

OVERVIEW

# ECUADOR 2016 / EARTHQUAKE

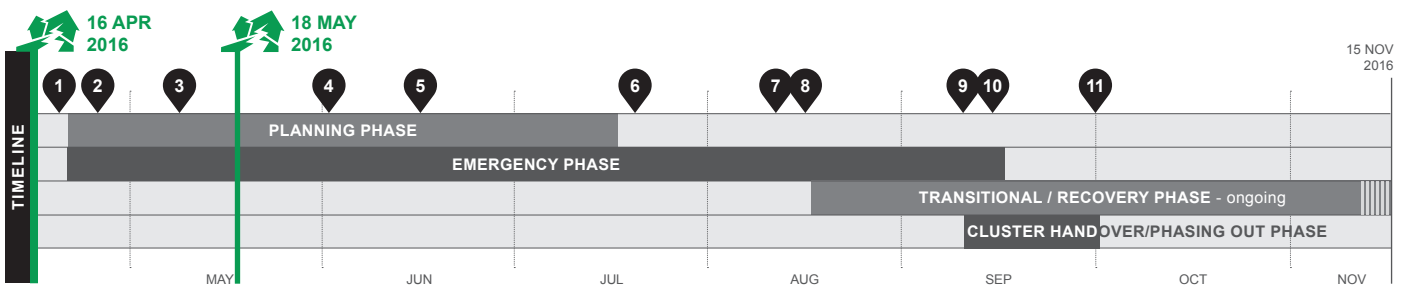
<b>CRISIS</b>	<p><b>Ecuador Earthquake, 16 April 2016</b></p> <p>More than 2,000 aftershocks were felt in the 6 months after the earthquake. 9 of these were equal to / greater than 6 on the Richter scale, adding to the initial damage.</p>
<b>RESPONSE LOCATIONS</b>	<p>Primarily the Provinces of <b>Manabí and Esmeraldas</b> (total of eight affected provinces).</p>
<b>TOTAL HOUSES DAMAGED</b>	<p><b>45,455</b> houses categorized as insecure or of restricted use (Government figures as of Dec 2016).</p>
<b>TOTAL PEOPLE AFFECTED</b>	<p><b>386,985</b> people (as per the Government Register).</p>
<b>BENEFICIARIES OF THE RESPONSE</b>	<p><b>151,699</b> people (38,045 families).</p>
<b>RESPONSE OUTPUTS</b> As of December 2016	<p><b>45,464</b> households reached with NFIs / kits.</p> <p><b>14,581</b> households reached with tarpaulins.</p> <p><b>1,186</b> tents.</p> <p><b>12,178</b> households trained.</p> <p><b>1,453</b> houses repaired.</p> <p><b>2,962</b> t-shelters built.</p> <p><b>505</b> households receiving construction materials.</p>



The earthquake affected primarily the two north-western coastal provinces of Manabí and Esmeraldas, with its epicentre near the town of Muisne.

**SUMMARY OF THE RESPONSE**

On 16 April 2016, a 7.8 magnitude earthquake struck the coastal areas of north-west Ecuador, impacting eight different provinces across the country and damaging or destroying over 45,000 houses. The response was led by the government and consisted of an emergency subsidy package followed by a reconstruction plan for the longer term. The international community assisted primarily in the emergency and transitional phases in rural areas and with advocacy and capacity-building activities.



- 1 20 Apr 2016: Shelter Cluster activated.
- 2 28 Apr 2016: Establishment of Technical Working Group.
- 3 4 May 2016: Draft shelter sector strategy document agreed.
- 4 30 May 2016: Temporary shelter options submitted to government.
- 5 13 Jun 2016: Position paper submitted to government (MIDUVI).
- 6 20 Jul 2016: Updated shelter options presented to government.
- 7 11 Aug 2016: Finalisation of agreed key messages.
- 8 15 Aug 2016: Request from government (MICS) for implementation of transitional shelter solutions.

- 9 9 Sep 2016: Workshop on lessons learned.
- 10 12 Sep 2016: First Training of Trainers in use of key messages.
- 11 28 Sep 2016: Official cluster handover.



Families affected by the earthquake set up emergency shelters (Chamanga).



The urban area of Portoviejo was particularly affected by the earthquake. Here is an image of the centre, soon after the first earthquake in April 2016.



The initial response of the government was to set up 28 camps across the affected areas. About a year after the earthquake, many of these were still open.

## CONTEXT

Ecuador is an upper-middle income country in Latin America, with a population of around 14.5 million people. It is a country that is resource rich, but also highly vulnerable to natural hazards. Around 96% of the population live in coastal and mountainous areas that are exposed to earthquakes, volcanic activity, floods, landslides and El Niño hazards including drought.

