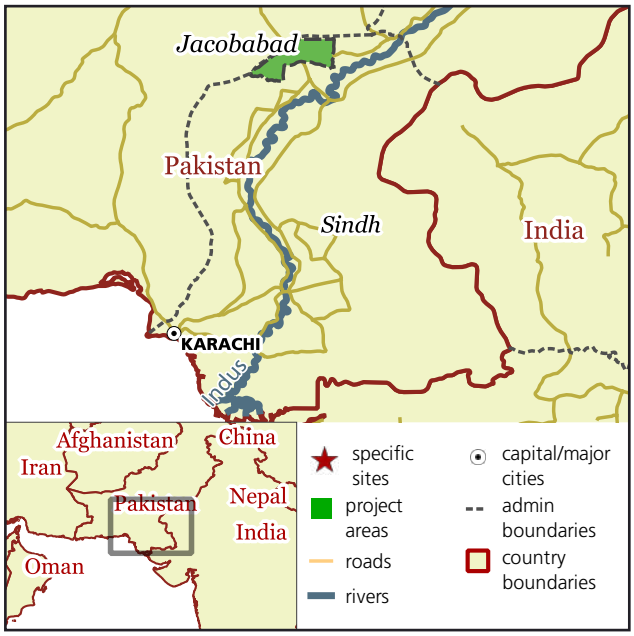
A.19 Pakistan – 2012 – Floods

Case study

Keywords: Transitional shelter / T-shelter; Cash / vouchers; Site planning; Training.

Emergency:	Monsoon floods, 2012, Pakistan.
Date:	7-11 September 2012
Damage:	Approx 635,000 homes damaged or destroyed in total. Approx. 145,000 houses destroyed in Jacobabad.
People affected:	4.85 million people were affected by the floods, with around a fifth of those affected living in Jacobabad (940,000 people).
Project location:	Jacobabad district, Sindh.
Beneficiaries:	4,970 households (31,002 people).
Outputs:	5,167 shelters by mid-2014 (some families received two kits). 77 villages site-planned.
Ocupancy rate:	100%.
Shelter size:	12ft x 19ft (21m²) housed a family of six to *Sphere* standards.
Cost per shelter / household:	Materials and labour: US$ 380. Total costs: US$ 748.



Project description:

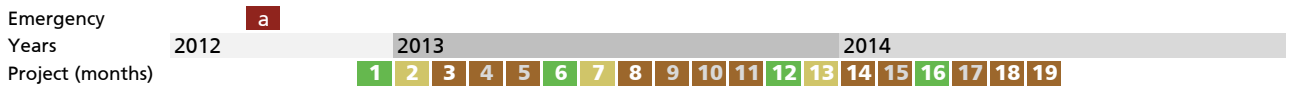
Flood-affected families were supported with 5,167 transitional shelters in areas where the organisation was already present. The shelters conformed to *Sphere* standards and were built in three rounds of construction. They were quick to build and incorporated key DRR elements. Village site-planning was introduced in the third phase of the project.

Emergency timeline:

[a] 7-11 September 2012: monsoon flooding.

Project timeline (number of months):

[1] November 2012: Round 1.a (registration, committee formation).
[2] Round 1.b (materials distribution and construction).
[3-5] Round 1.c (grant and transport payments. 2,235 shelters complete).
[6-8] Round 2 (1,922 shelters).
[12-15] Round 3 (408 shelters). First inclusion of site planning as activity.
[16-18] Round 4 (602 shelters).
[19 ongoing-] Project ongoing until mid-2015 with plans for 2,000 additional shelters.



Strengths

✓ The construction of a demonstration shelter facilitated community feedback, which resulted in improvements to the design, such as larger verandas.
✓ Using local knowledge and materials meant shelters were quick to build, low cost and culturally appropriate. Raised-earth plinths greatly improved flood resistance.
✓ Good communication and feedback mechanisms.
✓ Village site planning had many positive impacts, including reducing standing water, establishing an evacuation plan, and improving WASH facilities.
✓ The use of portable transitional shelters meant that beneficiaries knew they could take such a high-value asset with them should they face eviction.
✓ Involving women in site planning was challenging due to cultural barriers. To mitigate this, all-female groups provided feedback on all-male original plans.

Weaknesses

× Site planning could have been made a standard part of the response for all villages from the start of the project.
× Site planning activities were difficult to manage if the number of households involved was less than five or more than 15.

Observations

- Tribal conflict is endemic in the area, which sometimes limited access.

Saeedabad village, Jacobabad before the site had been re-planned. The new plan would result in moving shelters away from electrical wires and poor drainage areas and creating better footpath access around the site.
Photos: PO Tasleem/CRS

Community site planning involved using small models of houses and infrastructure to help design a new village layout.
Photos: FE Altamash/CRS.

Situation before the disaster

Before the flooding, people were mostly living in houses constructed out of mud brick, which are prone to collapse during heavy rains and/or flooding.

