A.12 Indonesia - Sumatra - 2009 - Overview

Case study:

Summary

On 30th September 2009 a series of earthquakes struck West Sumatra, not far from the provincial capital of Padang. 13 out of the 19 districts in West Sumatra province were affected. Between earthquakes and landslides nearly 250,000 houses were destroyed or heavily damaged.

The Government of Indonesia responded rapidly, with the assistance of the national and international humanitarian community. Whilst non-government agencies focused on emergency shelter, distributing an average of 2 tarpaulins per family, the government focused on rebuilding provincial government capacity, search and rescue and emergency relief. The emergency phase was declared over within 8 weeks.

The Government of Indonesia committed to providing affected families with a community based economic stimulus package for permanent housing reconstruction, leaving the provision of emergency and transitional shelter to the humanitarian community, many of whom also focused on Disaster Risk Reduction based construction skills training.

Earthquake damage to a former 3 story government building in Padang.
Photo: Dave Hodgkin

Emergency distributions of two tarpaulines per household were made by reponding organisations.
Photo: Dave Hodgkin

Before the earthquake

West Sumatra is located at the convergence point of four tectonic plates and is highly prone to earthquakes. A recent earthquake in 2007 had damaged or destroyed over 43,000 houses.

As a result of numerous disasters, both the provincial and national government had significant experience. The recently formed National Disaster Management Agency deployed a Technical Advisory Team to assist in the immediate response and assist in the formation of it's provincial equivalent.

Although established national building codes, including seismic resistant construction guidelines for "Permanent" (masonry) houses, for "Semi Permanent" (part masonry), and for "Non-permanent" (timber or bamboo) houses, however, limited certification (15%) along with poor compliance and enforcement had resulted in a low quality of general construction.

In West Sumatra, most homes were privately owned particularly in rural areas, with most inherited through matrilineal ownership systems. They were constructed incrementally often with the support of remittances from male family members working in the "Padang" restaurants across Indonesia and Malaysia that the area is famous for.

Whilst rural housing was commonly self-built, urban housing was more commonly commercially constructed with a mixture of rental and non-rental housing.

After the earthquake

The disaster caused an estimated 2.3 billion USD damage to infrastructure and housing. Over 30% of housing stock in the affected areas was destroyed, making shelter a priority.

Initially rural and semi-urban areas were prioritised. In these areas, many families were living in inadequate, unsafe makeshift shelters, under tarpaulins within their plots of land, or staying in other people's homes or gardens.

200 USD "transitional shelter" of dissapointing quality built by an international organisation. Photo: Dave Hodgkin

Rural self help shelter built by earthquake affected family. Photo: Dave Hodgkin

Concerns over the approaching rainy season added to the sense of urgency.

Previous experiences within Indonesia indicated that public outreach programmes on earthquake resistant construction were important to ensure safe reconstruction.

Response capacity

The first few weeks saw intense international media attention and an ensuing influx of international and national funds. Over 200 agencies both national and international responded rapidly. Many had prior experience in Yogyakarta earthquake and/or remnant capacity in nearby Aceh and Nias Island from post tsunami and earthquake projects.

However many organisations, including the newly formed provincial disaster management agencies quickly found themselves overstretched. Many were still responding to an equivalent scale earthquake in West Java less than one month before. Many of the international agencies soon had to relocate capacity to the Haiti earthquake.

Emergency response

Extensive collapse of commercial and government building in Padang resulted in an initial focus on search and rescue with 21 teams of various sizes being deployed.

The Indonesian Government announced an end to the search and rescue phase within weeks, and allocated an initial 10 million USD to emergency relief.

An international coordination team arrived within four days of the earthquake to assist the Indonesian government in coordinating over 200 national and international responding agencies.

The initial shelter strategy was agreed eight days after the earthquake. The strategy focused on the distribution of tarpaulins and tents for the emergency phase, whilst identifying the need for transitional shelter and disaster risk reduction activities in the recovery phase.

Despite an overwhelming initial response to the disaster there remained a shortfall in funding, particularly in shelter and livelihoods. A total of 170,000 families were supplied with emergency shelter within the first two and a half months.

Recovery shelter

The Early recovery phase saw the government focusing on the development of permanent shelter assistance programs, whilst non government agencies focused on transitional shelter needs through a range of shelter packages. Most assistance was in the form of cash grants or material supply, to small community groups in line with government proposed methodology for community built reconstruction.

Transitional shelters commonly had timber frames. They were mainly clad with corrugated iron or tarpaulins for roofs and tarpaulins, plywood or timber for walls. Shelter packages commonly included a technical advice component. Many included advice on permanent reconstruction. 63,000 transitional shelter packages were provided with a cost varying from 200 USD to 500 USD per household.

Later assessment highlighted a lack of assistance to urban areas, with a range of agencies then running clean operations in these areas. Delays in material supplies and limited capacity saw transitional shelter projects continuing for over 9 months after the earthquake, overlapping significantly with the arrival of permanent reconstruction funds.

