

## A.22 Pakistan - 2010 - Floods - Overview

### Overview

#### Summary

The 2010 monsoon season caused the worst flooding in Pakistan's history, and one of the larger humanitarian crises of this century. The floods affected every province, over half of the districts in Pakistan, and one-tenth of Pakistan's population. They damaged or destroyed 1.8 million homes, from the mountainous north where winters are cold, to the south where flooding caused the most damage. The scale was vast, but the funds did not meet the needs.

For the first months, the government of Pakistan and many organisations working in the affected areas distributed tarpaulins, tents and other non-food items. The government also made cash payments to registered flood affectees using a "WATAN Card".

Following the emergency response, a "one room shelter" approach was adopted, by which organisations supported families to build a permanent shelter, which families could later extend. However the scale of the floods was such, that less than 10% of those who lost a house received such a shelter.



#### Before the floods

Pakistan has a strong and recent experience of dealing with humanitarian emergencies, from conflict displacements (including the Afghan refugee crisis and the 2009 IDP crisis) to natural disasters (with major earthquakes in 2005 and 2008 and floods in 2007). As a result there was significant experience in dealing with the aftermath of disasters. However much of this was focused in the north of the country.

There were also significant stockpiles of relief items some of which got flooded. Additionally there was a manufacturing industry, being one of the world largest manufacturers of humanitarian tents and other key relief items.

#### After the floods

The floods began in the north of Pakistan in late July 2010. Heavy rains lead to flash flooding, landslides and areas becoming

inundated. Before the end of July, over half a million people had been affected and the emergency response began.

It was another six weeks before the full extent of the floods became known. The initial United Nations floods appeal was launched as waters were still rising in Punjab and Sindh in the south of the country.

By mid-September 2010, the National Disaster Management Authority (NDMA) estimated that the floods of 2010 had damaged or destroyed 1.8 million households in Pakistan and that approximately 75% of the flood devastation was concentrated in Punjab and Sindh provinces.

The floods led to wide scale displacement. Some people were displaced for days. In other areas flood waters took six months or longer to recede.

Surveys indicated that 9% of

flood-affected individuals stayed with host families, 13% in collective centres, 19% in planned camps, 10% in spontaneous settlements and 40% returned to, or remained in, their place of origin by September 2010. Many schools were used as collective centres.

Of the flood-affected areas in Pakistan, Sindh province was the worst affected, with more than 80% of affected houses either heavily damaged or completely destroyed, while in Punjab province 65% of affected houses were heavily damaged or completely destroyed.

#### Response capacity

The disaster management capability of each affected province was quite different. In Khyber Pakhtunkhwa province, where earthquakes and other natural disasters occur more frequently, the Provincial Disaster Management Authority (PDMA) was relatively well-pre-



The floods caused significant damage to infrastructure and made 11 million people homeless. Photo: Joseph Ashmore



Over 1 million tarpaulins 380,000 tents were distributed. Additionally there was also a very large scale, though less coordinated, response from Pakistani civil society.  
Photo: Joseph Ashmore

pared to coordinate and manage the flood response. However, in Punjab and Sindh provinces which were the most affected, the capacities were much smaller because they had not previously managed a natural disaster of this scale.

As temperatures in the north were due to fall below zero a few months after the floods, shelter would become a lifesaving priority. However, particular focus was needed in the south as delayed flooding meant that the response was four to six weeks behind the north and there was an urgent need to encourage an increase in capacity.

Although strong national shelter coordination was established, the scale of the disaster was so large that coordination efforts were challenged, especially at district level.

### Emergency response

The Emergency response was relatively swift and on a very large scale, especially when taken in comparison with other disasters. Within the first six weeks of the response over 300,000 families had been supplied with emergency shelter items.

By the end of the emergency response, over 1 million households had been provided with a tent or two tarpaulins.

Despite the scale of this response, it only amounted to 67% of the total estimated need. These shortcomings were a result of the massive scale of the disaster, the shortage of funds and shortage of experienced implementing partners in the south of Pakistan.

### Recovery shelter

The focus of the recovery strategy was on the construction of one room shelters for those able to return to their place of origin and transitional shelters for those people who remained displaced, those with limited access to land, and for seasonal migrants.

One room shelter (ORS) was defined as "a more durable solution built at place of origin with indigenous materials and techniques." The envisaged lifespan of the one room shelter was 3 to 5 years, which can be extended upon upgrading of the shelter.

Transitional shelter was defined as "a transitional solution that responds to temporary needs, e.g. for those facing extended displacement or those living in frequent flooded areas". Transitional shelters should have had a lifespan of at least 1 year, and a design that allowed for reuse of materials.

In total less than 150,000 one room shelters and transitional shelters were built. Although this is one of the largest shelter responses in history, it met only a small fraction of the total needs.

### WATAN cards

To support families during the relief and reconstruction phases, the Government of Pakistan established a WATAN card scheme. The WATAN Card is an ATM card that the government was able to make payments to. It was distributed to people in affected villages.

In the 12 months up to August 2011, the government of Pakistan issued WATAN Cards to 1.6 million households, through which they received grants of 225 USD each.

