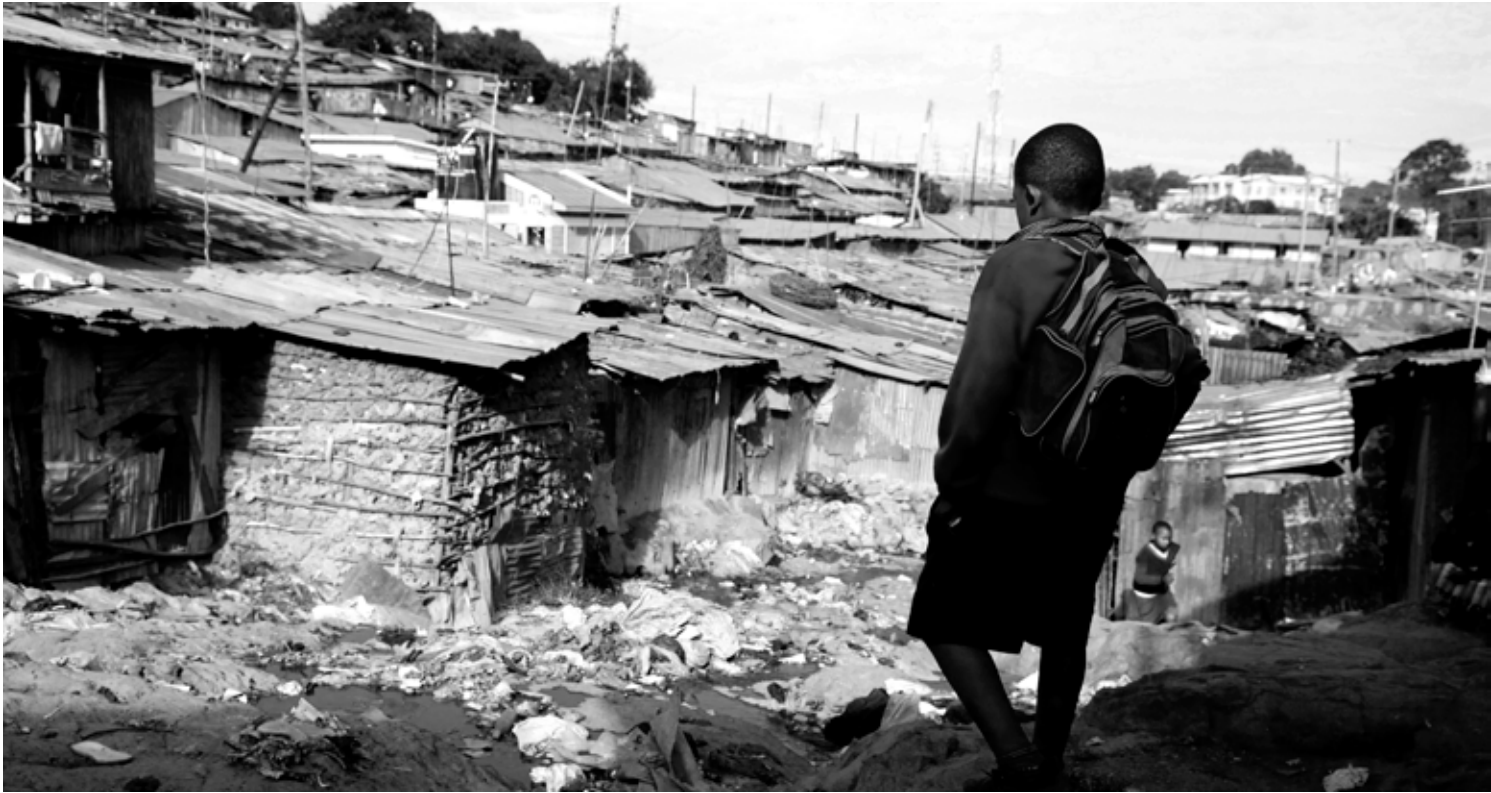
## Chapter 1

# Introduction

1 U.S. Department of Health and Human Services, Office of the Surgeon General. “The Surgeon General’s Call to Action To Promote Healthy Homes.” 2009.

*“The connection between the health and the dwelling of the population is one of the most important that exists.”*

*—Florence Nightingale*



With an estimated population of more than 1 million people, Kibera, in Nairobi, Kenya, is the largest slum in all of Africa.

housing, coupled with poor public health access, tainted water supplies and inadequate sanitation, puts whole communities at risk.

The results range from Chagas' disease in South America to malaria in Africa and dengue fever in Southeast Asia. Leaky roofs, mold and mildew in homes still lead to asthma and preventable respiratory conditions in the United States and Europe. Inadequate housing contributes to typhoid and dysentery in Tajikistan. The lack of secured housing threatens a generation of African children whose parents and family members have succumbed to HIV/AIDS.

Beyond infectious diseases, the lack of decent, affordable housing affects almost all health issues in some way. Poor children who have chronic diseases that require ongoing health care may be hospitalized at much greater expense if family housing can't be upgraded. The stigma of a disease such as leprosy affects housing choices available to recovering patients. Smart house design and healthy houses combine to aid the disabled.

More and more health professionals recog-

nize the role housing must play in the day-to-day lives of the people they serve.

"We have to shift our focus to more than just medicine," says Ana Chavez, director of pediatrics at Hospital Exequiel González Cortés in Santiago. "[A sick child] has a lot of needs. But if they don't have a safe and adequate environment to go home to, then what we are doing here at the hospital doesn't make any sense."

Continued success at providing adequate shelter for the poor will depend heavily on integrating new housing initiatives and public health practices to secure the well-being of communities where the poor live and interact. We have entered a critical era where public policy and finance can no longer view housing and health programs separately, each with its own missions and advocates.

Dr. Paul Farmer, chairman of Harvard Medical School's Department of Global Health and Social Medicine, has spent years treating and working with the impoverished in Haiti and other developing countries. The co-founder of Partners in Health, a worldwide health organization, has

seen firsthand the need for a unified approach.

“A meaningful discussion about health care in the developing world and the eradication of cyclical poverty must include the right to safe and sufficient housing,” Farmer said.

That mission has become more daunting for a number of reasons, not the least of which is the worldwide economic recession and the understandable reluctance of governments to increase spending at a time when revenue is uncertain. For instance, Michel Sidibe, executive director of UNAIDS, the Joint United Nations Programme on HIV/AIDS, estimates that it will take \$27 billion in 2010 to keep up the fight against HIV/AIDS in developing nations hit hardest by the epidemic. But after a heartening start five years ago, contributions to the fund from participating nations will be only about \$14 billion this year, *The New York Times* reports.<sup>2</sup>

Even more problematic is that the global landscape of poverty has changed dramatically in recent years. A majority of the human population now lives in urban areas, with the rate of population growth in low-income countries four times faster than in high-income countries.<sup>3</sup> Cities in developing nations are surrounded by makeshift settlements plagued with poor sanitation and lack of housing. The spread of disease is exacerbated as the poor in rural villages, seeking jobs, migrate to ill-equipped, overwhelmed urban areas. Whatever the geography, the result of inadequate housing is the same: death and disability where it need not exist.

Acute respiratory diseases account for more than 2 million deaths a year among children younger than 5, according to the World Health Organization. These diseases are exacerbated by cigarette smoke, poor ventilation, dust mites, mold and fungus in the home. More than 1.7 million small children die every year from diarrheal diseases brought on by improper sanitation and lack of access to clean water.<sup>4</sup>

In Africa, HIV/AIDS still poses a profound challenge. One-third of all new cases of AIDS globally are in southern Africa; two-thirds of people in the world who live with the virus live there. In Swaziland, 25 percent of all adults have HIV—the highest infection rate in the world.<sup>5</sup> There are pockets of progress on the continent, where health and government organizations, working together, have shown that treatment and prevention may be able to slow the epidemic, but the money for some of these programs has begun to run out, and more work, and coordination, is needed.

Scientists and public health advocates—aided by decades of anecdotal evidence—have long recognized the link between poor health and poor housing. But hard, empirical evidence has been lacking. Separating the structural deficiencies within the dwelling itself from the way the people inside it live—their diet, consumption of alcohol, use of tobacco and other risky health behaviors—has always complicated research that attempts to make a direct link. But increasingly, scientists have observed that people in the developing world are facing many of the same health and housing issues that people in Europe and North America faced during industrialization. The patterns are similar, but the solutions employed now need further study, most experts agree.

### Investing in long-term solutions

Still, we know some things work and must remain in our toolbox. Improved construction standards, including hard-surface floors and roofs, screened windows or pesticide-treated netting, and adequate space, should become routine. Similarly, access to clean water and a working, nonpolluting sanitation system should be requirements for new and renovated construction.

Beyond the dwelling itself, as the World Health Organization has noted, the mission of housing advocates must include the immediate

*“A meaningful discussion about health care in the developing world and the eradication of cyclical poverty must include the right to safe and sufficient housing.”*

*—Dr. Paul Farmer*

<sup>2</sup> “At Front Lines, AIDS War is Falling apart,” *The New York Times*, May 9, 2010.

<sup>3</sup> *Why Urban Health Matters*, World Health Organization, 2010.

<sup>4</sup> *WHO World Health Report*, 2005.

<sup>5</sup> *Global Health Council, HIV/AIDS (2008) UNAIDS Fact Sheet*.



**Chonlada Duongtip (from left) and her sister Chonticha play with a friend in their new community of 82 houses, built during the 2009 Carter Work Project near Chiang Mai, Thailand. The Duongtips previously lived on a pig farm where the girls' father works. "The air here is cleaner; the children are healthier," said their mother, Kamnoi.**

<sup>6</sup> WHO Fourth Ministerial Conference on Environment and Health, 2004.

environment outside the house and more attention to the public health of the entire community.<sup>6</sup> That will mean establishing strong, ongoing partnerships with local and national governments.

The setting and environment of housing is also key, emphasized Dr. Howard Frumkin, the U.S. Centers for Disease Control and Prevention's director of climate change and public health, and an expert on environmental health and housing.

"An adequate house built in a substandard location doesn't solve much," he says. "It's all about context. To be effective, we must work on them together."

Aid organizations and individuals need to adopt a holistic approach that will integrate all social, health and housing needs of families and communities.

Such approaches could be as simple as providing "health educators" like those who routinely visit the homes of people in Honduras to inspect their dwellings for signs of the insects that spread Chagas' disease, or as legally and emotionally challenging as helping orphans and vulnerable children in Africa secure the property of their families and protect them from financial, physical and other forms of exploitation.

Government decision makers, health ministers and funding organizations whose efforts in the past have sheltered millions of people in need of help must now broaden their approach to build not just safe dwellings but also healthier communities.

