CRS
CATHOLIC RELIEF SERVICES

Extending Impact Study: A Practical Review

In 2015, CRS conducted a multi-country study using a recognized behavior change methodology, and published the results in *Extending Impact: Factors influencing households to adopt hazard-resistant construction practices in post-disaster settings*. This follow-on review now provides a snapshot of whether and how that study's recommendations have been applied.

Cover: In Nepal's Gorkha District, a woman carries corrugated iron sheeting to build a shelter after an earthquake destroyed her home in April 2015.
Photo by John Shumlansky/CRS

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Acronyms

BBB	build back better
CBI	cash-based initiative
CRS	Catholic Relief Services
DRR	disaster risk reduction
EI	*Extending Impact* study
EMMA	Emergency Market Mapping and Analysis
ICT4D	information and communication technology for development
KII	key informant interview
LBC	local building culture
MEAL	monitoring, evaluation, accountability and learning
NGO	nongovernmental organization
ODI	Overseas Development Institute
PSB	Promoting Safer Building
TA	technical advisor
TOPS	Technical and Operational Performance Support
WASH	water, sanitation and hygiene

Contents

Foreword

Catholic Relief Services' 2015 study, *Extending Impact: Factors influencing households to adopt hazard-resistant construction practices in post-disaster settings*, explored the factors that contribute to people's independent decisions to use hazard-resistant reconstruction practices after a disaster, and aimed to increase the scale and impact of shelter interventions by guiding the design of humanitarian projects.

In a context of disasters of increasing frequency and intensity, CRS collaborates with other humanitarian organizations and research institutions to transform the conception and implementation of programs to foster resilience on a greater scale.

Supported by the practical learning from projects implemented by CRS and our partners, this review aims to further the discussion around the *Extending Impact* findings. The insights shared can help support the design and implementation of projects that enable communities to self-recover, and contribute to the humanitarian community's global knowledge.

The insights shared in this review of *Extending Impact* can help support the design and implementation of projects that enable communities to self-recover, and contribute to the humanitarian community's global knowledge.

Jennifer Poidatz
Vice President | Humanitarian Response
Catholic Relief Services

> **"** [The *Extending Impact* study] is very valuable to the sector because, other than this study, there is limited published evidence on the most important behavioral factors that influence the promotion of safer building practices.
>
> David Dalgado, Consultant to Promoting Safer Building working group

Cao Xuan Hoa adds the finishing touches to his new roof in Quang Nam Province, Vietnam. Typhoon Damrey destroyed part of this home in November 2017. His tools are part of a kit he received from CRS. *Photo by Lisa Murray for CRS*

1. Executive Summary

1.1 OVERVIEW OF THE *EXTENDING IMPACT* STUDY

The CRS *Extending Impact* study sought to understand what prompted people to invest in their own resilience to disasters, specifically by strengthening or rebuilding their homes to better withstand future hazards. It was conducted in five countries where staff and partners observed spontaneous replication by non-project participants of the improved practices included in CRS' post-disaster housing reconstruction programs.

The study used the Designing for Behavior Change[1] approach, based on the following statement: *Families in disaster-affected communities in Bangladesh, India, Pakistan, the Philippines and Madagascar use their own skills, labor, materials, time and resources to rebuild and/or reinforce their homes by using disaster-resistant construction techniques after a disaster.* Through the study, CRS looked at the specific actions that disaster-affected people—who were not involved in any emergency response projects—took to rebuild and reinforce their homes to reduce damage from future shocks.

The behavior change methodology analyzed 12 determinants—cues for action, access, perceived risk, perceived positive consequences, perceived self-efficacy, perceived negative consequences, perceived severity, perceived action efficacy, culture, perceived social norms, perceived divine will, and policy—to understand what influenced people's behavior to invest in their own disaster risk reduction. Universal motivators were also observed. While not considered a determinant as such, these are factors that motivate most people, irrespective of other variables. They include security, comfort, recognition, success, freedom, positive self-image, peace of mind, status, pleasure and power.

The findings of the study were used to rank the behavior change determinants and focus on those most significant in influencing the adoption of disaster-resilient construction practices by disaster-affected households: cues for action, access, perceived risk, perceived positive consequences and perceived self-efficacy.

> **CRS looked at the specific actions that disaster-affected people—who were not involved in any emergency response projects—took to rebuild and reinforce their homes to reduce damage from future shocks.**

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1. Designing for Behavior Change is based on the Health Belief Model, a widely accepted cognitive model that posits that a person's behavior is determined by their perceptions of threats to their well-being and of the effectiveness and outcomes of that behavior. Technical and Operational Performance Support. 2017. *Designing for Behavior Change: A Practical Field Guide*. Washington, DC: TOPS.

1.2 WHY THIS REVIEW?

Through this review, CRS aims to provide a snapshot of the application of the *Extending Impact* (*EI*) recommendations by field practitioners and researchers in the shelter and settlements community, observe which recommendations they saw as being applied most frequently and why, and gain an insight into why some were not being used. The review also includes recommendations that those *EI* elements cited as most important for increasing resilience be strengthened.

1.3 KEY FINDINGS

The CRS *Extending Impact* study is helping to define a new path for shelter programs to genuinely engage communities in their disaster recovery and to influence improved practices for non-project participants. *This requires a fundamental shift in the sector, moving from direct outputs to enabling processes that help communities achieve self-recovery.* In addition, there is a need to increase practitioner awareness and knowledge, develop and adapt assessment and implementation tools, and expand research. As this review shows, deeper understanding by project implementers of the context in which they work, an emphasis on learning processes, collaboration with the private and public sectors, and the maximization of access to resources to help advance practices that promote self-recovery, will all contribute to increased post-disaster resilience.

The *Extending Impact* study is seen by review respondents—field staff, technical advisors and researchers—as an influential document within the humanitarian community, especially in the shelter sector among organizations engaged with the Global Shelter Cluster's Promoting Safer Building (PSB) working group. The working group focuses on the needs of those who self-recover after disasters. It aims to understand the recovery processes, develop technical best practices, and learn from and improve current technology transfer and public education approaches. The working group is co-led by CARE International UK and CRAterre. While respondents said that *Extending Impact* was a relevant tool for highlighting factors—beyond the provision of reconstruction materials— that influence disaster-affected communities, this review found that there was limited awareness of the study within the humanitarian community. Given the value that interviewees placed on the information in *Extending Impact*, awareness of the study should be raised further.

> A deeper understanding by project implementers of the context in which they work, an emphasis on learning processes, collaboration with the private and public sectors, and the maximization of access to resources to help advance practices that promote self-recovery, will all contribute to increased post-disaster resilience.

