

A.5 Dominican Rep. – 2012 – Hurricane Sandy

Case study

Keywords: Household items; Construction materials; Housing repair and retrofitting; Cash / vouchers; Training; Structural assessment.

Emergency: Hurricane Sandy, Dominican Republic.

Date: 24-26 October 2012.

Damage: 24,559 houses damaged, 200 houses destroyed.

People affected: 122,795 people.

Project location: Azua, Barahona, Monte Plata, San José de Ocoa.

Beneficiaries: 5,041 people.

Outputs: 949 households supported. 581 received NFIs, 368 received construction materials. Six collective centres were reinforced.

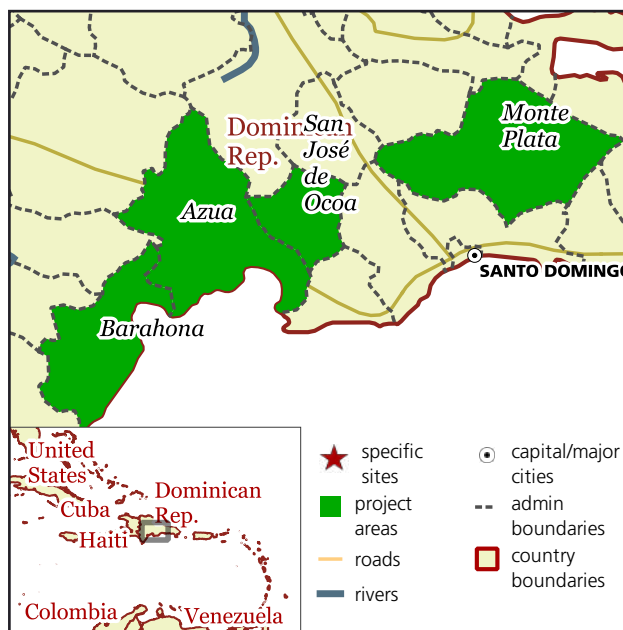
Occupancy rate: 95%.

Shelter size: 26.49m², about 40% of the size of the average home.

Cost per shelter /

household: NFIs: US\$ 116. Materials: average US\$ 205.

Total cost per shelter including project costs: US\$ 360.



Emergency timeline:

[a] October 2012: Hurricane Sandy hits.

Project timeline (number of months):

[1] March 2013: NFI distribution.

[2] Planning.

[4] Beneficiaries identified.

[8] Detailed damage assessments conducted and individual house plans developed.

[10] Safe shelter trainings for carpenters and masons.

[11] Final classification of aid package for each family.

[12] Distribution of materials.

[14] Project handover.

Project description:

An integrated early recovery project which combined a shelter response with WASH assistance and risk-reduction components. With the objective of assisting the most vulnerable families, NFIs and tailored shelter-repair kits were distributed through vouchers redeemed at local suppliers.

Technical assistance and training was provided to communities and local craftsmen to improve disaster-resistant construction techniques.

Emergency

a

Years

2012

2013

2014

Project (months)

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Strengths

- ✓ Beneficiaries and construction workers became more aware of the value of safe construction techniques.
- ✓ There was an effective introduction of new elements, such as hurricane strapping, into traditional construction methods.
- ✓ The project employed lessons learned from interventions in other countries in the Caribbean, and the project contributed to the organisation's wider "Safe Shelter" programme in the country.
- ✓ Growth of local businesses was stimulated.

Weaknesses

- ✗ Using first-time local suppliers caused delays in the organisation's internal administrative procedures for procurement of materials and goods.
- ✗ Software used in the evaluation was not made

available during assessment, complicating analysis.

- ✗ Some homes could not be reinforced, lowering the benchmark of the project. To compensate, collective centres were reinforced to provide safe places for everyone to go to during an emergency.
- ✗ Transportation costs were not completely accounted for, and some families had to reduce their expenditure on materials in order to pay for transport.

Observations

- Communities which the organisation had not previously worked with were less organised and slower to understand the aims of the project. They were also less receptive to projects with a risk reduction component.
- Local institutions were weak, reducing the ability to work jointly with them.



Situation before the disaster

Before the disaster the level of knowledge of safe construction amongst communities was limited. Many vulnerable families were living in low-standard shelters and the risk of flooding was the most frequent threat.

Roofs were not usually reinforced and often unsafe, with families using concrete blocks and tyres as counterweights to keep them in place during storms.

Roofs were typically covered in corrugated zinc sheets, with the frame and wall structures made from wood. Some walls were built out of a combination of mortar, wood and blocks and few were strong enough to resist damage by storms or earthquakes.

Situation after the disaster

Hurricane Sandy exacerbated this situation, with an estimated 24,559 homes affected, and 200 destroyed, in 215 communities across the Dominican Republic.

In mid-December 2012, the organisation confirmed that national rebuilding efforts had not reached half of the destroyed houses and around 500 houses were still partially damaged. Approximately 1,500 homes had received no aid to help

replace items which they had lost in the hurricane.

Shelter strategy

There was no specific strategy at government level for the shelter and housing sector. A more general response was undertaken in terms of road and infrastructure repairs and health-related measures.

In the four municipalities where the project intervened local authorities made efforts related to housing reconstruction. However, these construction works did not employ reinforcement technology such as diagonal bracing or hurricane straps.

The organisation's own strategy was divided into two phases: emergency and recovery. The emergency phase included the assessment of shelter needs and the distribution of NFIs.