As the U.S. surgeon general has concluded, "A house does not exist in isolation ... it is part of a larger community; the place from which people depart to work, play, study and interact with others; and the place to which they return."



Mikhail Ponomarev (from right), his mother, Irina, and his sister, Tatiana, in their renovated living room.

## THE HEALTH-HOUSING CONNECTION

### Kyrgyzstan: A ‘full, healthy person’

This is Mikhail Ponomarev’s goal in life: to be a “full, healthy person and to be strong.”

Born with cerebral palsy in Bishkek, Kyrgyzstan, Ponomarev has added depression and anxiety to his diagnoses over the years. Still, the 22-year-old has worked hard toward realizing his dream: winning Paralympics medals in running and soccer, and friends wherever he goes. And with help from Habitat for Humanity Kyrgyzstan and its partners—the Open Society Institute and a local NGO, Family and Society—Ponomarev is now a step closer to his goal.

A few years ago, Mikhail and his mother, Irina, and his sister, Tatiana, struggled to deal with his condition, with little local support and meager financial means. Mikhail’s father left the family soon after Mikhail was born. Irina held odd jobs, stretching her income to pay for food, clothes, transport and an education for Tatiana, who is studying to become a bookkeeper.

That left no money, though, for repairs on their old, two-bedroom house. When the family applied to partner with Habitat for Humanity Kyrgyzstan, the windows and doors were no match for the bitter cold of Bishkek winters, where the average daily temperature in January is 24.8 degrees Fahrenheit (-4 degrees Celsius). The heating system in the living room gave out completely, making the room uninhabitable in the winter. And, as is the case with many Kyrgyz households, there was no indoor toilet or bath.

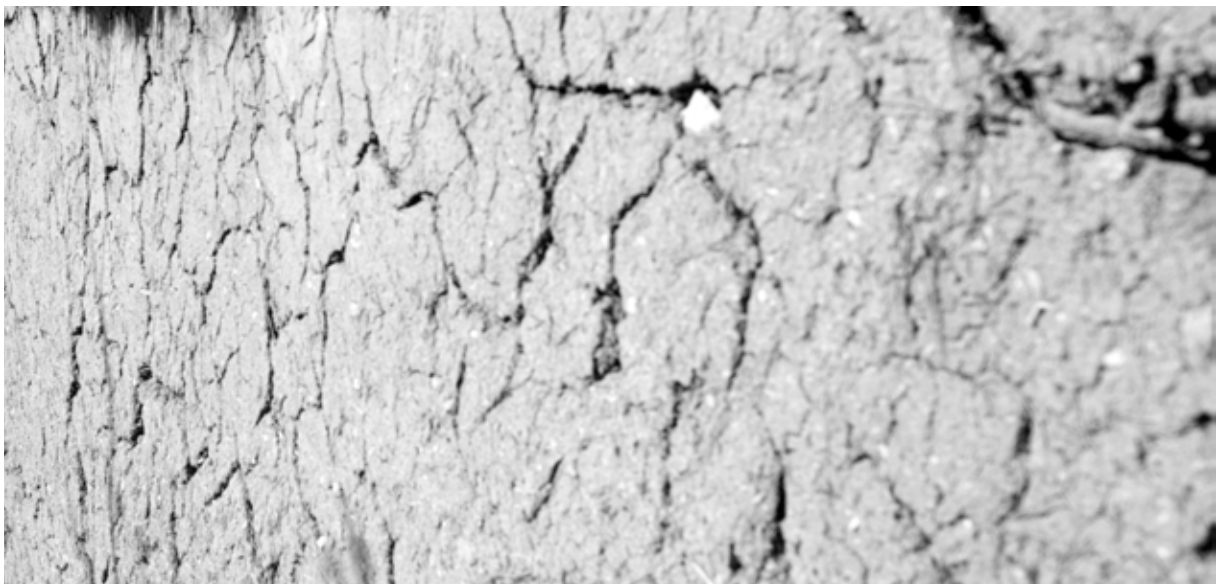
In 2009, the Ponomarevs took part in a pilot project that aims to enable low-income people with mental disabilities to stay in a safe, decent home with their families and avoid dehumanizing institutions. The disabled also receive job training and in-home therapy, and other family members get therapy and training to help them cope with the specific illness and its difficulties.

Habitat for Humanity helped repair the Ponomarevs’ house and installed an indoor bathroom. A state program provided Mikhail with a personal computer, and Family and Society arranged computer training. He spent the winter of 2009-10 in a warm living room, putting together slide shows on his computer, a skill he hopes to turn into income.

“Before, I didn’t like to do anything,” he said, but “when I’m busy with some job, I don’t feel my illness.”



The diseases that wreak havoc on the lives of the poor are notoriously diverse and highly adaptable.



EZRA WILLSTEIN

The thatched roof and mud walls of this traditional house in San Rafael, Honduras, offer ideal conditions for the insects that cause Chagas' disease, an illness that kills about 14,000 people a year in Latin America, according to Doctors Without Borders.

The diseases that wreak havoc on the lives of the poor are notoriously diverse and highly adaptable. They are spread around the global village by, among other modes, insects that live inside mud walls and microorganisms in tainted water; they can be propelled across a crowded room by a sneeze or unknowingly transmitted during sex.

And while science and public health have made great strides in recent years to reduce the death and disability toll these diseases have exacted, they remain stubborn foes.

One of the primary defenses against these health risks starts by making adequate shelter available to the displaced and the poor. Properly constructed homes provide protection from the risks to health associated with poverty. There is no international standard on construction specifications. Local government regulations vary greatly. Access to construction material, costs and sustainability also greatly influence how houses are built.

But there is universal agreement that a healthy home is not just structurally safe but constructed in a way to minimize health risks,

## Chapter 2

# The relentless assault of disease

Twenty children in Maseru East, Lesotho, lived in a precarious metal shack in an area used as a garbage dump. They now have two Habitat homes, one for boys and one for girls, connected by a walkway.



### Housing quality standards at a glance

These performance standards—drawn from the United Nations’ Millennium Development Goals, the International Residential Building Codes, UN-HABITAT, and the SPHERE Guidelines for disaster response—define the quality of a new or rehabilitated house by Habitat for Humanity International or a partner organization.

#### 1. Design

- a. Each person in the house has a usable covered area of no less than 3.5 square meters, or the covered area comprises at least two rooms.
- b. Local materials and labor are used without hurting the local economy or environment.
- c. The house is safely located; risks from natural hazards—earthquakes, volcanic activity, landslides, flooding or high wind—are minimized, and the area is not prone to significant diseases.

#### 2. Durability

- a. In disaster-prone areas, construction and material specifications mitigate against future natural disasters.
- b. Structural materials are durable enough to allow safe refuge and exit in case of a natural disaster.

#### 3. Secure tenure

- a. Land and property ownership or use rights are established prior to occupation. Where use rights do not exist, there is de facto no protection against eviction.

#### 4. Water

- a. Water is palatable and of sufficient quality to be drunk and used for personal and domestic hygiene.
- b. There is safe and equitable access to or adequate storage of a sufficient quantity of water for drinking, cooking and personal and domestic hygiene.

#### 5. Sanitation

- a. Communities have adequate numbers of toilets sufficiently close to their dwellings to allow them rapid, safe and adequate access at all times of the day.
- b. Toilets are constructed and maintained so they are comfortable, hygienic and safe to use.
- c. Health and other risks posed by standing water and water erosion are minimized.



with hard-covered floors, roofs and walls that do not leak or harbor insects. It has adequate space of no less than 3.5 square meters per person and separate rooms for girls and boys, which helps prevent rape and abuse. It has access to clean water and adequate sanitation and transportation. It is free of airborne and chemical contaminants; uses low-toxicity building materials such as lead-free paints and wood products, paints and carpets low in volatile organic compounds; and can be maintained to ensure that those who dwell within it are not exposed to undue risk. Moreover, The surrounding neighborhood and community are an integral part of maintaining a healthy home.

Building on guidelines created in the late 1990s, Habitat and other humanitarian NGOs have endorsed a set of minimum shelter performance standards for the reconstruction of homes in areas of the world hit by natural disasters. Wherever practical, those standards are being implemented in new and reconstruction projects in nondisaster areas as well.

In most developed and middle-income countries, meeting these standards means little change or difficulty. But in low-income countries, national organizations will need to strike a balance between housing adequacy, cost and targeting the neediest populations. Seen from another perspective, such need provides an opportunity for Habitat for Humanity and other groups to influence the global development community in creating clearer standards for what constitutes decent housing.

## Q-and-A with USAID Administrator Dr. Rajiv Shah

Dr. Rajiv Shah has led the United States Agency for International Development, the principal U.S. agency offering assistance to countries struggling with poverty, disease and disasters, since Dec. 31, 2009. USAID provides assistance in more than 100 countries in such areas as health, agriculture, economic growth and trade, and education and training.

Before joining USAID, Shah was director of agricultural development in the Global Development Program at the Bill and Melinda Gates Foundation. He also served as the foundation's director of strategic opportunities and as deputy director of policy and finance for its Global Health Program.

**Q:** *What role, in your opinion, does housing play in development and assistance?*

**A:** Safe and secure shelter is a critical component of long-lasting, sustainable development in both rural and urban areas. However, the rapid rate of urbanization in developing countries means that governments and private-sector markets in particular struggle to provide adequate city services, and housing is foremost among them. Today more than 1 billion people around the world live in slums. Most of these people lack secure rights to the places in which they live and are at constant risk of eviction. Housing allows people to have an asset and to be connected to a supportive community, both in a physical and cultural sense.

Overall, USAID sees housing as one key component of its Making Cities Work strategy. This strategy recognizes that improving housing and other essential basic urban services requires an integrated approach that addresses constraints on municipal finance, local governance

*“Safe and secure shelter is a critical component of long-lasting, sustainable development in both rural and urban areas.”*

capacity, effective civil society and private-sector engagement, and more secure property rights.

**Q:** *What lessons have been learned in recent years about the connection between healthy housing and healthy communities?*

**A:** Housing is an anchor for communities. But of course building houses alone won't create communities. Equally integral would be creating economic and educational opportunities, and providing municipal services such as water supply, sanitation and transportation. Together these elements create communities in which people can be healthy and prosperous. Broad international support for this perspective is being highlighted this year by the World Health Organization. WHO chose to highlight the important links between the built environment and health when they chose the theme "Urbanization and Health" for World Health Day 2010.

