When women lead a community-driven shelter process, the dynamic changes.
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Supporting locally driven shelter responses

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Shelter has a long history. The first human settlements, built with stone, started appearing about 14,000 years ago.[1] About 5000 years ago a number of civilizations were building well laid out settlements, with sun-dried brick houses, clay plaster, and flat or sloping roofs. By 2000 years ago, buildings had evolved much further, with heavy timber frames, differently designed spaces for different uses, and utilities and services including piped water supply, heating, cooling and insulation. The Algerians were deploying base-isolation technology, using timber rollers to cope with earthquakes, 300 years ago.[2] By that time, seismic bands (horizontal bands of strengthening masonry to prevent collapse during an earthquake), good lighting and ventilation, security systems and building hierarchies were well evolved in many parts of the world. In the Newari buildings in Nepal's Kathmandu Valley, for example, seismic banding was symbolized by carved snakes – the symbol of life and strength – running around the buildings. Formally trained architects and civil engineers appeared later – and humanitarian aid workers later still.

With such a rich history of construction forming part of most cultures around the world, why do we struggle with shelter response after almost every major disaster? Be it the Indian Ocean tsunami,[3] the Pakistan floods[4] or the Haiti earthquake[5] – to name but a few from recent years – shelter reconstruction efforts have repeatedly fallen short, in terms of numbers of people reached, timing (people can wait months or years), space (which is often cramped), services, comfort, sustainability and cultural suitability.

Locally driven approaches are methods that are sensitive to the local context, including culture, materials, knowledge and systems. This chapter takes a broader view of such approaches, looking also at external contributors and resources that play a critical role in humanitarian shelter and settlements.

The demand–supply gap

Between 2005 and 2018 (according to the DesInventar database, which collects data on disaster damage and losses),[6] more than 3.3 million houses were damaged and 2.7 million destroyed around the globe, due to natural hazards, conflict or other crises.[7] The figure globally though is much higher: India alone reports losses of about 1.2 million houses to disasters annually.[8] This leads us to two conclusions: first, that the losses are huge, and second, that we are still unable to capture accurate data. While the media successfully convey the impact of rapid-onset disasters such as earthquakes, annual

disasters (led by floods) cause much higher losses, which rarely attract the same attention.[9] The International Federation of Red Cross and Red Crescent Societies in its 2013 campaign 'Silent Disasters'[10] highlighted that 91 per cent of disasters around the world go unreported. The Centre for Research on the Epidemiology of Disasters (CRED),[11] the entity that hosts the world's most complete disaster database, EM-DAT, concurs that many disasters are not captured by databases such as theirs. This means that the scale of the problem is almost certainly larger than we think, and that there is much that we do not know about it.

Even before seeing the full picture, however, we can start estimating the relative scale of our response by comparing available data on losses with data on responses. One of the largest disaster shelter responses in recent years has been in Nepal, after the 2015 earthquakes. Of more than 760,000 houses that needed reconstruction, only about 28,000 (3.7 per cent) had been rebuilt two years after the earthquake,[12] and 113,000 (15 per cent) by the end of the third year.[13] A mere 11 per cent of householders had actually received their compensation.[14] After three monsoon seasons and three harsh Himalayan winters, 85 per cent of affected families are yet to get the assistance due to them and rebuild their homes safely, even though the Nepal earthquake appeals and donor conference were very successful, securing commitments of almost the entire required sum in the first two months after the disaster. Most families continue to live in makeshift arrangements, or have rebuilt their homes with part or no financial assistance, often as unsafely as before the earthquake struck.

So, what happened to all the committed money? As the word 'commitment' implies, the figures that emerged were statements of intent, not actual money transfers. The transfers would have been made had work on the ground progressed as planned. This, however, did not happen, for a number of reasons, including political instability, civil strife, border closures, geopolitical competition between major economies and resultant disruption of supply lines, need for repeated assessments, and the time taken for clear guidelines to emerge. As a result, many of the promised funds, mostly from multilateral and bilateral development partners, did not materialize as quickly as was initially anticipated. Although money channeled through international non-government organizations was translated into immediately available cash, construction problems were taking time to resolve and in the meantime some of this cash was redirected to other activities such as livelihood support. Reasons given for this were the long-term and deeper benefit of re-establishing livelihoods, which would in turn fund house reconstruction, though substantial amounts of cash remained available for shelter.

It is important to appreciate how little of the overall need the humanitarian shelter sector can meet, despite our best efforts. Nevertheless, local capacities – often invisible to outsiders – come into play and respond to the most acute needs, whether this work is eventually included in datasets or not. We need to better recognize and strengthen local capacities for shelter response, and improve our assessment and reporting systems to include them.