Government response

The government of Indonesia provided grants of approximately 1,500 USD for heavily damaged houses, 1,000 USD for medium damage (from the State Budget) and 100 USD for lightly damaged houses.

Two years after the earthquake, not all funds had been released, though much of the community had self funded reconstruction. The 2010 earthquake in the West Sumatra district of Mentawai Islands, further stretched and expanded provincial response capacity.

The initial government decision to focus only on permanent shelter was later reviewed in light of outstanding transitional shelter needs, with funds then allocated to transitional shelter in West Sumatra, and again in Mentawai Island and other later responses.

A.13 Indonesia - Sumatra - 2009 - Earthquake

Case study:

See "A.12 - Indonesia - Sumatra - 2009 - Overview" p.38, for background

Country:
Indonesia, Sumatra, Padang
Disaster:
Earthquake
Disaster date:
September 30th 2009
No. of houses damaged:
115,000 destroyed houses
135,000 damaged houses

This was a market assessment into brick production and so did not directly lead to the construction of shelters

Project timeline

Project description
This project surveyed brick production and anticipated supply and demand. It was conducted one month after the earthquake. The survey was conducted as a trial of the EMMA (Emergency Market Mapping and Analysis) methodology. The survey findings were used to inform the adopted strategy of using cash to support the construction of shelters that used both timber and bricks.

Strengths and weaknesses

✓ The assessment was conducted with team members from nine different organisations. This process increased buy-in to the findings of the assessment report, and helped to form consensus on the issues surrounding markets in the response.

✓ The bricks survey findings were used to advocate for a cash based response, and for a move away from solid masonry buildings which potentially carried a greater risk of causing injury in an earthquake.

✓ The survey came at an opportune moment after the earthquake. The timing of the survey needed to be long enough after the earthquake that team members could be identified, access was possible and those working at brick kilns could easily be found. Had it been any later it would not have been able to inform the strategy.

✗ Surveys looked at the use of bricks but not the use of timber to make the bricks.

✗ The survey did not address issues of the living and working conditions for those in the brick kilns.

✗ The survey used human resources, meeting time and vehicles that could otherwise have been used in implementing the response.

- It is difficult to accurately measure the impacts of this survey. Whilst it used human resources and absorbed time during an emergency response, there is some evidence that it helped to inform the strategies and programmes adopted.

- There are many markets that could have been surveyed. Bricks were chosen following experiences in Aceh (2004) and Yogyakarta (2005).

Poorly built brick-masonry buildings were a significant cause of the damage to housing.
Photo: Unknown

Background

See "A.12 - Indonesia - Sumatra - 2009 - Overview" p.38.

After the earthquake

The earthquake in September 2009 destroyed or damaged over 200,000 houses in West Sumatra. Poorly built brick based masonry caused many of these buildings to collapse.

The Indonesian Building Code specifies that a "Permanent House" means masonry, "Semi Permanent" means masonry sub walls and timber above, whilst "non-permanent" means timber or bamboo.

Experience from previous disasters in Aceh (2005) and Yogyakarta (2006) showed that the demand for bricks for housing reconstruction quickly outstrips the available supply. This often led to an increase in the price of bricks, and / or periodic supply shortages that delay reconstruction progress.

What is EMMA?

This research was conducted to trial EMMA (Emergency Market Mapping and Analysis). EMMA is a tool designed to analyse markets following a disaster. EMMA uses background research, interviews, and graphic representations of market systems to help inform humanitarian response options. EMMA defines a market system as "a web of people, businesses, structures and rules that take part in producing, trading and consuming a product or service."

For more information on the EMMA methodology, download the EMMA Toolkit from: http://emma-toolkit.org

Brick making in Sumatra

Brick making involves five steps and is labour intensive.

1. **Mixing:** Clay, sand and water are mixed together in open pits by foot, shovels or water buffalos. Larger manufacturers use mechanical mixers.
2. **Shaping:** The mix is compressed in wooden frames. On average, a skilled labourer can produce 1,000–1,500 bricks per day.
3. **Air drying:** The bricks are laid to dry in the sun for 5 days. Bricks are then stacked and air dried for 30-60 days, depending upon the weather.
4. **Kiln drying:** The dry bricks are loosely stacked in open air kilns without chimneys. These kilns are rectangular or circular shapes. Mud is plastered around the outside of the brick kilns to trap the heat from the fire, with space for smoke to escape and oxygen to enter. The average height of a brick kiln is 2m tall. Bricks are typically kiln dried for 10 – 14 days.
5. **Distribution:** Manufacturers sell their bricks directly to masons, home owners, brick distributors, and / or building supply stores. Transportation charges are typically 30 - 60% of the total brick price.

Damage to supply

The survey suggested that over 50 million bricks were damaged in the earthquake.