**Q:** *Are there standards USAID uses to evaluate the quality of housing in the communities you serve, and if so, how specifically do they relate to health?*

**A:** In humanitarian shelter reconstruction support, USAID adheres to the Sphere Project's guidelines, the minimum standards to which most international humanitarian organizations adhere. Beyond that, though, USAID strives to ensure that local cultural and contextual norms are also adhered to in housing programs. For example, this perspective is guiding current support in Haiti on the transition of people out of temporary camps and into more secure housing so that Haitians can begin to rebuild their lives after the terrible earthquake.

**Q:** *What kind of public health infrastructure does the agency look to develop—talking about water, sanitation here mostly—and how*

*does residential housing developed by governments or NGOs play into that? Are there new innovations that seem to be working better than traditional methods?*

**A:** In response to the Senator Paul Simon Water for the Poor Act of 2005, USAID has increased significantly its efforts to improve water supply and sanitation infrastructure for those in greatest need. Successful residential housing development usually goes hand-in-hand with such improvements, but often household-level fixes need to be made, as well. The most important household-level investment typically includes connecting a home to networked water pipes and sewers or constructing on-site sanitation facilities. Such investments can be applied to larger-scale housing development through two relatively recent means: (1) providing access to microcredit to overcome the barriers that low-income households face in affording one-time water or sewer connection charges; (2) whole community behavior change to encourage household on-site sanitation investments, an approach most often referred to as the Community-Led Total Sanitation approach.

**Q:** *What should governments and NGOs be doing better to improve health and housing opportunities?*

**A:** The United States has made a bold commitment to invest in healthy and productive lives as part of President Obama's Global Health Initiative. USAID will be working to support governments and NGOs that are committed to the goals guiding this effort. In addressing the needs of the populations in Global Health Initiative countries where cities are confronting rapid growth while coping with tight budgets, we must do all we can to strengthen public-private partnerships and enforce good governance.



PHILIP JORDAN

For Mauro Gómez (left), a new wheelchair-accessible bedroom built with Habitat Chile means he can live comfortably at home, with his family.

## THE HEALTH-HOUSING CONNECTION

### Chile: Home from the hospital

Habitat for Humanity Chile and hospitals in the country have established a new program directly tying improved housing to better health for children.

Although the government in Chile pays for medical treatment for poor children, families often lack the resources to improve the condition of their homes. Doctors recommend that some terminally or chronically ill children stay in long-term medical facilities, rather than return to overcrowded, poorly insulated or badly constructed homes.

Partnering with hospitals in the Santiago region, Habitat for Humanity Chile has created new, healthy living environments for 45 children since 2009, enabling them to return home to their families. With the help of partner hospitals, families, volunteers and donors, Habitat Chile aims to serve at least 200 families through this project by May 2011.

Ana Chavez, director of pediatrics at Hospital Exequiel González Cortés in Santiago and a partner with Habitat on the project called “Our Children Return Home,” has become an advocate for housing as well as health.

For 13-year-old Mauro Gómez, a new bedroom in the wheelchair-accessible home built with Habitat meant he could live comfortably at home despite the effects of muscular dystrophy.

His parents’ US\$300 monthly income could cover only medical costs associated with their son’s illness in addition to normal living expenses for the five-member family.

Gomez is a happy child whose face reflects hope, especially when playing with his brother Juan Pablo, 4, who sees Mauro as his hero.

“I want to travel and see the world,” Mauro said. “I will not allow my illness to affect my goals.”



The relentless epidemic of HIV/AIDS threatens another generation of children on the world's most vulnerable continent.



KIM MACDONALD

Thulisile Ngcobo, 5, has a new house in Kwa-Ximba, KwaZulu-Natal, South Africa, built as part of Habitat's Orphaned and Vulnerable Children program. Below is the family's old house.

The mission of ensuring public health and adequate shelter has become increasingly complicated in a world where pandemic disease can strike at any time, where the fastest-growing population of poor people live in crowded cities unprepared to handle them, where clean water and sanitation are still unavailable to millions, and where the relentless epidemic of HIV/AIDS threatens another generation of children on the world's most vulnerable continent.

Moreover, the progress in reducing death and disability over the past 30 years has not been equally shared globally. The declining death rate among children under 5 has been remarkable in many ways, but improvement has been slower—much slower—in low-income countries. In Africa, childhood death rates have remained high in many regions and have even increased in some countries.<sup>7</sup>

## Chapter 3

# HIV/AIDS

<sup>7</sup> The Millennium Development Goals report 2007. New York, United Nations, 2007 [www.un.org/millenniumgoals/pdf/mdg2007.pdf](http://www.un.org/millenniumgoals/pdf/mdg2007.pdf), accessed July 1, 2008.

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13 Angela Aidalá et al., "Housing Status and HIV Risk Behaviors: Implications for Prevention and Policy," *AIDS & Behavior*, Vol. 9, page 251, September 2005.

## The profound toll on Africa

Nowhere is this more apparent than in southern Africa, where the HIV/AIDS epidemic takes a disproportionate toll on those who live without the certainty of safe and secure housing. If housing conditions are not improved, success at treating those infected by the virus will be slow, resulting in more deaths. The continuing epidemic not only costs lives there—70 percent of all AIDS deaths worldwide in 2008 were in sub-Saharan Africa<sup>8</sup>—it also is crippling development and housing efforts aimed at eradicating poverty in the region.

- **Botswana's** economy will be nearly one-third smaller by 2025 than it would have been without the toll of HIV/AIDS.
- Two-thirds of urban households in **Zambia** who lost their primary earner experienced an 80 percent decline in income. On average, each survivor must now earn an income capable of caring for four more dependents.<sup>9</sup>
- In **Rwanda**, a family with a member who has AIDS spends 20 times more on health costs than a household where no one is infected.

In many sub-Saharan African countries, the spread of AIDS appears to be directly linked to migration, commerce and transportation, according to the Global Health Council. This is one of the few regions in the world where the majority of cases are caused by unprotected heterosexual contact, and women now account for about 60 percent of the population living with HIV. There has been some success in recent years at turning the tide on the epidemic in the region, but old disparities remain, now complicated by new problems in getting access to treatment and drugs.

- **Swaziland** remains the hardest-hit country in the region, with **Botswana** and **Lesotho** close behind. In all three countries, more than one in five adults between the ages of

15 and 45 are infected.<sup>10</sup>

- Counterfeit drugs and economic turmoil have plagued prevention and treatment efforts in **Zimbabwe**.<sup>11</sup>
- In **Mozambique**, there appears to be an increase in the infection rate, according to the most recent data. The worst problems are along the border with Zimbabwe and South Africa.<sup>12</sup>

## Treating HIV with better housing

The importance of housing in the campaign to prevent and treat HIV/AIDS has never been clearer. Higher living standards and adequate housing are "essential to reduce vulnerability to both the risk and consequences of HIV infection," the United Nations AIDS agency has declared. A secure home reduces exposure to HIV and other sexually transmitted diseases and leads to better access to treatment and other health resources for those infected. It offers women and girls some security against the spread of the disease through rape.

Homeless people and those in unstable family situations are at substantially increased risk of sexual and physical abuse, domestic violence and the inability to negotiate safe sex because of the need for a safe place to stay.<sup>13</sup>

Because HIV/AIDS attacks the body's immune system, those with the disease are at much higher risk of infection. Consider the risks then to a person living with HIV whose home has no floor and a thatch roof, or one who lives in a temporary shelter with six others crowded into the same room. We know that mud floors, leaky roofs and little or no sanitation can lead to the spread of opportunistic infections in those living with HIV/AIDS.

In Uganda, a country of 31.6 million where an estimated 2 million children have been orphaned or whose parents are infected with the



MIKEL FLANN

Wanida Sotkrang works at her sewing machine in her new Habitat home, a cleaner environment than the slum where she previously lived. "I love my house very much," Sotkrang says.

## THE HEALTH-HOUSING CONNECTION

### Thailand: HIV-positive in a slum

Wanida Sotkrang's living conditions worried the Rev. Sanan Wutti, the director of the AIDS Ministry of the Church of Christ of Thailand. Sotkrang is HIV-positive, and the slum she lived in, along a filthy canal in Chiang Mai, daily tested her weakened immune system. The canal is polluted with human and other waste and is a breeding ground for mosquitoes, the carriers of malaria and dengue fever.

Sotkrang, who works from her home sewing stuffed animals for merchants in the city, also worried about the stability and safety of the makeshift house she shared with her son and daughter-in-law. The slum was crowded and noisy, making it difficult to get a good night's sleep. She and her family called it "nervous living."

The Rev. Wutti helped Sotkrang apply for a Habitat for Humanity house, and her 36-square-meter concrete-block house was one of 82 built during Habitat for Humanity's Jimmy & Rosalynn Carter Work Project in November 2009 in an old orchard outside the city. Within weeks of moving in, Sotkrang and her family had put tiles down on the floor, making it easy to keep dirt-free. "I like to keep it clean, even when I'm working here," she said of her new house.

After a peaceful night's sleep in her new and serene surroundings, she likes to take time in the morning to enjoy the fresh air during a little walk and to water the trees, flowers and vegetables she has planted. There's a big lychee tree in front of her house, and the neighboring children come to play in its shade. Even though she still has health problems, Sotkrang says that now, "my heart is full with happy."



**Mud is packed over a wood and stick framework in this typical house in the village of Goda, Cote d'Ivoire. Rain erodes the mud, causing the houses to collapse if they aren't carefully maintained.**

virus, a government survey of the population showed that in rural areas 48 percent of homes have thatch roofs, 63 percent use mud and poles for wall construction, 88 percent have earthen floors, 82 percent use pit latrines, and nearly 20 percent have no toilets.<sup>14</sup>

Such living conditions seriously jeopardize the success of those lucky enough to get access to the anti-retroviral drugs needed to effectively treat the condition. They are deadly for those who aren't getting treatment.

Overcrowded and unsanitary housing conditions contribute heavily to the spread of respiratory diseases. Indeed, the effort to combat tuberculosis— among those living with HIV and those not infected by the virus—can be easily negated when infected people are forced to live in overcrowded houses or temporary shelters.

Success in dealing with TB and the HIV epidemic will depend on programs that address these risks at a community-based level. They begin by housing standards that limit the number of people living in the same room, and by construction standards that reduce the risk of opportunistic infections.

Even in developed nations, this challenge can be daunting.

Within the United States, housing is the greatest unmet need of people with HIV/AIDS, says David R. Holtgrave, chairman of the Health, Behavior and Science Department of the Johns Hopkins Bloomberg School of Public Health.