In the early to mid-2000s, the economy in Ecuador enjoyed a high growth, due in large part to its petroleum resources and strong global oil markets. Although there was rapid growth and progress in health, education and housing, it did not always ensure high standards. Income during this time also remained unequal and levels of poverty high in some provinces. In 2015 and 2016, the collapse of oil prices contributed to push the economy back into recession, further exacerbating disparities for vulnerable populations and increasing general pressure on society.

## SITUATION BEFORE THE DISASTER

Prior to the earthquake, there were a number of pre-existing vulnerabilities in the country. The hardest hit provinces of Manabí and Esmeraldas had levels of poverty about 30% and 40% respectively. Both provinces were over 40% rural. Almost half of the homes lacked access to public water networks and only a third had access to a sewerage system. The livelihoods of many people in the affected coastal areas depended on fisheries, aquaculture and tourism.

In urban areas, poor land use planning in many towns had resulted in an increase of inadequate and informal settlements. A high proportion of the population across rural and urban areas had no access to recognized land titles. Sub-standard and unsafe building practices and regulations were in evidence across a number of different building typologies, from lightweight to masonry construction.

## SITUATION AFTER THE DISASTER

The above vulnerabilities played a significant part in the high impact of the earthquake. Post disaster, an estimated 60% of the affected people found themselves without adequate housing and/or sanitation and little knowledge of how to access support. In some communities, up to 80% of the local housing stock was lost. Many people were forced to find alternative housing solutions away from their home, affecting critical socio-economic networks and support systems. In the first weeks following the earthquake, people sought refuge in makeshift camps or in community buildings, such as schools. Government-run, planned, camps - the official national solution - were established from May onwards and financial incentives were given during the emergency to support: 1) host families; 2) rentals (though the available rental stock was scarce).

Despite these options, many people chose to stay either on or close to the land they inhabited prior to the quake, often staying in unstable or inadequate shelter to retain links to their livelihoods, networks and assets, until more permanent solutions could be found. This presented a number of problems, not only because people stayed and rebuilt in dangerous situations, or designated no-build zones, but also as it hampered their access to formal assistance mechanisms.

## NATIONAL SHELTER RESPONSE

Given the extent of the damage, the government requested international support. Two weeks later, the Shelter Sector leads established coordination services and set up a response team, ensuring co-leadership of the Sector with the Vice-Minister of the Ministry of Housing and Urban Development (MIDUVI). The Sector leads provided field and desk support and ran weekly meetings in the hubs of Quito, Portoviejo and Pedernales for the first four months and thereafter every two weeks, until the formal handover in late September 2016.

The government's reconstruction plan "Reconstruyo Ecuador", was released by MIDUVI in early May as a mechanism to provide rapid support for housing repair and reconstruction through financial assistance in the eight affected provinces. To complement these plans, which were mainly focused on urban areas and outskirts, Shelter Sector partners directed their assistance predominantly to the rural areas. The strategies of the Sector built up from immediate lifesaving activities, to transitional and permanent shelter options, along with technical assistance to communities, which included Build Back Safer messaging and Housing, Land and Property (HLP) support.

Sector partners were restricted in the early months of the response, especially with transitional shelter options, due to perceived conflicts with government reconstruction plans. Successful projects by humanitarian actors (including A.40), were able to provide assistance by being adaptable and not compromising the position of the humanitarian community, or the government. Such responses included distribution of relief items (tools and emergency shelter kits) along with brief technical training, to allow beneficiaries to make simple repairs to their homes, or build small impermanent shelters that allowed them to stay on their land. More durable solutions from the Sector were later approved in areas where the government was projected to take many months to provide permanent housing solutions.

The Shelter Sector also collaborated with the Protection Sector, to establish the HLP Working Group. This group has worked closely with the government at all levels to ensure more inclusive access to the reconstruction and repair incentive package, to respect people's rights in the reconstruction process (including relocations) and to improve the regulation in building codes, promoting the participation of non-governmental actors in the





Although initially challenged by the government, many agencies proposed temporary or transitional shelter solutions, that would use local materials (such as bamboo) and provide adequate living conditions in the time span between the emergency phase and the formal reconstruction process (planned by the government).

process. These efforts helped to enable the implementation of repairs and transitional shelters, and some regulations were modified or adopted in order to protect HLP rights.

### COORDINATION CHALLENGES

Although the Shelter Sector was successful during the initial response in providing essential non-food items to the affected communities, the challenge was finding space to act in the transitional phase. With the presence of a strong government plan for reconstruction, with a short timeline, there was little political will to allow the implementation of transitional solutions from Shelter Sector partners (in spite of significant needs for such options).