Supporting the real actors: people and governments

Reports on post-disaster shelter reconstruction in Nepal and elsewhere tell us that upwards of four-fifths of houses are rebuilt through people's own efforts and resources (see Chapter 4 on self-recovery). This needs to be seen as a great strength, and as presenting a huge opportunity for the humanitarian shelter sector to work *with* local people, rather than pushing remotely conceived designs and prototypes onto them. The question is: how do we help this local majority to improve its performance to a 'good enough' level?

Similarly, the primary role in providing humanitarian shelter and settlement support rests with host governments, while aid agencies play

a supporting role that is important for identifying and filling gaps. India's 2001 Gujarat earthquake damaged housing and infrastructure in 490 cities or towns and 7500 villages. Of these, four towns and 450 villages were flattened. Faced with a damage estimate of US$6 billion, the state government established the Gujarat State Disaster Management Authority, which went on to repair 99 per cent of the partially damaged houses and reconstruct 89 per cent of the fully damaged ones, as well as redesigning and rebuilding the destroyed towns and villages. The work of Pakistan's Earthquake Reconstruction and Rehabilitation Authority and Nepal's National Reconstruction Authority strengthens the argument against the trend of international aid agencies increasingly adopting the market-based neo-liberal attitudes of Western donors. Though a slow and difficult process, strengthening and working alongside local governance systems has no substitute.

It is clear that, where government is strong enough, no one *but* government can carry out a reconstruction of such magnitude, particularly when entire settlements must be rebuilt. The role of all other agencies is critical, but complementary. This principle applies in urban areas too, though with somewhat different dynamics and issues, such as the more focused mandate of local governments, less room for redistribution across sub-settlements, and the large proportion of families who do not own the land on which they dwell.

Investing in local ideas and economies

Problems with shelter reconstruction processes are well recognized by the shelter sector (as numerous chapters in this report attest). The unfortunate result is that aid agencies have often been wary of taking up shelter programmes, preferring 'softer' components, such as livelihood support, that do not involve creation of any hardware, where delays or flaws may cause

problems. This is changing rapidly, however, and there has been a significant amount of research on the subject in recent years, with a growing number of community-centric and innovative efforts. Owner-driven reconstruction (ODR) is now an established and recognized way of rebuilding homes, currently being deployed as the central approach to reconstruction of houses in Nepal by UNDP and several NGOs that have come together as the Owner Driven Reconstruction Collaborative (ODRC).[15]

In the housing sector, innovation is perhaps needed more in processes than in products. Along with ODR, information and communication technologies are emerging as an area of interest. In a shelter programme in Sikkim, India, following a 2011 earthquake, the government monitored the reconstruction activities online, in real time,[16] setting a new standard for efficiency and transparency.[17]

The role of the private sector is another emerging opportunity of great significance for shelter and settlements. This does not just mean involvement by large corporations, but also – and equally importantly – the contribution of local enterprises.[18] The ability of local markets to meet needs expeditiously and appropriately, and these markets' own need for protection and support in times of disasters, should be considered by shelter planners.

Nevertheless, these pockets of innovation remain tiny. Much more needs to be done to encourage new housing designs and technologies, community-based processes, and education and training, and to take a more systemic, holistic view of the shelter sector.

What happens when you design locally – and when you don't

Local responses can bring profound benefits for people's quality of life – benefits that cannot be measured by the prevalent indicators of quantifiable service delivery. When local earth is used for construction, houses are thermally

comfortable, and easily expanded later on, and people feel emotionally at ease in them. When water comes from a local source and is cleaned in the typical local manner, then the supply arrangement lasts longer and is maintained, repaired and sustained without external support – and with conviction. Programmes that emerge from the local context, using local resources and ideas, enjoy greater acceptance from the community.

This applies not only to final results, but also to processes. The widely practised activity of joint agency information gathering, known as post-disaster needs assessments (PDNA), is a fairly complex one, and involves intense training of local assessment teams at the outset. A process anchored in national governments but driven by the World Bank, UN and European Union teams, it applies a well thought out assessment methodology to a situation of chaos. But it often remains rushed and difficult, due to language constraints. PDNA and shelter assessments generally are poor at assessing need and the dynamics of recovery, and at providing guidance for developing programmes to support the recovery process. Too often, assessments occur long after the disaster is over, do not support the transition from response to recovery, and ignore the work and assessments of humanitarian agencies.

By contrast, participatory assessment tools, which have long existed but have not been adopted by larger agencies, are rapid and reliable, and can be triggered even at smaller scales with limited resources. Well-documented tools are available, such as a participatory framework and toolkit for assessing damage after disasters, based on community-level experiences following the 2001 Gujarat earthquake.[19] These were discussed during the development of the Nepal PDNA in 2015, and there were calls for a 'PDNA Lite' or 'Barefoot PDNA', but these were not followed up by any mainstream agency.