An 18-month study in Chicago, Baltimore and Los Angeles compared the health outcomes of chronically homeless people living with AIDS to people living with AIDS who received some form of housing assistance. Those getting assistance were twice as likely to retain healthy viral loads as those who were homeless. They also were two times less likely to be hospitalized or need to use an emergency room during the study period. Significantly, they were also much less likely to engage in sex trade.<sup>15</sup>

There are as many as 500,000 households in the United States where people living with HIV/AIDS will need some form of housing assistance during their illness. Yet only about 70,000 households are being served by the federal Housing Opportunities for Persons with AIDS program, according to the National AIDS Housing Coalition.

<sup>14</sup> Uganda House Hold Survey 2002/03, Uganda Bureau of Statistics.

<sup>15</sup> Kidder, Wolitski, et al., *AIDS & Behavior*, 11(6)/Supp2: S149-S161.



### The most vulnerable

One of the more profoundly sad facts of life in public health is that no matter what the disease, children are most likely to pay the heaviest toll in death and disability. With HIV/AIDS, uninfected children in Africa are losing their parents and creating a generation of orphans whose health and shelter needs have become a challenge to government and nongovernment groups alike.

Consider the scope of the problem in Africa alone:

- Every day, more than 7,000 Africans die from AIDS, leaving children behind.
- By the end of this year, as many as 18 million children—almost the population of Florida, the fourth most populous of the United States—will have lost their mother, their father or both parents because of AIDS.<sup>16</sup>

The continuing threat to orphans and vulnerable children in Africa, Asia and elsewhere stems from how the epidemic has affected the developing world differently from more affluent countries, with women carrying a greatly disproportionate burden from the disease. It is exacerbated by inadequate land ownership and secured housing rules that make infected women and their children more vulnerable to displacement.

In some parts of Africa, for instance, customary practices and social pressure take precedent over laws that are supposed to guarantee women some portion of the housing estate upon the death of a husband or father. In-laws and extended family members of the husband often seize the property and evict the widow, leaving her homeless. Laws in other countries blatantly discriminate against women on ownership. Swaziland, for example, prohibits a woman from registering a title in her name. Other countries prohibit broad groups of women—unmarried women, women who cohabit and those who

marry under certain religious and customary regimes—from owning property.

These rules—and the lack of laws that prohibit discrimination—hamper treatment for those women who also carry the virus, and place uninfected women and their families in danger of contracting the disease.<sup>17</sup>

Under such circumstances, these children are much more likely to suffer from poor nutrition, homelessness, discrimination and lack of access to health care than those in intact families. They are much more likely to drop out of school or be forced into exploitive child labor, and because they live in unsuitable or overcrowded conditions, they are vulnerable to physical and sexual abuse. Girls are much more likely to be pressed into the role of caregiver for their siblings, but have few rights—even if they have the ability—to secure their family's property.

Against these challenges, health and housing advocates, NGOs and government entities must alter how they respond. Finding adequate shelter, even on a permanent basis, is no longer enough. Beyond the dwelling itself, a new approach emphasizing education, protection of legal rights and skill building will be needed to address the long-term and very complex needs of these vulnerable children.

For instance, in Zambia, where an estimated 1.2 million children have been orphaned by the epidemic, the mortgage costs for the surviving spouses and families of those killed by AIDS often divert money needed for food, education and basic health care.

So health and housing advocates, including Habitat for Humanity, have recently settled on a three-pronged approach beyond helping orphaned children and their caregivers find a place to live. A new program there trains women and children about HIV and malaria prevention, in addition to hygiene and home

*“Every day, more than 7,000 Africans die from AIDS, leaving children behind.”*

<sup>16</sup> UNAIDS, WHO: 2007 AIDS epidemic – regional summary.

<sup>17</sup> ICRW, “Women’s Property Rights as an AIDS Response: Emerging Efforts in South Asia.”

maintenance. It also provides education about their inheritance rights and succession. Equally important, the NGOs involved in the project are working to influence legislation that affects the land and property rights of the poor.

In Mozambique, another Habitat project has a goal of enrolling 3,600 families (about 18,000 individuals) in new housing arrangements that will take a similar holistic approach. It too will emphasize training in how to prevent HIV and other infectious diseases. Organizers there have set up a database to track family members and study how these interventions have benefitted not just their health, but also their income and overall well-being.

Governments also have a role to play. The

President's Emergency Plan for AIDS Relief has recognized shelter as a core component of orphan and vulnerable children intervention. According to the plan's implementation guidelines, "the most effective responses place families, households and communities at the center of interventions." While 10 percent of PEPFAR's nearly \$5.6 billion must be spent on the care, prevention and treatment of orphans and vulnerable children in fiscal year 2010, there are few guidelines about how to monitor and assess the well-being of children, including the adequacy of shelter. Decisions about what works best for children should be made on a country-by-country basis, with a higher awareness about how housing interventions may help.

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## Lesotho

Mohlalefi Mokhotu (left), 5, was abandoned by his mother at infancy. In Lesotho, child abandonment is common, and the number of orphans in the country is increasing exponentially because of the ravages of HIV/AIDS and poverty. Lesotho has the third-highest HIV/AIDS prevalence rate in the world, with an adult infection rate of 23 percent. Like many others, Mohlalefi is cared for by an elderly grandmother. As the population of orphaned and vulnerable children continues to expand in Lesotho, extended family safety nets are becoming overwhelmed. Mohlalefi and his cousins, Lebohang (middle), 10; Relebohile, 9; Leshoboro (right), 5; Lerotholi, 3; and Mohale, 10; were all cared for by their grandmother, Mateboho, and housed in a small mud hut with one room and a dilapidated thatched roof. The family subsisted solely on a small plot of vegetables. The family was identified by Habitat for Humanity Lesotho in September 2009, and by Christmas, they had a new home. Mohlalefi says he is much happier sleeping in their new house because he is able

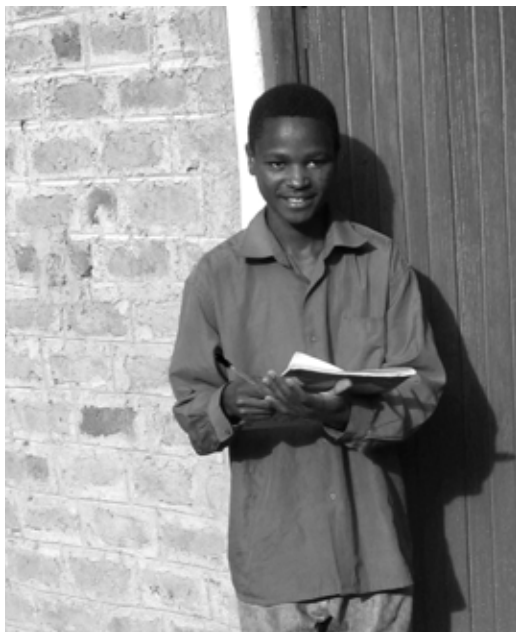


HABITAT FOR HUMANITY

to stay dry during rainstorms. HFH Lesotho has been assisting vulnerable populations in Lesotho since 2001 and has built more than 475 houses throughout the country. The program takes a "safe-space" approach that aims to provide widows and girls with a secure living space free of the threat of violence. It also provides referrals for legal advice and advocates inheritance rights for vulnerable communities. Another project provides shelter and care by building foster homes, single-room additions and pit latrines. HFH Lesotho also helps to identify, train and place qualified caregivers in the homes.

### KwaDabeka, South Africa

Muntukayise William Mthethwa—or Mkhulu, as he prefers to be called—is 113, according to his birth certificate, but he is taking care of nine orphans, all of them related to him: Anele, 14; Hlengiwe, 14; Dabeka Lwazi, 11; Buhle, 11; Lindiwe, 10; Themba, 12; Nkosingiphile, 9; Ntombifuthi, 19; and Nothando, 7. Six of the children are pictured here with some of the volunteers who helped build their new Habitat for Humanity house in 2009. In South Africa, one child in five—21 percent—has lost one or both parents. Habitat for Humanity’s Orphaned and Vulnerable Children Program not only provides safe and healthy homes, but also partners with other organizations to give the children and their caregivers holistic support with social and educational services and training. That includes, among other things, providing caregivers with education in HIV prevention and skills training to help them improve their incomes. The aim is to give the children a stable environment that will serve as a powerful weapon against disease and build hope, a sense of belonging and a sense of identity.



RONALD ONGOPA

### Bunashale, Bududa District, Uganda

Genes Bululu, 17, has faced challenges in life that no child should have to face. His father died of AIDS when Genes was only 2 years old. His mother died in 2004. His paternal relatives abandoned the children—Genes and his three half brothers, Manyali Brian, 8; Sokola Nathan, 12; and Nabulwala Betty, 10—and their grandmother took them in. Fortunately, Genes was identified by Compassion International through its Bududa Child Development Center as a beneficiary for housing and education. Compassion has since been paying his school fees, and the family built a four-room house with Habitat for Humanity Uganda in 2009, complete with a ventilated improved pit latrine and a shower stall. The OVC program in Uganda includes training in inheritance rights protection, because in many cases heirs don’t know their rights and lose their property to relatives. It also offers apprenticeships for youths, training for caregivers, instruction in malaria prevention, and mosquito nets. Habitat for Humanity Uganda’s OVC program has built 215 houses, benefitting 3,030 children.





MARCO VAN HAL

### Chazanga Compound, Lusaka, Zambia

Nsamwa (left), 11, and Itai Tembo, 11, are cousins who lost their fathers six years ago. They and eight other children—cousins and siblings—live in a Habitat house with their grandmother Esnart Tembo, 53, who took them in after all three of her children died of diseases. Nsamwa and Itai like the fact that all the girls in the house now have their own room that they don't have to share with the boys. Of the more than 2,000 houses Habitat for Humanity has built in Zambia, 280 were for orphaned and vulnerable children, benefiting 1,450 people. In addition to providing safe, decent housing, Habitat's OVC program in Zambia provides tenure and inheritance training and helps with the creation of wills, an effort to prevent families from losing their property. The program also provides HIV-prevention training to homeowners and forms partnerships with community-based organizations that focus on education and health services for orphaned and vulnerable children.

### Jossias Tongogara, Mozambique

Isabel Mavulambe, 16, was abandoned by her parents when she was 10 years old. She drifted among relatives and finally settled with her grandmother in a house with mud walls and a makeshift roof that did little to keep out the rain. The family built a decent, dry house with Habitat for Humanity in 2009, and Isabel took part most days in the construction so she would know how to maintain it. After missing school for years because of her living situation, Isabel is now in the fifth grade and is determined to study hard to fulfill her dream of becoming a teacher.