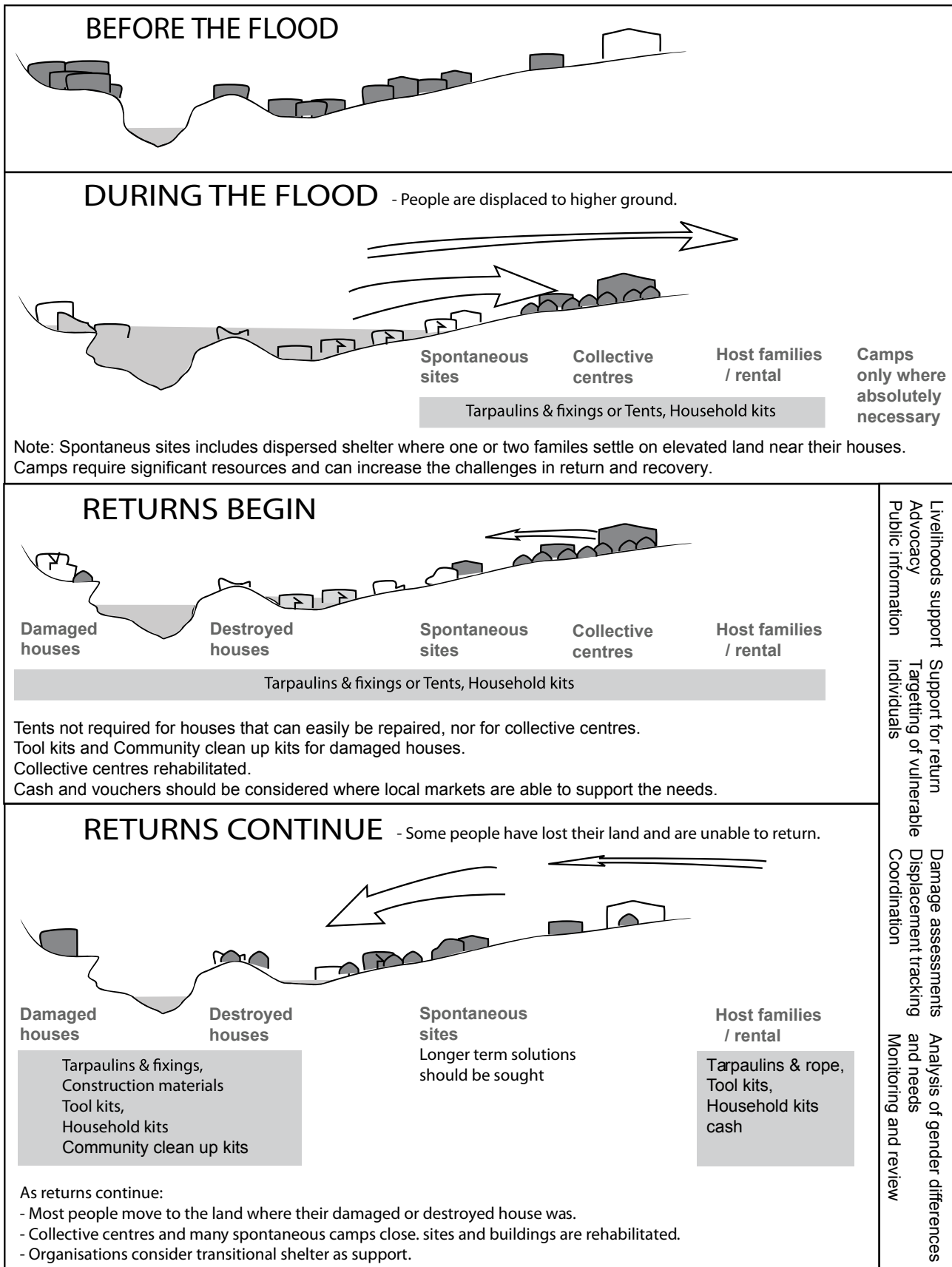
A planned second phase would support 1.1 million households with cash grants of 450 USD per household.

**"The floods of 2010 are being termed as SUPER FLOODS for Pakistan due to their large scale devastation in the country. They have laid new benchmarks for the country both in terms of preparedness and response. The floods affected 21% of cultivable land of the country and uprooted 20 million people from their homes and lands. Shelter, being the private asset, was once again the focus of attention for the government as well as the humanitarian community. It was important to help people get back to their homes quickly to avert another food disaster in the country..."**

Waqas Hanif - Advisor National Disaster Management Authority (NDMA) and focal person for Shelter Cluster

**"Nobody was prepared for the magnitude. We were trying to think big, but that was not enough. We went to provincial coordination, to hub coordination, to district coordination; this had never happened before..."**

Arshad Rashid - Shelter cluster coordinator Pakistan floods

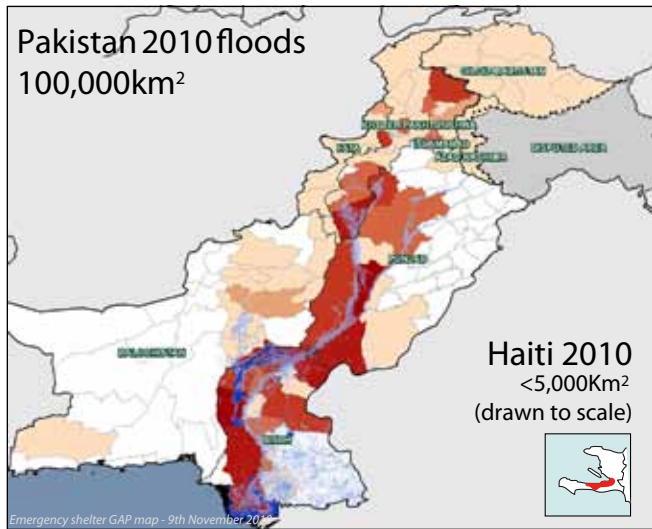


An illustrated version of the initial Shelter Strategy for Pakistan floods - 20th Aug 2010

# PAKISTAN FLOODS RESPONSE AFTER 8 MONTHS

Although the disasters compared in this document are very different in nature, human impacts, and challenges, this document makes some numeric comparisons based on data collected from the shelter cluster for different responses.

