

# PAKISTAN

## Community Ingenuity in Self-build Shelter Programming



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## PROJECT DESCRIPTION

**Country:** Pakistan

**Project location:** Khyber Pakhtoonkhwa Province (formerly known as Northwest Frontier Province [NWFP]) and Azad Jammu of Pakistan administered Kashmir (AJK)

**Disaster:** Earthquake

**Disaster date:** October 8, 2005

**Houses damaged:** Approximately 500,000 homes damaged or destroyed

**Affected population:** 3.5 million homeless people country-wide, 73,000 fatalities, 128,000 people injured (Government of Pakistan)

**CRS target population:** 22,000 households

**Material cost per shelter:** US\$ 673

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### What did CRS do?

- Distributed 6,000 winterized tents.
- Constructed 22,000 semi-permanent winterized shelters.
- Constructed 11 permanent schools, 68 transitional schools.
- Non-Food Item (NFI) distribution (sleeping mats, blankets, stoves etc.).
- Provided access to water sanitation and hygiene promotion and hygiene kits.
- Community infrastructure rehabilitation (water scheme, roads, etc.).
- Livelihood recovery program.

### Community Ingenuity in Self-build Shelter Programming

The earthquake in Pakistan affected some of the most remote and inaccessible rural mountain communities who live at elevations of up to 5,000 feet. This presented numerous logistical and operational challenges for the emergency relief effort. Meeting these challenges require creative solutions and a high degree of reliance on local knowledge and ingenuity. Drawing on initial field evaluations of CRS' self-help shelter program, CRS' approach aimed at maximizing local ingenuity to meet needs for priority shelter. A minimum set of material, financial and technical inputs were combined with social

animation and mobilization to enable families to build their own safe, adequate and durable shelters prior to the onset of winter.

### Background

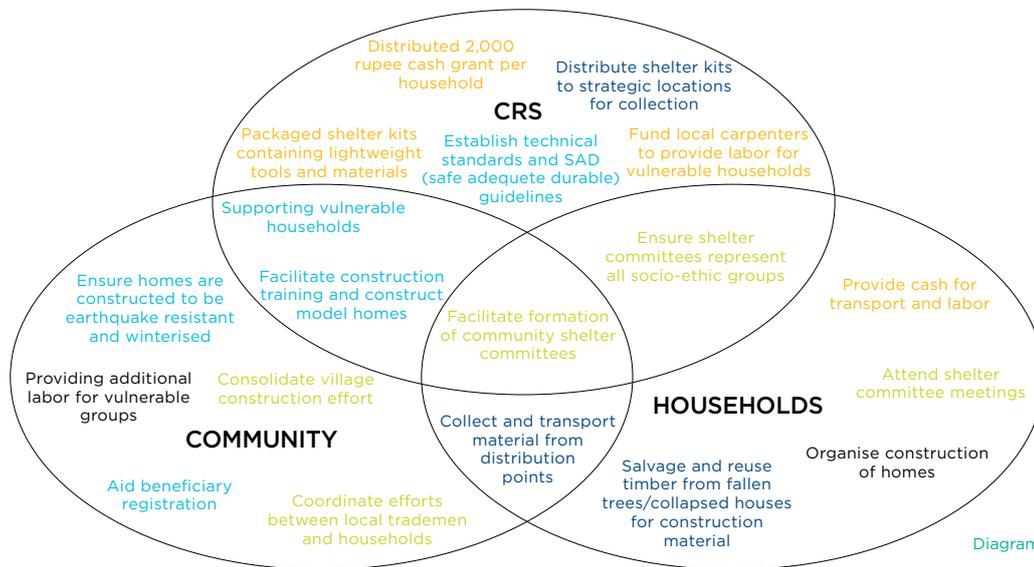
On October 5, 2005, a massive earthquake rating 7.6 on the Richter scale shook large areas of northern Pakistan, causing widespread destruction, killing over 73,000 people, severely injuring many more and leaving millions without homes. The Northwest Frontier Province (NWFP) and Azad Jammu and Kashmir (AJK) suffered extensive structural and economic damage, with vulnerable groups in this mountainous region bearing the brunt of the disaster. Most educational institutions were destroyed, the majority of health care units and hospitals collapsed, the communications infrastructure was severed, and all essential utilities were disrupted. In all, the affected area was strewn with 200 million tons of debris. Hundreds of post-quake tremors and constant landslides multiplied the shock and trauma, while the onset of winter threatened. The international humanitarian community faced an unprecedented challenge in responding to the housing needs. The scale of the task was huge, with half a million homes damaged or destroyed. With winter approaching, aid had to be delivered quickly, and in difficult, mountainous conditions.