In Mozambique, the need of orphans and other vulnerable children for safe, decent housing is great. An estimated 17 percent of the population is infected with HIV/AIDS, and as much as 30 percent in certain cities along transport lines carry the virus. The Mozambique OVC program includes housing, latrines, water treatment kits and mosquito nets. Habitat partners with community-based organizations to provide the children with food, education, health and basic social support from their neighbors and community, and 3,357 people have benefitted from this program.



NEIL REID



TASHILA MINTZ

Dorcas Phiri (from left) and her siblings Racheal, Matthew and Stella, are safer and healthier in a home with real walls and a door that locks.

## THE HEALTH-HOUSING CONNECTION

### Zambia: To sleep without fear

Dorcas Phiri's fragile, hardscrabble world cracked when she was barely a teenager. It fell apart completely when she was 17.

She lived with her mother, father, two sisters and a brother in Ngombe, Zambia, but after her father died in 2003, the family had to move to a makeshift shelter on the outskirts of Lusaka. Four years later, their mother left as usual for a town nearby to buy commodities, which she planned to resell in Lusaka at a small profit to feed her family. She never came back.

Phiri was left as head of the household and somehow had to feed and protect her sisters Racheal, 14, and Stella, 12, and her brother, Matthew, 7. For almost two years, the children stayed in the shelter, made of plastic sheeting and pieces of wood, hoping their mother would return. But with no secure door, it wasn't a safe place.

"At night it would sometimes be a shock as you turn around to find a boy lying next to you. This would happen so often," Phiri said at the launch this year of a Habitat project that aims to build more houses for orphaned and vulnerable children. Intruders "wouldn't even use the entrance to the tent, but would cut through the tent to get to us," she said. "Nighttime was not a time to sleep, but a time to sit up and fear."

Sometimes their neighbors heard the children's screams and helped, and when other women in the community had space, they offered them a place to sleep. The children survived by taking on day-labor jobs such as crushing stones, collecting water for other households, washing clothes and baby-sitting.

In 2009, Habitat for Humanity Zambia, through its partnerships with SOS Children's Village and Bwafwano Community Centre, built a three-room house and a ventilated pit latrine for the family. SOS Children's Village and Bwafwano provide food and educational assistance to the children. Since living in their new home, all the children are back in school.

The new house is large enough that the Phiris rent part of it, giving them a little income. But the best things about the house are its solid walls and a door than can be locked. "I am happy now," Phiri said. "Especially now that I can sleep peacefully."



Malaria claims three times as many lives among children as HIV/AIDS.



A sick young girl lies in bed in her family's corrugated metal shack on the side of a road in Santa Rosa, El Salvador.

### Malaria and other old foes

As significant as the HIV/AIDS epidemic has been, there are health threats that have been around much longer and continue to take a heavy toll in death and disability. Malaria, for instance, claims three times as many lives among children as HIV/AIDS. Sub-Saharan Africa continues to account for 80 percent of the malaria worldwide. Africa itself accounts for 91 percent of the malaria deaths in the world.<sup>18</sup>

African women “confront an endless series of menaces, from malnutrition to dehydration, but almost nothing poses a greater threat to the well-being of their children than malaria,” says Ray Chambers, a U.S. philanthropist who serves as the U.N.’s special envoy for malaria eradication. “Even those children who survive the disease often face lifelong challenges.”

With malaria, the impact of poor housing is easy to see. Huts with open windows and leaky roofs harbor insects that expose occupants to malaria and other diseases. Because access to clean water is sometimes hours away, families tend to improperly store water in open contain-

## Chapter 4

# Malaria

<sup>18</sup> AD Lopez, CD Mathers, M Ez-zati, Murray ChJL. “Global and regional burden of disease and risk factors, 2001: Systematic analysis of population health data.” *Lancet* 2006; 367: 1747-57.

ers in and around the home, attracting mosquitoes and helping the disease to spread.

Fewer than 10 percent of the population in the most heavily affected countries around the world had access to insecticide-treated mosquito nets in 2005. Since then a variety of aid organizations, large and small, the WHO and local governments have embarked on an ambitious program to make treated mosquito nets available to at least 40 percent of the population in these countries by the end of 2010. With more than 140 million nets distributed in the past three years alone, preliminary indications show the goal is in reach.

Still, eradication of malaria may not be attainable given the scope of the challenge and the tools available, at least not in the foreseeable future, the WHO has concluded.<sup>19</sup> The goal now is to intervene “in easy to eliminate” settings, such as new housing construction in the hardest-hit countries.

These programs should include spraying areas inside homes and buildings with pesticides to rid them of mosquitoes and the larvae they leave on walls, furniture and bedding. It means more widespread use of insecticide-treated netting in bedding areas of homes. (Mosquitoes are more likely to bite humans during their sleep.) Such netting has been shown to decrease mortality by as much as 20 percent, the WHO says.

Coordination among health, housing and social services advocates will be crucial to effectively manage malaria outbreaks in endemic areas, the WHO concluded.

In Mexico, the connection between health and housing could not be clearer. In 2000, the Mexican government created *Piso Firme* (Firm Floor) a program that replaces the dirt floors of low-income families with concrete floors up to 538 square feet. Most houses had their floors replaced in less than 30 minutes, at a cost to the

government of just \$150 per home. By 2005, roughly 300,000 floors had been installed.

By comparing improved households with those left unimproved, researchers at the University of California, Berkeley, the Washington University in St. Louis, Missouri, and the World Bank found that the simple housing upgrade had a significant impact on the health and well-being of the families. Not only was there a 20 percent reduction in parasites, but also children younger than 6 showed almost 13 percent fewer episodes of diarrhea and a 20 percent reduction in anemia. The program also led to greater cognitive development among children mainly by reducing the incidence of intestinal parasites that cannot be treated with common deworming drugs.

### **Chagas' disease and dengue fever**

Similar efforts are taking place in other parts of the world to deal with Chagas' disease and dengue fever, both borne by insects. The results have been encouraging, but here again coordination between health and housing organizations is essential.

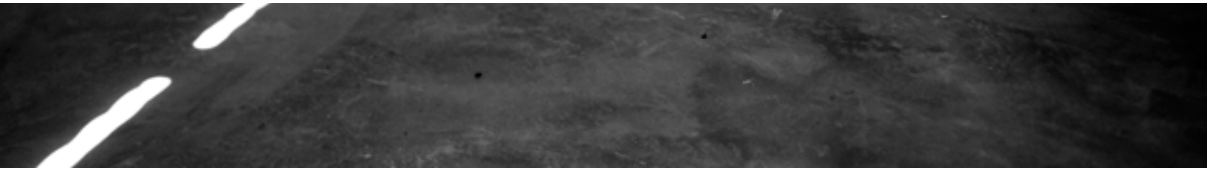
On the western edge of Honduras, the indigenous Chortis population (part of the Mayan family) faces two major health threats: Chagas' disease and acute respiratory conditions. Both are exacerbated by their living conditions.

Chagas' disease (or American trypanosomiasis) is endemic in much of Latin America, where an estimated 8 million to 11 million people are thought to be infected.<sup>20</sup> It is spread by an insect known as “chinche picuda” (stinging bug), which harbors in the mud walls, holes in wood beams and straw roofs of the houses where the Chortis live. Without treatment, the infection can lead to severe cardiac problems and death. The infection can be spread from mother to child.

19 Bulletin of the World Health Organization, Vol. 86, 2008, [www.who.int/bulletin/volumes/86/2/07-050633/en/](http://www.who.int/bulletin/volumes/86/2/07-050633/en/).

20 Centers for Disease Control, [www.cdc.gov/chagas/epi.html](http://www.cdc.gov/chagas/epi.html).





Guillermo Martinez and his niece Anna sit on a bed in their family's house in La Pintada, Honduras, which is being renovated with the help of Habitat for Humanity Honduras.

Against this challenge, a consortium of groups has set out to improve 1,400 houses of indigenous Chorti families using a new kind of adobe block that is much less expensive than traditional adobe, along with mixing wood and bamboo in other parts of the dwelling, all of which is designed to prevent the chinche bug from finding a home within the walls. As much material as possible comes from local resources.

The re-emergence of dengue fever over the past five decades is also a significant global health concern. Inadequate housing is a predictor for the spread of the disease, especially in the villages and urban poverty dwellings of Latin America and Southeast Asia.

In 1998, the world took serious note of the

disease once again when a pandemic affecting 1.2 million people was reported in 56 countries. Now the mosquito-borne viral disease infects an estimated 50 million people annually. It accounts for 22,000 deaths each year, mostly among young children.<sup>21</sup>

Insecticide-treated mosquito nets and some new, innovative housing material—including experimental insecticide-treated paint for walls—are part of the public health and housing response. But with dengue, the most successful approach seems to be in controlling the places where mosquitoes breed, especially around dwellings. Storing open water around the exterior of homes or holding livestock near the dwelling produces a significant risk.

21 WHO, "Impact of Dengue," [www.who.int/csr/disease/dengue/impact/en/](http://www.who.int/csr/disease/dengue/impact/en/).



Aya Koffi and two of her children show off the mosquito nets in their new Habitat home.

## THE HEALTH-HOUSING CONNECTION

### Cote d'Ivoire: Winning the battle against malaria

Aya Koffi's four children had often been sick with malaria. But when Veronique, her oldest, developed cerebral malaria, a serious form of the illness, Koffi knew that her daughter could die in a matter of days. The mosquito-borne illness had already killed Koffi's two brothers. Luckily, Veronique got medical treatment and survived.

Since her husband was killed in a rebel attack during the war that raged in Cote d'Ivoire in 2002, Koffi and her children had been living in a one-room house that belonged to her husband's uncle in the village of Tougbokro. The family shared a toilet with three other families—20 people—and the toilet's drainage system in front of the house was a breeding ground for malaria-bearing mosquitoes and other insects.

"More than 20 children die every year in the village," said Tougbokro's village chief, Nanan N'dri Affian. "Who will be the next one? I, too, have lost three children this way. Better living conditions help us to tackle this problem."

After the uncle asked the family to leave his house because he wanted to give it to his children, Koffi was able to improve her living conditions by partnering with Habitat for Humanity and building a new brick house for her family in April 2009. The beds have mosquito nets, and the family has a bathroom with a good drainage system.

Her two sons and two daughters not only are able to attend school regularly because they are healthy, they also no longer fear getting sick, their mother said. "Today I have a safe and decent place to live with my children," she said. "They will not be afraid of rain and malaria as we used to be. I am happy and proud."





The WHO estimates that 1.8 million people die each year from diarrheal diseases, about 88 percent of which are caused by unsafe water supply, sanitation and hygiene.



Water is distributed at a facility built by Habitat for Humanity in a slum in Moramanga, Madagascar. The facility on the left doesn't yet have spigots, as the one below does. Habitat has built six water facilities to augment those built and operated by the municipality. The larger ones have latrines in the back for public use.

