

Application Form submitted by the initiatives to participate in the Transformative Cities People`s Choice Award

GENERAL INFORMATION	
Location:	Ixtepec, Oaxaca, Mexico
Title of the Transformative Initiative:	Integrated Social Reconstruction of Habitat in the Isthmus of Tehuantepec, Oaxaca
Name of organization:	Cooperación Comunitaria A.C.
Type of organization:	Organisation that seeks to improve habitability conditions and reduce the vulnerability of indigenous communities through an integrated approach that recovers traditional knowledge and makes use of adapted technologies.
Website:	www.cooperacioncomunitaria.org
Category and Edition:	HOUSING. Transformative Cities Award 2 nd edition (2019).
STORYTELLING	
Summary	
<p>Following the earthquakes on 7 and 23 September, which seriously affected the indigenous communities in the Isthmus of Tehuantepec, Oaxaca, CC took forward integrated social reconstruction to reactivate the local economy, providing women with traditional ovens and kitchens, building new earthquake-resistant houses adapted to the local culture and reinforcing existing ones to enable them to withstand earthquakes.</p>	
Context and problem definition	
<p>Ciudad Ixtepec, Oaxaca, with 29,000 inhabitants, the majority Zapoteca indigenous people, has both urban and rural districts. There is therefore a strong tradition of agricultural production (principally maize) which women depend on for their livelihoods, using clay ovens to make totopos (a local variety of tortilla).</p>	

Their traditional homes are made of mud bricks, with double walls and gabled roofs with clay tiles as much as 5m high, well suited to the tropical climate that can reach temperatures of 45°C in summer. Many of the homes and kitchens are still made of *bajareque* (tree trunks woven with canes and covered with mud), but the high level of deforestation in the area has meant that this building technique is disappearing. Both the homes made of fired mud bricks and the women's productive infrastructure (comixcal ovens, bread ovens and kitchens) were damaged by the earthquakes on 7 and 23 September 2017, which were recorded as the most intense the country has ever experienced, at a magnitude of 8.2. Although most of the homes (between 60 and 180m² in size) did not collapse, but were damaged, the companies contracted by municipal governments began to demolish this architectural heritage that the families depend on for their livelihoods, in order to build 45m² homes based on a standard design used throughout Mexico, which are unsuited to the local climate and culture.

Design and Initiation

The Ixtepecano Committee, a local community organisation which had already campaigned against the mining concession in the area, contacted us to rebuild the homes, thanks to the previous experience we had in the Mountains of Guerrero after Hurricanes Ingrid and Manuel. To start with, thanks to our contacts with the National Housing Commission and other organisations such as COPEVI, we were able to tell people about the system proposed by the government for paying for the reconstruction, using cards to pay for labour and industrial materials. Together with these organisations, we launched a campaign against the demolition of Ixtepec's built heritage: the traditional homes they were demolishing in order to build new, much smaller homes with no adaptation whatsoever to the local culture and climate or the earthquake risks in the region.

CC proposed a people-focused integrated reconstruction project, and conducted assessments of the structural damage and the families' vulnerability, including a mapping exercise. In assemblies and meetings, a participatory reconstruction model was agreed with the families, both for the damaged traditional isthmus homes that could be rebuilt and reinforced, and for new homes; traditional ovens and kitchens to reactivate the women's livelihoods; building of an Arts and Trades Centre that would be used to train people to make kitchens using the *bajareque cerén* technique (which is based on traditional bajareque but without using tree trunks in order to reduce deforestation); reactivation of local varieties of maize to make totopos; and running a series of workshops to improve construction skills, as well as on risk management, the use of natural resources, and the right to adequate housing.

CC ran a campaign on social media, and many people became supporters. At the same time, national and international foundations we had worked with before offered funds for the reconstruction. Thus, we raised funds mainly from private sources and individual donations. This enabled us to carry out the work with only 1% of our funds coming from the federal government.

The assessments of the structural damage and the families' vulnerability and the mapping exercise were carried out with the assistance of a professor and students from the Autonomous University. A participatory reconstruction model was agreed with the families in assemblies and meetings.

The CC teams of architects and an engineer analysed the traditional construction systems in order to build new homes resistant to the earthquakes and strong winds that affect the region.