Respondents said that, in their experience, the *IE* recommendations most frequently applied in recent emergency response and recovery interventions were:

- Access
- Perceived self-efficacy
- Perceived risk
- Cues for action
- Policy

However, they noted that these *recommendations were implemented to a limited degree*: less than half of the respondents said that the key five recommendations were widely or frequently implemented.

The limited application of the *Extending Impact* recommendations may be due to a lack of integrated assessment and implementation tools that consider behavior change approaches; a limited awareness of *Extending Impact* or similar documents; and little evidence to endorse the approaches put forth in *Extending Impact*.

This review focuses on those *Extending Impact* determinants and recommendations most frequently applied or deemed as most relevant by the interviewees: access, perceived self-efficacy, perceived risk, cues for action and policy. It also cites one additional factor: disaster risk reduction. The actual application of these determinants has resulted in practice-based recommendations that are common across the determinants analyzed in this review:

Understanding the local context This is seen as a fundamental aspect of promoting self-recovery. The more appropriately adapted a project is to the context, especially in terms of local building culture, the greater the chances are that practices will be replicated. Therefore, CRS and similar organizations need to *develop or adapt holistic assessment tools, while engaging local communities, to design and implement resilient shelter projects for which adoption will extend beyond project participants*.

Access to resources This represents a significant barrier for disaster-affected communities. To overcome this, emergency response organizations need to *fully understand the local markets and supply chains to support their ability to contribute to recovery activities, while providing financial input and exploring alternative financial tools for people impacted by a disaster*.

> This review focuses on those *Extending Impact* determinants and recommendations most frequently applied or deemed as most relevant by the interviewees: access, perceived self-efficacy, perceived risk, cues for action and policy.

Learning and communication processes These should enable and empower people to understand and apply the principles of disaster-resilient construction in their own way instead of solely replicating a supplied design. Organizations such as CRS should *understand and use context-based knowledge-exchange methods, explore alternative communication technologies, and engage in further research to develop communication and adult learning tools to encourage adoption of improved practices and to extend their reach*.

Strategic collaboration with government In post-disaster contexts, this is seen as an opportunity to influence policy so as to improve and adapt building codes and technical guidelines, which are frequently not suitably adapted to the local building culture in the most vulnerable communities. Humanitarian actors may need to *adapt their role to increase influence with key actors in government*.

Respondents also cited factors not explicitly captured in the *Extending Impact* study, that they thought might influence people's decision processes in the adoption of disaster-resilient practices, such as the time frame of the recovery pathway, people's competing priorities, and the specific complexities of the context.

Research has a key role to play in helping organizations such as CRS understand the factors that affect the decision-making processes of disaster-affected people and to collect evidence of field experiences of applying the *Extending Impact* concepts to promote the adoption of improved practices. There are ongoing efforts in this direction, focused on self-recovery processes in disasters that highlight the importance of understanding the context, drivers and barriers affecting household self-recovery, the complexity of build back safer (BBS) imperatives, and the need for interdisciplinary approaches by humanitarian actors.[2]

> Respondents cited other factors that they thought might influence people's decisions in the adoption of disaster-resilient practices, such as the time frame of the recovery pathway, competing priorities, and the specific complexities of the context.

2. *Self-recovery from disasters: An interdisciplinary perspective*. Working and discussion papers. Twigg J, Lovell E and Schofield H et al. October 2017. Overseas Development Institute (ODI).

2. How this Review was Conducted

A questionnaire with open-ended questions was used to conduct key informant interviews, or KIIs, as the data collection method. Nineteen interviews were conducted via Skype during June and July 2018. Informants were selected due to their expertise in the humanitarian shelter sector—either as field staff, global technical advisors or researchers—and included both CRS and external staff. This selection aimed to balance the inputs from different sources and roles:

- 4 CRS field staff that have managed post-disaster shelter projects with a shelter component that applied *Extending Impact* recommendations

- 4 non-CRS field staff, either from the Caritas network or from partner organizations of the Promoting Safer Building working group

- 4 CRS global technical advisors that have supported projects that applied *Extending Impact* recommendations

- 4 non-CRS global technical advisors, either from the Caritas network or from partner organizations of the PSB working group

- 3 researchers involved in academic research aligned with the concepts of *Extending Impact*, such as self-recovery and barrier analysis in post-disaster contexts

To address the research questions, this review collected qualitative data from some of the most experienced informants known to CRS. The review seeks to better understand how the *Extending Impact* study is being used and implemented, its influence within the humanitarian sector and recommended further steps. Practitioners and researchers were selected to gather practical learnings and implementation examples.

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3. Key Findings

3.1 AWARENESS AND INFLUENCE OF *EXTENDING IMPACT* STUDY

3.1.1 Awareness of the study among respondents

The *Extending Impact* study was shared with all interviewees prior to the interview. Nine out of the nineteen respondents reported a good working knowledge of the study, while ten reported having very little or no knowledge of it before the interview. Among those that were aware of the study, five were CRS staff, of a total of eight CRS staff interviewed.
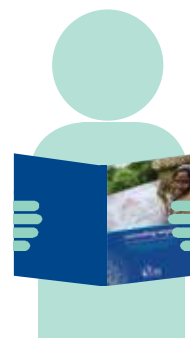
Figure 1. Self-reported awareness of the *Extending Impact* study among humanitarian shelter experts interviewed for the review

- I use the *Extending Impact* study regularly
- I understand the principles outlined in the *Extending Impact* study
- I have partially read the *Extending Impact* study
- I have no knowledge of the *Extending Impact* study

CRS field staff | Non-CRS field staff | CRS TAs | Non-CRS TAs | Researchers
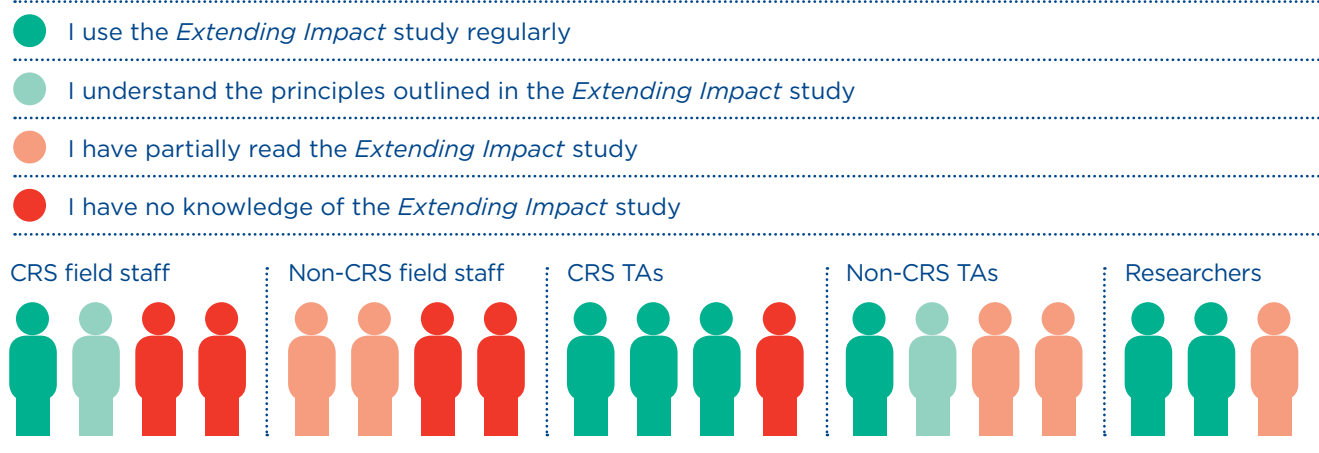
3.1.2 Influence of the study