### Tainted water, inadequate sanitation

Dengue's re-emergence may be partially the result of the continuing shortage of clean water and sanitation that plagues the world's poor. This shortage has been worsened by the increasing urbanization of poverty, where makeshift villages and urban ghettos often rise up near job sites, already plagued with ground and water contamination from industrial manufacturers.

Cleaning up these unsafe and unsanitary urban outposts has been hampered by government indifference, the high cost of installing adequate sewer infrastructure, and the lack of adequate housing sites nearby.

The WHO estimates that 1.8 million people die each year from diarrheal diseases, about 88 percent of which are caused by unsafe water supply, sanitation and hygiene. As is often the case with such a public health threat, children are the most common victims.

There has been significant progress on water, thanks to the efforts of hundreds of NGOs, religious organizations and government leadership. By 2015, the WHO estimates, 92 percent of the

## Chapter 5

# Water and sanitation

*There has been significant progress on water, thanks to the efforts of hundreds of NGOs, religious organizations and government leadership.*



**Anara Dikanbaeva stands beside a new toilet built with the help of Habitat for Humanity outside her house in the village of Kyzyl Suu, Kyrgyzstan. Waste from the toilet is collected and used as fertilizer. With the old toilet, behind her, the waste went into the ground, creating a potential health hazard.**

world’s population will have access to clean water sources, compared with just 77 percent in 1990.

Unfortunately, that’s not the case with sanitation. Nearly 40 percent of the world’s population, or 2.6 billion people, live without access to improved sanitation. The worst problems are in sub-Saharan Africa and Asia. With less than five years remaining to reach the U.N.’s Millennium Development Goals of “halving the proportion of people without sustainable access to safe drinking water and basic sanitation,” much work remains. (It should be noted that even if the goal could be met, an estimated 1.7 billion people would still lack access by 2015.)<sup>22</sup>

Advocates for improved shelter in both rural and densely populated urban areas are constantly adapting standards to keep pace with developments in how best to supply clean water and appropriate sanitation. Those efforts are increasingly turning toward an “eco-sanitation” approach for latrine construction that uses little or no water and has the potential to turn human waste into fertilizer and other useful products.

While the concept of eco-sanitation has been around for 15 years or more, the use of these new approaches in poverty housing around the world is relatively new. The concept is based on using no water—or as little as possible—to effectively create a “dry” sanitation system. It often involves collecting and disposing of urine and feces in separate holding facilities and then converting the waste for other uses. Many projects using dry sanitation are in their infancy, but the early results are encouraging.

“One of our basic problems is that there is so little good research on dry sanitation,” said Christine Moe, director of the Center for Global Safe Water at Emory University in Atlanta. Interesting projects are taking place in Vietnam, Mexico and El Salvador, she said, that should provide some scientific backing for future sanitation work, but much more needs to be done. “This is definitely an area where housing, public health and sanitation advocates can and should collaborate,” Moe said.

<sup>22</sup> WHO/UNICEF joint monitoring report 2010: “Progress on Sanitation and Drinking Water,” [www.who.int/water\\_sanitation\\_health/monitoring/fast\\_facts/en/index.html](http://www.who.int/water_sanitation_health/monitoring/fast_facts/en/index.html).



Olufta Kabutova pours water into a purifying filter outside her house in the district of Kumsangir, Tajikistan. The family bought the filter with a microloan from Habitat.

## THE HEALTH-HOUSING CONNECTION

### Tajikistan: Clean water eases fear of typhoid

Olufta Kabutova lived in fear that one of her five children might die of typhoid fever, the same disease that killed her husband in 1999. For years, the family's only source of water was a dirty and bug-infested ditch near their two-room adobe house in the district of Kumsangir, in the south of Tajikistan. "Due to using unhealthy water, my children became sick very frequently," Kabutova said.

More than 3.5 million people worldwide die each year from water-related disease such as typhoid, and 84 percent of water-related deaths are of children 14 and younger.

In Tajikistan, a mountainous country in Central Asia, much of the population lacks access to clean, safe water. A 2008 survey of the district where Kabutova and her family live identified 140 cases of typhoid, 120 of hepatitis, 450 of diarrhea and 260 cases of dysentery among the residents.

But Kabutova and her family no longer have to worry about what they are drinking. Since 2008, she and her sons, two daughters-in-law and their children have access to water purified by a filter they bought with a microloan from Habitat for Humanity Tajikistan.

The filter is built with layers of gravel and sand that the water passes through before coming out clean and ready to use for drinking and cooking. The family was trained in how to use and maintain the filter. "It is very easy to use, and its maintenance does not require additional expenses," she said. "Now we have no problems with fresh water."

Kabutova raises vegetables and fruits in her garden to feed her family of eight, and two of her sons send money earned from jobs in Russia—the family's only source of income. With a price tag of \$250, it would be almost impossible for Kabutova, and many in the village, to afford a filter. But the family can afford Habitat for Humanity's \$4 monthly microloan repayment rate.

Habitat for Humanity Tajikistan won the national Energy Globe Award 2010 for the water filter project.

A concrete drainage ditch built by Habitat in Moramanga, Madagascar. Habitat helped build concrete drainage ditches along the major streets, which keeps the heavily traveled roads from turning into solid mud slicks when it rains.

STEFFAN HACKER



## THE HEALTH-HOUSING CONNECTION

### Madagascar: Holistic projects in health, housing

In Madagascar, off the southeastern coast of Africa, 93 percent of the population lives in overcrowded, unsanitary slums. Staking out plots of land off the main roads, families erect makeshift housing out of reeds and grasses, metal, plastic and any other material they can find, creating a cramped maze of tiny walkways between ramshackle huts.

The slum residents have no electricity, even though they may be only meters from a municipal grid, so they use paraffin and candles for lighting. Families of six, eight or even 10 share one-room shelters, which often have no foundation. They collect water from city taps, but they have no toilets. Often, a latrine consists of a hole in the ground with a tire around it. In the rainy season, the houses flood. The children play in the muddy pathways, which are flooded with feces and other waste. Malaria-bearing mosquitoes and waterborne diseases are only a few of the threats to these children's chances of reaching adulthood.

Habitat for Humanity Madagascar is taking a holistic approach to promote healthier communities. In 2009, Habitat and its partners—UN Habitat, local and municipal governments, and communities—launched a pilot project in a slum in Moramanga to build 62 houses and renovate 15. Families took out loans they can afford without undue financial stress, whether for a new one- or two-room house or for incremental improvements. The project also built six water points and two public latrines; created two garbage collection points, paved pathways and added drainage ditches and pipes to drain contaminated floodwater quickly.

Families were trained in basic financial literacy and loan management, and mosquito nets were distributed. A second project followed in Toliara.





Men, women and children scavenge a dump, now closed, in Steung Meanchey, near Phnom Penh, Cambodia, for trash that can be repaired and sold, a main livelihood for families living at the dump.

MIKEL FLANN

## THE HEALTH-HOUSING CONNECTION

### Cambodia: A new life

Habitat for Humanity Cambodia, 21 families and the Cambodian government partnered together for the 2009 Jimmy & Rosalynn Carter Work Project. The project was as much about health as housing.

All 21 families previously lived alongside the notorious Steung Meanchey dump in Phnom Penh—a dump that absorbed nine tons of garbage a day. Parents and children alike scavenged for items they could salvage and sell. Many who are now Habitat partner families made a living by repairing shoes found at the dump.

That living came at a cost. The rotting stench and stinging smoke constantly rising from the dump caused health problems. Phnom Penh officially closed the dump in the summer of 2009, but long after the ground nearby still seemed to move—alive with flies, fleas and putrid streams of water.

The 21 partner families who moved to a new Habitat site in Oudong city named their neighborhood the New Life Community. It's in Sra Por village, about 45 kilometers—and seemingly a world away—from the dump. Immediately to the west of the new community, rice fields stretch to the horizon. Just a few kilometers to the east, four temple tops rise from Preas Reachtrop Mountain.

HoutTera, a 23-year-old single mother, had survived by scavenging the dump for items she could resell. But once she had daughters, she started worrying for their health. Both baby Da Lali and Srey Pov, 5, have had frequent respiratory problems and bouts with diarrhea.

"I had to leave the baby at home with others while I would go out and work, and I sometimes got hot and didn't feel well," she says. "When I nursed my baby, the baby got sick."

When she moved her family to Oudong, Tera said, "I am most excited because I think the fresh air will improve our health. I know this will be a better place."

Habitat Cambodia will build with 52 more families relocating from the dump over the next three years. Partner families are also being trained in new, sustainable ways to make a living.



There is a growing body of evidence in the United States and Europe that adequate housing is essential to the prevention and treatment of diseases ranging from asthma to mental illness.



Angel Campo used to live in a home damaged by water and then mold after Hurricane Katrina struck the Gulf Coast in 2005. Angel and her two siblings suffered asthma attacks and rashes while living in a FEMA trailer in Lafayette Parish, Louisiana. But now she and her family have a Habitat home in Slidell, Louisiana.

### Asthma and other conditions in the U.S. and Europe

Although there is less research in the developing world linking housing and health, there is a growing body of evidence in the United States and Europe that adequate housing is essential to the prevention and treatment of diseases ranging from asthma to mental illness.

In the United States, perhaps the two most intensively studied connections between housing and health involve asthma and lead poisoning. Asthma sends almost 2 million people a year to hospital emergency rooms. Extensive research shows that the occurrence and severity of asthma attacks can be linked to pests, pet dander, dust, molds and excessive moisture inside the home, and housing instability or homelessness can result in missed medical visits and treatment plans similar to those for people coping with HIV and AIDS. Strides to control or eliminate lead paint hazards in housing have resulted in a successful reduction of lead levels in children's blood, but too many children are still exposed to dangerous levels of lead. Resi-

## Chapter 6

# Asthma

*Asthma sends almost 2 million people a year to hospital emergency rooms.*

*Dampness and mold in homes account for more than one in five cases of asthma in the United States at an annual cost of \$3.5 million.*

dential lead paint is banned in the United States but easily purchased in Asia and Africa.

Many Americans may be surprised to know that 84 percent of bedrooms in the United States have detectable levels of dust mite allergens that can contribute to both asthma and allergies. Older homes and those occupied by low-income residents are also much more likely to have detectable levels of mouse and cockroach allergens.

Dampness and mold in homes account for more than one in five cases of asthma in the United States at an annual cost of \$3.5 million.<sup>23</sup> Still, even though we know the connection between these common household health risks and asthma, more research is needed to determine how best to deal with them, says Mary Jean Brown of the CDC's National Center for Healthy Housing.