A PDNA is typically followed by a disaster recovery framework (DRF),[20] and the arguments

for locally driven approaches apply here too. The world is replete with examples of externally imposed housing solutions that did not work. What makes sense in theory does not always work in practice. One such theory in recent years has been of temporary, transitional or intermediate shelters; these can very easily go wrong if not taken as a locally driven incremental step towards permanence.[21]

In more localized events in fragile ecologies, problems caused by importing unsuitable methods can reach alarming levels. In response to a flash flood in Leh, India, one international NGO deployed about 550 prefabricated shelters, at a cost of nearly US$7000 per house. These were never used because they were too cold in the –30 °C winter, where heating is limited, locally available timber being the main fuel. Without exception, all affected families preferred to live in houses built of local mud blocks, and used the prefabricated temporary shelters for additional storage, which added to local environmental problems as waste at the end of their life cycle. An assessment by Sphere India called this a costly error and a lost opportunity.[22]

On the other hand, when processes are locally driven, the biggest return on investment is the sense of ownership and the resultant acceptance and willing adoption of solutions delivered. In limited ways (given the slow pace of work), some of the continuing reconstruction work in Nepal brings these advantages. Home-owner families become fully involved in the work, given the right tools, environment, and opportunities to participate.

Conclusion: when you think locally, people become the key, and shelters become homes

Twentieth-century modernist architect Le Corbusier revolutionized the thinking of architects and set a universal standard of sorts when, in the 1920s, he shared his vision of the house as a 'machine for living in'. This changed both the

feel and function of dwellings, and in some ways is reflected in many post-disaster house designs. Spatial efficiency, the prominence of services, and an impersonal relationship between the occupant and the house replaced the symbiotic relationship between occupants and houses based on the concept of the house as a living being that prevails in most traditional societies. Many traditional societies hold similar beliefs around the elements and energy flows of living spaces, as reflected in Vastu from India, Feng Shui from China and the practices of American Navajo Indians. Such local beliefs and practices are based on the concept of a metaphysical being who exists as the soul of the house. Thus a house is born (construction), breathes (ventilation), consumes (services), excretes (waste disposal), gets injured (periodic damage), is healed (repairs) and eventually dies (collapse or demolition). The status of a living being entitles the house to constant care, which takes the form of regular maintenance that is accepted as a given. A house that is low cost, built from local materials, energy efficient, and easy to fix or expand has thus served people across economic strata in these traditional societies, and perhaps holds the key to sustainable post-disaster shelter reconstruction.

Because it is a living being, the house has intricate inter-relationships with everything in and around it, thus making the housing *ecosystem* the basis for planning, rather than the shell of the house alone. As a living being, the house becomes a home in a way that is subtle, but with deep implications. This is important, because families need homes, not mere shelters.

Humanitarian shelter and settlement work can yield deeper and longer dividends with locally driven approaches where the home-owners and communities lead the process. This has long been spoken and written about, yet it remains elusive in practice, primarily due to the distance between the places where plans and decisions are made and those where shelters and settlements take shape. Bridging this divide by taking assessments, planning, and monitoring truly to ground zero is the only way to localize the process.

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Box 3.1

Following local building cultures
Towards long-term community-based disaster risk reduction

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Experience has shown that, after a disaster, most of the affected families reconstruct their houses without any external support. For this reason, it is important that shelter aid agencies identify and analyze the existing local building culture.[2] Support that builds on and complements local knowledge can help people do more by themselves, strengthen their capacity to reconstruct, and better equip them to continue to adapt to their changing environment and conditions.

CRAterre and several other organizations have been following this approach in various post-disaster contexts since 2000. This work has made it increasingly clear that to really reduce inhabitant vulnerability, the most important task is not to find technical answers, but to fit in with the local community's existing social, technical and financial capacities. The best solution is usually for a family to (re)construct their own shelter more safely, rather than for an agency to build them a new one, which can often be difficult to extend and duplicate.

In Haiti a continuous process that has been developed over the last eight years is a good illustration of what can be achieved through such an approach. Following the 2010 earthquake, and further the 2012, 2016 and 2017 cyclones, more than 25 Haitian and international organizations have collaborated on sustainable reconstruction, based on a combination of (re)construction and repair programmes, educational activities, fundamental research, and developing new standards.

