LEARNING FROM THE URBAN TRANSITIONAL SHELTER RESPONSE IN HAITI

Lessons from CRS' 2010–2012 post-earthquake activities

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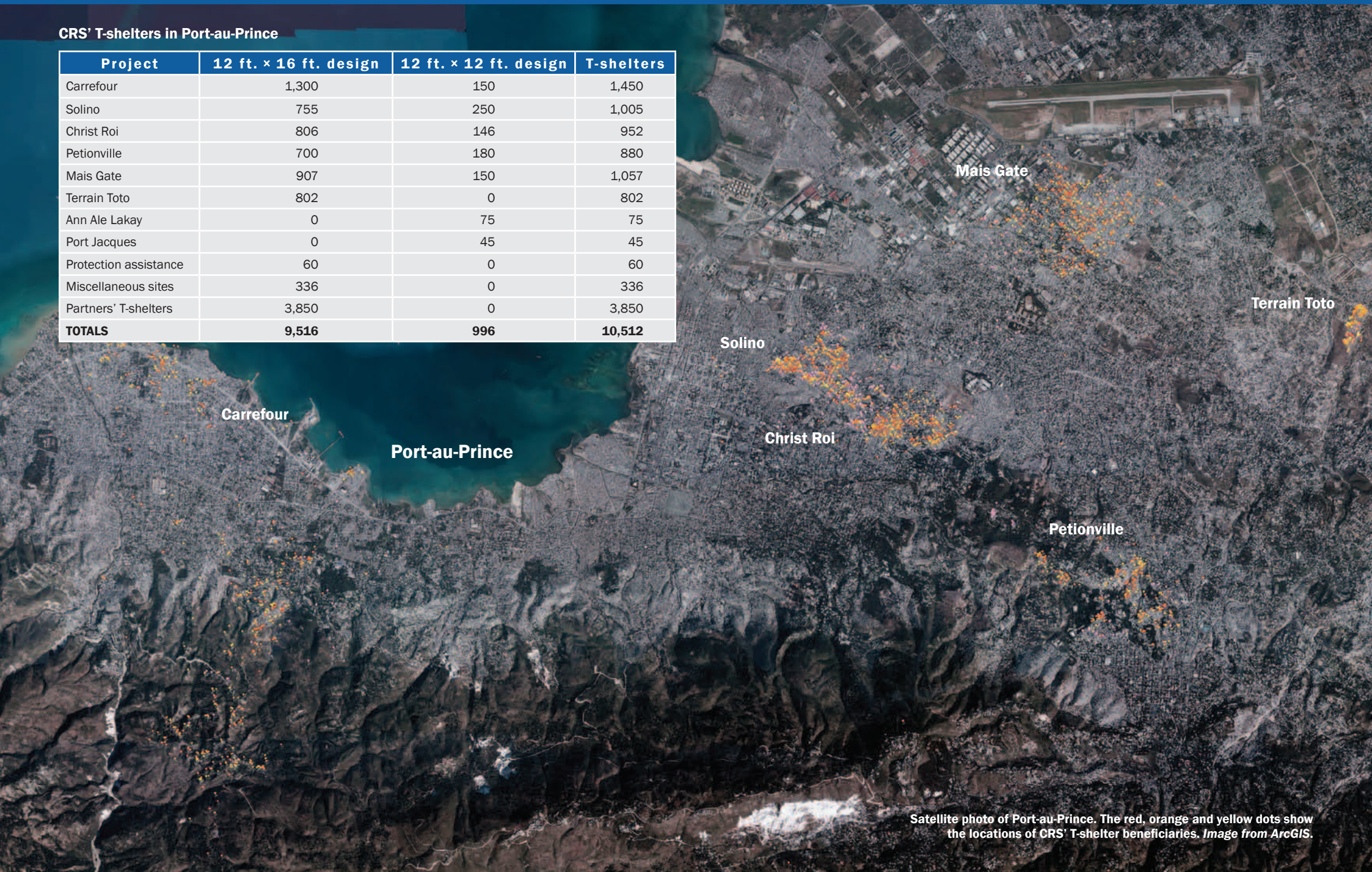
CRS' T-shelters in Port-au-Prince

Project	12 ft. × 16 ft. design	12 ft. × 12 ft. design	T-shelters
Carrefour	1,300	150	1,450
Solino	755	250	1,005
Christ Roi	806	146	952
Petionville	700	180	880
Mais Gate	907	150	1,057
Terrain Toto	802	0	802
Ann Ale Lakay	0	75	75
Port Jacques	0	45	45
Protection assistance	60	0	60
Miscellaneous sites	336	0	336
Partners' T-shelters	3,850	0	3,850
TOTALS	**9,516**	**996**	**10,512**



Satellite photo of Port-au-Prince. The red, orange and yellow dots show the locations of CRS' T-shelter beneficiaries. *Image from ArcGIS.*

INTRODUCTION

This handbook documents Catholic Relief Service's experience in planning and implementing its urban transitional shelter response in Port-au-Prince, Haiti. The following pages highlight challenges, successes and key aspects that could be useful in future responses to urban disasters. This publication is a result of site visits, studies of internal and external documentation and interviews with beneficiaries and community members during the 2010–2012 post-earthquake period. CRS is currently planning for permanent reconstruction programs in Haiti and is scheduled to pilot such a program in May 2012.

BACKGROUND

The January 12, 2010, earthquake resulted in one of the worst humanitarian disasters in modern times. The epicenter struck in Haiti's West Province (population 2.2 million) approximately 17 kilometers southwest of the capital, Port-au-Prince. The impact on Haitian lives and livelihoods has been multifaceted and staggering: homes, schools and businesses crumbled, more than 200,000 lives were lost, survivors were left traumatized, government came to a halt and security deteriorated. An estimated 1.5 million people moved away from their damaged or destroyed houses into open spaces such as parks, squares, football fields, vacant lots, office lawns and neighborhood streets to form some 1,280 camps. Powerful aftershocks shook a desperately poor country in which many buildings and homes were improperly constructed with low amounts of cement in the concrete mix and insufficient steel reinforcements. Damage to public buildings and services in the capital significantly reduced the capacity of national authorities to lead and coordinate the response. Damage to infrastructure—including roads, bridges, water systems and electrical and communications systems—also hampered the relief effort. More than 80,000 homes were destroyed, and 120,000 other homes, 1,300 schools and 50 health care facilities were significantly damaged.

CRS' EMERGENCY SHELTER RESPONSE

CRS provided emergency shelter materials to people who were displaced by the earthquake or too traumatized to sleep indoors. CRS distributed emergency shelter kits to 46,963 families to provide protection from the elements. Some of the emergency shelter kits contained tents, but most contained tarpaulins. The Shelter Cluster (co-chaired by the United Nations High Commissioner for Refugees and the International Federation of Red Cross and Red Crescent Societies) prioritized tarps rather than tents because there was a lack of space for tents and because Haitians were skilled at using available materials to build shelters beneath tarps.

CRS' TRANSITIONAL SHELTER RESPONSE

The transitional shelter (T-shelter) program was designed to move families displaced by the earthquake out of tent structures and into wooden structures that could provide a greater degree of protection from the weather. T-shelters were meant to be inhabited until reconstruction of permanent housing could commence. The shelters were designed for a life span of three to five years. Households selected for CRS' T-shelter program were asked to participate throughout the process, from preconstruction to construction and postconstruction.

Through funds from private donors and the Office of U.S. Foreign Disaster Assistance, CRS' T-shelter program completed more than 10,500 shelters in the Port-au-Prince metropolitan area within an 18-month period. CRS trained 126 carpenter crews as fabricators of sidewall panels and trusses and supported a livelihoods initiative called Rubble to Reconstruction.

In addition, 14 orphanages were rehabilitated with structural retrofits. Their latrines and kitchens were improved, and the organizations gained additional space. Furthermore, the program conducted water, sanitation and hygiene (WASH) activities such as constructing new latrines, rehabilitating existing latrines and installing rainwater catchment systems.