The majority of the supply was through small scale suppliers. There

Many of the bricks were made by hand.
Photo: Unknown

Much of the capital for small scale manufacturers was the bricks in their kilns.
Photo: Unknown

were 1,800 small scale brick manufacturers, who produce an average of 15,000 bricks per month. These were the most severely affected of all brick manufacturers. The financial capital of these producers was often tied up in the number of bricks they had in their kiln, making it difficult to restart manufacture.

Medium scale manufacturers (45,000 bricks per month) also suffered production losses due to the earthquake, but their stronger financial position meant that they were better able to resume production. It was estimated that it would take 6–8 weeks for these manufacturers to bring new bricks to the market.

Most of the larger scale brick manufacturers were located up to 90km North East of Padang. Some large brick manufacturers reported losing 35% of their brick production in the earthquake, while others did not report significant losses.

Brick prices and financing

Pre-earthquake brick prices ranged considerably according to quality, seasonality and transport costs.

Following the earthquake brick prices from suppliers for mid range quality bricks increased by between 25% and 50%. The assessment found that these prices were likely to continue to rise to 150% of their pre-earthquake cost.

Two years after the survey, brick prices in Pedang were between 60% and 100% higher.

Both small and medium scale brick manufacturers used informal credit and selling arrangements with their customers and distributors. Local supply stores typically paid small-scale manufacturers for bricks once they had sold them.

All brick manufacturers, but especially small and medium scale producers, had limited storage and warehousing space. These space limitations forced manufacturers to move their bricks to market quickly. It encouraged large suppliers and distributors to increase their prices to meet speculative market demand.

The survey used teams from nine different organisations working together. Photo: Unknown

Brick demand

60% of all households interviewed indicated that they would re-use as many bricks as possible. A rough estimate suggested that many households would be able to salvage 800-1200 bricks from the rubble. As an average size brick masonry house of 10m X 12m used approximately 10,000 bricks, approximately 10% of this demand would come from recycled materials.

Although 67% of all households interviewed said they lived in a brick masonry house before the earthquake, 54% of the brick masonry households indicated they would prefer to rebuild timber and brick houses. Safety concerns were most often cited as the reason for this preference, followed by cost considerations.

There was some concern raised that recycled bricks would not perform so well as new bricks because as cement mortar cannot bind to them so well.

Gender issues

Women made up 40 - 60% of the labour force of small and medium scale brick manufacturers. They were typically paid on a piecework basis for each brick they made. Male brick labourers are likely to receive a daily wage for their work.

As current brick production for many small-scale producers is affected, the ability of brick making women to earn wages was temporarily disrupted.

Possible scenarios

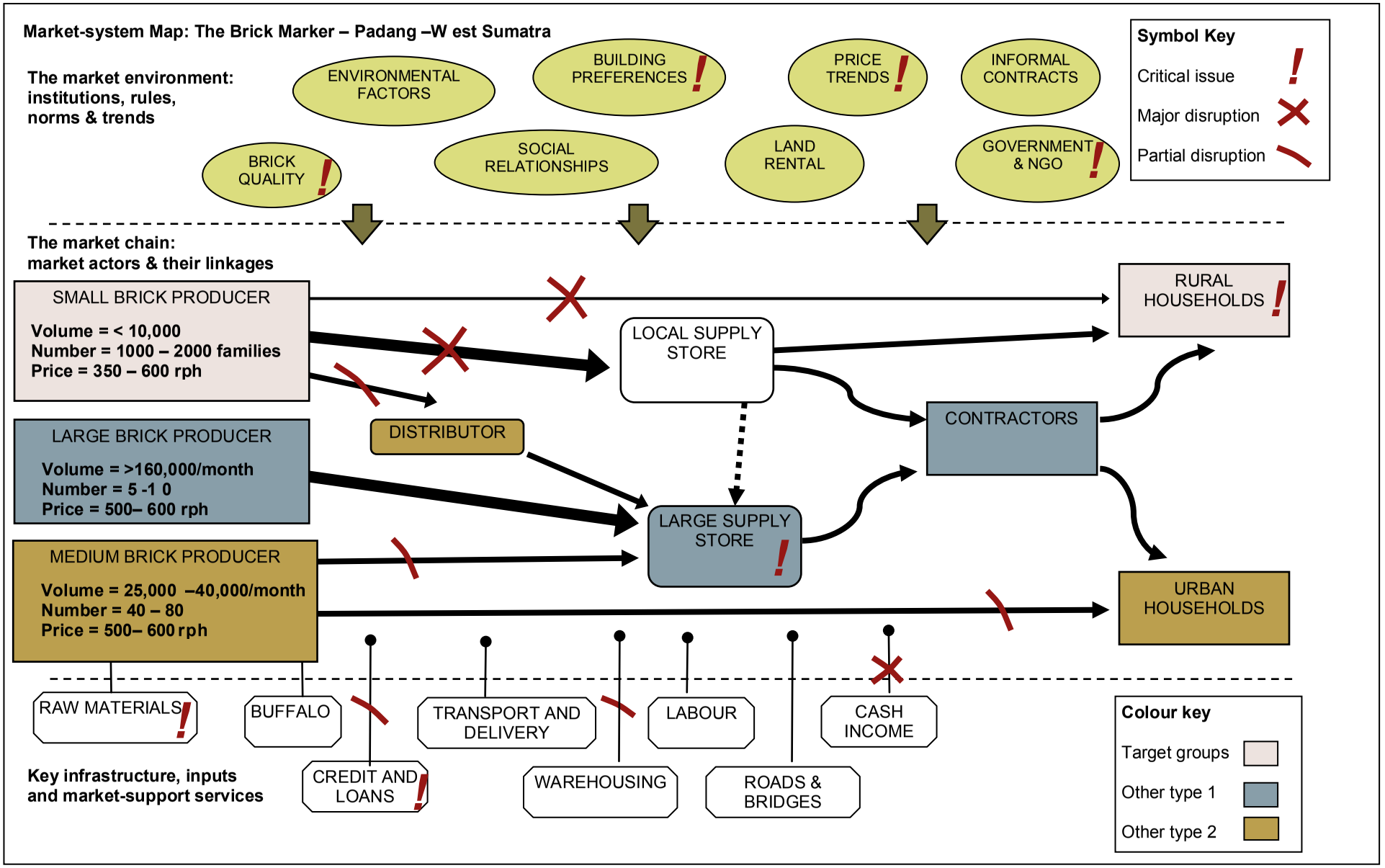
The analysis suggested that:

- Earthquake damage to regional brick production capacity would likely lead to higher brick prices and delays in rural housing reconstruction. Large brick manufacturers were likely to reach previous production capacity within two months. Resulting transportation cost increases could lead to a price increase of between 100% and 150% per brick.
- Small - scale brick manufacturers would be slow to resume pre-earthquake production levels without financial assistance or favourable credit terms. Their ability to resume production was restricted due to capital shortages, or favourable credit arrangements.
- The demand for timber and bricks was high, and was likely to increase. Over 60% of earthquake affected households interviewed in this survey indicated that they planned to rebuild (or would prefer) timber frame houses with brick masonry infill walls over full masonry construction. Concerns over seismic safety, speed of construction, and lower costs were the main reasons for this change in preference.

Impacts of the survey

Because the survey was conducted by teams from many organisations, it helped to get support for the findings. Although not all of the recommendations were implemented, it did help organisations and coordination teams to form an advocacy position away from building full masonry structures, instead promoting semi-timbered structures with support provided in cash.

A main tool in EMMA is the Market-System Map. This helps to visualise the difference between the markets before and after the earthquake.
This map is for the brick market in Padang following the earthquake. The black arrows show how bricks reached homeowners from the different scale suppliers, and the red lines show which supply routes were interrupted.



A.14 Indonesia - Sumatra - 2009 - Earthquake

Case study:

See A.12, "Indonesia - Sumatra - 2009 - overview", p.45 for background.

Country:
Indonesia, Sumatra, Padang

Disaster:
Earthquake

Disaster date:
September 30th 2009

No. of houses damaged:
115,000 destroyed houses
135,000 damaged houses

No. of people affected:
Approximately 1,250,000 people affected through total or partial loss of shelter and livelihoods

Project target population:
Shelters for 750 families
Household items to 30,000 families

Occupancy rate on handover:
Unknown

Shelter size:
Variable

Materials cost per household:
275 USD

Project timeline

Project description
Cash was distributed to allow 750 families to build transitional shelters. It built on the initial emergency shelter response in West Sumatra in which a package of shelter materials, toolkits, common household supplies and basic hygiene items had been supplied to 30,000 families. Each beneficiary household received approximately 275 USD and technical training on safe construction and minimum standards for shelter. A partner organisation provided technical advice on construction.

Strengths and weaknesses

✓ Cash grants helped people buy what they needed for construction. People had flexibility to build what they wanted.

✓ The injection of cash into the markets boosted the local economy and has assisted the self-recovery of other community members, who are also starting to rebuild their homes.

✓ Despite the amount of money being insufficient to complete all work required, it gave people a strong starting point to begin recovery. Many people became motivated to begin construction.

✓ Existing relationships between project staff and communities helped trainings and cash distributions run smoothly, even though there was some unrest from those who had not received support.

× The sum of money was too small for all construction.

× Project timeframes may have rushed construction and not have encouraged families to build safely.

× There was some resentment from those who did not receive cash grants. There were sometimes very slight difference between recipients and non-recipients circumstances, which made it hard for some to understand why they had not received support.

× Transitional shelter support should have arrived earlier. After three months of living in inadequate shelter, many households were ready to build semi-permanent structures.

× The half day of training provided to beneficiaries was insufficient. House improvements were not covered in trainings.

- There are strict rules that limit logging locally. Many beneficiaries only used trees from their own land.