The lack of scientific evidence of the effectiveness of commonly employed remedies—from expensive air filters to detergents and over-the-counter pesticides—may result in not just a waste of money, but also the continuing risk of an attack, she says.

The lack of decent, affordable housing is only exacerbating this problem in the United States. In 2008, the number of households spending more than 50 percent of their income on housing rose by one-third, or 16 percent, to 18.6 million, according to Harvard's Joint Center for Housing Studies. That's 44.2 million Americans who have few resources left over to make healthy food choices, heat their homes, purchase medicines and pay for health care.

Overcrowding and exposure to heat and cold are house-related causes of illness in many

parts of the world. Cold houses are associated with an increased risk of cardiovascular and respiratory diseases, along with psychological problems such as depression, studies show. "Irish research indicated that households enduring cold (or 'fuel-poor' households) were over three times as likely to report respiratory conditions and almost three times as likely to self-perceive ill health caused by cold housing," researcher Jonathan Healy wrote in a WHO report.

The crowded housing conditions that many people in developing countries face have been associated with the spread of tuberculosis, respiratory infections and even hepatitis B. In a study in New Zealand of meningococcal disease in children younger than 8, household crowding was identified as the key risk factor.

Improved housing conditions have also had an impact on a variety of chronic conditions that plague the poor in Eastern Europe.

Government and social workers in Slovakia recently discovered that infection rates in a Roma settlement in Svinia from hepatitis, respiratory infections and other chronic conditions were reduced substantially by repairing leaky roofs, installing new floors, building drainage channels, creating garbage collection points and performing other public health services in and outside of the dwellings.<sup>24</sup>

Global health leaders are quickly coming to conclude, as the U.S. Surgeon General did in a 2009 report, that to improve the health of the world's most vulnerable residents, sustainable health practices should play an equally important role as bricks and mortar in reconstruction and building plans.

<sup>23</sup> U.S. Department of Health and Human Services, Office of the Surgeon General. "The Surgeon General's Call to Action to Promote Healthy Homes." 2009.

<sup>24</sup> The Forum, 2009: Volume 16, No. 2, Habitat for Humanity, November 2009.



Tumar Ajiev has a new roof for the condominium he shares with his wife and daughters in Bishkek, Kyrgyzstan.

## THE HEALTH-HOUSING CONNECTION

### **Kyrgyzstan: Safe from winter, snow, rain**

For eight winters, Tumar Ajiev and his family of four went without heat in their tiny room on the ninth floor of a Soviet-era high rise in Bishkek, Kyrgyzstan, where the average January temperature is 24.8 degrees Fahrenheit (-4 degrees Celsius).

The old tar-paper roof began to leak, so when snow melted and the rains began, water poured into the family's room. "We moved the children's beds to wherever we could to get them out of the wet," Ajiev said. "There was wet, there was mold, and the children were often sick."

Because of damage to electrical wiring from the wetness, the electricity was sometimes shut off for as long as three days, meaning no food could be cooked. "When the children were small, it was very hard for my family," Tumar said.

The high-rise was built in 1980 as housing for workers of a local auto-parts factory. Each floor is the same: One toilet is shared among four families, and eight families share a kitchen. With the fall of the Soviet Union, Kyrgyzstan regained its independence in 1991, and state-owned assets such as the building were privatized.

The residents say that although they were happy to own their rooms—or condos, as they are called now—they had no money for heating or upkeep. They managed to restore the heating in 2003, but it wasn't until 2007—10 years after the leaks began—that the condo owners found Habitat for Humanity. By then, dampness and mold had penetrated much of a building that had aged way beyond its years.

Unable to afford the interest rate charged by commercial lenders, two residents agreed to mortgage their rooms for a Habitat loan to repair the roof, and all of the residents paid their share of the loan. Now, with a new zinc-coated roof, and after renovations to get rid of the water damage, the residents are looking ahead to a second loan to repair the elevators.



Both public health and housing advocates must not just respond to the immediate crisis but also look for ways to secure the health and safety of people living in many areas where disaster is likely to hit again.



A makeshift encampment of people left homeless in Port-au-Prince, Haiti, by the January 2010 earthquake.

### Recovering from disasters

The connection between health and housing becomes strikingly clear after a disaster. The devastation of earthquakes, hurricanes, typhoons and other natural disasters brings sharp focus to the need to get medical services and shelter to victims in a hurry.

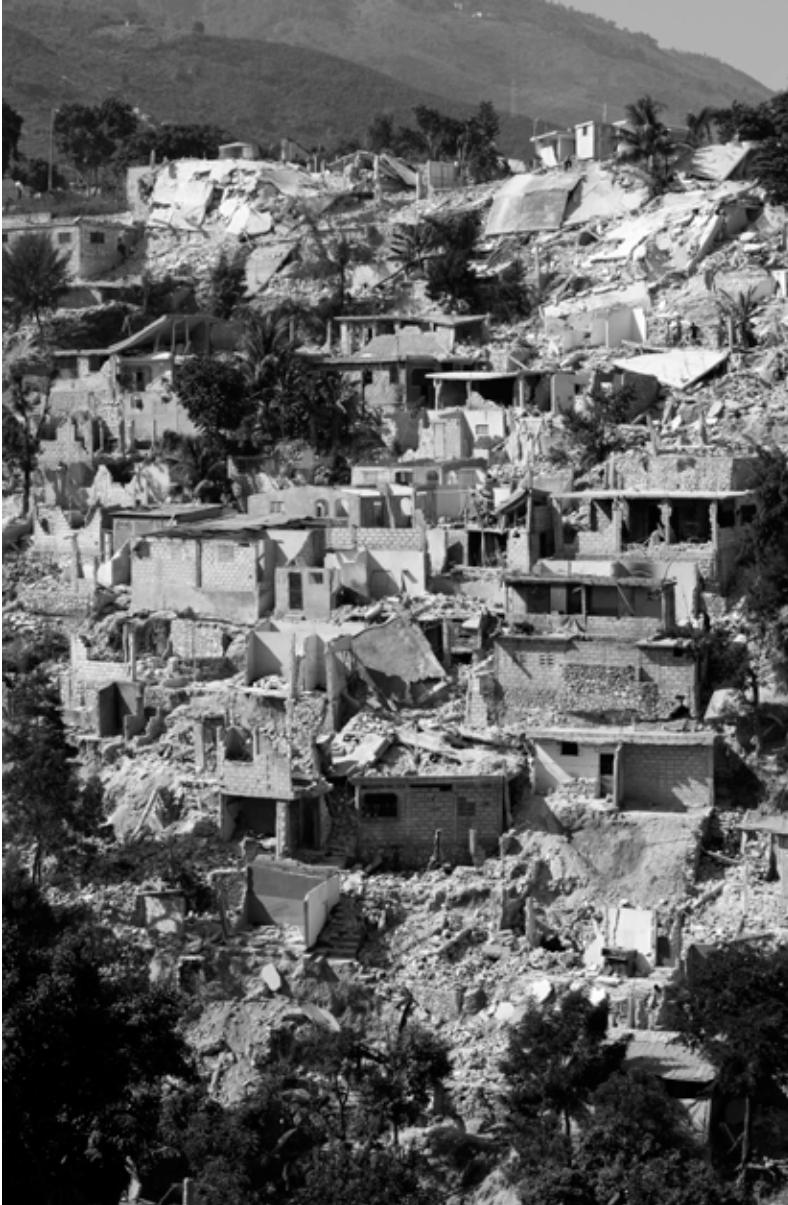
The often-demonstrated willingness of the rest of the world to rush assistance to disaster-stricken regions is noble, but without proper coordination the results can be chaotic and the mission jeopardized once the world turns its attention elsewhere. Moreover, both public health and housing advocates face a much harder and longer-term challenge. They must not just respond to the immediate crisis but also look for ways to secure the health and safety of people living in many areas where disaster is likely to hit again.

From the earthquakes in Haiti and Chile in 2010 to the typhoons in the Philippines, Vietnam and Indonesia, and from the Indian Ocean tsunami to the hurricanes of the Gulf Coast of the United States, natural disasters have taken a profound toll in recent years. Besides the loss of life

## Chapter 7

# Disasters

*The devastation of earthquakes, hurricanes, typhoons and other natural disasters brings sharp focus to the need to get medical services and shelter to victims in a hurry.*



Destroyed houses cover a steep hillside near Port-au-Prince, Haiti. The catastrophic magnitude-7.0 earthquake on Jan. 12, 2010, left almost 1.5 million survivors in need of shelter.

these events caused, they have left millions without a place to live—some of them still in temporary arrangements years later—and they continue to complicate efforts to provide adequate public health care to the displaced population.

That's why experts emphasize the need to look beyond the initial emergency response when hurricanes, earthquakes, typhoons and other disasters sweep through regions of the world where they are seen as cyclical occurrences. This is all the more important when a region is already plagued by a poor public health and housing infrastructure.

### Contrasts from 2010

The January 2010 earthquake in Haiti and the even more powerful quake that shook Chile six weeks later offer illustrative comparisons.

The devastating magnitude-7.0 quake hit just 10 miles from Haiti's largest and most overpopulated city, Port-au-Prince, displacing 1.5 million people and causing more than 200,000 deaths. Though progress has been made, recovery in Haiti has been slow and complicated.

In contrast, the quake in Chile registered a magnitude of 8.8, but the loss of life was a fraction of that in Haiti: The government estimate was about 500. Building codes and the public health infrastructure in Chile helped reduce the deaths and injuries, and made the provision of transitional housing much easier. However, about 500,000 homes were damaged or destroyed.

In Haiti, the earthquake struck what Scott Dowell, a manager for the U.S. Centers for Disease Control and Prevention's global disease detection and emergency response branch, called "the most precarious public health system in the entire hemisphere. Even before the earthquake hit, Haiti had the lowest rate of immunization for infants, the highest rate of mortality during childbirth, and other serious public health problems."





Habitat for Humanity has built transitional shelters for earthquake victims in the Bercy community in Cabaret, Haiti.

ERAZ MILLSTEIN

### Beyond the immediate crisis

The initial challenge in both locations was clear: Establish triage centers for the injured, get the population into safe, temporary shelter, and attempt to put some kind of public health structure in place to secure clean water sources and prevent the spread of infections.

But disaster-response teams in Haiti faced an even more daunting task. Although earthquakes are relatively rare in Haiti, hurricanes and tropical storms are not. In fact, Habitat and other NGOs are still helping families rebuild in many areas of Haiti devastated by four hurricanes that struck the country in quick succession in 2008. Some families who lost their homes in the earthquake had only just rebuilt or repaired their houses after the flooding two years before.