## Area affected



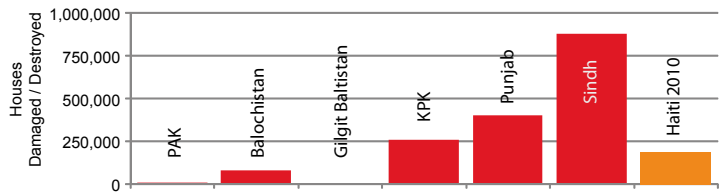
## People who lost their houses

11 million  
Pakistan floods 2010

1.5 million  
Haiti 2010 earthquake

The 'slow tsunami' that hit Pakistan in 2010 damaged or destroyed an estimated 1.7 million houses, leaving at least 11 million people homeless.

In Punjab alone, twice as many houses were damaged destroyed by the floods than by the 2010 Haiti earthquake.



## EMERGENCY SHELTER RESPONSE

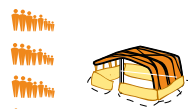
The cluster estimated that 70% of those with damaged and destroyed houses will need emergency shelter support.

Emergency shelter has been delivered to over 1 million households. Despite the scale of response, only 67% of the emergency shelter needs have been met.

Other Non-Food Items distributed are 438,600 bedding sets, 603,200 kitchen sets and 94,500 tool kits.



**381,000 tents**  
delivered



**1.36 million tarpaulins**  
delivered



further gap filling still required for the remaining need

estimated 30% of self recovery, with host-family support or in collective centre



**2.5 million blankets**  
delivered or on their way



**1.5 million more required**



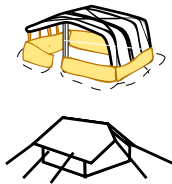
## SHELTER CLUSTER FUNDING

US\$ 322 million requested

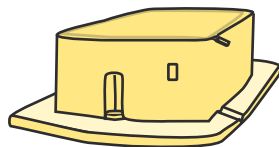
48% funded

\$168 million unmet requirement

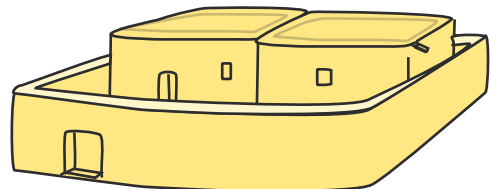
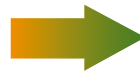
## EARLY RECOVERY SHELTER RESPONSE



Emergency:  
Tents or tarpaulins



"One room" shelters  
Technical guidance



As time progress families upgrade one room shelters to form a home

**One Room Shelters** are simple traditional structure made from mud or brick, that allow families to upgrade and extend when they have the means to do so.

**Transitional Shelters** are lightweight structures that can be relocated. They are for those who cannot return to permanent land.

**Technical guidance** for the ongoing self recovery process, includes outreach messages and training of skilled labour and local engineers.

To date, Shelter Cluster members have constructed over 40,500 one room and transitional shelters and are committed to supporting the construction of over 247,000 in total. - a rate similar to that following other major disasters.

Current commitments will, however, **only meet 31%** of the total need.

Large numbers of families have started rebuilding on their own the Shelter Cluster's priority is to support communities' capacity for self-help. Other forms of support such as **training centres** are urgently required to provide technical assistance and help families to rebuild more safely.



## A.23 Pakistan - 2010 - Floods

### Case study:

See A.22 "Pakistan - 2010 - Floods - Overview", p70 for background.

**Country:**  
Pakistan, Sindh.

**Disaster:**  
Floods

**Disaster date:**  
July 2010

**No. of houses damaged:**  
About 1.8 million in 77 of 139 districts across Pakistan

**No. of people affected:**  
More than 20 million

**Project target population:**  
Pilot project 175 households

**Occupancy rate on handover:**  
100% as of 10 March 2011

**Shelter size:**  
25m<sup>2</sup>

**Materials Cost per shelter:**  
USD 740



### Project timeline



### Project description

This pilot project built 175 one room shelters for flood affected families in South Pakistan. It was later followed by a much larger scale project (building thousands of shelters over 18 months). Working through partners, the agency provided the construction materials and paid for skilled labour. Each shelter was built from burnt brick and had an accompanying kitchen and latrine.

### Strengths and weaknesses

- ✓ Conducting a pilot project allowed issues with the project process to be identified before a large scale project was implemented.
- ✓ The returning families were supported to return to their original locations.
- ✓ The community were consulted and involved throughout the project, including the needs assessments process, shelter design, materials sourcing and shelter construction.
- ✓ Skilled labourers from nearby villages also benefitted from the opportunity to work on the shelter construction.
- ✓ The projects were flexible for the different needs of each village, depending on the social situation and the preferred balance of shared facilities and privacy.
- ✗ Once the project was started, the planned project duration of 4 weeks proved to be insufficient.