Many neighborhoods in Port-au-Prince are densely populated. *Image from Google Earth.*

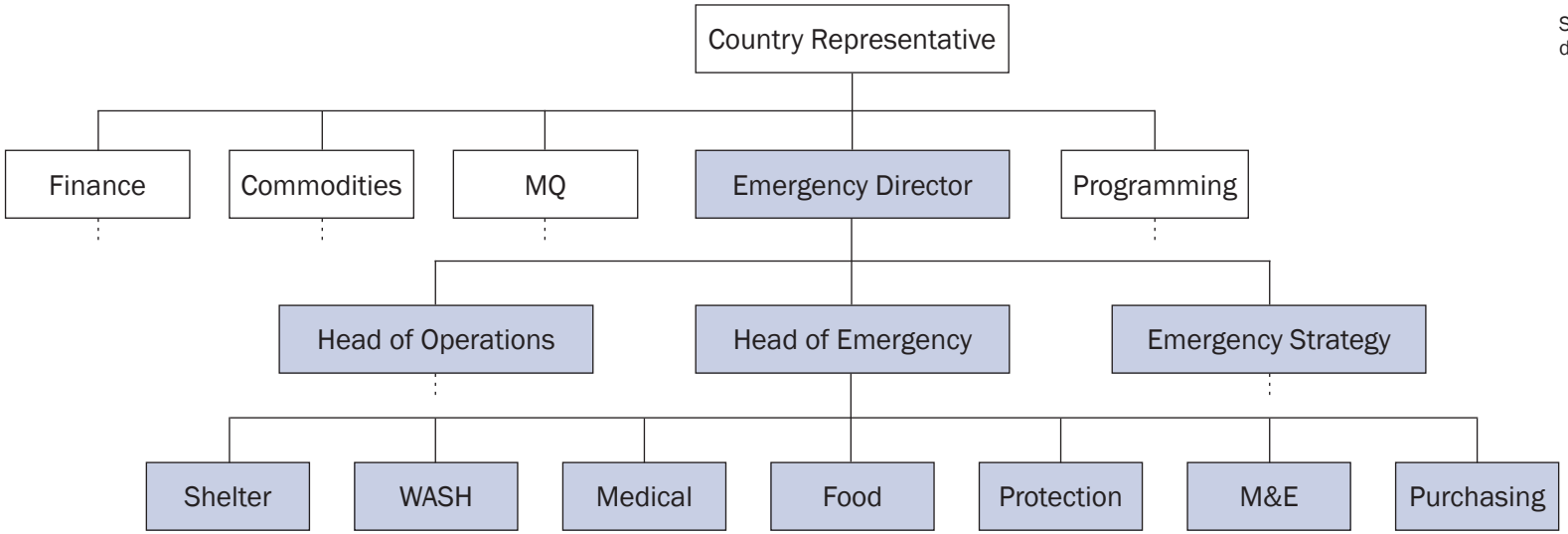
FROM CAMPS . . .

Sectoral approach

. . . TO RESETTLEMENT

Integrated approach

PROGRAMMING



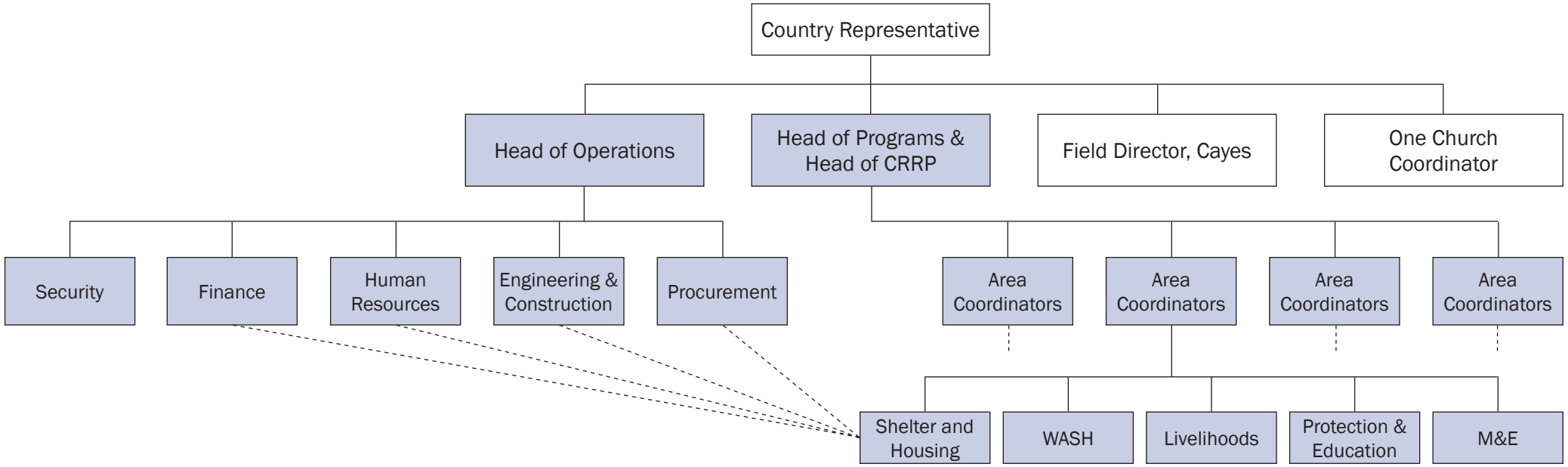
Structure of the CRS Haiti office during the emergency phase.

During the emergency phase, CRS assisted the disaster-affected population with emergency relief items. CRS' emergency programs provided WASH, shelter, protection, livelihoods, health and food assistance for targeted areas of Port-au-Prince. CRS' shelter staff worked in camps to distribute tents or tarps to more than 46,900 families. Once CRS felt that the situation had stabilized and initial shelter and food security work in camps was complete, CRS shifted quickly to an integrated Community Resettlement and Recovery Program (CRRP) that focused on helping camp residents resettle in shelters in clean and safe neighborhoods.

With this shift in programming came the need to change CRS Haiti's organizational structure. In the emergency phase, the programming wing of the office was organized in teams that attempted to coordinate their efforts but ultimately focused on separate programming sectors—Camp Coordination and Distributions, Education, Engineering and Construction (E&C), Health, Monitoring and Evaluation, and Protection. It was not easy for sectors to coordinate logistical issues, such as transportation to the field. This created inefficiencies. Some communities became confused and overstretched when they had to meet with each of the sectors separately. More generally, the structure did not capitalize on opportunities for synergies between programs.

In contrast, CRRP has enabled all programs to work together more effectively—with coordinated activities and a consistent voice—in the same communities. The new strategy utilizes a neighborhood-based structure that enables a coordinated and integrated approach. **In the future, this transition to an integrated approach ideally should take place as soon as the emergency stabilizes. The transition should be taken into consideration from the onset of the emergency so as not to lose valuable time between emergency response and early recovery.**

At Terrain Toto, CRS helped construct T-shelters in the camps. *Photo by Seki Hirano/CRS.*



As the diagram above shows in blue, the Operations Department and the Programs Department have worked closely with the T-shelter program. The Operations Department includes Security, Finance, Human Resources, E&C and Procurement. A new position, head of CRRP, was created to oversee several area coordinators in each of the CRS neighborhood sites. A team in each area includes five subteams—Shelter and Housing (consisting of engineers and social mobilizers), WASH (consisting of engineers, social mobilizers and hygiene promoters), Livelihoods (consisting of livelihoods technical advisers and psychologists), Protection and Education, and Monitoring and Evaluation. Each subteam is supported by an administration and operations person. Given the proximity of field offices to the CRS central office in Port-au-Prince, the central office provides overall administrative and operations support, limiting overhead expenses and duplication of departments. The E&C Department was moved from the Programming side to the Operations side to facilitate the technical aspects of T-shelter construction according to the requirements of the Programs Department. This restructuring allowed CRS Haiti to clearly delineate responsibilities and optimize both teams' work.

STAFF RESPONSIBILITIES

- CRRP area teams are in charge of beneficiary selection. Shelter and Housing social mobilizers (also known as *animators*) carry out beneficiary registration based on the selection criteria. These criteria were redefined more narrowly as the program progressed and as the overall need in the communities decreased.[1]
- Field engineers are embedded in area teams. They conduct a site assessment of each proposed shelter plot. Registration for a T-shelter cannot begin until the field engineers approve the plot. Field engineers are monitored by senior engineers from the E&C Department.
- Shelter and Housing animators ensured that CRS and the beneficiary signed a contract for the T-shelter and that the beneficiary understood the terms of the agreement. This agreement sets out clear roles and responsibilities for both sides. The beneficiary keeps one copy of the contract, and CRS keeps a copy in the office.
- Once a beneficiary is registered, CRS issues a receipt to the beneficiary. This makes follow-up easier for both parties.
- CRS regularly uploads registration information to a SharePoint database, allowing staff to create weekly lists of shelter orders. Every Thursday at noon, shelter orders are submitted to E&C by CRRP area teams. E&C confirms which shelters will be delivered the following week, based on the availability of materials, shelter kits and staff. This allows all teams to plan ahead and inform beneficiaries about the schedule.
- The E&C Department designs, manufactures and delivers T-shelters, then supervises their installation. Field engineers lead the supervision, and senior engineers from E&C provide independent quality control.
- Once the shelters are erected, the Shelter and Housing animators in the area teams follow up with the distribution of paint and finalize handover documentation, which includes ownership certificates for the beneficiaries.

Six geographic sites in Port-au-Prince were chosen where CRS had *entry points*—strong partners and/or working relationships with the community. By the end of November 2011, CRS had delivered more than 10,500 T-shelters.