The nine respondents that reported a sound knowledge of the study detailed whether it was relevant, influential and/or useful in their work.

Figure 2. Relevance, influence and usefulness of the *IE* study among the review respondents who used it or reported a sound knowledge of its principles

- Relevance of the *Extending Impact* study to research
- Influence of the *Extending Impact* study on best practice in the humanitarian sector
- Usefulness of the *Extending Impact* study for program design

CRS field staff | Non-CRS field staff | CRS TAs | Non-CRS TAs | Researchers

Some respondents chose more than one answer.
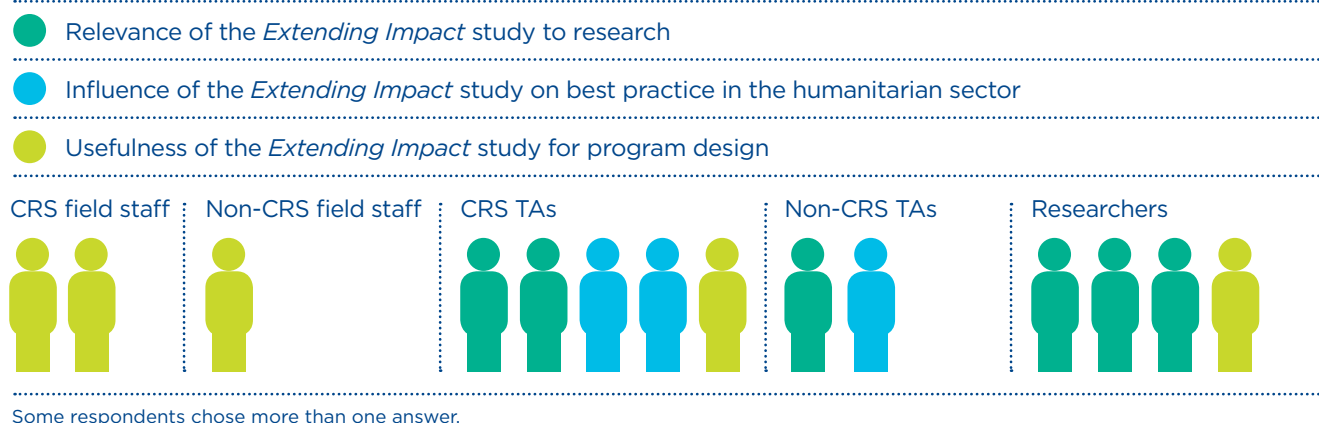
The report was seen as a relevant, influential and useful tool by study participants. Technical advisors and researchers highlighted its importance especially due to the scarcity of research available on program elements that most influence positive behavior change and self-recovery in humanitarian response. Interest in this area is increasing, as demonstrated by the creation of the Global Shelter Cluster's Promoting Safer Building working group, which is engaged in working to better understand post-disaster self-building and self-driven recovery processes.

> **"** [The *Extending Impact* study] has a big influence in the general way we think about shelter programming. The report is referenced in a lot of research for the Promoting Safer Building working group and the wider PSB project. It is a very valuable report that informs our thinking.
>
> Bill Flinn, Senior Shelter Advisor, CARE UK

Among respondents familiar with the study, there was a shared perception that it was useful for strategic planning, programming decisions and design. While the study was valued by those respondents who were aware of it, its reach has been limited within the humanitarian community engaged in shelter programming, especially within CRS.

3.1.3 Understanding the importance of key determinants of the study

According to respondents, the most influential determinants of behavior change for people to invest in their own disaster resilience in post-disaster construction and housing reconstruction are *access, perceived self-efficacy, perceived risk, cues for action* and *policy*. Four of these are among the five most significant determinants of the *Extending Impact* study, while review respondents cited *policy* (rather than *perceived positive consequences*) as the fifth determinant.

Figure 3. Five most influential behavior change determinants in the *Extending Impact* study, as perceived by the review respondents

Access (to resources) Perceived self-efficacy Perceived risk Cues for action Policy

Perceived positive consequences Perceived negative consequences Perceived severity Perceived action efficacy Culture Perceived social norms Divine will
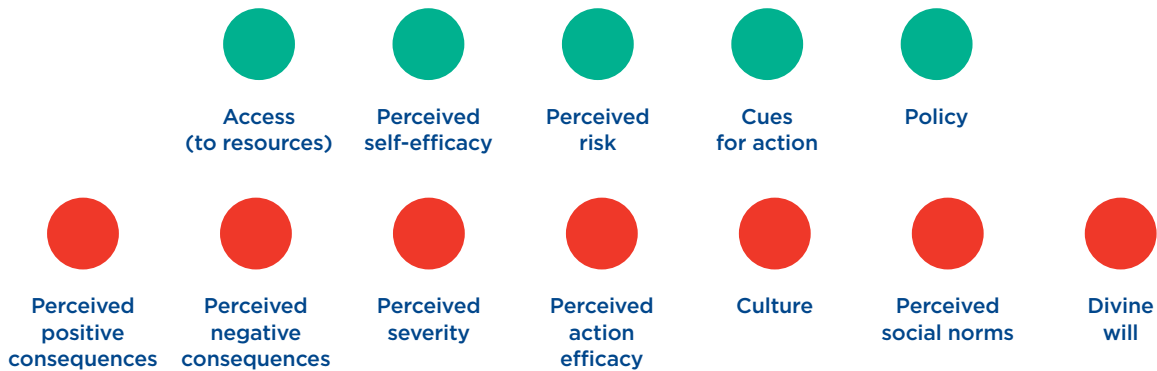
> **"** [*Extending Impact*] is very valuable to the sector because, other than this study, there is limited published evidence on the most important behavioral factors that influence the promotion of safer building practices.
>
> David Dalgado, consultant to Promoting Safer Building working group

The practitioners and researchers in this review suggested other key determinants that had not been highlighted enough in the *EI* study. These included social aspects such as culture, norms and values that are key influencers of decisions in the household or community that may affect housing and safer building practices, including the appearance of structures, material, and location. However, this review did not gather enough insights from respondents into the application of this determinant, or into perceived positive consequences and perceived action efficacy, due to the scarce implementation of related recommendations in the field.