Although it was extended to 6 weeks, the actual time taken to build the 175 shelters was 11 weeks. This was due to time taken to mobilise the community and rain interrupting work.

- ✗ Lack of planning a delivery schedule and use of a single supplier led to the late supply of construction materials.
- ✗ Lack of detailed specifications led to poor quality of materials. This was compounded by lack of ownership by the flood affectees leading to additional damage of materials during transport and unloading.
- ✗ There was a problem accommodating labourers from other villages, so tents had to be provided.
- ✗ While the affected population were involved in the project they could not focus on normal livelihoods activities, so the provision of food became an issue.



The project was a pilot for a larger construction programme.  
Photo: Kpakpo

### Before the floods

See Background: A.22 "Pakistan - 2010 - Floods - Overview", p70.

### Selection of beneficiaries

A village assessment was carried out to select three villages in one district in Sindh for the pilot project.

A family assessment was then used to identify eligible beneficiaries. Each selected village had between 40 and 80 families who were eligible for the project.

### Community mobilisation

Community meetings were organised to discuss the needs of the returning families and participatory rapid assessments were carried out. Community based organisations were established to manage the projects. Members were trained on mobilising their communities.

The projects were coordinated and monitored through a district coordinator and senior engineer, regularly reporting to the District Coordination Office and the District Disaster Management Authority. In addition, each village had its own site engineer and logistics assistant.

### Shelter design

The one room shelter was designed to the following brief:

- minimum floor area of 25m<sup>2</sup>,
- separate latrine and kitchen,
- durable foundations,
- brick/ concrete block construction with cement mortar.

Due to site conditions and consultations with the beneficiaries, modifications were made to the

original design:

- A high water table meant that the height of the foundation wall was increased from 150mm to 450mm.
- 10% cement was added to the mud mortar to increase its durability.
- At the request of the beneficiaries, the pitch of the roof was reduced and the door dimensions were changed to 1.2m x 2m.
- As the sites were dense, the distances between shelters were reduced and sometimes shelters joined.
- To meet individual community requirements, one village, consisting of one extended family, built communal toilets and washing facilities. In other villages where families wanted more privacy, houses and individual toilets were built in long rows.

### Land allocation

Before construction could begin, field teams verified that there were no land disputes and a

formal Non Objection Certificate (NOC) was obtained. In one of the three villages, all families owned a piece of land, but in the other two villages the land belonged to a landlord, who provided the NOC.

### Implementation

The project was designed to ensure a degree of participation by those receiving the shelters. Each family provided unskilled labour, and was responsible for plastering inside the shelter. The community based organisations located and contracted skilled labour from nearby villages.

In the pilot project beneficiaries were not paid. Their contribution to the project was to provide unskilled labour and salvage materials.

### Logistics

A single supplier was identified following a tendering process that included taking out advertisements in the newspaper. However, the contract did not stipulate the delivery schedule. As a result no materials were delivered in the first 2 weeks of the project.



Shelters were built from brick with the aim of being more disaster resistant.  
Photo: Kpakpo

During the procurement, material specifications only indicated the dimensions of the products and as a result, the quality of material varied. Furthermore there was lack of clarity over who was responsible for the materials once they had arrived on site. As a result, a lot of bricks and roofing materials were damaged during off-loading and moving.

Families were expected to provide around 10% of the bricks that were required through salvaging materials.

**Design modifications**

Following the pilot project, it was agreed with the local authorities that future projects would include two structural improvements:

- Walls should be strengthened by specifying cement mortar for the full height of the walls and not just the bottom 0.5m.
- There should be greater resistance to earth tremors through the addition of a reinforced concrete ring beam at the top of the walls.

The modifications increased the unit cost from around 740 USD to over 1,100 USD.

In the 10 months after the pilot project, significant numbers (thousands) of one room shelters had been completed for the floods response.

**Materials list**

Materials	Quantity
Excavation	8m <sup>3</sup>
Foundation: 3% cement & soil mixture	4.6m <sup>3</sup>
Brick masonry (Plinth) 1:4	4.6m <sup>3</sup>
Damp proof course	0.52m <sup>3</sup>
Brick masonry (Wall) 1:4	16.13m <sup>3</sup>
Lintel (reinforced concrete)	1.7m (long)
Wooden girder (roof)	12.3m
Bamboo	83.4m
Mat (2.4m x 6m)	3
Plastic sheet 6mx4m	1.5
20mm thick mud plastering	32m <sup>2</sup>
Door (wooden)	1
Woven mats	12



Different stages of the construction process. Houses were built with a bathroom and a kitchen. Photo: Kpakpo



## A.24 Pakistan - 2010 - Floods

### Case study:

See "Pakistan - 2010 - Floods - Overview", p. 70 for background.

#### Country:

Pakistan

#### Disaster:

2010 Floods

#### Disaster date:

July – September 2010

#### No. of houses damaged:

1.8 million houses damaged or destroyed

#### Project target population:

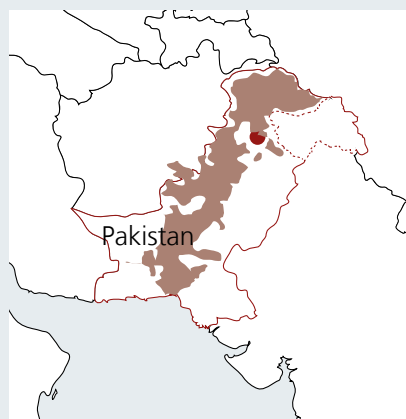
38,500 households  
Estimated 217,617 beneficiaries targeted

#### Shelter size:

Shelter sizes vary. 225 square feet (70m<sup>2</sup>) was recommended. For mud structures, this was the suggested maximum.