A CRS field team in Solino. *Photo by Seki Hirano/CRS.*

1 Immediately after the earthquake, anyone who lost a house was eligible for a T-shelter. By the end of the project, beneficiaries had to meet a narrower set of vulnerability criteria to be eligible. The criteria included the number of children in the family; the number of children in the family who were younger than 5 years old; whether any of the family members were handicapped; and whether the beneficiary was a single parent, the female head of household, a pregnant woman or a lactating mother. For a list of the vulnerability criteria, see the chapter titled “Beneficiary Selection.”

URBAN CHALLENGES

Community members sitting in the shade of their T-shelters in Solino. *Photo by Seki Hirano/CRS.*

Organizing and operating a T-shelter response in an urban environment brings challenges that usually are not immediately apparent but are different from rural responses. Issues can be hidden behind the overwhelming scale of the destruction. They can also be complex, interwoven in a city's networks, laws and politics.

Learning From the Urban Transitional Shelter Response in Haiti puts forward some key questions for the planning stages of an urban T-shelter program. Awareness of these issues may ultimately determine the success or failure of a project.

The CRS Haiti Port-au-Prince team developed these questions based on their experiences in implementing the T-shelter program. The questions should complement rather than replace existing shelter resources such as the Sphere Project's handbook *Humanitarian Charter and Minimum Standards in Humanitarian Response* and the Norwegian Refugee Council and Shelter Centre's *Urban Shelter Guidelines*.

The topics in the list below are key aspects of the T-shelter program's implementation in Haiti. Each section offers key questions for future T-shelter responses, a description of CRS Haiti's experiences in Port-au-Prince and lessons that CRS Haiti has learned.

- Crime and gangs
- Land occupancy
- Scarcity of space
- Population density
- Rumors
- Renters and owners
- Beneficiary selection
- Rubble to Reconstruction
- Dangerous structures
- T-shelter design
- T-shelter construction
- Procurement and logistics
- Accountability, monitoring and evaluation

Reconstruction is especially complicated in densely populated areas, such as the Nerette area of Port-au-Prince. *Photo by Niek de Goeij*

CRIME AND GANGS

Questions: How can a T-shelter program help increase security and safety? How can CRS staff operate safely in a dangerous environment? How can humanitarian organizations manage the population's despair and tension when people lack food, shelter, water and income-generation opportunities?

A city's security situation can easily escalate immediately after a disaster and remain at heightened levels for long periods of time. This is what happened in Port-au-Prince, where heightened levels of crime are still prevalent two years after the earthquake. Most of the city's displaced people do not feel comfortable leaving their belongings in destroyed and abandoned neighborhoods, in tents or under plastic sheets in camps. They worry about intruders at night. Murder and rape are common and often unreported.

SECURITY AND T-SHELTER DESIGN

The T-shelters originally had two large windows that were covered by a tarp, but communities reported security concerns. "Windows with the tarpaulins make the T-shelter not so secure!" one beneficiary claimed. Some beneficiaries modified shelters themselves. CRS altered the T-shelter design, replacing the windows with solid wood to provide a greater sense of security.

SECURITY FOR CRS STAFF

CRS worked to achieve a consistent staff presence in the program areas. As a result, communities came to accept CRS staff. This was the most important way that CRS kept staff members safe. The strategy succeeded because staff worked in their assigned neighborhoods for more than a year, building strong relations. CRS Haiti's leadership emphasized that staff should communicate with communities openly and frequently; they should be frank, polite and honest; they should only make promises that can be kept; and they should clearly explain project parameters and expectations. Due to these measures, very few security incidents occurred and no staff members were physically harmed while working in their respective areas, even though other agencies and the government of Haiti had very little presence in CRS' areas of operation.

ADDRESSING GANGS

CRS worked with several large communities in Port-au-Prince. The area of operation spanned numerous gang territories. This caused challenges in delivering humanitarian assistance to the communities. Gang members sometimes saw CRS as a threat, especially in unstable neighborhoods where the gangs were influential and CRS had not yet established a presence. Additionally, the gangs tended to communicate through violent threats, which increased tensions between gang members and staff.

Lessons

- When designing T-shelters, consider including locks on the doors so that families can leave their belongings during the day and feel safer at night.
- Keep in mind that new staff might not yet have internalized CRS' values. Coach teams on how to politely and properly interact with communities in order to avoid abuses of power and other sources of frustration.
- Certain neighborhood committees may be powerful; ensure that checks and balances are in place to guard against committees that are acting solely in their own interests.
- Work with community-based organizations, but only legitimate ones that are recognized by the community as representing the interests of the community.
- Be clear about what CRS will and will not do, what behaviors are acceptable and unacceptable and what responsibilities the community committee has to uphold for the program and the community.

(continued on next page)

Lessons ("Crime and Gangs," continued)

- Work with others in the community to ensure the program hears from more vulnerable groups that might not be represented in community-based organizations.
- Recruit community volunteers. This helps the program to be transparent by establishing an interface between the community and the agency.
- Recruit as much labor as possible from the community. This increases community involvement and supports community members' livelihoods.
- When possible, implement local leaders' small projects that will have an immediate impact. Doing so strengthens the legitimacy of positive leaders and improves relations between CRS and the community.
- When working in communities that have gangs, create an environment in which dialogue with gang leaders is not only possible but built upon one-on-one relationships.
- Meet gang members and leaders face to face and host meetings with all gang leaders to discuss the ways that CRS will help the community.
- Include as many community members and committee members as possible in all meetings, not only to provide protection but also to witness the discussions.
- Be honest with and available to gang members and leaders. In return, they will often be more respectful toward staff.

Consider adding locks and shutters to provide a greater sense of security. ***Photo by Niek de Goeij/CRS.***

LAND OCCUPANCY

Questions: What type of land tenure practices exist or once existed in the country and the affected area? How can people prove their occupancy rights in order to receive T-shelter support from CRS? Are the T-shelters designed to be easily relocated? If so, is the beneficiary's *permanent* land tenure status less important than the beneficiary's rights to *temporarily occupy* suitable sites?

The owner of Solino provided this land rent free for one year. *Photo by Seki Hirano/CRS.*

Legal land titles and documentation exist within established formal neighborhoods in Haiti. Even in informal neighborhoods, some legal land title documentation exits. However, some people lost their documents in the rubble of the earthquake. Some of the government's land documents were also lost or destroyed. Because it is so difficult to prove prior land and property ownership in post-earthquake Port-au-Prince, CRS' T-shelters were designed to be easily *relocatable*. This shifted CRS' emphasis and the communities' emphasis from *land ownership rights* to *temporary land occupation rights*.

TEMPORARY LAND OCCUPATION

CRS accepted one of several documents as proof of the beneficiary's right to occupy land and construct a T-shelter, including

- a land title,
- a land tax payment receipt,
- a land rental agreement,
- proof of having rented a house on the land before the disaster, even if the house was destroyed and
- a document, signed by a community leader and two witnesses, which states that the family had been occupying the plot before the disaster. Ideally, the document should also be endorsed by representatives from the government.

Helping people return to their original plots reduced the need to resolve government land tenure challenges. Although there were large unoccupied pieces of land after the earthquake, the government of Haiti did not support land tenure claims because property rights were impossible to establish. The vast majority of CRS' T-shelters were built in Port-au-Prince's original neighborhoods; relatively few T-shelters were built in temporary resettlement sites.

Lessons

- As soon as possible, begin working in communities of origin. Collaborate closely with the affected people in those communities to convince them to stay. It is harder to rebuild communities if their residents have moved to camps of internally displaced people.
- Strike a balance of providing easy emergency services to large groups of displaced people and encouraging people to stay in their neighborhoods.
- Be aware that what seems the easiest, most viable solution or most politically favorable option, such as to house affected families in large open parcels of land, in the long run may not be the most feasible or favorable solution for the affected population. Large tracts of available land might not have sufficient infrastructure to protect people's safety, health and livelihoods. People might wish to stay near their homes to prevent theft, vandalism and squatting.

SCARCITY OF SPACE

Questions: What programs would focus immediately (or as soon as possible) on helping affected communities return to their place of origin? If there are displaced populations, where are they living? If they are migrating, where are they going? Is it a migration to a nearby place or a migration to another part of the country? Are the displaced people occupying public or private land or buildings? Is there sufficient space? What factors would encourage them to return to their places of origin? (Security? Access to cleared land? Provision of core services, shelter and/or livelihoods assistance?) How much space did they have before? Is the Sphere Project's standard of 3.5 square meters of covered space per person a realistic goal?

T-shelters needed to be close together because of neighborhoods' population density. *Photo by Allison Shelley for CRS.*

After the earthquake, many of the damaged houses were deemed unfit for occupancy. Displaced populations settled on any open parcel of land, including parks, roadsides and private land. In urban areas where space had always been limited, rubble occupied existing plots, forcing occupants and former residents to seek living space elsewhere. Those displaced people who remained in Port-au-Prince ended up in crowded camps. CRS built more than 800 T-shelters on private land in Terrain Toto upon the request of the Haitian government. The government negotiated with the landlord of Terrain Toto to obtain two years' free occupancy rights for the earthquake-affected population.