Initially it was planned that the recovery phase would include the reconstruction of destroyed houses. However, due to lack of funding it was only possible to support work on partially-damaged structures that were structurally sound enough to be repaired.

The recovery phase consisted of distributing shelter kits and providing training on the use of hurricane straps, as well as a WASH response.

Project implementation

The project had a limited budget which could not cover full reconstruction or new housing. Instead, the focus was on reinforcement of shelters that were partially damaged. The project did not have the resources to rebuild destroyed homes or reinforce homes with severe structural damage.

To make sure that those families whose shelters could not be reinforced still had access to safe shelter in an emergency, the organisation also reinforced wooden collective centres using the same techniques employed for reinforcing houses.

The organisation met with the communities several times to explain the selection process and the aims of the project.

After the selection of beneficiaries was completed, the shelter component was articulated in various steps by sensitising the communities on:

- Risks related to unsafe shelter.
- Actions and construction techniques that could serve to mitigate those risk and reinforce houses.
- Care and maintenance of housing units.



The project included both practical construction training and the PASSA approach to Disaster Risk Reduction. Photos: Dominican Red Cross

A detailed house damage assessment of 1,182 houses was conducted by the organisation and 949 were deemed eligible for assistance. Individual shelter-repair kits for each house were developed to ensure tailored assistance based on the levels of damage, typology and construction materials.

Materials provided included the following, (not all were supplied in every case):

- Timber elements
- CGI sheets
- Hurricane straps
- Nails

Demonstration sessions on safe shelter as part of three-day trainings were conducted by the organisation's shelter specialists to inform communities and construction workers. Sensitisation was carried out before distributing the vouchers for firstly NFIs and then secondly construction materials.

Construction materials were prioritised for those whose homes were partially or completely destroyed, but some repair kits were also given to families whose wooden homes were intact but needed reinforcing.

The community was in charge of managing the repair process,

providing the labour and implementing the new construction techniques. They were guided by both the organisation's staff and the construction workers who had received training from the organisation. The quality of repairs and reinforcements was monitored.

A voucher system was used for the NFI part of the response. A voucher worth US\$ 116 was given to each beneficiary family and this could be redeemed at a supplier identified by the community itself.

The construction materials were also distributed through a voucher system, with each family receiving a specific voucher based on the individually-assessed costs and Bill of Quantities (BOQ) for repairing their homes.

Receipt of the voucher was subject to the presentation of a record of participation at one of the small community training sessions on safe shelter. The voucher also had an expiry date printed on it.

Beneficiaries were expected to cover the costs of transportation, though in some cases the organisation provided vehicles to transport the items if a deal could not be negotiated with suppliers.

However, in some communities the costs of transporting materials were high and the organisation was not able to support these communities, resulting in them having to

spend a smaller proportion of their voucher on materials in order to cover the transport costs.

Beneficiary selection

Beneficiaries were selected through a two-stage process. First, a "Community Census" was conducted amongst all those directly affected by Sandy. This information was then analysed using statistical software in order to prioritise beneficiaries.

Households had to meet the following selection criteria, defined by the organisation in collaboration with community leaders:

- Their situation had been directly affected by Sandy.
- They were unable to rebuild their home or regain basic living standards alone.
- One or more family members had a physical or mental disability or was a member of a discriminated group (e.g. Haitian immigrants).
- Families with specific conditions of vulnerability such as female-headed households.

Once the families who met these criteria were identified, beneficiary lists were hung in the organisation's offices and other visible places.

Following selection, each family's home was surveyed by an engineer, in order to develop a plan of works for the necessary materials and repairs.

Families whose homes were too weak or badly built to benefit from reinforcement received a package of household items instead.

Coordination

Coordination mechanisms were put in place between the organisation, community leaders and grass-roots organisations to ensure a transparent and equitable beneficiary selection process, with a two-way flow of information, joint monitoring and accountability.

Several joint public initiatives were launched, such as public exhibitions, debates and participative workshops.

Technical solutions

Hurricane strapping is a new technology for house construction in the Dominican Republic. Since the community members themselves were in charge of managing the repair process, the organisation trained construction workers in how to employ the new technique. These workers either implemented the new technique or demonstrated so that community members could implement it themselves.

The repair kits were designed in Santo Domingo and transported to the provinces, and then on to the communities.

Disaster Risk Reduction (DRR)

In three of the four provinces participating in the project, Participatory Approach for Safe Shelter Awareness (PASSA) groups were organised.

PASSA is a method of DRR, with the objective of developing local skills to reduce vulnerabilities related to housing and settlements. These groups were responsible for developing the eight PASSA methodology activities, which are a series of steps that take up to two months and result in creating action plans to minimise the vulnerability of shelter and settlements. (see *Shelter Projects 2011-12*, A.13).

In the community of Rosario, the plan of action included roof



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Safe construction techniques were communicated through a construction manual, posters and leaflets.
Graphic: Cruz Roja Española

strengthening, resettlement of at-risk houses and improving the foundations of timber houses with brick construction. In the long-term, the community's capacity to analyse and mitigate risks was expanded, enabling them to make demands on local authorities.

Materials

Since hurricane straps were not previously used in the country, the organisation had to supply them.

Other materials were available from local suppliers.

Wider project impacts

Some of the beneficiaries used the assistance to improve their homes beyond simple reinforcement.

The communities that implemented the Participatory Approach for Safe Shelter Awareness (PASSA) broadened the house reinforcement programme to include other houses that were not matching the programme criteria, but were included through participatory budgets from their local authorities.