#### Materials cost per shelter:

300 USD cash per shelter provided.  
If DRR recommendations are followed cost to beneficiaries: 500 USD for a mud house, 1,000 USD for a fired brick house.



#### Project timeline



#### Project description

This large scale project provided cash to provide households with the means to buy materials and hire labour. Each household received the cash in 3 tranches. Each payment was made when a group of up to 25 households constructed to an agreed level. Payments were made via an agreed focal point for each group of households. The project was managed by 44 Implementing Partners spread over 3 provinces, most of them local agencies.

#### Strengths and weaknesses

- ✓ Cash transfer allowed households to use money in the way they saw fit.
- ✓ Transferring cash instead of materials meant that materials were purchased locally.
- ✓ Using community focal points to distribute cash proved to be overwhelmingly reliable.
- ✓ 25 households built shelters as a group, supporting each other in order to receive the next payment.
- ✓ Disaster Risk Reduction trainings and messages to communities resulted in safer houses.
- ✓ A monitoring and evaluation and an information management system ensured that the programme was carefully tracked.
- ✗ The banking system in Pakistan lead to cash transfers often being delayed.
- ✗ Because households were free to choose the construction materials they wanted, giving out disaster risk reduction advice to each household was difficult.
- ✗ Not all of the implementing partners had the shelter experience or the staff capacity to cope with the project requirements.
- ✗ Some organisations working in nearby sites provided different amount of money, leading to initial dissatisfaction among recipients and some drop outs.
- ✗ Internal requirements on financial accountability led to a significant amount of paperwork, requiring 59,064 separate signed documents (various forms, MoUs, approvals, receipts, checklists, etc.).
- Identifying the most vulnerable households required major efforts from the implementing partners and extra verification from the organisation.



## Before the floods

See Background: "Pakistan - 2010 - Floods - Overview", p. 70.

### Implementation overview

The project built One Room Shelters (ORS) through a cash transfer system. One room shelters were traditional houses that could be extended later. They were generally built with brick or mud walls.

The project allocated a total of 300 USD to build each shelter. Households were then able to use the money to procure materials and/or labour as they saw fit.

Technical advice was provided to help families to improve their resilience to future disasters.

The 300 USD that was provided to each household was nationally agreed between organisations in November 2010. Some projects that started later, or that worked in areas with seismic risks provided a larger amount per shelter. The organisation continued with 300 USD per household because it allowed more people to benefit.

Many households added their own resources to build their houses, in some cases selling assets such as livestock. Many beneficiaries also used emergency funds provided by the government through the "WATAN" card system.

Most households participating in the project built shelters that were significantly better than the house they had been living in before the floods.

## Beneficiary Selection

The village committee was responsible for selecting the most vulnerable households using the following criteria:

- 1) The house must have been destroyed or heavily damaged as a result of the 2010 floods.
- 2) In addition, one or more of the following criteria were met: no adult male in the family, disabled family member, medically unfit family member, elderly family member, family taking care of orphans, large family, or poor family.

The implementing partners verified that the targeting had been done using the criteria before people joined the programme. Monitoring staff also verified compliance with targeting criteria.

### Groups of 25 households

The organisation insisted that every household participating in the project worked as a group and completed each stage of construction before any household would receive the next tranche of funds.

The group of no more than 25 beneficiary households had to work together as a unit. It was stressed that none of the beneficiaries would succeed unless all of them succeeded.

It was understood that they had to help the most vulnerable people to complete their shelter as a precondition for getting money to construct their own shelter.

## Distribution in 3 tranches

Each household received 100 USD as an advance for digging the foundations and constructing the shelter up to the plinth level. Once the implementing partner had verified that all plinths had been completed, a request for the 2<sup>nd</sup> tranche of 100 USD was made and funds were subsequently distributed.

Once the Implementing Partner had verified that all walls had been completed, a request for the 3<sup>rd</sup> tranche of 100 USD was made and a final cash distribution was made for the construction of the roof.