Establishing this temporary settlement an appreciable distance from the population's place of origin created challenges for the community-based recovery process. The "temporary" occupancy agreement did not encourage residents to invest in improving their living conditions, their houses or their community's infrastructure. Instead, it encouraged a slumlike living environment.

Lessons

- Whenever possible, avoid a two-phased shelter and settlement strategy. Do not create a temporary settlement on "borrowed land" and then go on to create a new permanent settlement or rehabilitate original neighborhoods.
- As soon as possible, focus on helping affected communities return to their places of origin. This has been an effective strategy in Port-au-Prince, but the process is complex. It involves investing more time, effort and money in significant social mobilization efforts.
- Encourage the government to provide early urban planning decisions and directions as well as clarification about permanent reconstruction housing standards (e.g., space standards, structural standards multistory options, decongestion, basic infrastructure).

POPULATION DENSITY

View of Solino. *Photo by Seki Hirano/CRS.*

Questions: What was the urban population density before the disaster? What is the target population density for the T-shelter phase? What are the implications of this data? What plot sizes exist in the affected area? How should these plot sizes affect T-shelter design? If the plots are very small, should we consider a menu of different approaches regarding materials, technical assistance, and cash or vouchers for shelters?

Pre-earthquake houses in Port-au-Prince were mostly two- or three-story structures in informal settlements and formal neighborhoods. Within informal settlements, plots were irregularly shaped and as small as 12 feet by 12 feet. CRS T-shelters are only single-story structures. This leads to an urban population density that is much less than it was before the earthquake. Although approximately 200,000 people died because of the earthquake, this does not necessarily translate into a corresponding decrease in population density. Unclaimed land and buildings have lain unoccupied since the earthquake; property restitution will take time.

The Haitian government and the Shelter Cluster now need to agree on a minimum urban space standard. The discussion will be about what Haitian families deem sufficient, what we "the international community" consider to be the minimum required living space and what the Haitian government believes is achievable. Awareness of typical pre-earthquake house sizes will be essential to ensure that there is sufficient square footage. Stakeholders will also need to consider the practicalities of multistory dwellings (e.g., earthquake-resistant construction, connections for utilities, ownership issues).

Lessons

- Housing is elastic. Every house that was destroyed does not necessarily need to be rebuilt. Houses can be subdivided so that more families can live in the remaining houses.
- Programs that are based on rental subsidies can be successful even when the housing stock is severely reduced. To cope with the new situation, people might be willing to live in smaller spaces. Landlords might also be willing to live in smaller spaces in order to rent out their remaining space.
- Instead of paying rent to landlords on behalf of beneficiaries, consider providing rent subsidies directly to the beneficiaries. This will allow beneficiaries to negotiate rent prices themselves. If some beneficiaries want a living space that is bigger or better than the subsidy would allow, the beneficiaries can supplement the subsidy with their own money. If beneficiaries are able to negotiate more favorable terms with the landlord, the beneficiaries can keep the difference. This reduces inflation in the rental market.
- Consider whenever possible a flexible shelter approach, in which cash or voucher programs help households rebuild. (CRS adopted this approach elsewhere, including in West Sumatra during 2009.) This will enable families with small plots to build a T-shelter. It will also give multiple families the opportunity to pool their resources and build larger structures.

RUMORS

Rumors complicated CRS' T-shelter programs. *Photo by Benjamin Depp for CRS.*

Questions: What are the sources of information the community relies on? Radio, TV, word of mouth, community leaders, churches? How can communities share information with agencies? How can agencies proactively share information to preempt rumors that are linked to program activities and beneficiary selection processes? What is our plan to address misinformation? What partnerships are important to communicate effectively?

Rumors in Port-au-Prince affected the progress of the T-shelter program. There were widespread rumors such as "If you receive a T-shelter, you will not be able to apply for a U.S. visa, or [your visa] will be taken away." The assumption was that Haitian citizens who own a T-shelter do not need to go to the U.S. anymore because they now have a "house" in Haiti. This rumor has no basis in fact. Unfortunately, the rumor influenced some families' decisions about whether to apply for a T-shelter.

In the absence of any clear repudiation of the rumor from either the Haitian government or the U.S. embassy, CRS added the following message to all registration forms: "CRS does not share information with any embassy and there is no link between the CRS T-shelter program and you being able to travel." In addition, CRS developed a flyer that was distributed on *tap-taps*, small local buses that circulate widely in all of CRS' implementing communities in Port-au-Prince. An evaluation showed that this campaign had positive effects. The rumor dissipated.

The T-shelter program was hindered by another local rumor: "The first night you sleep in a T-shelter, you'll get a *666* on your forehead." The *666* is a biblical reference to the devil. Although CRS told people that the rumor was not true, some Haitians were still worried and ended up sleeping outside their T-shelter for a while after receiving it.

Lessons

- Develop a clear information dissemination strategy in collaboration with the government and other stakeholders.
- Communicate frequently with the community through multiple media. Repeat messages.

RENTERS AND OWNERS

Questions: What were the estimated percentages of renter- and owner-occupied properties prior to the disaster? Is there a strategy in place for renters who have lost their tenancy? Are there any rental subsidies? What are the acceptable forms of habitation for renters during the emergency phase, the transitional-housing phase and the durable-housing phase? What is the government's strategy to rebuild housing stock, especially rental stock? Would supporting host families be an effective option to create rental accommodations? Can the agency use the T-shelter assistance program as leverage to obtain rent-free land for T-shelters?

A renter in Christ Roi. *Photo by Seki Hirano/CRS.*

In urban Port-au-Prince prior to the earthquake, renters were a large portion of the population. The destruction of over 80,000 buildings and the damage to 120,000 units reduced the rental housing stock and in many places increased the asking price for rent. Tenants whose houses were destroyed had to seek alternative shelters.

CRS advocated for unimproved land to be given to former renters. In some cases, CRS offered T-shelters to land owners, but only if they agreed to allow other displaced people to set up T-shelters on their land free of charge for one year. This negotiating technique was effective early in the program; however, other agencies did not require land owners to take on displaced people or renters with T-shelters in exchange for receiving a T-shelter themselves. This weakened CRS' position during later stages of the program. More coordination between agencies would have helped to address this situation. Lastly, some owners were worried that they might not be able to recover their land despite legal agreements. These owners thought that T-shelter occupants might feel that they have squatters' rights. Some owners were so worried about this possibility that they chose not to work with CRS.

The Haitian government's rental subsidies program began approximately 18 months after the earthquake. The rental subsidy program offered a set monetary amount to households, but it was up to individual households to negotiate fair rental rates with landlords. Thus, beneficiaries worked hard to gain the best rate possible so they could retain a portion of the subsidy for living expenses. This policy helped to keep rental rates stable.

Some displaced people moved back into their unsafe, unrepaired or officially condemned homes because their fears subsided over time or they were tired of living under a tarp or tent. Some displaced people unwisely chose to move into rental units where landlords had made cosmetic changes but had not addressed structural issues.

Lessons

- Housing stock is elastic. Every house that was destroyed does not necessarily need to be rebuilt. Houses can be subdivided so that more families can live in the remaining houses. Agencies can work with land owners to create win-win situations.
- People will eventually move into damaged and unsafe houses if their fears dissipate, if they have no other choice or if owners trick tenants by making repairs that are merely cosmetic. Ongoing efforts need to be made to educate the population about the dangers of moving into unsafe housing.

BENEFICIARY SELECTION

Questions: Do the beneficiaries have occupancy rights to a plot of land? Who are the most vulnerable people? Which segment of the affected population has the least capacity to recover? Could we develop various levels of responses based on specific vulnerability criteria? What criteria are required for beneficiaries to receive T-shelter assistance? Engineering criteria, environmental safety criteria? What options exist for the most vulnerable? What programs are needed to target their needs? What will happen to renters and squatters who do not own land?

Vulnerable people were scattered throughout the city. Each dot in the photo represents a T-shelter beneficiary. *Image from ArcGIS*.

In Port-au-Prince the heterogeneity of the population and the dispersal of vulnerable communities throughout the urban area made targeting beneficiaries a complex task. CRS learned that land identification takes much more time in an urban environment.

VULNERABILITY CRITERIA

In July 2010, CRS initially targeted every household that had lost its home in the earthquake. Over time, CRS narrowed its targeting criteria to gradually select the most vulnerable households. CRS ranked vulnerable households based on the following criteria:

- The household includes a person who is physically or mentally disabled.
- The household includes a woman who is pregnant or nursing but who does not have a husband.
- The household includes an elderly person who is at least 60 years old.
- The household includes a person with a chronic illness.
- The household includes only one parent.
- The household has more than three children who are younger than 5 years old.
- The household is run by an orphan.
- The household has five or more children living together.
- The household has one or more breadwinners who are unemployed.