Over 500,000 homes were destroyed by the earthquake.  
Photo: Jim Stipe / CRS



The tunnel winterized emergency shelter was constructed out of large plastic sheeting stretched over arched plastic tubing, with inside cloth lining. They are flexible in design, allowing for larger shelter sizes than tents; they are easy to build (set up takes about two hours); and they are made from materials that can be obtained locally  
Photo: David Snyder / CRS



## Project Principles

### Initial strategy

CRS' initial shelter approach began with the distribution of winterized tents and provision of essential living and hygiene supplies to meet people's basic needs. CRS had noted that the winterized tents were not adequate protection from the freezing temperatures of the impending winter. Around this time, the Government of Pakistan suspended the delivery of tents by NGOs in order to centralize tent provision through governmental channels. CRS created an opportunity out of the national suspension of tent distribution and quickly sought an alternative strategy to provide more winterized and more appropriate homes.

### Revised strategy (early November 2005)

CRS shifted focus to the development and pilot testing of two alternative winterized shelter solutions: (1) tunnel winterized emergency shelters and (2) timber framed durable winterized transitional shelters. CRS decided to opt for the winterized transitional shelter design as the affected families were already recovering construction materials from the debris and had begun to develop what were envisaged as 'emergency' shelters that could become permanent housing. CRS aimed to capitalize on their efforts. The revised semi-permanent shelter approach incorporated local building practices, earthquake-resistant building principles, community and household labor, and material contribution. This culminated in a shelter approach that utilized community resources, gave families responsibility for site planning, and allowed CRS to meet the housing needs of an impressive number of households.

### Resourcefulness and efficient use of materials

CRS packaged shelter kits containing comprising simple lightweight materials and tools necessary for the construction of the semi-permanent shelter, with the exception of wood. Using timber already available in communities (from fallen trees or collapsed structures) saved an inordinate expense and reduced transportation requirements. Communities worked together to gather and saw wood, and some provided wood for vulnerable households. The contribution from program participants themselves, in terms of materials and labor, was four to five times greater than the value of the "package" provided as part of the CRS shelter program.

### Transport/Distribution

To complement material assistance, each household received a cash grant of 2,000 rupees (\$35) to assist with labor and transportation costs. Instead of delivering shelter kits to each village, CRS identified strategically located distribution points on routes into the target valleys. Communities collaborated to devise ingenious ways to transport goods with increased efficiency. This allowed families to save a portion of the cash provided for other housing needs. Resourcefulness of households led to a range of initiatives for the transport of local materials, and a high degree of program participation and community solidarity formed in this challenging yet innovative backdrop.

### Community mobilization and shelter committees

CRS' shelter strategy depended on the efforts of the local community and families themselves. CRS provided key material and tools, as well as ensured sharing of information, and monitoring of earthquake-resistant construction techniques. The distribution and salvaging of construction materials in these very remote areas could not have occurred without the ingenuity, cooperation and local knowledge of program participants. General community meetings were held to explain the objectives of the program and the responsibilities of CRS and partners, as well as ensuring the community was committed to assisting the most vulnerable. The output of this was the formation of the shelter committee. The committees were designed to represent each socio-economic group, clan and caste and to assist at all stages of the shelter program, including program participant selection and ensuring monitoring systems set up by CRS were in place.