During the first four years, a number of local partnerships were progressively formed,[3] all of which shared a concern for social, environmental, economic and cultural factors. They co-designed various technical and strategic methods that adapted to the local environment and building cultures. This work also included activities on water

supply, sanitation, plant nurseries, and reforestation. Projects were built on three pillars: people's dignity, owner-driven approach, and large-scale reproducibility. Special attention was paid to respecting and valuing social organization – more specifically the traditional mutual assistance system among neighbours (*kombit*), which is an important asset for community resilience.

The project was implemented in an iterative manner, allowing for continuous learning based on systematically surveying local building cultures,[4] assessing their strengths and weaknesses, evaluating potential technical improvements, training masons, carpenters, trainers and project managers (800 in all), and directly supporting the construction or repair of about 1600 buildings, spread across several areas.

By 2016, a good number of local practitioners and organizations had acquired expertise in implementing the method. Several associations of professionals were created,[5] to promote improvements to existing local building cultures (which they called TCLA – *techniques constructives locales améliorées*, or improved local construction techniques). Moreover, one of the models developed was certified by Haitian authorities,[6] and dissemination began, including derivative designs such as two-storey buildings for urban areas. These meant that TCLA could be used on a range of building types, including schools and office blocks.[7] Training efforts moved a step closer to institutionalization thanks to the support of UN-Habitat and investment by the Ecole Atelier de Jacmel. Several new partnerships were formed,[8] particularly after Hurricane Sandy (2012), and local organizations started to promote TCLA to different audiences. Another indicator of success is that, in several areas, tens of households applied the promoted improvements using their own means and capacities.

In October 2016, Hurricane Matthew caused severe damage in several regions. Post-disaster evaluation in the department of Grand'Anse, where the International Federation of Red Cross and Red Crescent Societies had built more than 100 TCLA houses in 2013, proved – unintentionally but very effectively – that the TCLA houses had withstood the hurricane better than other existing houses in the area, and that the slight damage they did suffer could be repaired easily. This contributed to a major change in people's perceptions of local architecture. As a result, the Non-Food Item and Shelter Strategic Advisory Group decided to disseminate documentation and organize training and advocacy.[9] TCLA became part of the recovery policy supported by the government. Moreover, the professional organizations that had promoted it turned out to be efficient at providing training. As a result, more than 800 households were supported in repairing their houses in 2017, and many more benefited from the enabling environment established. As a whole, in 2018, approximately 6000 buildings in Haiti have been either repaired or reconstructed according to TCLA.

Unfortunately, in some cases, there was a greater focus on the technical product than on the process, resulting in the building of new houses rather than repairing existing ones. Organizations sometimes ended up having to build without locally available materials or benefit of the *kombit* system. This demonstrates the importance of accurately assessing local realities, although such assessments require expertise in managing community-based projects and in performing accurate diagnoses.

Still, tangible results were obtained, not only in terms of reconstruction, rehabilitation and the social integration of projects, but also in stronger building

standards and reinforcing capacities. Nevertheless, government collaboration needs strengthening, and cooperation with Haitian universities to research local building cultures would be useful, particularly in integrating TCLA into the official construction curriculum, at all levels from vocational training to university. Finally, trained local professionals would take greater advantage of TCLA if they received more support to coordinate and improve their work.

Given these results in Haiti, and similar ones elsewhere (for instance Bangladesh),[10] supporting self-recovery through local building cultures is being increasingly valued. Still, questions on how to implement TCLA more systematically require further consideration. To this end, a working group, led by the non-government organization CARE International and CRAterre under the umbrella of the Global Shelter Cluster,[11] has been established, to identify and disseminate relevant messages.[12] As an important first step, a collection of examples of local good practice that also reduced disaster risk was recently published.[13] It aims to raise awareness and thus encourage academic research into understanding and retro-engineering local building practices.

1 Laboratoire CRAterre, Labex Architecture, Environement et Cultures Constructives.

2 The concept of building cultures encompasses tangible and intangible aspects, from a building's conception to its construction, daily use, maintenance and adaptation.

3 In projects supported by Misereor, Fondation Abbé Pierre and Caritas France/Secours Catholique, Planète Urgence, International Federation of Red Cross and Red Crescent Societies, UN-Habitat, and Entrepreneurs du Monde, plus Haitian platforms Plateforme Agroécologique et de Développement Durable, and Plateforme Haïtienne de Plaidoyer pour un Développement Alternatif.

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6 Ministry of Public Works, Transport and Communication.

7 For example, schools in Grand-Boulage, Baudin and Taillefer, a bus terminal in Port-au-Prince, community centres, and business incubators.

8 With the International Federation of Red Cross and Red Crescent Societies, the Swiss Development and Cooperation Department, and Haitian organization ACAPE (Association des Cadres pour la Protection de l'Environnement).

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