Likewise, respondents noted other factors that may affect people's decisions on housing (re)construction and promoting safer building that should be considered in program design and implementation:

Time frame of the recovery pathway was recognized by respondents as a factor that affects the perceptions and influences the decisions made by people recovering from disasters. For instance, in the Philippines, the perception of risk changed over time after the impact of Typhoon Haiyan as people's priorities moved from the immediate needs of food and shelter to livelihoods for longer-term recovery.

Understanding the context of an intervention was seen by respondents as a key factor in adapting humanitarian programs to the targeted community. This factor is formed of drivers and barriers affecting household self-recovery, such as location elements (environment, culture, seasonal factors, socioeconomic profile, policies), features of housing (use, local building culture, settlements, construction processes), resources (materials, labor skills, land, markets and costs), hazards and disaster-resilient practices, local capacities,[3] and communication and knowledge-exchange codes.

Understanding the full dimensions of "home" In post-disaster reconstruction, this concept may integrate elements beyond safe construction—such as size, function, facilities (water and health-related elements), culture, social norms and perception, attractiveness of the house, and aspirations—and was seen by respondents as an important factor affecting people's decision-making on how best to reconstruct their homes.

> **"** The concept of "home" may integrate elements beyond safe construction—such as size, function, facilities, culture, social norms and perception, attractiveness of the house, and aspirations.

3. CRAterre's *Assessing Local Building Cultures for Resilience & Development* (2015) is a practical guide for community-based assessment. CRAterre is an organization engaged in research, education and expertise in innovative construction procedures and project methodology adapted to local contexts.

3.2 USE OF THE *EXTENDING IMPACT* STUDY RECOMMENDATIONS

3.2.1 Key recommendations

This section focuses on the information provided by review respondents on their experience of using the recommendations and activities in the *EI* study. It aims to understand whether and how they are being applied, and how they are impacting people in disaster-affected areas, and to obtain recommendations to strengthen the application of *EI* recommendations in order to increase resilience to future disasters.

The information follows the ranking of the determinants from the *EI* study. However, only access, perceived self-efficacy, perceived risk, cues for action and policy are included, as the remaining *EI* determinants were not prevalent enough in the interviews for significant conclusions to be reached.

Respondents pointed to access to resources as the most significant determinant for prompting people to invest in their own disaster risk reduction (DRR). However, they said DRR was not a significant component of shelter projects and should be prioritized. For this reason, DRR was also included in this review.

Emmanuel Angazou at his home, which he rebuilt with help from CRS after it was burned and looted during conflict in the Central African Republic. CRS provided him and his community with tools and materials, including wooden doors and windows. *Photo by Michael Stulman/CRS*
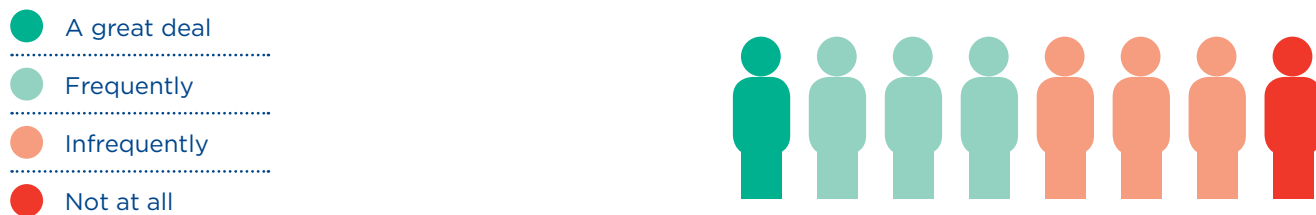
Access

According to the *EI* study, access (to resources) refers to the finance, materials and skilled labor required to construct a home using disaster-resistant construction practices. To overcome this barrier, the study recommended the promotion of practices to support easier access to financial (savings, cash-for-work, livelihoods) and physical (materials and skilled labor) resources.

ACCESS

Figure 4
Access: In your experience, to what degree do you think overcoming the barrier of access has been implemented in programs?

- 🟢 A great deal
- 🟢 Frequently
- 🟠 Infrequently
- 🔴 Not at all

This depicts data from the 8 respondents that implemented activities related to access.

Respondents said that activities supporting access to resources (finance, materials and skilled labor) were not frequently implemented in shelter program interventions. Respondents defined access to resources as the most significant determinant to prompt people to invest in their own disaster risk reduction. However, it is not a significant component of shelter projects and should be made a priority.

The practice-based recommendations for **access** most frequently cited by review respondents:

1. **Promoting the use of local materials and building culture** The use of available local materials and local building culture were key to the adoption and replication of "build back better" (BBB) techniques, according to respondents. Using low-tech materials (such as nails and locally available strapping) may make it easier for people to build back better, and thus encourage them to do so, especially when accompanied by opportunities to increase their knowledge of practices. Expensive materials and complex construction systems are recognized as a barrier to replication for non-beneficiaries.

    In cases of poor access to materials or a limited budget, projects provided selected construction materials in the form of a "quick starter" for households to rebuild after a disaster. Giving families incremental access to key materials as they continue to reconstruct their homes—not just as an initial input, but as an enabler—may put them on the pathway to self-recovery.

    Environmental considerations are critical to programming good practice (e.g., sensitization about deforestation, tree planting etc.), to ensure that a high demand for raw materials does not deplete natural sources, especially in immediate post-disaster reconstruction.

2. **Actively address the barriers to accessing key resources such as materials, labor, finance and land** Access to resources is understood as a major barrier, since without such access it is impossible for people to start the reconstruction process, and they may only be able to maintain their homes to a very low standard rather than rebuilding them to a standard using disaster-resilient practices. Therefore, proposing affordable solutions may not be enough to initiate a recovery pathway to resilience, or may result in competing priorities as households seek to meet their basic needs. In the Philippines, at least one case study linked the self-selection of priorities by households with their capacity to save:

   > *A notable outcome of the shelter program was the impact of allowing households to self-select priorities. In particular, households were observed to have higher savings, even though income levels were one of the lowest of any communities studied. This can in part be attributed to the ability of households to better control shelter construction costs and is promising for future responses.[4]*

3. **Supporting the resilience of vendors and markets** Respondents noted that shelter programs had supported the recovery and/or reinforcement of the local economy to varying degrees when they linked housing construction to the market system. Collaboration with local vendors through cash-based or voucher approaches may result in the rehabilitation of the supply chain, support the economic recovery of the disaster area, and increase market availability in the longer-term as a DRR measure from which beneficiaries and non-beneficiaries can benefit. Using market studies, such as the EMMA Toolkit,[5] in the initial stages of a response can help humanitarian actors understand and support local markets, and provide a basis for staff and organizations to make programmatic decisions on how best to engage local markets in the response.