### Training

Structured construction training was not feasible in the short time available, so a demonstration shelter was constructed by local carpenters, instructed by CRS technical staff. This illustrated the key principles in practice: Technical assistance focused on sharing simple messages on the Safe, Adequate and Durable (SAD) principles of the shelters. Completed kits were then given to more vulnerable community members such as widows, orphans or the elderly. CRS also provided funding to local carpenters to provide technical assistance and labor to these families.

## Program Participant Selection

CRS' aim was to reach the most isolated communities that we anticipated would not have been chosen for assistance by other organizations due to inordinate logistical challenges. The strategy was to target communities above 5,000 feet in elevation within a certain perimeter of the fault line. The initial needs assessments showed near total destruction in affected communities. In response, CRS decided to provide coverage to all families with significantly damaged homes in a targeted community, which would allow them to rebuild their homes prior to the onset of winter. An alternative type of targeting would have required additional time, resulted in program delays and avoided furthering any existing divisions or hierarchies within communities. The program was specifically designed to reach out to vulnerable groups such as widows, female-headed households, landless, lower castes and the very poor. Additionally, after completing the registration lists with shelter committees, CRS circulated it among the community to verify the list for extra transparency.

### Safe

- Is the structure light-weight and framed?
- Have potential fire risks been minimized?
- Is the site safe and away from damaged structures, unstable ground, large trees and rivers?

### Adequate

- Is the covered living space 24 sqm in area?
- Have internal subdivisions been fitted?
- Thermal performance- sufficient insulation of walls and ceilings and use of materials with high thermal mass eg. non load-bearing stone?
- Is the floor dry? Protected against rising damp with plastic sheeting?
- Has a perimeter drainage channel been excavated?
- Are there enough window / door openings to provide enough ventilation?

### Durable

- Is salvaged timber of suitable quality, free of rot? can it be cut into pieces that can be carried by an adult?
- Is the timber frame free standing, with a robust frame?
- Has the excavation around the column base been filled with stone to brace the structure?
- Has a stone foundation been used?
- Have diagonal bracing elements been fitted between adjacent columns in at least two walls?
- Have galvanized fixing straps been used to brace primary timber joists?
- Have lap joints been used to make longer lengths of timber?

A diagram showing the responsibility on CRS, Community and the household.  
Credit: Amanda Rashid / CRS



Salvaged timber used for functional and decoration uses on winterised transitional shelters.

Photo: Jim Stipe / CRS

## Challenges

- **The pace at which shelter needed to be delivered:** The disaster struck only two months before the onset of winter in the mountainous villages located at the foothills of the Himalayas. Higher-elevation villages can be cut off for days by several feet of snow.
- **The scale of the disaster was also unprecedented:** 3.5 million Pakistanis were left homeless, exposed to freezing temperatures and rain. Moving to tented camps in accordance with initial government policy meant losing the October harvest, abandoning animals, leaving assets buried in the rubble and even losing land. Thus solutions were required in people's place of origin.
- **The terrain presented significant challenges to the delivery of relief:** The most vulnerable people lived in dispersed villages often accessible only by foot on narrow trails and steep mountainsides. Road access was possible along the valleys and to some higher locations with smaller 4x4 vehicles. Large-scale transportation of bulky construction materials was problematic, and access was further disrupted by localized landslides. Attempting to coordinate distributions to scattered and difficult-to-reach villages required significant investment in logistical resources. In some cases, helicopters seemed the only option.
- **Broad representation of the shelter committee:** In communities where representation of women and vulnerable groups was poor, generally, shelter completion rate was lower and there was less adherence to SAD standards.

## Acknowledgements

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Cover photo credit: Jim Stipe / CRS