- The local cost of materials did not increase. However, there was a reported increase in the cost of skilled labour, which was in low supply and high demand.

Background

See "A.12 - Indonesia - Sumatra - 2009 - Overview" p.38.

Distributions

The organisation initially responded with non-food items. This started 4 days after the initial disaster. Rapid response was made possible by pre-positioned stocks in Indonesia, held in the cities of Medan, Jogjakarta and Ambon.

From October to December 2009, shelter kits, tool kits, household and hygiene items were distributed to 30,000 families.

Transitional shelter

In January 2010 the organisation shifted its focus to transitional shelter through cash programming. This was aimed to complement the organisation's previous work and give earthquake affected people the flexibility to purchase materials and construct homes that met their needs.

The approach of providing cash to enable self build was encouraged by the government, as it complemented its own program to distribute larger cash grants to facilitate permanent construction.

Selection of beneficiaries

The selection of the community was based on the organisation's existing knowledge from its initial response and consideration for the need to have a close liaison with local authorities and key stakeholders.

In each community, the organisation presented the information in meetings. The communities then elected local committees. The organisation requested that these were gender balanced and representative of different age and social groups.

The committee's role was entirely voluntary and a Memorandum of Understanding was signed with each committee to lay out clearly their roles and responsibilities.

Each local committee was asked to produce an initial list of beneficiary households, whom they believed matched the targeting criteria. These lists were then posted publicly.

Project staff verified each household recommended by the committee and selected 620 names for the final beneficiary lists giving priority to the most vulnerable and needy, taking into account the targeting criteria.

Implementation

The organisation distributed cash grants in two instalments.

An initial cash grant of 80% was followed by house by house monitoring to assess whether cash was being used for shelter and the compliance with minimum standards.

A second grant of 20% was distributed. For both payments, vouchers were given that were later exchanged for cash by the mobile post office.

Delivery mechanism:

The organisation initially considered using a bank to distribute funds, but not all beneficiaries had a bank account or could go to the nearest town to collect the funds.

After consulting the communities and other organisations working in the sector, the Indonesian postal service (Pos Indonesia) was selected as the best way to distribute the cash grant.

A mobile post office distributed the cash grants directly to each beneficiary in their village. Other organisations had already used this system and its feedback was very positive. Since cash grants would be distributed directly to each beneficiary, there was no need to establish beneficiary groups and train their members to manage the funds.

Market analysis

In order to monitor the impact of the cash injection into the local economy; market surveys were carried out at 3 project intervals. A baseline market survey was conducted prior to cash distribution, in order to establish the local availability and cost of materials. This was followed by two further market surveys after the disbursement of the first and second instalments of the cash grant.

Technical solutions

Technical support was provided through two different kinds of trainings:

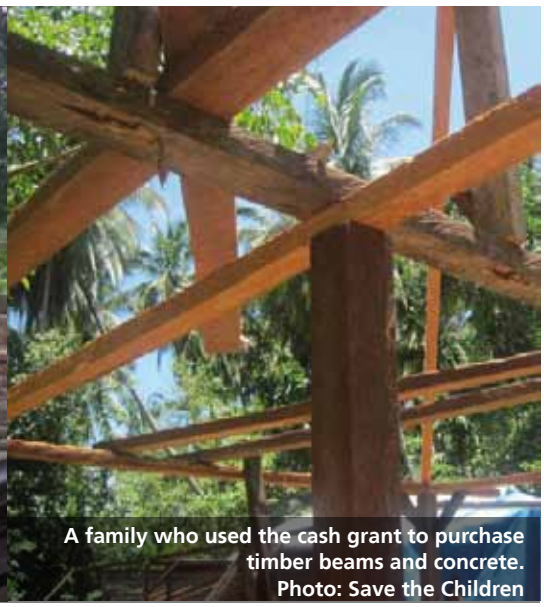
1) Training facilitators

Project staff received training from an international organisation. While the training provided on T-Shelter gave staff sufficient grounding in good T-shelter construction both for community training and monitoring, they were not sufficiently equipped to assess

Many materials could be salvaged. Cash grants allowed people to pay for materials and labour according to their needs.

Temporary shelter built whilst owner was awaiting labour to complete his house. Photo: Save the Children

House for 9 people under construction in the foreground.
Photo: Save the Children



A family who used the cash grant to purchase timber beams and concrete.
Photo: Save the Children

semi-permanent structures or renovations to damaged homes which the majority of beneficiaries had opted for.

2) Training beneficiaries

Project staff held 11 two hour workshops in the villages, to disseminate technical information about construction standards and methods among selected beneficiaries. At the end of their training, beneficiaries received vouchers to be exchanged by cash.

Complaints response mechanism (CRM)

1) At the targeting level

The committees posted the final list of names on community notice boards. At the same time, boxes were installed to collect complaints from those who had not been selected, so they had an opportunity to make their case. Three days later, boxes were collected. After analysing the messages and complaints, meetings were to be held with committees. If those who had complained qualified, they would be added to the final beneficiary list.