Situation after the disaster

After the 2012 floods, affected communities resided in tents, emergency shelters or were living under the open sky. After repeated flooding over several years, communities were reluctant to rebuild mud houses as the investment of time and resources risked simply being washed away.

Many people were not able to afford pukka (burned brick) houses, and faced eviction by the landowners at any time. This has meant that most people had been constructing thatch houses that could easily be transported with them if they were forced to move.

Shelter strategy

The Government of Pakistan established the National Disaster Management Authority (NDMA) in August 2007 to take the lead in the response to emergencies and disasters, with responsibility for preparedness, response and reconstruction.

The NDMA is intended to play a coordinating role, working with INGOs and NGOs, and is responsible for communicating government policy for implementation on the ground.

The Shelter Cluster has focused upon the implementation of low-cost, timely shelter construction.

Project implementation

The project adopted a self-help approach, and was implemented in partnership with a local organisation, with the main organisation providing technical guidance and monitoring the field activities. The project team was made up of four main organisation staff and ten local partner staff.

The intervention was carried out in small clusters of villages at the same time, with the clusters all being located within the same Deh (smallest administrative unit). The Dehs were prioritised in terms of need, with those with the greatest need receiving support in the first of three rounds of construction.

A demonstration house was built in each community as a training aid.

Communities identified individuals best suited to construction training and if no suitable person could be found a carpenter was brought in from the surrounding area to support them. A one-day training was provided for the carpenter, under the supervision of a field engineer.

The trained carpenters built the core of the structures and were paid 1,000 Pakistani Rupees (PKR) per shelter (approx. US$ 10). The community provided the unskilled labour required to complete the shelter (mud plastering, plinth construction), with those households who were unable to contribute any labour for their shelter given PKR 600 (US$ 6) to pay for two days of labour.

Each household received a voucher worth US$ 375. Suppliers were identified to provide materials that could be redeemed against the vouchers provided, and each supplier's warehouse acted as a distribution point. Beneficiary families also received PKR 600 (US$ 6) for transporting the materials. By managing the construction of their own house, families had a strong sense of ownership of the process and tailored the design to their own specific needs,

The project also included a strong feedback mechanism, which involved a hotline, complaint boxes and verbal feedback during site visits. All feedback was transferred into a tracking sheet, and responded to appropriately.

Site planning

Village site planning was introduced in December 2013 during the third round of construction and was eventually conducted in about 77 villages (20% of the total number).

Following initial community sensitisation about the project, each village was mapped, with key hazards and communal facilities identified. As many participants were illiterate, small models of handpumps, shelters and houses were used in the mapping process.

In some communities, due to social barriers, women in the community were excluded from the first round

Building shelters on a raised plinth is one of the most effective ways of reducing damage to shelters during flooding. Drainage ditches were dug with stone or earth curbs dug around the perimeter of shelter to divert rainwater away from the house. A small number of non-beneficiary households replicated the technique when building their own houses. Photos: FE Altamash/CRS.

of planning, where male representatives of every family made the initial settlement plan on large sheets of paper. In these cases, women's committees were established to ensure equal decision-making between men and women. Women's committees also provided a safe environment for women to freely express their opinions.

During the planning exercise the Social Mobiliser ensured that representatives of every beneficiary family were present and that any land dispute issues were raised and solved. The mobiliser also addressed issues such as security and privacy concerns, which were particularly important in villages where there were a number of different social castes living together.

Beneficiary selection

The organisation worked on the provision of shelters in one Union Council at a time. A Union Council (UC) is a small administrative unit, often known as a village council in rural areas. Those UCs that were most flood-prone were prioritised.

Within each UC and village, vulnerable households were identified in collaboration with community committees, according to a set of vulnerability criteria. This community-led process reduced conflict and disputes over who received assistance.

The project targeted households whose homes were completely destroyed or very badly damaged, and checks were made to make sure that families were not in the receipt of shelter assistance from another organisation. Families also had to be willing to provide labour for the construction of the plinth and plastering of the walls.

Beneficiary registration was made on portable tablet computers which sped up the registration process and facilitated quick analysis of the data.

Coordination

The organisation was active in the Shelter Cluster and coordinated with government agencies and other NGOs in order to adjust targeting to collectively achieve blanket coverage of the area, and avoid any duplication of efforts.

Materials

The only unfamiliar construction material introduced was the poplar pole. This was accepted by the communities without any problems.

The final bill of quantities was determined by the organisation's global shelter technical advisor, following the construction of a pilot shelter.

A market assessment based on the list of materials was conducted with local vendors in October 2012, in order to determine if there was sufficient quality and capacity for manufacturing in Pakistan to supply all the materials.

Organisation logisticians selected vendors based on site visits to the suppliers to check the quality of the materials. Materials were mostly trucked from Punjab since local materials were of low quality and not in sufficient quantity.

A just-in-time approach to procurement was necessary to avoid having large warehouse stocks of bamboo vulnerable to water damage during the monsoon season.