ENGINEERING AND ENVIRONMENTAL SAFETY CRITERIA

CRS allocated T-shelters to beneficiaries who had the right to occupy a suitable parcel of land. The land had to be not only large enough for the T-shelter but also far enough from dangerous structures, unstable ground, areas that are prone to landslides, flooding and other environmental risks.[2] It was important for site inspection engineers to make tough decisions about where to build, despite pressure from the population. Some of the most vulnerable people had temporary occupation rights to plots that were too small for even a 12 foot by 12 foot T-shelter.

2 Beneficiaries could provide one of several documents as proof of their right to occupy land and construct a T-shelter. See the chapter titled “Land Occupancy” for more information.

Lessons

It is important to have a clear and concise beneficiary selection process (with criteria) at the outset of the program. This will result in

- more clarity for staff and communities about how people are selected,
- less difficulty in following up with individuals and families about registration and eligibility and
- less risk of fraud associated with the selection process and easier ways to investigate allegations.

RUBBLE TO RECONSTRUCTION

The Rubble to Reconstruction (R2R) initiative turned the challenge of debris removal into an opportunity for employment and rebuilding by providing sustainable livelihood opportunities. Entrepreneurs and their employees made money by turning rubble into marketable commodities, such as sand, gravel and cement blocks. These materials were then used to rebuild Haitian neighborhoods.

The United Nations estimates that the earthquake created 10 million cubic meters of debris in Port-au-Prince. The process of rubble removal has been slow and expensive due to the poor road infrastructure, the obstacles that obstructed the roads leading to many rubble sites, the shortage of heavy equipment and the remote location of the approved dumping site. Most debris removal efforts have focused on collecting debris and trucking it to official landfills for a cost of about US$290 per trip—an inefficient and expensive operation. In contrast, the R2R program helps participants collect the rubble, transform it into construction materials and sell the materials to builders.

CRS has been the primary buyer for the first round of R2R entrepreneurs. The agency has used the recycled materials to construct temporary housing and latrines. Each entrepreneur has generated an average of US$1,735 in monthly revenues from direct sales to CRS alone. These revenues translate into a profit of US$80 to US$200 per month for each of the entrepreneurs. Because CRS provided loans to the entrepreneurs so they could purchase the rubble-crushing equipment, the entrepreneurs sell their products to CRS at discounted prices. Each transaction with CRS offsets the loan and helps them to become independent owners and operators of the equipment.

The first entrepreneurs in the project knew that CRS would buy their products to use in the T-shelter program. Although new R2R participants are also able to produce and sell blocks to CRS for the construction of latrines and other structures, they are responsible for marketing the majority of their products and pursuing their own sales opportunities. CRS is facilitating this process by adding a marketing course to the program.

KEY ACHIEVEMENTS

- Participants recycled rubble into more than 9,300 cubic meters of sand and gravel and 24,000 concrete blocks within 18 months.
- The sand, gravel and concrete blocks were used to build foundations for more than 4,500 T-shelters and 100 permanent latrines.
- Eight hundred people gained short-term employment.
- Ninety percent of entrepreneurs have reported profit from their R2R business.

PRIMARY CHALLENGES

- **Equipment availability**. The project required manual, durable rock crushers from Swaziland. It took six months for all 31 rock crushers to arrive and to clear customs, which was in disarray after the earthquake.
- **Rainy season**. Production decreased during the rainy season. The rains caused the rubble to become damp, which made it harder to sift and separate the sand and gravel.
- **Political environment**. Delays within Haitian government ministries have limited the extent to which the Haitian government and its national laboratories have been able to test construction materials and establish new building construction regulations, including block strength requirements.
- **Payment delays**. CRS programming and management quality systems are rigorous but sometimes slow. R2R entrepreneurs had to wait a long time to receive payment for materials sold to CRS. Consequently, they had trouble paying their business expenses on time. Some entrepreneurs lost confidence in CRS as a partner.

Lessons

- Decide early in the project whether it is a project for rubble removal and construction, a livelihoods project or both. In Haiti, CRS spent over US$270,000 on equipment for 45 entrepreneurs. In the first 18 months of the project, CRS also saved approximately US$200,000 in transportation costs for rubble removal and an additional US$15,000 in sand, gravel and blocks. The initiative started as a rubble removal and construction project, but it also became a livelihoods project that created 45 sustainable businesses and more than 200 permanent jobs.
- Some equipment may be a large investment. Search for a balance of quality and availability. CRS purchased outstanding rubble crushers, but they were slow to become available.

(continued on page 18)

STEP	1 Identify salvageable and reusable materials	2 Identify ways to use the materials	3 Procure equipment	4 Identify interested entrepreneurs and donate equipment
QUESTIONS	• What are the materials? • How much is available? • What is currently being done with the materials?	• Are the materials currently usable? If not, how should they be modified? • What equipment is needed? • How should the materials be tested?	• What type of equipment is required? • Where is the equipment available? • What are the customs requirements (if any) and the estimated delivery time?	• Who in the community would be willing and able to set up an R2R business? • What should be the contractual requirements?
CRS HAITI'S EXPERIENCE	The earthquake produced 10 million cubic meters of debris in Port-au-Prince. The rubble mainly consisted of concrete blocks, stones, bricks, timber and reinforcement bars. Most debris removal efforts focused on collecting the rubble and bringing it to a dump outside the city.	The team identified the potential use for the rubble for block production and hard core material.	A mobile manual rock crushing machine was deemed the most appropriate technology based on the project specification and objectives together with the outlook to support a high number of livelihoods. However, the only suitable machine was produced in Swaziland and took considerable time to ship and to clear customs.	CRS agreed on the following conditions with entrepreneurs from the community: • They will employ local labor. • They will sell to CRS projects at a reduced price until 50% of initial cost is recovered, and CRS will guarantee orders as long as CRS shelter/WASH projects continue.

Photo by Seki Hirano/CRS.

Photo by Michael Augustin/CRS.

Photo by Seki Hirano/CRS.

Photo by Seki Hirano/CRS.

STEP	5 Offer training	6 Entrepreneurs start businesses	7 Monitor quality of goods and buy goods from entrepreneurs	8 Develop entrepreneurs' marketing capacities
QUESTIONS	• Is the technology new to the entrepreneurs? • Are technical and business training sessions necessary?	Are the businesses maximizing their outputs?	Is it important to monitor the businesses' progress and the quality of their goods?	• What other support may be required for the businesses to provide sustainable livelihoods? • When will the rubble run out? • Will the market become saturated?
CRS HAITI'S EXPERIENCE	CRS offered training to entrepreneurs in both technical skill capacity and business management.	Once the R2R business was up and running, entrepreneurs supplied construction material to CRS shelter program with hard core, sand and gravel.	Material strength tests showed that the products were suitable for walls that are not load bearing and for hard core for floors of T-shelters. CRS staff continued to monitor the progress and quality of the outputs.	As CRS T-shelter program came to an end, CRS offered help in identifying future buyers. CRS connected the entrepreneurs to other organizations.

Photo by Michael Augustin/CRS.

Photo by Benjamin Depp for CRS.

Photo by Michael Augustin/CRS.

Photo by Seki Hirano/CRS.

Lessons ("Rubble to Reconstruction," continued)

- Work with government ministries, the U.N. Human Settlements Programme (UN-HABITAT), construction companies, NGOs and other relevant partners to establish clear standards for construction materials, and share these standards with the communities. This will incentivize the R2R entrepreneurs to make blocks that meet standards and increase demand for these blocks, thereby increasing the profitability of R2R businesses and improving the construction quality.
- Think beyond rubble. Link R2R entrepreneurs to sources of rock and river sand so they can diversify their product base and continue their businesses after the rubble is gone.
- Think beyond sand, gravel and blocks. Encourage R2R entrepreneurs to produce items other than blocks. Street stones, concrete benches and tables are just a few of the options. Diversification will improve the chances that their businesses will succeed.
- Make payment cycles to entrepreneurs for sand and gravel more frequent, and deposit payments in accounts that beneficiaries can access via mobile phone.[3]

3 CRS Haiti had success with T-Cash, a mobile phone banking system. Beneficiaries reported high levels of satisfaction with T-Cash. Another option for future emergencies is M-Pesa, a cash transfer system for mobile phones. M-Pesa is popular in Kenya. For an analysis of CRS Haiti's T-Cash experience, see Brian MacDonald with Hernely Gedeon, *Banking With Mobile Phones in Haiti: A Report on a T-Cash Pilot Project* (Baltimore: Catholic Relief Services, 2012), http://www.crsprogramquality.org/publications/2012/2/3/banking-with-mobile-phones-in-haiti-a-report-on-a-t-cash-pil.html.

Rubble to Reconstruction in action. *Photo by Benjamin Depp for CRS.*

DANGEROUS STRUCTURES

Two years after the earthquake, people continue to occupy unsafe buildings. *Photo by Seki Hirano/CRS.*

Questions: Are there dangerous structures that remain standing? Are they occupied? Are the occupants renters, squatters, owners? Why do people risk living in or near dangerous structures? How can we help occupants improve their safety? Will there be a national strategy to demolish dangerous structures?