4. **Increasing access to funding mechanisms** Conventional or alternative funding mechanisms were key to increasing the reach of humanitarian interventions, according to respondents. The provision of even small financial inputs may contribute to people's ability to leverage money from other sources, such as relatives, savings and loans. However, indebtedness can create a risk for a household in the longer-term if interest rates or loan conditions are excessive. Alternative financing options—such collaborative financing (Kiva[6]), savings groups[7] or private sector insurance—are avenues to explore.

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4. *Typhoon Haiyan Shelter Case Studies*. Opdyke, A. 2016. Mortenson Center in Engineering for Developing Communities. Page 47. Report of 19 shelter programs in the aftermath of Typhoon Haiyan in the Philippines, intended to encompass the range of strategies and approaches used by NGOs in shelter reconstruction.

5. Emergency Market Mapping and Analysis Toolkit. A toolkit for humanitarian staff in post-emergency contexts that aims to improve emergency responses by encouraging and assisting relief agencies to better understand, support and make use of local market systems.

6. Kiva is a nonprofit and microlending organization that provides loans to communities using crowdfunding sources.

7. CRS' Savings and Internal Lending Communities (SILC) methodology is a holistic, savings-led microfinance approach that provides a safe place for poor households to save and borrow to increase their income. The goal is to help members better manage their existing resources by teaching them basic financial management skills.

5. **Strategically investing in local workers** Engaging and training local workers in the construction process is a common practice in shelter programs. The decision to increase skills among local laborers in a community may increase access to skilled workers among non-beneficiaries in the longer term. Likewise, communities may benefit economically, since workers' salaries remain in the community, while the dependence on outside expertise for maintenance or reconstruction may be reduced.

CASE STUDY HAITI*

When Hurricane Matthew hit Haiti in 2016, the resulting floods, landslides and extensive destruction of infrastructure and livelihoods affected over 2 million people. The housing sector was among the hardest hit.

CRS' response included many cash-based initiatives (CBIs) and focused on market-aware emergency programming. Based on learning from market studies and engagement with the private sector, the Salvage to Shelter project used cash programming to support existing local vendors to access materials for shelter reconstruction and restart the supply chain.

Vendors handled the stocking and delivery of materials.
Photo by Frederic Dupoux for CRS

Vendors were responsible for the stocking and delivery of materials, while CRS took responsibility for training and supervising the vendors in their role in the project. The solution was cost-effective since the agency spent less to stock, distribute, manage and track materials, and successfully reached the projected target number of beneficiaries.

The approach gave beneficiaries access to construction materials, and vendors were able to recover from the hurricane through increased investment and improved business practices. The support to market recovery may have resulted in a more resilient materials source for both beneficiaries and non-beneficiaries in future crises.

* *The Vendor Effect: Hurricane Matthew Response in Haiti.* June 2018. CRS. A study on the appropriateness and effectiveness of cash-based initiatives and how they can improve, affect and support vendors and market systems.

A social mobilizer conducts a training session with temporarily displaced people in Khyber Pakhtunkhwa, Pakistan, on how to rebuild using a CRS shelter design when they return to their homes. *Photo by Asad Zaidi for CRS*
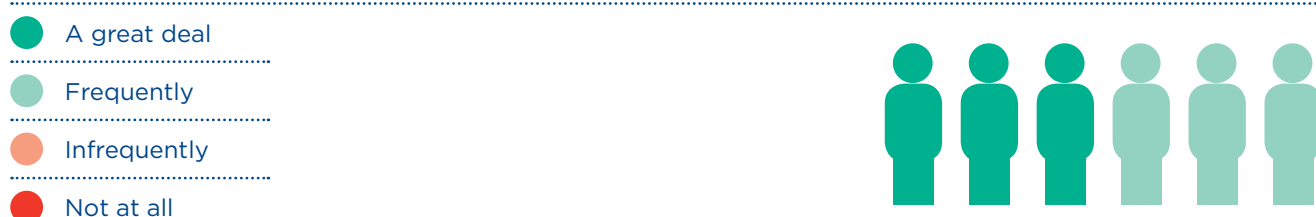
Perceived self-efficacy

According to the *EI* study, perceived self-efficacy refers to the self-perceived knowledge and skills needed to successfully carry out the construction practices recommended by CRS. It was recommended that shelter design programs be based on knowledge of the relevant skill sets of the target population, the extent to which such skills needed to increase for people to feel confident to carry out the practices, and the capacity of different sectors of the target population to pay for skilled labor.

Figure 5
Perceived self-efficacy: In your experience, to what degree do you think program design choices were based on the knowledge and relevant skill sets of the target communities in programs?

● A great deal
● Frequently
● Infrequently
● Not at all

This depicts data from the 6 respondents that implemented activities related to self-efficacy.

Respondents said that activities to support increased construction knowledge and skills—encouraging beneficiaries to perceive themselves as having the capacity to successfully carry out disaster-resilient construction practices—were frequently included in shelter program interventions. They said such activities were a vital element of strengthening construction skills and knowledge among a population.

The practice-based recommendations of **perceived self-efficacy** as cited by respondents:

1. **Maximizing local skills** Most respondents pointed to the importance of understanding local building culture and existing skills to adapt the shelter project's techniques for greater resilience in future disasters. The process should start with an assessment of the existing skills, so that the project can be designed to fill any gaps. Enhancing skills through training may reduce the gap between the current construction systems and the disaster-resilient practices, while incrementally increasing access to skilled workers and technical solutions. Additionally, understanding skills availability and quality can influence the timing of recovery and may result in a multiplier effect.

    On the other hand, if programs do not carefully consider the appropriateness of improved construction approaches, designs and materials to the skills available, this could cause poor-quality outputs (or greater implementation challenges), and risks during future disasters may increase.

Although the use of new materials, such as reinforced concrete or steel, increases a structure's resilience to disasters, these are expensive and difficult to obtain and, if not properly used, the results may be catastrophic for households.