"We constructed our shelters according to our village settlement plan and now our animals and property are more safe and secure from thieves."
Beneficiary

Disaster Risk Reduction (DRR)

Village site planning

The organisation introduced settlement planning to communities in order to support them to develop their villages into disaster-resilient settlements. When families had selected their shelter site individually, it had often been done haphazardly and without coordination. By leaving narrow pathways between shelters, the walls became more susceptible to rain draining off from neighbouring roofs, and people had more difficulty evacuating quickly with their livestock and assets.

Some shelters had also been built far from water sources, and some had verandas which were oriented southward, limiting their protection in the summer.

As a condition for participating in the project, families were supported

by the organisation to identify safe plots. This included avoiding low-lying areas or areas near steep slopes with risks of landslides, sites next to busy roads, waste dumps or electrical lines, and plots too close to other buildings.

The organisation developed model shelters, hand pumps and latrines, and led settlement-planning exercises with communities to focus on disaster resilience and ensure that village planning accounted for other infrastructure (hand pumps latrines, mosque) as well as various social elements (protection, privacy, security, access).

The communities also considered drainage during flooding, rain water run-off from the roofs, and village evacuation planning. The process engaged both beneficiaries and non-beneficiaries of the shelter materials vouchers.

Wherever possible, planning sessions were attended by men and women. When this was not possible due to cultural reasons, separate feedback was sought from the female community representatives immediately after completing the exercise with the men.

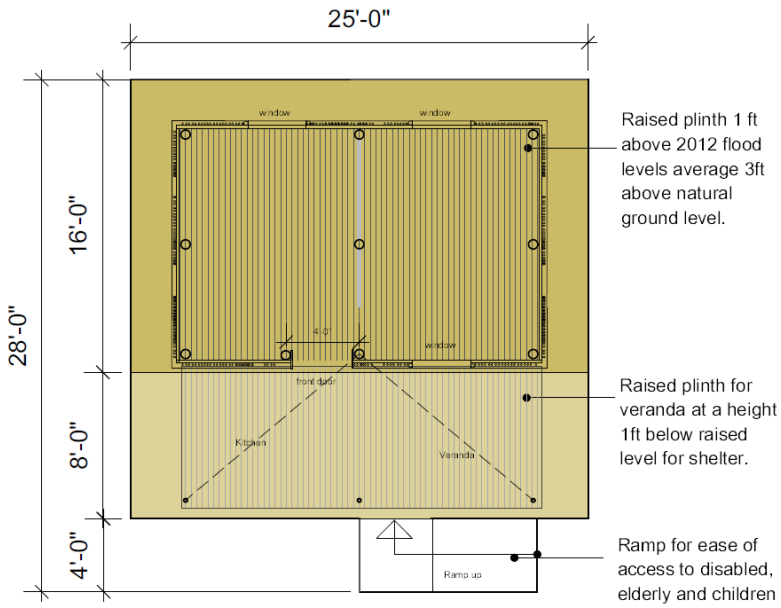
Benefits of the village planning, identified by beneficiaries included:

- Increased security through better visibility of others' plots.
- Greater village cohesion through joint planning.
- Improved communal spaces created a number of new possibilities, including providing an area for shared storage of seed or tools.
- Women, who carry out most of the cleaning duties, reported reduced time needed to keep new shelters and plots clean and tidy.

Shelter design

DRR components in the shelter design included:

- Anchoring poplar poles for vertical support elements 2ft. (60cm) below grade, with excavated pits backfilled with stones and/or well-compacted soil.
- Treating the bases of poplar poles with engine oil to protect against rot and insects.
- Vertical structural elements were strengthened by horizontal bamboo beams to create a unified structural system. Diagonal bamboo corner braces attaching the vertical structural elements to the horizontal tie-beams further improved resistance to lateral loads.
- Connections between poplar poles and the bamboo were secured with nails and reinforced with rubber straps. Critical connections were strengthened with GI wire.



Part of the technical shelter design document specifying details for the plinth. Graphic: CRS

Wider project impacts

Some beneficiaries reported that they will continue to use the lessons they learned in future village developments, and any new families coming to the village will be educated in the advantages of good settlement planning.

Given land tenure issues, many communities appreciated the fact that they could disassemble the shelter and take it with them in the event of eviction.

Bill of Quantities

Item description	Qty
Poplars (4in. tops, various lengths)	11 pcs
Bamboos (1" to 2" diameter, various lengths for beams, purlins, rafters and wall supports, including veranda)	95 pcs
Chick Mats for walls and roof	7 pcs
P.E Tarpaulin	2 pcs
Cotton rope	4kg
Nails (various sizes)	2.5kg
G.I (Galvanized iron) wire	4kg
Limestone (20kg bag)	3 pcs
Tools: saw, claw hammer, pliers, wheelbarrow	1 kit per 5 households
Measuring Tape and water level	1 per 10 households
Needle and scissors	1 pc
Polyethene Sheeting 30ft x 16ft, (approx. 9m x 4.5m) waterproof double ply 1.5 mm	1 sheet
Hoe/'Kodder'	1 pc
Polyethene tarpaulin (4m x 6m 80 GSM)	1 pc