A very large team of government engineers visited each building in the area to conduct rapid structural evaluations. The engineers marked the buildings with color codes: red (unsuitable for habitation), yellow (repairable) and green (safe to occupy). The "red" buildings required either extensive repairs or demolition.However, the government did not provide information about whether it would offer assistance for repairs or demolition.[4] Many dangerous structures still remain almost two years after the earthquake, and people who do not have other good options still live or work in these unsafe building.

There are various reasons why these dangerous structures remain:

- The owner's identity is unknown, and perhaps the owner's entire family is deceased.
- The owner is living abroad and has not returned.
- The owner intends to make repairs.
- The owner has decided to wait for assistance.
- The owner does not have the funds for demolition and reconstruction.
- The demolition requires special heavy machinery.

This situation not only discourages owners from returning to their properties but also creates dangerous risks to the neighboring population. Some of these structures would surely collapse during the slightest of earthquakes.

Lessons

- The government's "red" category *demolish* or *require significant repairs* created confusion and allowed buildings that should have been demolished to remain standing. Consider a four-color method that includes a category for mandatory demolition. (For example, green means *safe*, yellow means *repair*, orange means *significant repairs* or *demolition required* and red means *demolition is mandatory*).
- Demolition usually is not in the owner's interest, so the government needs to be firm and clear about dangerous structures.

4 Further confusion occurred when the Ministry of Public Works acquired detailed repair and retrofit plans for a large number of yellow houses. These plans did not result in any actual repairs or retrofits.

T-SHELTER DESIGN

A 3D design for a 12-foot by 16-foot T-shelter. *Image by Elmer Naluz/CRS.*

Questions: What traditional construction skills exist locally? What local materials are available, and is it possible to use them? If not, what would we need to do to import materials? Which materials and types of construction would give beneficiaries the most flexibility for future adaptation? Is it important for the T-shelter to be easily relocatable? What would be an acceptable size for the T-shelter? What security measures must the T-shelter include? What activities must the T-shelter accommodate (e.g., sleeping, cooking, bathing, hand washing, earning a living)? How can representatives from different vulnerable groups be involved in designing the T-shelter?

INITIAL DESIGN

CRS Haiti initially used a design similar to the one that CRS Sri Lanka used after the Indian Ocean tsunami of 2004. The Sri Lanka design took the hurricane season into account by using galvanized iron straps to tie the trusses to the walls and the walls to the foundation. It also included cross-bracing for greater stability in case of further seismic activity The design had a 12-foot by 16-foot footprint, which included a porch. CRS Haiti's T-shelter design has the following features:

- The footprint of the structure is 12 feet by 16 feet for a total of 192 square feet (17.8 square meters).
- The structure has three frames connected by side panels and partially sheathed in water-resistant plywood.[5]
- The lumber is treated with a preservative to inhibit insect infestation and rot. The preservatives are free of arsenic and have low toxicity.
- The rear half of the shelter is fully sheathed in plywood. The roof extends over a 4-foot-high front wall, leaving a gap to provide light and ventilation. The open areas have a tarp that can be lowered for additional shelter and privacy.
- The floor is a concrete mud slab with six piers. This anchors the T-shelter when wind threatens to lift it.
- The roof is reinforced by galvanized iron straps, which help to prevent the roof from blowing away.
- The shelter is designed to be earthquake resistant and hurricane resistant, but it is not designed to withstand direct exposure to a storm that is stronger than a category 1 hurricane.

5 Three T-shelter designs were used under the OFDA agreement. CRS produced 8,500 units. Habitat for America and Cordaid, using two different designs with approximately the same square footage but different materials, produced 2,000 and 1,850 T-shelters, respectively. Habitat for Humanity's T-shelters were erected in a suburb of Port-au-Prince. Cordaid's T-shelters were erected outside Port-au-Prince and its suburbs.

REVISED DESIGN

CRS Haiti started constructing T-shelters on-site; however, this proved to be a challenge because of the limited space and dispersed target households. This approach took too much time, and it was difficult to monitor the quality. The program decided to prefabricate the components in a prefabrication yard and then assemble the parts on-site.

This meant that the design needed to be revised for prefabrication. The T-shelter was divided into easy-to-handle components that were designed for standard plywood sheets. The components included wall panels, trusses, doors and shutters. The size was reduced to a 12-foot by 12-foot area in order to offer T-shelters to those with smaller plot sizes. In response to feedback from the community, the covered porch was changed to an enclosed living space, which beneficiaries felt was more secure.

The original ventilation holes beneath the roof let in too much rain. Staff observed that community members often covered up these holes. *Photo by Niek de Goeij/CRS.*

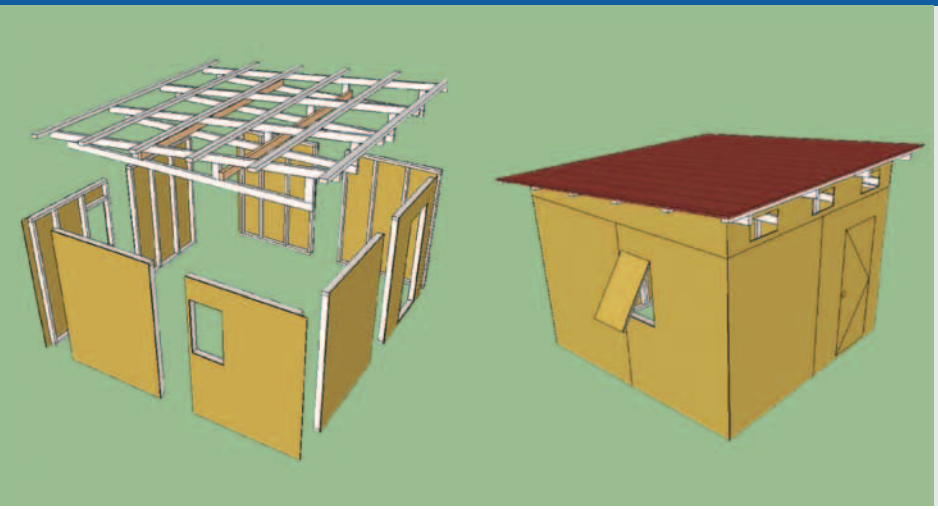
CRS Haiti changed the square holes to triangular holes so that beneficiaries would not need to choose between fresh air and dry shelters. *Photo by Niek de Goeij/CRS.*

Lessons

- Design the T-shelters according to the materials' dimensions to reduce wastage.
- Keep hazards in mind when designing the T-shelters. In Haiti, the primary natural hazards are flooding and strong winds.
- Consider security and lifestyle preferences when creating the design.
- If there is room in the budget, consider adding solar panels to the roof. Solar panels would help provide power for lights and fans.
- When prefabricating components, consider whether it will be difficult to access the plots and whether plots are accessible only by foot. Carefully consider the size and weight of the panels.
- Use a foundation design that can accommodate exterior walls made out of blocks. This could help beneficiaries save time and money if they decide to change the plywood walls into block walls in the future.
- Consider precasting the T-shelter foundation. This can help to expedite construction and can maintain quality in accessible areas.
- Closely monitor how community members modify the T-shelters. Learn community members' preferences by observing whether they consistently make the same changes. Then incorporate the changes in the design. In the case of the CRS Haiti shelter, the shape of the ventilation holes beneath the roof of the shelter were changed from squares to triangles to reduce the amount of water that comes in during heavy rains. The designers made this change because community members were closing off the old ventilation windows. Likewise, CRS Haiti replaced window tarps with wooden shutters to improve security.

Photo by Benjamin Depp for CRS.

T-SHELTER CONSTRUCTION



Questions: Should the shelters be constructed at the site or assembled from prefabricated components at the site? What role can the beneficiaries play in constructing the T-shelter? How can we establish a community-led process for T-shelter construction? What would be the most efficient way to implement the program? When and how will we seek feedback about the design? How will we revise the design to utilize beneficiary feedback and knowledge gained through implementation?

A 3D design for a 12-foot by 12-foot T-shelter. *Image by Elmer Naluz/CRS.*

The prefabrication yard's rate of average daily production peaked at 40 units per day. The yard employed 136 workers in a 50 meter by 100 meter site. Minor accidents (such as hammered fingers) became more frequent as the workload increased. Thus, 35 units per day became the average rate of production for the prefabrication yard. This was in line with the CRRP area teams' capacity to assemble 30–40 shelters per area each week.

The prefabrication yard was set up for one production line, which meant that it was the most efficient to produce a single model for an extended period. CRS offered two T-shelter models. The larger 12-foot by 16-foot model was produced first. The smaller 12-foot by 12-foot model was produced toward the end of the program. In hindsight, perhaps two parallel production lines would have been a viable option.

QUALITY MANAGEMENT FOR T-SHELTER CONSTRUCTION

In order to provide the beneficiaries with the best shelter possible within the given parameters, CRS implemented a formalized Construction Quality Management program. The program included producing technical drawings, plans and specifications so the finished products would be more consistent.