2) At the implementation level

The community would be able to file complaints and give feedback throughout the entire duration of the project, not only during the selection phase. The communities would have the opportunity to meet directly with staff during their visits, approach shelter committees or drop a note in a confidential complaints box. During February the monitoring and evaluation team also enabled a "complaints hotline" for all sectors, so people could call or send their comments using text messages.

Monitoring

During the monitoring phase, the team used guidance and an agreed format to check the compliance with the following cluster-agreed minimum standards:

- Materials and construction should allow for 24 months of use.
- A minimum of 3.5m^2 covered living area per person.
- A minimum of 2m from the ground to the eaves.
- The roof should provide adequate strength and have a pitch of at least 25^0.
- There should be adequate ventilation.
- The shelter should provide protection from rain.
- There should be at least one internal division for privacy.
- Building should use safe construction techniques to minimize the impact of further natural hazards.

A "renovation": the roof and foundations were solid - the owner used materials bought with the grant to repair the shelter.
Photo: Save the Children

A.15 Indonesia - Sumatra - 2009 - Earthquake

Case study:

See "A.12 - Indonesia - Sumatra - 2009 - Overview" p.38 for background.

Country:
Indonesia, Sumatra, Padang

Disaster:
Earthquake

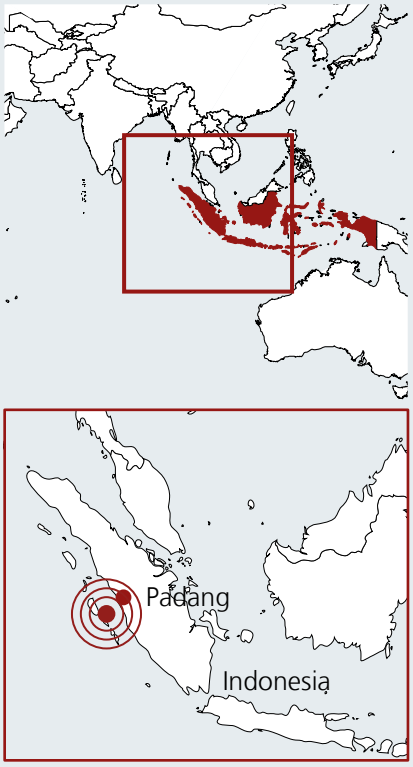
Disaster date:
September 30th 2009

No. of houses damaged:
115,000 destroyed houses
135,000 damaged houses
(approx. 70,000 in Padang city)

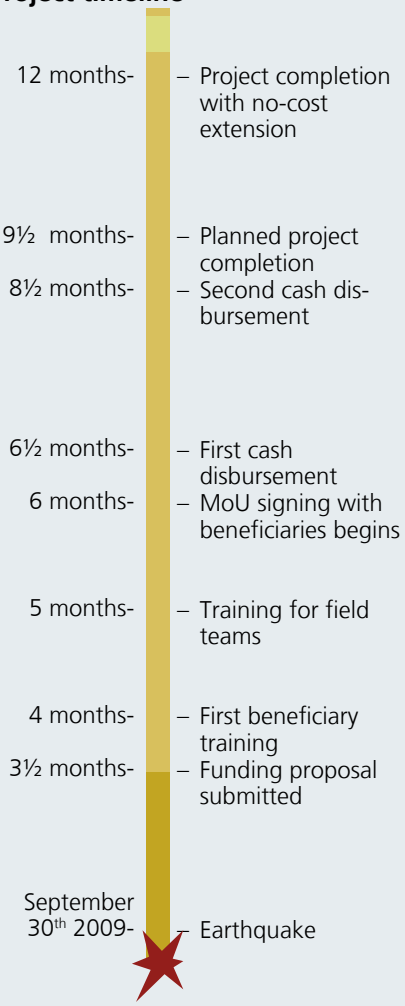
Project target population:
3,400 households (3% of overall houses destroyed)
Occupancy rate on handover:
66% of all shelters occupied 12 months after the earthquake.

Shelter size:
Variable

Materials Cost per household:
Cash grants for T-shelter:
330 USD per unit
Government estimates for reconstruction of a destroyed houses: 1,600 USD



Project timeline



Project description
An international non-government organisation working through a local partner provided cash grants for shelter. Conditional cash grants were given to 3,400 families in two instalments. The local partner used six mobilisers to give technical support. Beneficiaries paid for materials and labour to build timber homes. Most shelters took 10 weeks to build. 77% of the shelters were completed within 12 months of the earthquake.

Strengths and weaknesses

✓ Each family was able to build according to their needs and wishes. This improved ownership.

✓ Families built shelters that they felt were permanent. Families invested and built quickly.

✓ A transparent complaints mechanism helped with the perception that beneficiary selection was fair.