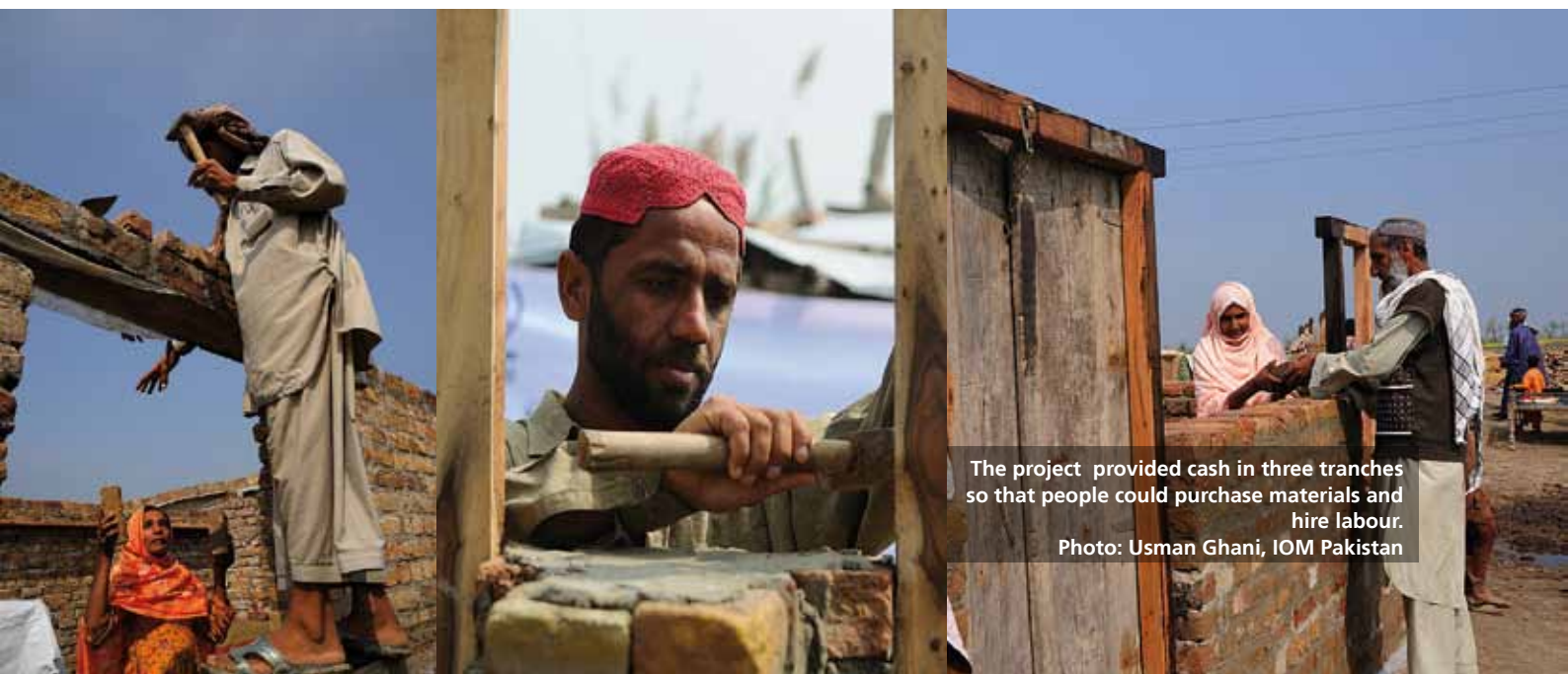
### Cash transfer focal points

In each village, a representative village committee was established. This was responsible for choosing a highly dependable and respected person from the community who would act as the focal point for the project.

The focal point brought money paid via his/her personal bank to the village and distributed it to each group of 25 beneficiary households.

When the focal point accepted the responsibility, he/she was given a Memorandum of Understanding to sign and told that bank charges related to the programme activities would be covered. Upon the successful conclusion of the project, he/she would also receive 175 USD.

It was explained that when beneficiaries signed the Memorandum of Understanding to participate in the programme, they were also



The project provided cash in three tranches so that people could purchase materials and hire labour.  
Photo: Usman Ghani, IOM Pakistan

accepting the focal point to receive money on their behalf. Once the focal point had received the money, it was no longer the responsibility of the implementing organisations.

The focal points brought three separate tranches totalling up to 2,500 USD each to the community. In only a handful of cases were funds not delivered to communities according to plan. This relatively small number of cases should be seen in the context that the programme worked with approximately 1,600 focal points.

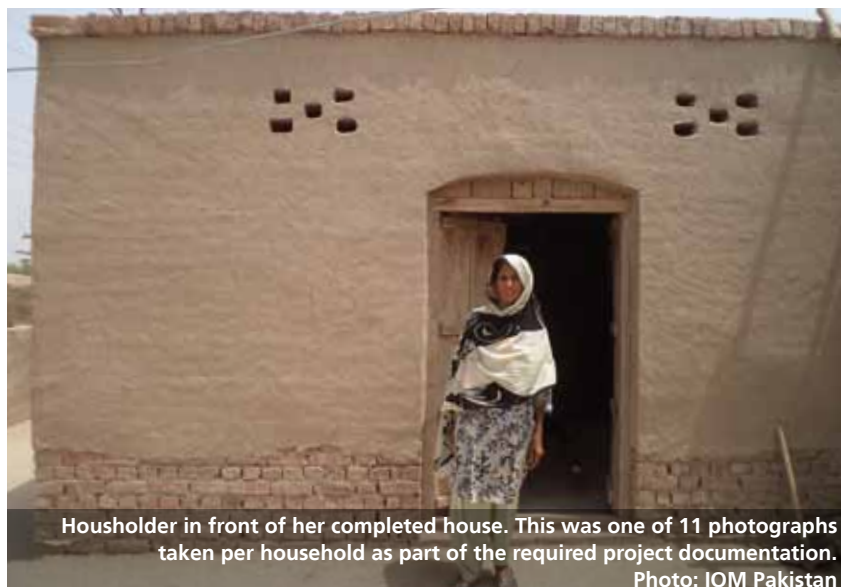
#### The 11 required photographs were:

1. Head of household standing in front of existing shelter
2. Head of household holding CNIC (National Identity Card)
3. Close up of CNIC card
4. Head of household standing in front of the empty plot where they are going to build
5. Head of household receiving first tranche (thumbprint on documentation)
6. Plinth level completion
7. Head of household receiving second tranche (thumbprint on documentation)
8. Wall level completion
9. Head of household receiving third tranche (thumbprint on documentation)
10. Roof level completion
11. Household occupying the shelter

#### Technical aspects

After testing techniques during the pilot phase, multiple, highly practical trainings for the implementing partners were held. Different messages were developed for different types of construction.