The Construction Quality Management program resulted from the combined efforts of CRS, partners and contractors, who wanted to ensure that construction proceeded according to the contract, plans and specifications, and that the construction occurred in a safe work environment. In the program, quality is defined as conformance to the plans, specifications and schedule. The program has two prime components, quality control and quality assurance.

Quality control was the responsibility of the partners or contractors who constructed the T-shelters. The partner or contractor provided a quality-control manager who provided on-site monitoring and instruction to the crews regarding various mandatory technical specifications and proper placement of T-shelters, proper placement of concrete foundations and floors and proper assembly of T-shelters from the kits. The quality-control manager ensured that the T-shelters were built according to the plans and specifications. If the partner or contractor assigned a new quality-control manager, the outgoing manager had to train the new manager. The partner or contractor had to have a quality-control plan that included contacts for safety and quality assurance issues. If parts of the T-shelter kits were damaged or missing, staff was supposed to notify the CRS field engineer promptly.

Quality assurance was the responsibility of CRS. CRS field engineers verified that the sites were ready for construction. They also conducted quality-assurance inspections when T-shelters were completed. They pointed out any deficiencies, which were referred to the partners and contractors for immediate attention. When the field engineers completed the inspection, the building became eligible for payment when invoiced. The field engineers assisted in training the partners' and contractors' quality-control representatives. When they were on-site, field engineers interacted only with the partner, contractor, quality-control manager or superintendent. Only the contracting officer had the authority to change the contract. The field engineer assessed partner and contractor reports of damaged or missing parts and arranged for replacements if the assessment confirmed the claim.

Prefabrication Yard Step-by-Step Guide

STEP	1 Choose either on-site production or prefabrication	2 Create suitable T-shelter design and bill of quantities	3 Obtain appropriate land and secure land rental agreement	4 Create secure and safe compound and working conditions
TIPS	• On-site construction can offer communities more employment opportunities. • Prefabrication can offer greater speed and more quality control—for less money.	If the parts will be prefabricated, the design needs to be simple and systematic, taking into consideration the materials' dimensions to avoid wastage and to make the T-shelters easier to assemble.	• Choose a strategic location for the prefabrication yard. • Consider how long the land will need to be rented.	• Security is essential for workers and materials. • Create walls, fences and gates. • Hire security guards for 24-hour protection. • Maintain good relationships with the neighboring community.
CRS HAITI'S EXPERIENCE	CRS started the T-shelter program with on-site construction. But sites were too far apart, too hard to access and too small for easy construction activities. Each site needed tools and an engineer for quality control. Therefore, CRS opted for the prefabrication route.	The shelter design was modified to suit the prefabrication method. Key considerations included the ease of manufacturing and transporting prefabricated materials and the difficulty of constructing the T-shelters on site. CRS used a panel system to take advantage of standard plywood dimensions.	CRS chose a parcel of land close to the shipping port with easy access to the target neighborhoods. • Choose a strategic location for the prefabrication yard. • Consider the production calendar, length of project and how long the land will be needed. • Consider whether additional funding could produce more units and prearrange favorable terms for an extension of the rental agreement.	CRS found that the following precautions improved security and working conditions: • Lock up small materials such as nails. • Create warehouses that are appropriate for the materials. • Set up two "layers" of security by hiring guards from two companies. • Hire a first-aid nurse. • Raise awareness of HIV and AIDS. • Offer accident insurance to workers.

Photo by Herb Combs/CRS.

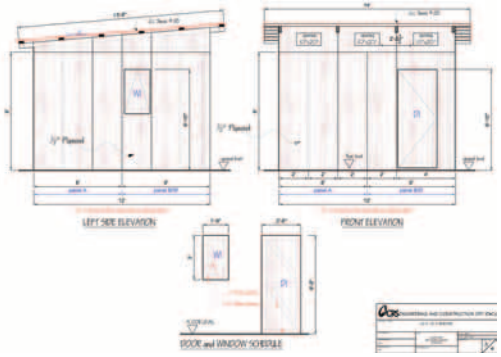


Photo by Elmer Naluz/CRS.

Image from Google Earth.

Photo by Herb Combs/CRS.

STEP	5 Make schematic flowchart for production of components	6 Create templates and procedures for prefabrication and assembly	7 Create a supervision structure and employ local workers	8 Set up processes for quality control, tracking & accountability
TIPS	• Identify the most efficient process for production. • Organize the yard accordingly.	• Create easy-to-use templates and procedures. • Use the templates and procedures to reduce the margin of error in construction.	• Decide on the type of supervisors required. • Decide what skill level the workers need to have. • The recruitment process should be gender sensitive. • Consider whether staff employment opportunities will exist after the project.	• Set up clear lines of responsibility. • Perform quality control continuously. • Create and keep track of waybills. • Monitor the inventory to prevent shortages, ensure sufficient in-flow of raw materials for upcoming unit prefabrication and ensure out-flow of prefab unit production. Match waybills and the remaining prefab stock.
CRS HAITI'S EXPERIENCE	The prefabrication yard was divided into sections for • delivery and unloading of materials, • storage, • production and assembly and • storage and shipment.	Accurate and easy-to-use templates reduced ambiguity. This increased the rate of production. It also allowed CRS to hire local community members who did not have experience in construction.	CRS employed a yard manager who had a construction background and was capable of managing up to 135 workers. Other key positions were master carpenter and inventory and loading supervisor. CRS greatly benefited by employing an equal percentage of men and women as workers. There was no difference in output.	At the yard, monitoring and quality control were consistent, as the production occurred in one place. Waybills were created for each T-shelter. The waybills were signed at the yard by the loading supervisor and the driver. Then the beneficiary signed the waybill upon delivery. Staff checked the inventory every month.

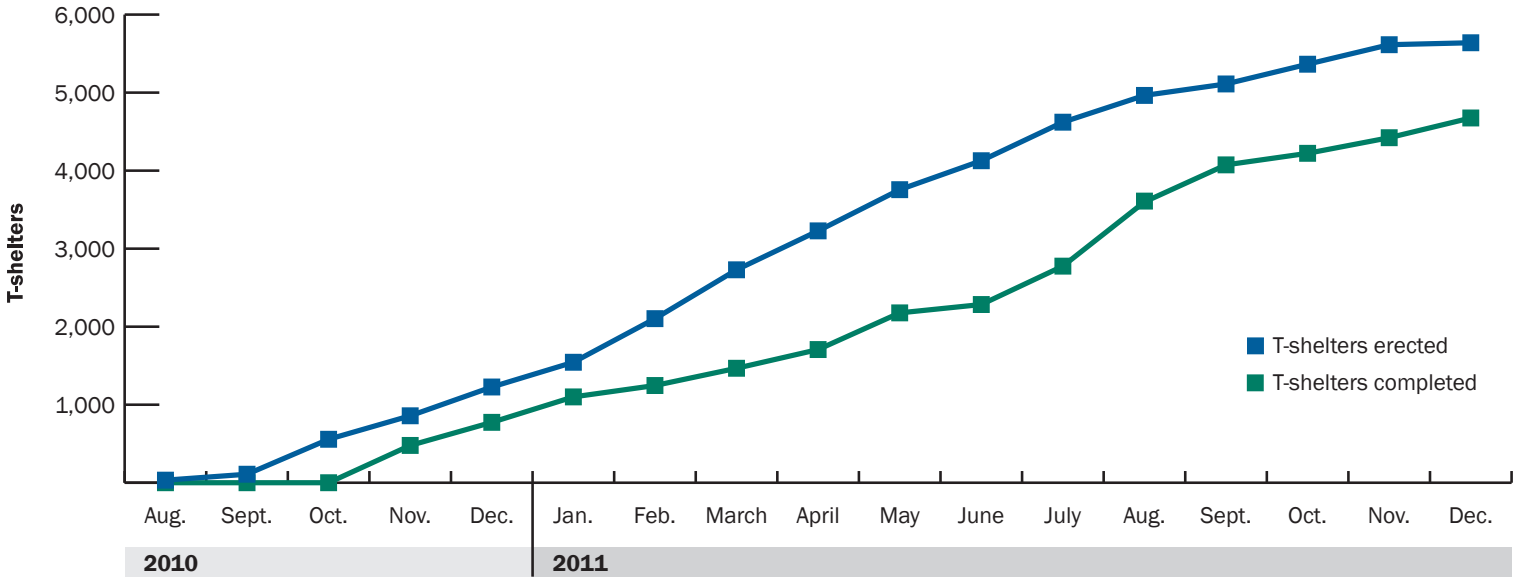
Photo by Benjamin Depp for CRS.

Photo by Seki Hirano/CRS.

Photo by Seki Hirano/CRS.

Photo by Benjamin Depp for CRS.