Some respondents cited challenges in assessing existing knowledge and skills in the community, if humanitarian actors exclusively relied on community information. Therefore, it may be useful to develop tools to measure existing construction knowledge and skills to ensure that the intervention is appropriate in terms of design, materials and ways to build knowledge and skill sets.[8]

2. **Improving existing practices to build back better** This is highly interrelated with building local skills and understanding local building culture. Achieving disaster-resilient practices while adapting the technical solutions to local techniques and materials requires a balance. An assessment of the strengths and weaknesses of existing building practices will help to identify areas that need improvement and therefore how the project should be designed. Investing time to understand local practices, developing a shelter response to complement what exists, and engaging the affected population in designing and adopting improved practices may contribute to the replication and sustainability of BBB techniques.

   In Nepal after the 2015 earthquake and in Dominica after the 2017 hurricane, their respective governments imposed standards that would have been difficult for local communities to meet alone in the longer term due to a lack of materials, knowledge and skills. Introducing complex or demanding new skills and/or building techniques may decrease adoption and replication of rebuilding or maintenance practices by communities, especially by non-beneficiaries or former beneficiaries. It is important to coordinate with decision-makers on improved/good practices to help them understand the reality of available practices and abilities, to manage expectations and ensure BBB occurs within the scope of the affected population's capacities and resources.

3. **Empowering communities** Sharing technical knowledge—such as building solutions and construction management—widely in communities, rather than just with workers, may raise individuals' self-perception of their capacity to take on the reconstruction of their own homes. Respondents said that people felt empowered after training in disaster-resilient techniques, how to request and manage skilled labor, or ask for information from those who had used improved construction techniques to rebuild their homes. However, this approach may require a shift in project implementation in the humanitarian sector, changing the way in which resources, time and supervision are managed, that would need to be balanced with meeting immediate shelter needs in emergency responses.

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8. Save the Children is developing guidance and a toolbox for emergency labor market analysis in the construction sector.

A community risk-mapping exercise in a flood-prone area of Bangladesh. *Photo by CRS staff*

Perceived risk

According to the *EI* study, this determinant refers to people's perception of being at risk if they do not use the construction practices recommended by organizations such as CRS. The study recommended ensuring that people fully understand their risks, and that the type of construction practices they choose will directly affect whether or not their home will withstand a disaster event.

Figure 6

Perceived risk: In your experience, to what degree do you think programs ensured people understood the components of risk and the types of disaster-resilient construction practices implemented?

- A great deal
- Frequently
- Infrequently
- Not at all

This table depicts data from the 7 respondents that implemented activities related to perceived risk.

Respondents said that shelter programming did not frequently address how beneficiaries perceived their disaster risk, and that in their experience there was little focus on this in post-disaster response and recovery projects. It should be noted that understanding disaster risk is the first priority of the Sendai Framework,[9] highlighting the importance of people understanding their own disaster risks.

The practice-based recommendations of **perceived risk** as cited by respondents:

1. **Linking risks with disaster-resilient techniques** Messaging usually associates the hazards and risks people face with appropriate construction solutions to reduce risk. Explaining the reasons why homes are damaged or collapse as a result of a disaster, and proposing BBB techniques that address those risks, may increase adoption by communities. Conducting risk assessments to draw out people's understanding of their disaster risk is highly recommended for practitioners to gain an accurate knowledge of the context. This can be used to inform project design, rather than relying on assumptions. Engaging communities in this assessment and in housing design processes may also ensure an informed choice of the techniques and a higher rate of replication by non-beneficiaries.

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9. The Sendai Framework for Disaster Risk Reduction 2015-2030 is the first major agreement of the post-2015 development agenda endorsed by the UN General Assembly. It recognizes that the State has the primary role to reduce disaster risk, but that responsibility should be shared among other stakeholders, including local government, the private sector and other stakeholders.

2. **Investing in understanding priorities and social norms** People may have competing priorities to building back better, which could pose a challenge for the implementation of post-disaster shelter projects. An understanding of these by the humanitarian organizations involved in shelter reconstruction may be key to designing programs that holistically address people's priorities, rather than promoting an irrelevant agenda. Even if individuals are aware of the risks, they may not be motivated to address them if the proposed approaches do not fit their primary needs, preferences and resources available. Respondents gave examples of beneficiaries who had received shelter units in a post-disaster response but did not use them as intended, or at all, because they were not of a sufficient size or the design was not adapted to their needs (e.g. it exposed them to wild animals), etc. In some cases, people preferred to continue living in a damaged house.

> " This is the job of any architect with their client. To understand what the client is expecting, dreaming, and to do it the best we can.
>
> Olivier Moles, Program and Research Manager, CRAterre

Values, culture and social norms are important factors to consider in the adoption and replication of disaster-resilient construction beyond program areas. According to the respondents, even if people were aware of the disaster risks they faced, they might prioritize other aspects related to their social status and culture, such as the size and aesthetics of their home, rather than using appropriate construction techniques when rebuilding their homes. According to respondents, in cases in the Philippines and Ecuador, affected families were given two housing options: one at ground level using reinforced concrete, and the other elevated and made of wood. Despite being located in a flood-prone area and having suffered floods, some families chose the ground-level one because it was made of reinforced concrete, a choice not based on the perceived risk, but on the social status that would result from having a concrete house. Ultimately, after a risk assessment, the NGO did not offer the wooden homes. Doing more to understand how these types of factors affect prioritizing building safety may be an important step toward influencing people to strengthen their homes to be more resistent to future disasters.

3. **Understanding and innovating in communication methods** How information is exchanged with communities and households is key to ensuring there is solid understanding of the risk components. Community meetings that include direct and indirect beneficiaries; training and sensitization through mass campaigns; and child-focused approaches in schools, are opportunities to increase disaster risk awareness. Also, exploring context-adapted and interactive information and communication technology for development (ICT4D) tools, such as videos, could promote a higher degree of comprehension and behavior change to reduce future disaster risk. Moreover, adapting knowledge and communication to the type of audience (including local needs, skills and cognitive levels, culture, building culture, financial resources, and the priorities of low-income groups) that will receive them, establishing positive perceived consequences of knowledge adoption, and enhancing trust in the knowledge sender, are important considerations for increasing the effectiveness of the adoption of disaster-resilient construction principles.[10]

10. Knowledge exchange and adoption to enable safer post-disaster self-recovery. Hendriks E, Luyten L and Parrack C. IDRiM Society. *Journal of Integrated Disaster Risk Management*; 2018.

Participants in CRS vocational construction training stand in front of a model earthquake-resistant house, in Gorkha, Nepal. *Photo by Binod Paudel for CRS*

Cues for action

According to the *EI* study, cues for action refers to the things that help remind people to do something towards disaster-resilient construction or how to do it. The study recommended that field practitioners maximize the "cue" value of demonstration homes and beneficiary homes by increasing opportunities for people to see the houses and have direct contact with the skilled laborers constructing them. Instead of seeing homes only as program outputs, organizations should use them as multipliers and leverage points for extending impact beyond direct program beneficiaries.