Implementation

78 homes were reconstructed: 20 new and 58 reinforced, using the Social Production approach, which required drawing up architectural plans, budgets and structural calculations for each one. The housing design proposed by CC is based on the traditional style of homes in the Isthmus, with double walls made of brick and a height of 4m, a surface area of 72 m² and thus a space of 185 m³, which is comfortable in the hot climate and creates an important feeling of spaciousness. The cultural use of space is copied from the traditional type of homes. By using local materials, brick production in the area was reactivated. Together with the local organisation, materials such as tiles, wood and bricks were collected to be re-used.

For the homes that were rescued from being demolished, Engineer Huerta created a reinforcement system for 58 homes. A guide on how to reinforce traditional Isthmus homes was produced and translated into the local language.

To reactivate the women's productive businesses, the bread ovens and comixcal ovens were reinforced at the base to reconstruct them and make them earthquake resistant. A field work team was trained to provide advice to the workers and families. They ran workshops to show them the construction system and the reinforcement proposal. Any questions raised with the field work team about each home were sent by WhatsApp to be answered by the engineer and architects from the office.

Given the scarcity of labour, master builders from 8 other states were sought out, interviewed and invited to work in Ixtepec. This implied covering the costs of their transport and accommodation.

Constant turnover of workers and technical advisers: due to the hot climate, with temperatures in the 30-40°C range, we had to undertake constant rounds of interviews, contracting and training at the same time as the construction work.

Different ways people participated: some families built their homes themselves with the help of the hired builders, others were only involved in supervising the work, and others waited for Cooperación Comunitaria to do everything. It was helpful to organise a series of communal work days, in which the work was mainly done by women, as well as meetings to share experiences. We also ran workshops on building and making up natural paints, in which most of the participants were children and women.

Training: for CC it was essential to develop training strategies to enable the builders to improve their skills at the different stages of the project, in order to achieve the quality required for the reinforcement work.

Cards for reconstruction work: these did not cover local materials, which we paid for with donated funds.

Results achieved and Evaluation

- Thanks to the reinforcement to withstand earthquakes, 78 families are living in safer homes. The recovery of traditional construction techniques well adapted to the climate and culture make the homes more habitable and they are 4 degrees cooler than the other reconstructed homes.
- 12 of the 20 new reinforced traditional homes have been finished. 33 of the 58 rebuilt and reinforced traditional homes have been finished.
- A guide on how to reinforce traditional isthmus homes and another on reinforcing new homes to withstand earthquakes have been produced.
- The people living in 20 reinforced homes and 8 new homes did not receive FONDEN cards, and their reconstruction work was therefore done with privately donated funds.
- To date, 107 women have restored their productive businesses thanks to the rebuilding of some of the components (comixcal oven, bread oven, bajareque kitchen), and this is contributing to the recovery of the household economy.

- 78 builders have been trained to reinforce traditional isthmus homes and another 23 have been trained in the bajareque cerén technique and reinforcing the base of traditional ovens.
- Proposals for 2 model kitchens were developed by the women in the participatory design workshops; 247 people are more aware of the relationship between natural resources and their habitat; 73 builders know how to reinforce homes, kitchens, and the bases of comixcal and bread ovens using local materials.
- The members of the group have been able to express their views and share their feelings about the reconstruction in meetings where they shared and exchanged their experiences of the process.
- 90% of the building work on the Arts and Trade Centre in Ixtepec has been finalised, using the bajareque cerén construction technique. It has been used as a training centre for workers who are now building kitchens using the same technique.
- 22 kitchens built in bajareque cerén have avoided the felling of 120 trees because they are built using branches.
- 27 women have increased their knowledge of bajareque cerén by participating in the building of their kitchens.
- 91 comixcal ovens have been built with a reinforced base to withstand earthquakes in Ixtepec, Xadani and Chihuitán.
- Assessment in Ixtepec and workshops on growing varieties of maize indigenous to the region and the irrigation channel.
- Participatory community map showing the location of natural resources people use for construction and production.
- Community risk map (Ixtepec)
- 300% increase in Cooperación Comunitaria staff and budget between 2017 and 2018.

Political Strategies

Defence of the built heritage. At the local level, the people who did not want their home to be demolished got organised together with the Ixtepecano Committee for Life and Territory, and groups such as Casa Panteón mobilized to support people to stop the bulldozers, which arrived to pressure people to agree to the demolition of their homes without a proper assessment.