✓ The project worked in remote rural remote areas because people had space, owned that space and owned non-productive coconut trees.

× A disaster risk reduction opportunity was missed for people with damaged housing.

× The 120 field monitors and community volunteers had only a few days technical training. It was not realistic to expect them to check the construction quality of 3,400 unique houses.

× People without land or with damaged housing did not get cash or any technical assistance and often rebuilt dangerous brick structures.

- Standard designs would have made quality control much easier. However this would have curtailed the freedom of the beneficiaries to build according to their needs.

- Donors had some concerns that permanent housing had been built with emergency funding.

- The houses built might have been "safer", but It is a mistake to refer to them as earthquake or hazard resistant.

Background

See "A.12 - Indonesia - Sumatra - 2009 - Overview" p.38.

Before the earthquake

In West Sumatra, most families owned their houses before the earthquake. The region has a matrilineal system with women owning and inheriting land and housing. On marriage, the new husband will move on to the land of his wife's family. Housing has symbolic and social importance.

Family houses are built bit-by-bit. In rural areas people usually paid local builders to build or sometimes built houses for their own families.

Houses are not purely a financial investment. Remittances are a major source of housing finance and cash incomes are irregular and seasonal.

Organisational capacity

Before the 2009 earthquake, the organisation had significant practical emergency experience. Both the international organisation and its partner understood the need for experienced staff and sufficient time for community engagement.

The organisation also had experienced senior managers and partners who knew the community and spoke the local languages. The local partner organisation additionally had good and long term relationships with the affected communities. This reduced the need for lengthy formal assessments.

After the disaster

The earthquake of September 2009 destroyed 115,000 houses, and damaged 135,000 houses. In Padang the government responded with assessments and the promise of compensation. Many households affected by the 2007 earthquake were only just receiving compensation at the time of the 2009 earthquake so families did not expect compensation to arrive quickly.

Beneficiary selection

The communities were selected because the partner organisation knew them well.

To be included in the project, beneficiaries had to have land for a shelter and a destroyed house. Selected families were in a good position to complete their shelters as:

- They were in less urbanised areas and had previously lived in single storey buildings.
- They had access to timber and experience of using it.
- They saw the transitional shelter as a permanent home, worth finishing and worth investing in.

More than 9000 households were surveyed and given a vulnerability and eligibility score. Selection criteria included female and senior headed households, low-income families, pregnant women and children under 5.

Feedback and complaints

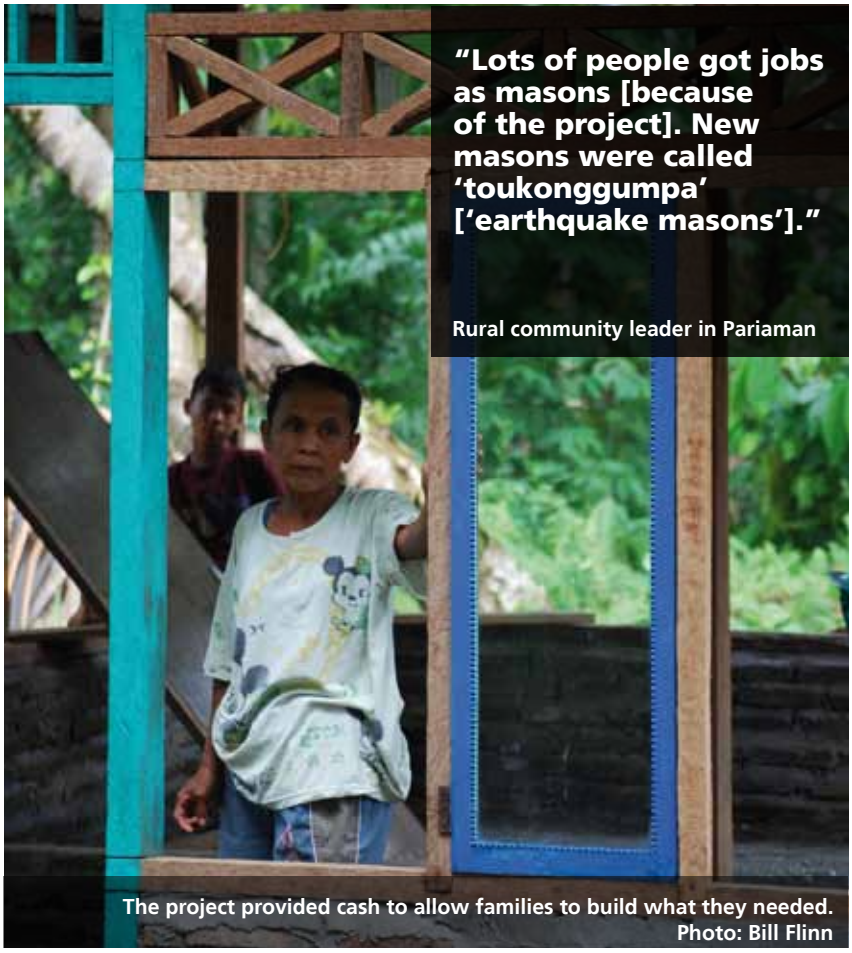
The community feedback and complaints mechanisms were essential to the running of the project. This system built on lessons learned from the 2005 tsunami response and Jogyakarta / Central Java earthquake response programmes.