> **"** Instead of seeing homes only as program outputs, organizations should use them as multipliers and leverage points for extending impact beyond direct program beneficiaries.

Figure 7
Cues for action: In your experience, to what degree do you think programs have maximized cues for action?

- ● A great deal
- ● Frequently
- ● Infrequently
- ● Not at all

This table depicts data from the 7 respondents that implemented activities related to cues for action.

Respondents highlighted the importance of the use of cues for action in shelter program interventions, specifically using demonstration houses as a tool to exchange knowledge with skilled laborers and communities.

The practice-based recommendations of **cues for action** as cited by respondents:

1. **Developing a strategy for knowledge exchange and sensitization**
   While technical training usually targets skilled workers, orientation for households to contribute to improved building practices, monitor progress and manage upkeep is also essential for achieving successful results. According to the respondents, a learning strategy is required to sensitize communities on a large scale, not only project beneficiaries but also non-beneficiaries, local leaders and government officials, among others, to ensure a wider understanding of the construction techniques put forth in the proposal. This would help increase awareness and adoption of BBB techniques. Staff and communities should explore the best tools and actors for knowledge exchange.

Respondents involved in research found that the most effective way that people learned about improved construction practices and the reasons for applying them, was through community meetings where questions could be answered and knowledge exchanged with trusted sources, such as public figures, local leaders, trusted organizations, etc.

2. **Assessing and adapting programming to the context and communities**
   According to the respondents, context assessments and housing design through community participation would more likely result in adoption of the practices being promoted by the project, than those designed in a less participatory manner. Adaptation and improved designs drawn from local building practices using available materials may increase adoption, especially if communities and partners are engaged in the decision-making process for the technical solutions, and understand the reasons behind the approach, ensuring ownership by households and the community. Respondents said that in their experience shelter programming did not usually address the full dimensions of the concept of "home" (size, function, facilities, culture, social norms and perception, attractiveness of the house, aspirations, etc.). This concept incorporates aspects that may be most relevant to households, of which safety is one component, but not the only one. To better address people's holistic needs, respondents recommended doing more to understand how safety fits into the competing and complementary qualities a home is imbued with. CRAterre's guide, *Assessing Local Building Cultures for Resilience & Development*, might be useful in this regard.

> " Housing is not just about building something, but about systems and frameworks that support the home with the family at the center.
>
> Nancy Doran, CRS Shelter Coordinator, Haiti

A better understanding of the context may contribute to more suitable housing solutions and therefore increase acceptance and ownership. Solutions that are not community-owned are likely to have a low level of uptake and exacerbate people's reluctance to adopt a proposed housing design.

3. **Fostering an understanding of technical solutions by communities**
   Respondents said that demonstration houses were not only a project output but also a learning tool for practical and hands-on training activities, and should be included in the proposal design and project implementation as such. Understanding the reasons behind a technical solution may increase its longer-term adoption by a community, whether they have the prescribed materials or not. Training provided should enable people to translate BBB practices into various housing designs adapted to household needs, requirements and preferences, instead of an exact replication of a model.

To do so, demonstration houses should include key parts of the house, such as walls or roofing, showing different types of solutions. Just as it is important for project staff to understand the multiple dimensions of a "home" in the context in which they work, it is important that communities and households involved in project reconstruction receive capacity strengthening in the technical solutions, including an understanding of why these techniques are important.

4. **Measuring the cost-efficiency of demonstration houses** The use of demonstration houses was seen as costly by some respondents and, where budgets are limited (almost always), project investment should focus on training, supervision and accompaniment of communities as well as the material inputs required. Another disadvantage of demonstration houses cited was their limited training capacity, as only 10 to 15 people could be involved in the construction of the model house.

Cues for action demand additional preparation and time from the humanitarian actor—for the training of trainers, development of training tools, selection of beneficiaries and community engagement—which may require clear communication with donors on the budget and timing.

CASE STUDY MALAWI

After flooding in 2015 affected 120,000 households, CRS and Caritas Malawi collaborated to deliver a shelter response project. The first assessments concluded the technical reasons for the collapse of the homes. Based on assessment findings, they came up with a design using local materials accessible to communities.

Community training focused on the perception of risk, explaining why homes had been affected by the floods, as well as home safety and improved construction practices to make their homes more resilient to future disasters. A mass learning strategy reached 18,000 families, children and youth, builders, local leaders and local government units with knowledge on building back better.

The design of the demonstration houses was based on the resilient traditional housing style in this area of Malawi, with the incorporation of appropriate improvements. Some 512 homes were built for vulnerable families in strategic locations.

Nine months after the program ended, without any support from humanitarian actors, communities built 3,218 additional houses using the improved design. This approach was adopted by the national shelter cluster and was integrated into the Malawi National DRR plan.

3,218

ADDITIONAL HOUSES WERE BUILT 9 MONTHS AFTER THE PROGRAM ENDED WITHOUT ANY SUPPORT FROM HUMANITARIAN ACTORS

After the floods destroyed their home, this family were selected by their community to have their house rebuilt as a demonstration of the best use of local building techniques. The house on the left is the new building constructed with CRS support, while on the right is the building they had used as a temporary shelter.
Photo by Jamie Richardson/CRS

Homes in Anibong, a district to the north of Tacloban city in the Philippines, were destroyed by Typhoon Haiyan on November 8, 2013. The damage and the risk of further destruction in future storms was so severe, that the government declared it a "no-dwell zone" and compelled residents who had lived in the coastal area for generations to relocate. With the help of CRS, Girlita Ascalona will relocate to this home in the Anibong resettlement community. The house has a typhoon and earthquake-resilient construction. *Photo by Jennifer Hardy/CRS*

Policy

While policy was not identified as significant by non-beneficiaries who were interviewed in the *Extending Impact* study, this may have been due to a low level of understanding of policy and housing reconstruction. The current review aimed to gather additional information about this determinant. Recent disasters impacting countries with strong government policies, such as Nepal or Dominica, highlighted the need for a better understanding by humanitarian actors of the impact of government policies to inform the design of emergency response and recovery projects.

Figure 8
Policy: In your experience, have recent programs increased the importance of understanding and following construction policies and codes?