These delays in the roll out of the incentive scheme and the construction of permanent housing meant that many affected families remained without adequate shelter for months. The Shelter Sector advocated successfully for the necessity of temporary shelters (including water and sanitation) in rural communities, especially where the government would take more than six months to provide permanent housing. The Sector also worked to gain approval for alternative permanent housing options as part of the reconstruction/recovery planning. There was resistance to this from government actors, due to the use of alternative materials (i.e. bamboo) or the incremental nature of sector partners' solutions.

### LAND AND PROPERTY ISSUES

Estimates indicated that only between 20% and 30% of people in the affected areas had access to legally recognized or formal land titles. This presented a major challenge to the Sector as it meant that the majority of the affected population may be excluded from government assistance. The incentive package, when first offered by the government, only included legally recognized "owners" of land. The HLP working group advocated with government authorities to include a wider range of possible beneficiaries of the incentives, ensuring that the majority of the population that held no land tenure would

also be included. The advocacy was successful and resulted in the government reforming the regulation to recognize different forms of tenure, as appropriate or relevant to the context. For instance, *bona fide* landowners who may not have possessed legally recognized title, but could prove their link to the land, were granted tenure through "right of use". Moreover, the new regulation granted a grace period of three months after receiving the house, to deliver documents proving that the person was legal owner or *bona fide* landowner.

### ENVIRONMENTAL AND SOCIAL IMPACT

One consequence of the damage was a shift in support for non-standard construction materials. Many affected communities expressed a desire to move away from poorly built reinforced concrete buildings (which collapsed, causing many casualties), to use more lightweight materials that were seen as less dangerous. Although the use of local materials was advocated for by the Shelter Sector, it was also very important to protect natural resources and discourage use of protected or endangered species, especially timber. The Sector facilitated the production of a timber guideline that was circulated as a resource to all sector partners<sup>1</sup>.

The Shelter Sector worked with key academic institutions in the affected area to develop a registry of alternative materials (bamboo, timber) which included resources required and available, sustainable producers and potential supply pipelines, in an effort to control pressure on these materials. During the response, the government developed new building regulations for the use of bamboo in construction (yet to be fully released). A detailed evaluation tool was developed to assist the government, sector partners and industry stakeholders in evaluating various models of permanent housing design in a more holistic way (including the social, environmental and economic impact of each model)<sup>2</sup>.

<sup>1</sup> This guideline is available online at <http://bit.ly/2hNEHDs>

<sup>2</sup> All these documents, along with other resources, can be found on the Shelter Cluster Ecuador webpage, <http://bit.ly/2k0hTR0>



1A : UBICACIÓN DE LA CASA



No construir cerca de ríos o de una zonas inundables.



Es peligroso construir cerca de la costa (riesgo de tsunamis).



No construir sobre relleno sanitario o tierra agrícola.



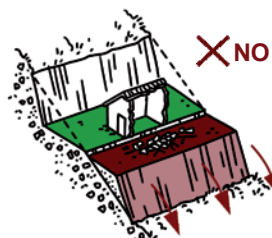
No construir cerca de acantilados.



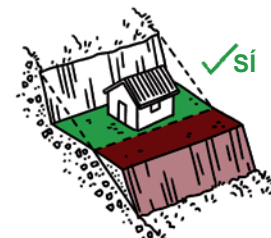
Construir separado del muro,os (no adosado y no apoyado).



No construir en barrancos ni zonas de derrumbe.

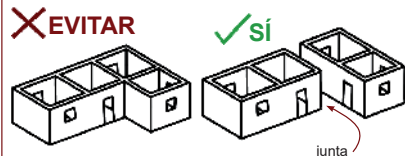


No construir sobre rellenos.

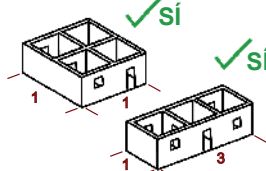


Mantener buena distancia al borde del relleno.

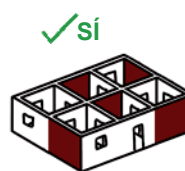
1B : FORMA DE LA CASA



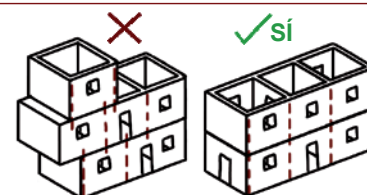
Evitar las formas complicadas, creando juntas sísmicas. Mínimo 10 cm (recomendado 45-60 cm).



Mejor proporción: 1:1 Buena proporción: 1:2 Proporción máxima: 1:3



Cada fachada debe tener al menos una pared llena.



Las paredes deben ser colocadas continuamente, una encima de la otra. ¡del suelo hasta el techo!