T-shelters Constructed (Cumulative)



Lessons ("T-shelter Construction," continued)

- The quality-control management structure provided checks and balances during construction. CRRP area teams focused mostly on plot preparation, social mobilization and beneficiary selection. Most team members did not have extensive knowledge of construction practices. The quality assurance provided by CRS' E&C Department led to consistent quality in construction. It also helped to strengthen partners' capacity. The frequent contact with partners and contractors led to good communication about options for change and improvement. This type of quality control has been replicated in other CRRP projects, including WASH projects and community infrastructure programs.
- When designing prefabricated elements, think about whether the pieces are the right size for standard materials, whether it will be easy to handle the materials in the construction yard and whether it will be easy to transport the pieces through narrow streets.

PROCUREMENT AND LOGISTICS

Questions to ask: What is the extent of our moral obligation to spend funds in Haiti? Should we pay more for Haitian materials to help the local economy? If so, how much more is acceptable, and who decides? If we purchase materials locally, would we have more flexibility to adapt T-shelter designs in response to feedback? How long would it take imported materials to arrive and clear customs? What is the capacity of the port authorities in clearing goods? What would we do if warehouse space becomes limited? What is our procedure for high-value procurement? How long will this procedure take? Is there an emergency procedure for rapid procurement? How do these considerations fit with our organization's procurement policy and donor guidelines?

Space limitations made construction more difficult.
Photo by Louis Evens Augustine/CRS.

Construction projects generally require large amounts of construction materials. A key challenge in Haiti was that construction materials such as timber were not available at scale. This was partly due to the fact that Haiti is on an island. The only option was to import construction materials. Initially, the shipping port was open for three months; however, in April 2010 the port authorities and Inland Revenue imposed strict import procedures. The import taxation system was overburdened by the volume of shipments that arrived at the port. This led to complicated and time-consuming paperwork and major delays. At times, it took more than three months for the goods to be cleared.

Procurement of construction materials at this scale normally requires a large sum of money. During emergencies, the materials are also needed urgently. It was initially challenging to work under the limitations of the country program procurement system for two reasons: there was a low spending ceiling on this high-volume project, and the procurement process was cumbersome. To address these challenges, CRS increased the in-country spending authorization. (The new limit was $250,000 for the country representative.) CRS also developed a more streamlined procurement process, including more local purchasing and sole-source procurement arrangements because of limited numbers of suppliers with available product.

Limited space in Port-au-Prince meant that it was not possible to have a large centralized warehouse near the main office. CRS Haiti had to store the materials in several warehouses throughout the city, making logistics and monitoring more challenging.

Lessons

- For major construction projects, require large procurements, consider spreading the risk by sourcing the materials from different vendors and bring the materials into the country in a variety of ways to have multiple supply chains. Consider sourcing through local vendors, who have experience managing the intricacies of local customs and revenue systems.
- Be firm and clear with local government about the need to expedite customs. Donors may be able to help.

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Lessons ("Procurement and Logistics," continued)

- Give cash advances to key staff. In Haiti, having cash on hand helped to quickly resolve small problems that would have caused major bottlenecks in production. For example, staff might need to purchase drill bits, hurricane straps or a couple bags of cement on short notice. Cash advances should be commensurate with the scope of the emergency and the person's responsibilities.
- Consider including the partners' or contractors' costs for transporting shelters to construction sites. Local contractors are often capable of mobilizing cost-efficient transportation. This greatly reduced CRS' logistics costs and related expenses.

CRS Haiti implemented processes for quality control, tracking and accountability. ***Photo by Benjamin Depp for CRS.***

ACCOUNTABILITY, MONITORING AND EVALUATION

Questions: How many of the decisions can beneficiaries help to make? How much can we tell beneficiaries about our design decisions? How can we share other information about the program so people understand the basics? How can different vulnerable groups be involved in designing the shelters, influencing the program, and participating in the implementation? What complaint and response mechanism should we set up? What methods will be used to collect feedback from communities—including men, women and different vulnerable groups—throughout the program? Is there a risk of sexual abuse or exploitation? If so, how can we reduce it?

ACCOUNTABILITY

CRS Haiti defines *accountability* as "working with communities, program participants, partners and civil society in order to treat them with respect, dignity and mutuality, and ensure empowerment, subsidiarity and quality in all CRS programs."

In Haiti, CRS invested in being accountable to the beneficiaries as well as to the donors. The work started with the mobilization of *community animators* who were in daily contact with the beneficiary community. CRS set up a two-way communication system, including community meetings, information boards, text messages, beneficiary agreements and face-to-face discussions. In addition, a telephone hotline was set up as a complaint mechanism so that we would hear from the community if we made a mistake. This feedback system brought the community and CRS together. It was essential to resolving issues.

CRS produced a maintenance manual, *Caring for Your Transitional Shelter: Essential Advice for Maintaining Your T-shelter*. This illustrated manual offers advice about how to maintain T-shelter durability by protecting them against water, wind and insects; what to do in the event of a hurricane or landslide; and how to take down T-shelters when families wish to relocate or build a more permanent home.

CRS conducted a beneficiary satisfaction survey to learn from beneficiaries about the impact that the project had on their lives.

MONITORING AND EVALUATION

CRS invested in new technologies such as ArcGIS to monitor the progress of the program. ArcGIS used GPS coordinates to plot each T-shelter beneficiary on a map. The map included beneficiary details and photos. This information will be useful for locating CRS' beneficiaries and for demonstrating the scale of CRS' response. To view CRS' ArcGIS map, visit http://bit.ly/v8tHoN. To learn how to set up a new map, contact Jose Rengel in CRS' Global Knowledge and Information Management team.

Lessons

- Accountability procedures may make CRS staff feel like they are being "audited" at first. Emphasize that accountability is the path to excellence.
- Ingrain in staff that each activity needs to include community members and partners. Participation needs to occur during each phase, including design and implementation.
- Be sensitive to advice from national staff about what information is safe to share and what information is not. In Haiti, for example, national staff was adamant that it would not be a good idea to share with the community the figures for program value and the per-unit cost of a transitional shelter. They anticipated that doing so would endanger field staff.
- When working with communities to explain or design activities, be clear about the project's scope and limits. For example, when CRS Haiti conducted a shelter satisfaction evaluation, we found that most of the criticism stemmed from unrealistic expectations. Some people wanted larger shelters, tile floors, glass windows, built-in latrines and other features that would have been too expensive for a T-shelter program.

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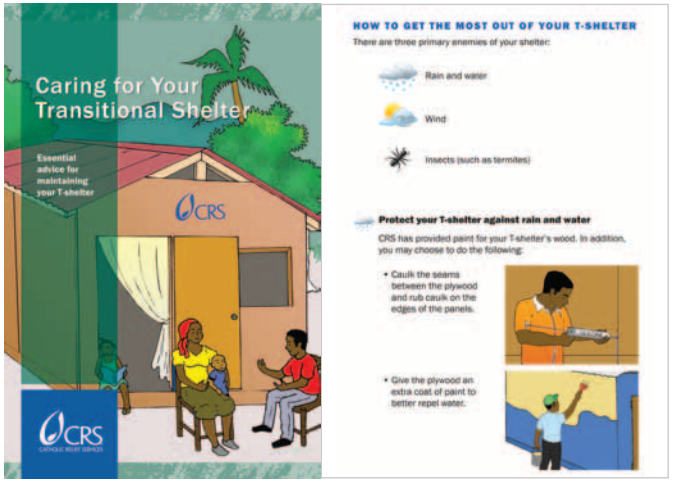

CRS Haiti published and distributed a short booklet about how families can maintain T-shelters.

CRS recorded each beneficiary's details and GPS position. *Image from ArcGIS.*

Lessons ("Accountability, Monitoring and Evaluation," continued)

- Keep all forms and processes simple and easy to understand for staff and community members. Make sure that all requirements—such as contracts, agreements and goods-received notes—are in place. Make sure that program participants receive evidence (a "token") if they have been selected for a service, and make sure that any contracts or agreements signed by CRS and a participant are signed in duplicate. The participant should receive a copy.
- Consider literacy issues. Whenever possible, use illustrations to convey information.
- Ensure that the project has enough staff for social mobilization and registration. There is no substitute for good relations with the community. They are built through sustained relations with staff who are available in the community.
- When possible, use mobile devices such as the iPad and iPod for forms and registration. This makes it easier to collect, store, analyze and map your data.

We wish to express our gratitude to the CRS Haiti country program for initiating this learning process and for openly sharing their experiences to expand the humanitarian sector's knowledge of urban transitional shelter responses. Thank you also to Niek de Goeij, Brian MacDonald, Ariel C. Sadural, Carl Stecker, Josh Tong and the shelter team for helping to prepare the manuscript.

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Cover photo: After the earthquake, CRS helped Haitians build transitional shelters in their original neighborhoods. This photograph shows a neighborhood in Petionville. *Photo by Benjamin Depp for CRS*.

Since 1943, Catholic Relief Services has held the privilege of serving the poor and disadvantaged overseas. Without regard to race, creed or nationality, CRS provides emergency relief in the wake of disasters. CRS works to uphold human dignity and promote better standards of living through development projects in fields such as agriculture, education, health, microfinance, peacebuilding, and water and sanitation.

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