Meanwhile in Mexico City, CC and the organisation COPEVI issued a communiqué with 5 key points to communicate to people in Ixtepec:

1. Badly done assessments: Unless you have a reliable assessment, it is better not to let your home be demolished.
2. Forced and unjustified demolitions: if you are not sure, don't let your home be demolished.
3. Social Reconstruction: reconstruction needs to be done by local people, but with technical advice.
4. Local materials: Reconstruction should be done using local materials.

The next step was to negotiate with producers of local materials. Because the government gave the card with the money for reconstruction directly to people, and it could only be used to buy industrial materials in shops, CC obtained private donations to buy the local materials and thus reactivate the local economy.

1. First, we went around looking for local materials such as bricks, tiles and wood for the roof structure (boards, supports, pegs), doors and windows, which had been discarded when homes were demolished. CC then started to collect and buy these materials so that they could be reused. This required searches, purchases and transport.
2. Other local materials included stone, wood and bricks made by local producers. It was necessary to negotiate with them not to raise their prices and, in the case of the bricks, so that they made them to the measurements we needed (bigger size) and the quality we required. This also required transporting the materials to Mexico City to subject them to resistance tests in laboratories and find out how resistant they were when used in construction. The transport and laboratory tests took time.
3. The costs of labour and industrial materials were rising all the time. This meant that we had to spend time looking around and negotiating with suppliers and construction workers.

We have made videos with the testimonies of people whose homes were rescued. Many women talk about how proud they are to have defended their homes and stopped them being demolished.

Related legislations

This initiative had a small amount of support from the National Housing Commission (part of the federal government), which was available for certified organisations and companies to provide technical advice to the people affected by the earthquake who wanted to rebuild. The money provided by the government was 120,000 Mexican pesos, equivalent to approximately 6,000 US dollars. This represented only 1.5% of the total funding raised by CC for the reconstruction. It was used for the technical assistance that has been provided during the 10 months of reconstruction work.

The new government, from a different political party, took office on 1 December. It was interested in analysing and systematising the reconstruction experience with a view to complementing it, and held several meetings with the Network of Social Producers of Housing, which we belong to, in order to evaluate the government's involvement and develop proposals to improve the programme.

Thus, we were able to influence policy in the areas we work on: the use of local materials, the erroneous assessments done by the government which left many people without a home, the importance of not demolishing homes – especially traditional ones – indiscriminately, and the recovery of the families' cultural heritage and livelihoods.

Lessons learned

1. This is the first time we have done such a range of work for each home. The 58 reinforced homes, all of them different, required a damage analysis and a structural proposal for all the construction details that varied from one to the next. We implemented a system of constant communication between technical advisers and the engineer to answer questions about structural issues.
2. Because the earthquake victims were in a hurry to recover what they had lost, and the government was keen to spend the funds quickly, it speeded up the demolition and reconstruction processes without properly analysing the causes of the damage and without proper advice. The real estate companies were competing fiercely with each other and made false promises to the families, leading to a scarcity of labour and materials and causing prices to rise. This implied that various strategies had to be developed to respond to this situation, such as reaching agreements with the

families, giving them a list of the industrial materials we were going to use so that they could buy them while the donated funds were being raised to buy the local materials and start the rebuilding. A series of funding strategies were developed so that we could build with local materials and not have to stick to the government's inflexible proposal.

3. Those families who participated actively and directly in the rebuilding of their homes achieved a reduction of 45% in the construction time and between 41 and 50% in costs.
4. The social production of habitat approach is characterised by diversity, comprehensiveness and the human factor, which means that homes are adapted and suited to the culture and the climate and, in the case of CC, resistant to earthquakes, and therefore safer and better quality.
5. Integrated projects mean that the work not only focuses on housing but covers all areas of human activity and their relationship with the territory and the environment.

EXTRA INFO

Supporting documents

<http://www.cooperacioncomunitaria.org>

<https://www.animalpolitico.com/blogueros-blog-invitado/2018/09/28/los-logros-de-la-reconstruccion-multidimensional/>

https://www.facebook.com/CooperacionComunitariaAC/?epa=SEARCH_BOX

<https://twitter.com/CooperacionCom>

<https://youtu.be/PguiOoRNcGY>