KEY 'BUILD BACK SAFER' MESSAGES

Knowledge and implementation of hazard-resistant construction was low in Ecuador. Although the government scheme aimed to ensure the reconstruction of the majority of houses by qualified contractors, a significant number of affected people would not receive such assistance. In many of these cases, people started to rebuild immediately, repeating many of the same practices that led to previous construction weaknesses.

Starting from the observation that there were crucial and basic deficiencies in the use of construction materials and detailing, the Technical Working Group within the Shelter Sector decided to produce key messages, both for non-professionals and for local tradespeople, to develop Build Back Safer information and support an improved building culture in the affected areas<sup>3</sup>. These were produced within the working group and based on previous natural disaster responses, such as Typhoon Haiyan in the Philippines and the Nepal earthquakes<sup>4</sup>, contextualized and expanded with the assistance of local engineers and construction experts. A guidance document was produced to explain how to use the key messages and a training of trainers was developed, to assist sector partners in delivering the messages to affected communities at a larger scale.

The key messages were disseminated through official channels, partner NGOs and the private sector, including over local media avenues, such as radio and newspapers. A challenge in the collaboration with the authorities around the production of these key messages was to name them "support for self-construction", given the government position not to support alternative construction channels. This severely hindered the validation and distribution process.

<sup>3</sup> All these documents, along with other resources, can be found on the Shelter Cluster Ecuador webpage, <http://bit.ly/2k0hTR0>

<sup>4</sup> See A.8 (Haiyan Key Messages: <http://bit.ly/2iEFUwJ>) and A.3 (Nepal Key Messages: <http://bit.ly/28WJM5s>)

The first key message from the Cluster in Ecuador, as for other shelter responses, was related to the safe location of houses. Much of the vulnerability of the housing stock was in fact due to the location, often in informal, steep, or generally hazard-prone areas (Source: Shelter Cluster Ecuador and MIDUVI).



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Most shelter options supported by the international community used locally available materials, supplemented by CGI roofing sheets or plastic sheeting.





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Affected households received either emergency shelter solutions, mainly made of tarps and bamboo framing (left), or transitional shelters that would last longer (right). However, initially there were concerns that solutions seen as more “permanent” would have disqualified people from the government assistance.

**LESSONS LEARNED**

One of the main issues highlighted by this response was the need for the **humanitarian community to develop more flexible models and structures to work in middle-income countries**, wherein government capacity is higher than other crisis areas. The Sector should be adaptable and able to provide the appropriate assistance required by the host government and not simply operate with standardized approaches. The response mechanism needs to be ready for action, but flexible enough to be influenced by the context and adaptable. **The Sector should support the government directly** and include urban planning, hazard mapping and engineering expertise, along with relief, HLP, and recovery planning, in its activities. **The potential avenues of assistance need to be made clear** both to the government and existing in-country actors, who may not have an understanding of the humanitarian system and the potential added value it can bring.

It is necessary to establish **clear and consistent sectoral coordination under government leadership**, or at least under a co-leadership arrangement, and be complementary to existing response structures. The Shelter Sector in Ecuador operated well for five months with the co-leadership of one international agency and the ministry for housing (MIDUVI), however the relationship could have been strengthened by increasing collaboration from the outset, to clarify roles and responsibilities; **targeting other key ministries** that may have been able to assist in any bottlenecks and handover; and having more crossover with national disaster response mechanisms.

In relation to HLP, the Shelter Sector should continue to work together with the protection cluster and governments with the support of the international community, to **promote HLP studies as a means of prevention and disaster preparedness**. There is also a need to **build the capacity of local governments**, who were responsible for many territorial planning, urban planning and building regulations issues, but who were unable to play a strong role in this regard.

The Sector should also work closely with national and local authorities in order to ensure that policies and implementation modalities do not exclude affected populations due to, for instance, their tenure status. **Ensuring tenure security** (not



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Humanitarian organizations built transitional shelters made of local bamboo, often with the help of volunteers from local NGOs.

necessarily formalisation) **needs to be a focus of all sheltering activities.**

Although they took some time to complete, due to the collaborative nature of the process, the key messages were a largely successful part of the response. The fact that the **messages were produced directly in Spanish** was seen as a strength, and the accompanying guidance notes and subsequent trainings were a further positive step forward in making the messages both relevant and immediately usable.

*The potential of the Shelter Sector is reflected in the following case study (A.40) that demonstrates flexibility, collaboration and a locally based approach, that ensured an appropriate and effective outcome. The international humanitarian actors provided technical and resource support to an existing organization working on the ground, acting within the local government structures. Each organization worked to their strengths to deliver a coordinated and well-rounded response that assisted families in the recovery process, gave advice where needed and strengthened community knowledge.*