Many field visits were made to ensure that the messages were being disseminated to communities and used in the construction. Three posters were produced that showed the three main construction typologies and techniques that could make shelters stronger and more flood resistant.



Housholder in front of her completed house. This was one of 11 photographs taken per household as part of the required project documentation.  
Photo: IOM Pakistan

Land rights is a major issue in Pakistan, especially in Punjab and Sindh provinces which have large tracts of land under the control of landlords. In this project, no distinction was made between those owning and those renting land.

#### Monitoring

Implementing partners were required to fill in forms that established the vulnerability of the household, tracked the progress of the construction and tracked the distribution of tranches to beneficiary heads of households. In addition, the organisation had its own team that monitored around 7% of the households to verify targeting and to ensure that the construction progress reported by the implementing partners was being accurately described.

A great deal of monitoring both by implementing partners and the organisation ensured that households were meeting the construction thresholds.

GPS coordinates and 11 photographs taken during the course of cash distribution and construction were required for each beneficiary household so that construction progress could be comprehensively tracked throughout the process.

All of the information and photographic evidence was uploaded into a large database that was managed by a team of information managers.

In an effort promote transparency and answer any questions relating to the programme, posters in local languages were printed and posted in the communities. These posters had the phone number of a call centre where people could obtain information and make complaints.

#### Programme management

The programme operated in 3 provinces. The programme headquarters were in Islamabad but the day-to-day management responsibilities were devolved to four hub offices.

In Northern Pakistan, the organisation directly implemented the construction of shelters, whereas in Punjab and Sindh provinces the organisation worked with 44 Implementing Partners, of which all but 4 were local agencies.



Focal Points distributed money paid via their personal bank account to each group of 25 households.  
Photo: Carlo Gherardi

## A.25 Pakistan - 2010 - Floods

### Case study:

See "A.22 Pakistan - 2010 - Floods - Overview", p.70 for background

#### Country:

Pakistan

#### Disaster/conflict:

Floods

#### Disaster/ conflict date:

July – September 2010

#### No. of houses damaged:

1.8 million houses damaged or destroyed

#### No. of people affected:

More than 20 million people

#### Project target population:

300 families

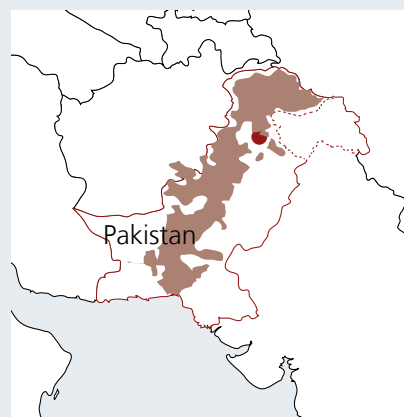
#### Occupancy rate on handover:

Unknown

#### Materials cost per shelter:

316 USD

The overall programme cost was significantly higher



#### Project timeline

12 months- – Project completion

7 months- – Project start

August 2010 -  Displacement in Sindh

#### Project description

Provision of 'One Room Core Shelter' for flood affected vulnerable families in Jacobabad, Sindh Province, Pakistan. This project used a staged voucher system for beneficiaries to source all materials and to pay labour. This reduced logistical delays and greatly increased beneficiary participation. The design incorporated some disaster risk reduction considerations whilst still using predominantly local materials and practices.

#### Strengths and Weaknesses

- ✓ Thick mud walls and roof keeps the inside of the shelter cool during summer.
- ✓ Mud was sourced from the immediate vicinity, reducing logistical delays and environmental impacts.
- ✓ Beneficiary led material procurement and quality monitoring resulted in high quality materials.
- ✓ Vouchers redeemable for cash to make labour payments allowed people to use the cash payments for other requirements.
- ✓ This shelter design was acceptable to landowners. The roof is the majority of the investment and belonged to the families.
- ✓ The shelters were designed so that during flooding, the mud walls could be washed away leaving the roof intact.
- ✓ The shelter could be easily extended. Another 2 columns and 1 girder would allow the shelter size to be increased in size by 50%.
- ✗ Relatively small scale project given size of disaster.
- ✗ Material costs increased by 38% during the implementation period.
- ✗ Demands for skilled masons exceeded local supply.
- ✗ Harvesting and planting seasons interrupted construction.
- ✗ Some local leaders tried to influence community committees and suppliers for political reasons.
- ✗ Budget did not allow sanitation facilities to be built.
- ✗ Variable security hindered monitoring activities.
- ✗ Recruitment of qualified field staff was extremely difficult given the competition and scale of reconstruction in the area.
- ✗ Structural integrity of the shelter highly dependent on good quality foundations. This was difficult to monitor.
- ✗ The project was unable to provide guaranteed security of tenure for the recipients due to the immense power of local landlords and the entrenched feudal systems of landownership.