The draft lists were posted in the communities along with posters explaining the selection criteria, detailed definitions of the project, an outline of a step-by-step implementation plan, and a hotline telephone number to call or SMS feedback, complaints or requests for information.

Senior project managers operated the phone and were available for office visits and had after hour telephone numbers posted on the office door. Each and every case was followed up on an individual basis with village government and community committees.

Implementation

Assessments and existing experiences showed that communities had the capacity, access to materials, labour and community cohesion to manage cash to build transitional shelters. A cash approach was also promoted by the Shelter Cluster. Beneficiaries built according to their needs, wishes and resources. This encouraged fast construction and a sense of ownership leading to high



The project provided cash to allow families to build what they needed. Photo: Bill Flinn

Monitoring safety of the structures was very challenging given that each family had the freedom to build according to their needs. Photos: Bill Flinn

completion rates and additional investment by beneficiaries. This was despite their low and irregular incomes.

The amount of cash was agreed with other agencies. It was enough to build a shelter if supplemented by salvage and available resources. The cash was given in two instalments (3 million rupiah or 330 USD). People could only get the second amount if they built a safer house.

Grants were delivered via the Indonesian post office in two stages. First the participants received 75% of the funds to complete 85% of the construction. In the second phase, the remaining 25% of the grant was disbursed.

At the outset of the project, families had to sign a Memorandum of Understanding that committed them to spend the money on timber framed transitional shelter and not on a permanent house or repairing an original house.

Technical

Four models of shelter were designed, but beneficiaries were free to build according to minimum standards.

A 60-strong team of mobilisers was established to motivate beneficiaries to build to an agreed quality and on time, over 10 weeks.

Participants received technical trainings on construction and how to use salvage materials. Better construction was promoted through minimum construction standards; training for field staff, beneficiaries and masons; production of posters and pictures; and weekly technical monitoring visits for all recipients of the cash.

Logistics and materials

Outsourcing material procurement and cash distributions was decided to be more effective than using the organisation's internal and limited capacity.

Good roads for material supplies and spare local capacity for labourers and suppliers to start up helped the project.

It was possible that more remote communities might have to pay higher prices for transport and labour. However, it turned out that people further from roads paid only slightly higher prices. The fixed cash grant for all families was seen as fair.

Impact

Twelve months after the earthquake: 77% (2,603) of the transitional shelters were complete, 11% (369) of the shelters were incomplete but in progress, 8% (265) of the shelters were incomplete and without sufficient progress to receive the second cash instalment, and less than 5% (163) had not been built.

Participants interviewed during the final evaluation stated that they had spent between 500 USD and 1,000 USD of their private funds in completing the shelters, and that the grant served as an "injection of motivation to a traumatised population".This resulted in variations in final shelters with many exceeding the minimum quality standards.

It is difficult to evaluate impacts on a local economy (especially without baseline data) but new jobs as "earthquake masons" and as "chainsaw masons" were created by the project. The injection of cash and short time frame for building briefly inflated the prices of some labour and some materials. Cash also appeared to have pushed some new businesses to open (e.g. a hardware store).

Completed homes were likely to be "safer" than the construction practices that have become prevalent over the past 30 years but cannot be described as earthquake or hazard resistant. The freedom which was a strength also lead to a wide variation in quality and divergence from design principles.

Guidance used for a feedback and complaints handling mechanism

- Ensure that simple complaints and feedback mechanisms are written into project strategy and budget.
- Ensure that 'complaints handling' is written into job descriptions of staff at all levels of the organization, and that staff are adequately prepared and trained in handling complaints.
- Consult communities and select context appropriate means of communication and technology to receive feedback and complaints and provide a response (e.g. phone or email systems, visiting hours, feedback boxes).
- Define the process for complaints handling including timeframes, appeal process and explain the complaints you can and cannot handle.
- Ensure the mechanisms are safe, non-threatening and accessible to all.
- Inform communities about the complaints process, explain it is a right and encourage communities to use it.
- As much as possible, involve local community members, leaders and authorities in the handling of registered complaints.
- Provide communities with relevant and timely information about project criteria and parameters to use the feedback and complaints mechanisms, and of improvements and changes made to the project (or why changes are not possible).
- Ensure sufficient time and flexibility of implementation to respond to complaints.
- Keep records of incoming feedback and complaints, and evidence of follow-up to allow senior management supervision and external evaluation.
- Ensure mechanisms are in place for serious complaints, like allegations of sexual abuse, fraud or other sensitive issues.

Various types of structure were built during the project. Photos: Bill Flinn