Disaster teams knew that the hurricane season was only months away and that any transitional housing created for victims had to be located far from flood-prone areas and capable of withstanding strong winds.

For much of the first six months after the quake, teams from dozens of independent NGOs and foreign assistance agencies have worked

to move people from unsafe and unsanitary makeshift shelters into transitional housing. That process is ongoing. The goal is to put families in a position to adapt their transitional home into a permanent residence, wherever possible.

Moving a family from transitional shelter to permanent placement may take time—perhaps years depending on their finances, the availability of building material and other factors—but all the efforts are aimed at putting the families in safe structures away from the risks of disaster.

Concurrent to these efforts, other service organizations were attempting to get a handle on the health and safety needs of the displaced population. Save the Children and Habitat for Humanity International, for instance, surveyed families in devastated areas together to determine both their health and housing needs. The information they collected helped in decisions about what kind of transitional housing was needed, where it should be—with easier access to child health services, for instance—and whether the family might be able to move from temporary to permanent housing in a reasonable period.

*“Even before the earthquake hit, Haiti had the lowest rate of immunization for infants, the highest rate of mortality during childbirth, and other serious public health problems.”*

*—Scott Dowell, a manager for the U.S. Centers for Disease Control and Prevention*

### A pathway to permanent shelter

Disaster-response workers in Haiti and elsewhere have come to understand that the best long-term approach to preventing the devastating effects of natural disasters is to put the families affected by them on a pathway to a permanent, safe home with access to health and other human services not far away.

That means challenging some conventional disaster-assistance methods and attempting new and innovative approaches to long-term recovery.

For instance, housing and health teams in Haiti have implemented lessons learned about sanitation and water quality in other parts of the developing world so that after the population moves into more permanent housing, ground-water supplies won't be jeopardized. These include adopting some eco-sanitation techniques, establishing easier-to-access water lines near new settlements, and making more efficient use of household water. Moreover, it involves teaching Haitians in rural villages and urban areas alike how to manage new water supply systems so that pumps are properly maintained and water is properly chlorinated.

Similarly, construction and reconstruction methods have been adapted to remove the threat posed by the once almost-exclusive use of unreinforced concrete in Haitian roofs and

other parts of the home that could collapse during a tremor. Habitat's resource centers in Haiti are partnering with local block companies to produce new disaster-resistant building materials, such as lighter, more flexible microconcrete that puts less stress on support beams and walls.

And rather than simply packing up a displaced family and moving them to higher ground elsewhere, disaster-assistance workers are trying to establish land ownership and secure tenure rights for families seeking a permanent residence in a safe zone away from the threat of flooding or serious damage caused by storms and quakes.

Experts in the field refer to the process as "holistic" disaster assistance and risk reduction. In many ways, it is not unlike the process health and housing advocates have come to embrace in poorer parts of the world where the risk of natural disasters may not be high, but the threat of disease from inadequate housing and improper sanitation remains very real.

The goal for housing and health advocates responding to nature's destructive power has never really changed: move quickly to mitigate the death and displacement that always accompanies such disasters. But now that mission has become even broader: being prepared to deal with it when it happens again.



ESRA MILLSTEIN

Rose Flore Charles holds her 2-year-old daughter, Guallina Delva, in Léogâne, Haiti.

## THE HEALTH-HOUSING CONNECTION

### Haiti: 'Thirsting' for healthy shelter

For five months after the earthquake, Rose Flore Charles and her three young children slept in a makeshift structure Charles built using bed sheets and scraps of wood and metal. The family's Léogâne apartment had collapsed in the quake. The improvised shelter was the best protection Charles could provide for her sons, Joverson, 6, and Kelvens, 5, and daughter, Guallina, 2.

In Haiti's rainy season, which brings even more malaria-carrying mosquitoes, Charles' children suffered. "Sleeping in the old shelter, the rain always got in," she said. "We had to go to the health center and ask for help when their fevers got very bad.

"It was a difficult time, sleeping like this, not being able to care for my children and worrying about their health."

As Habitat for Humanity staff assessed needs in Léogâne, a city nearly 90 percent destroyed by the quake, they noted which families were most vulnerable in terms of health and security. In June 2010, Charles' family was among the first in her neighborhood to receive a Habitat transitional shelter.

The new wood-frame shelter is reinforced with crossbeams, metal strapping and foundation posts anchored in concrete. The shelter's galvanized tin roof and other materials can be disassembled and used in building a permanent home.

"I am thirsting for this house," Charles said as she helped build the shelter with local, Habitat-trained workers. "I am most happy about having a better shelter to protect from the rain. The rain is too bad where we've been staying. It's getting worse."

The need for dry, healthy, transitional shelter in Haiti remains urgent. Every day spent building these shelters is a race against time, against hospital visits, against future storms.

Charles knows this race well. On a Sunday, one day before moving into the new Habitat shelter, Charles attended church with only two of her children. Her oldest son had to stay back with relatives. Joverson had a fever again.



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## Chapter 8

# Conclusions and policy recommendations

Government decision makers, health ministers, aid groups and funding organizations whose efforts have sheltered millions of people in need now must change their approach to build not only safe dwellings but also healthier communities. To have long-term impact on global health, interventions that combine health and housing are essential. Addressing the issue of adequate housing and healthy communities together is key in any successful health-focused strategy.

Toward that end, we make the following recommendations.



STEFFAN HAKER

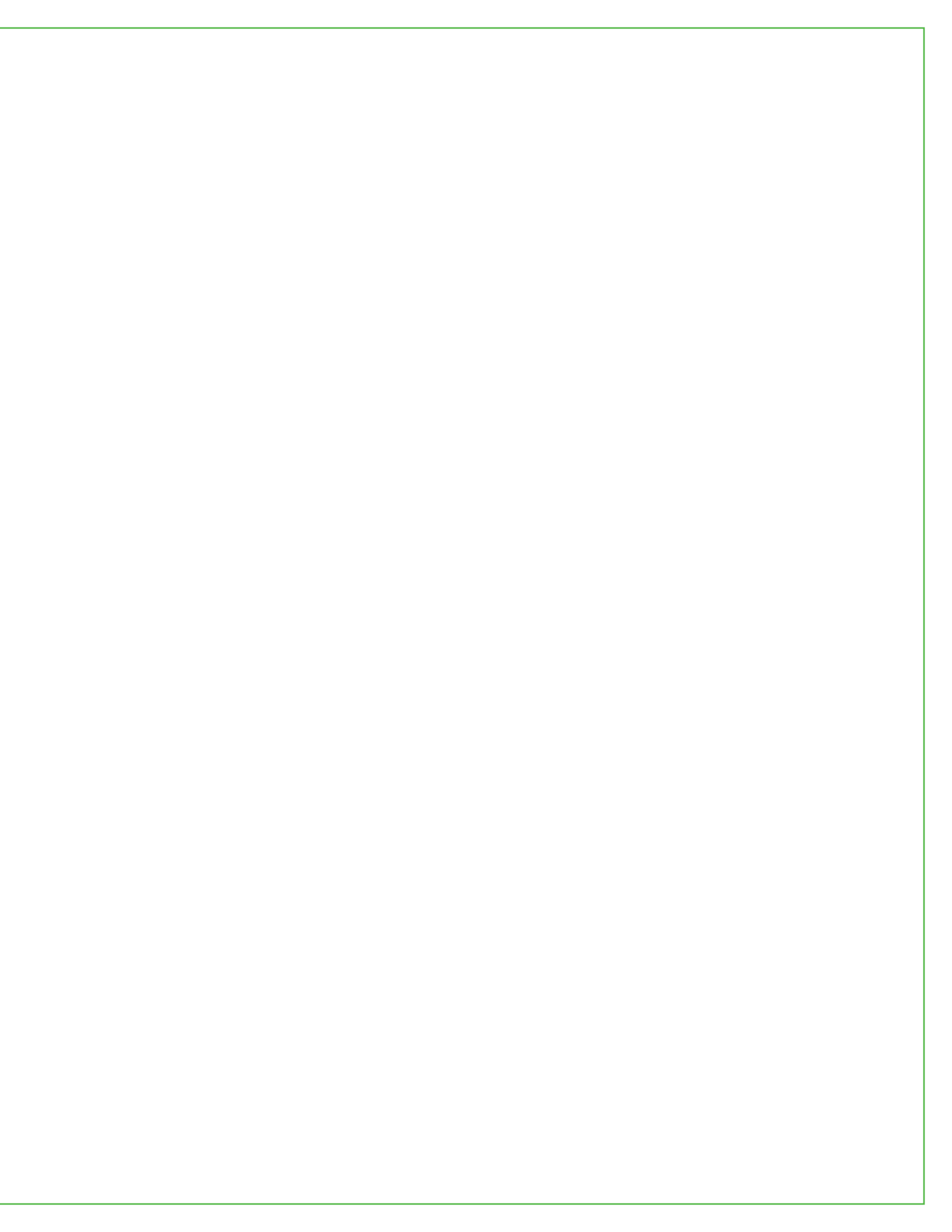
### **Habitat for Humanity on health and housing:**

- Efforts to address global health must reach beyond the typical health-related expenditures to address the core issues that cause health problems to arise in the first place.
- Education efforts should be developed to help individuals and local and national governments understand the effect of unhealthy homes on a community's health. This should include more research and funding to further investigate housing costs, the health benefits of improved housing, and the effectiveness of improved housing in making neighborhoods more sustainable and stable.
- Government programs and nongovernmental organizations should be coordinated and should develop holistic approaches to housing and community health in developing countries as well as in those hit by natural disasters.
- Because rapid urbanization will continue around the globe, support for more research and programs to understand this phenomenon in relation to health and housing is incredibly vital.

### **Habitat for Humanity urges the U.S. government to recognize the link between health and housing around the world.**

- Congress should hold House and Senate hearings with experts from nongovernmental organizations and other groups who have worked directly on health and housing programs to increase the awareness of members of Congress and the public and to explore how Congress can address the issue.
- U.S. foreign assistance entities should commit resources to document the role played by inadequate housing in overall community health and to highlight the best solutions developed to date.
- The Millennium Challenge Corporation, which is recognized for developing holistic compacts, should encourage programs that link the issues of health and housing.
- The President's Emergency Plan for AIDS Relief should develop standard guidelines for shelter interventions for orphaned and vulnerable children programs that meet minimum shelter standards and commit the necessary resources to address the issue.
- The United States Agency for International Development should encourage the development of health programs to look at holistic outcomes, rather than specific outputs, which would allow for innovative programming, including those that could use home improvements to improve health outcomes.
- Disaster response should include long-term planning for resilient housing.







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