The one room shelters were built using vouchers to pay for both materials and labour.  
Photo: Jake Zarins

### Before the flood

See "A.22 Pakistan - 2010 - Floods - Overview", p.70.

Jacobabad district has traditionally not been considered a high risk area for flooding; it was only due to the exceptional flood levels in the 2010 floods (and again in 2011) that the area was submerged and population affected.

There were extremely high levels of poverty before the flood with both bonded labour and a lack of land ownership for the majority. This greatly increased the affected population's vulnerability.

### After the flood

Jacobabad district was one of the hardest hit areas during the flooding, with almost the entire district submerged. An estimated 160,000 houses were destroyed and as many as 1.4 million people left without adequate shelter in Jacobabad district alone.

The bowl shaped topography prevented flood waters from receding and much of the land remained submerged many months after the initial flooding.

### Selection of villages

Villages were selected through close coordination with other humanitarian organisations, government authorities and relevant local actors to prevent duplication, and also with the organisation's projects in other sectors.

Communities were prioritised where the majority of buildings prior to the flooding had been constructed using traditional materials (mud or '*kacha*') and had been completely destroyed.

Additionally those villages with higher than normal proportions of extremely vulnerable people and groups (single parent families, persons with disabilities, the elderly, and those with no secure land tenure or rights) were given priority.

### Selection of beneficiaries

The implementing organisation used the following guidance on prioritising vulnerable groups for assistance:

- Poor families with three or more children.
- Women headed households.
- Households supporting orphans or disabled families and chronically ill family members.

Under these criteria all beneficiaries selected for shelter assistance were considered to be vulnerable.

### Community committees

Committees were formed consisting of beneficiary family representatives, village leaders and local decision makers.

These committees, under guidance from the community mobilisation staff assisted in promoting disaster risk reduction activities such as the raising of plinths on which

the shelters were to be built. They also led on shelter maintenance initiatives, the planting of trees (flood break/plinth binding) and other aspects of community safety and improvement (e.g. danger of illegal electricity connections).

Committees were also responsible for overseeing the selection of vendors for the supply of bricks and for the monitoring of delivered materials. This group-led procurement allowed communities as a whole to reject poor quality materials and negotiate timely delivery. This empowered communities and reduced the need for the implementing agency to be present during each delivery and ensured unscrupulous vendors could not take advantage.

### Beneficiary agreements

Prior to construction each beneficiary signed an agreement clearly stating the roles and responsibilities of the beneficiary, the community, and the implementing organisation. It highlighted that any deviation from the prescribed process or design would be solely their responsibility.

The community committees were also responsible to ensure the conditions of the MoU were reinforced and to assist project staff in dealing with any dissatisfaction or complaints.



If the owners had to move they would be able to keep the materials in the roof. These were the majority of the cost of the structure.  
Photo: Jake Zarins

### Technical solutions

The design was based upon brick and cement mortar columns. Each column was built on an individual foundation. These columns were aligned to support 3 steel girders and a traditional style flat roof of bamboo, reeds (*Khick*), plastic sheet and mud plaster.

Beneficiaries chose whether to build walls with either traditional compacted mud or with sun dried mud bricks.

The shelter was finished with either a mud or a stabilised mud plaster on both the interior and exterior walls to provide protection from slow rising flood water or heavy rain.

In the event of serious flooding and fast flowing waters the walls between the columns would dissolve leaving the roof intact.

The approach used materials and techniques that are familiar to the targeted communities. The thick mud walls help to keep the interior of the Shelter cool even during the extreme summer heat when temperatures rise above 50° C.

### Land tenure

The majority of the families in the project were tenant farmers or indentured labour who had for the most part occupied these areas for generations. Due to the complex feudal system of land ownership that dominates the region it was

impossible to negotiate secure tenure.

Despite negotiation, the land-owners refused construction of any form of full masonry (*Pukka*) structures. Under customary law the landlord automatically owns any part of a structure sunk into the ground. The roof which is the major part of the value of the shelter would still belong to the families. The expensive roofing girders could in theory be removed and taken away if the family were ever evicted.

MoUs were agreed with land-owners prior to construction to ensure beneficiary rights were secured as much as practically possible and would not be evicted from their homes to make way for other workers or families.

### Vouchers

To increase participation, and in consideration of a highly variable security environment, a voucher system was used which also reduced both the logistical burden and some of the quality control responsibility of the implementing agency.

Beneficiaries were trained in minimum quality requirements of the materials and then issued with a booklet containing phased vouchers for both materials procurement and labour payments.

Vouchers could only be redeemed following sign off from field staff who ensured benefi-

ciaries had undertaken work to the required quality, and reached the next stage in the construction process.

Pre-selected vendors would only receive payment once all vouchers for a community had been signed off by agency staff. Brick factories engaged in the project were monitored to ensure that no child labour was used.

### Implementation

Construction was completed in a comparatively short timeframe once project preparations had been finalised. The use of vouchers was extremely successful in ensuring timely delivery of good quality materials. The communities policed the process vigorously and did not hesitate to reject any materials they considered to be of poor quality. Any reloading and additional transportation costs were the responsibility of the suppliers and they rarely attempted to supply poor materials more than once.

At some stages in the project, seasonal cultivation activities reduced the availability of labour.

During the 4 months of project implementation, inflation increased material prices by 38%. The use of vouchers meant that the agency could negotiate directly with vendors for any adjustments in the value of the redeemed vouchers without slowing construction.