- Not applicable
- No
- It depends if the government was involved or enforced a certain policy for shelter reconstruction
- Yes
- Yes, we work to influence the government toward achievable construction policy

The practice-based recommendations of **Policy** as cited by respondents:

1. **Understanding construction codes** Respondents said it was essential that humanitarian actors understand country construction codes, which would have a significant impact on reconstruction planning especially when a government has defined codes and enforcement systems. However, the main challenge is the absence of building codes governing local or traditional construction systems, while techniques such as the use of reinforced concrete or structural steel have clear regulations. Subsequently, governments may have a tendency to make standards for local construction more stringent to match those of more regulated construction systems, resulting in serious limitations for self-reconstruction due to the lack of knowledge and funds required for communities to follow such rigid, complex and expensive construction guidelines.

   Moreover, policies affecting land use—such as planning regulations and declared no-build zones—affect where people can and cannot live, sometimes with restrictions that did not exist before the disaster. Understanding these policies and the reasons behind them may help humanitarian actors to respond appropriately and support communities to contribute to resilience to future disasters.

2. **Responding to government reconstruction strategy** In some countries, government strategies, despite aiming to encourage recovery, may result in unexpected negative consequences. Coercive enforcement to achieve quick reconstruction to a high standard may result in people attempting to show compliance in the short term but, in the longer term, being unable to sustain it without additional support. People may not be able to rebuild their homes at all if they do not have the capacity and resources to meet government standards; or if those standards do not match their preferences and needs.

    Moreover, government administrative and technical capacity to support rebuilding is a factor to consider in large reconstruction processes. In some reported cases, despite the effort and resources available, low levels of government capacity led to implementation delays. It may be crucial to explore the role of humanitarian actors in supporting these efforts.

3. **Influencing and coordinating with governments** Several respondents referred to cases where humanitarian actors were able to influence the government and other organizations in defining a response strategy or contributing to national construction codes and building designs. Organizations have successfully advocated for the development of appropriate technical solutions that were not part of the national construction code. In Haiti, CRAterre obtained official certification for a locally adapted wooden structure.[11] However, further research is needed to prove the resilience of proposed technical solutions based on local knowledge. To achieve higher degrees of sustainability and longer-term impact, capacity strengthening, advocacy and close collaboration with government actors may be required.

4. **Ensuring the adequacy of local building codes** As already discussed, the benefits of understanding and applying local building culture in shelter programming may be different in different settings. Communication with communities is vital so that they are able to understand the reasons why context-appropriate BBB technical solutions are being used, while adapting designs to meet their individual needs and simultaneously upholding safer construction approaches. Pre-approved designs of a high standard may be seen by respondents as rigid solutions that are unlikely to match their existing skills, resulting in the mere replication of one house model.

5. **Redefining the role of humanitarian actors** There is a current shift from traditional shelter and construction projects toward the use of unconditional multipurpose cash and technical assistance.[12] At a policy level, due to the direct responsibilities of this new role, humanitarian organizations engaged in a shelter technical assistance role may work to better adapt, communicate and supervise building codes and practices that affect the most vulnerable. Exploring the development of non-prescriptive and incremental technical guidelines, instead of static building codes, may be recommended.

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11. *Rebuilding Haiti after the January 2010 earthquake: risk reduction, building cultures and local development*. Page 48. CRAterre. (English version, 2017) and (French version, 2018)

12. The WASH Cluster and Global Shelter Cluster Joint Advocacy Paper on *Increasing Sectoral Cash Transfer & Market Based Programming Capacity* as instrumental modalities for the delivery of humanitarian support and services.

In the aftermath of Typhoon Haiyan, future inhabitants of CRS' Anibong Resettlement project in Tacloban in the Philippines, engaged in settlement planning, considering disaster-resilient construction and practices. *Photo by Mikel Larraza for CRS*

Disaster risk reduction

The purpose of the *EI* study and this review was to explore how programs that seek to build resilience to disasters may influence improved practices even among those who are not receiving external support. Disaster risk reduction is a fundamental component of this and was identified by respondents as a potential factor affecting people's decisions about rebuilding their lives and livelihoods after a disaster.

The practice-based recommendations of **disaster risk reduction** as cited by respondents:

1. **Defining the investment in disaster risk reduction** Most respondents said that they had not seen an increase in investment in disaster risk reduction in recent years, due to factors including a lack of donor funding and the tendency of humanitarian agencies to focus on emergency response rather than pre-disaster risk reduction. Also, the recovery phase of emergency response tends to fall short of support for longer-term initiatives, as project time frames are much shorter than for development programs. Disaster risk reduction is seen as a long-term investment and, although increased investment in this area has been slow, some respondents have seen a change in the last 25 years. To address this gap, piloting long-term preparedness and recovery interventions in locations subject to recurrent disasters; advocating donors; and establishing greater dialogue between emergency, development and DRR practitioners, may help to elevate the importance of investing in DRR.

2. **Designing intervention strategies for disaster risk reduction** There are different ways to increase DRR, from working with households, communities and local actors, to a wider approach targeting policy changes and increased government capacity. Disaster risk reduction at the community level offers reduced risks through mitigation and preparedness measures, rapid response recognizing that communities are the first responders, and pre- and post-disaster assessments. Continuous work to extend reach by working with communities through mass campaigns, social media, formal educational systems, engaging the private sector to promote appropriate insurance schemes, building government capacity, and building knowledge and buy-in among humanitarian actors and donors would result in a broader impact.

3. **Engaging with the government to ensure recovery plans** According to respondents, governments may have disaster response plans but lack strategies and institutions for recovery. Additionally, working with the government on technical aspects may not be sufficient in the long term if decision-makers are not involved in DRR and recovery activities at the government level. Deeper government engagement may bring additional opportunities for humanitarian actors to influence sectors such as education, environment, land tenure and construction, to build back better and reduce risks to future disasters.

3.2.2 Data collection on *EI* study recommendations

Systematic data collection on how recommendations are affecting indirect beneficiaries is still limited.

Eleven respondents—three of them researchers—said they were involved directly or indirectly in producing studies to understand the impact of recommendations from the *EI* study or linked to similar concepts such as self-recovery. Eight respondents said that in the projects in which they were involved, data collection targeted traditional project monitoring and evaluation, or that they did not have systems in place to assess how different determinants were influencing non-project participants to build back better. Constraints to systematically gathering data on non-beneficiary investment in BBB include time, funding and the difficulty of measuring impact among unknown indirect beneficiaries.

3.2.3 Integration of recommendations into programming

According to the respondents, almost all of the *EI* study recommendations implemented in project activities were integrated into programming as part of proposals and programmatic frameworks. As a logical process, the integration of these recommendations starts during context assessment and will then be naturally integrated into the proposal's framework.

Additionally, respondents recommended the development of tools to accompany the *EI* recommendations, to facilitate its application in programming. Generic indicators would be helpful to guide MEAL planning, as would tools to measure indirect beneficiaries and establish long-term impact evaluations as part of project MEAL plans.

4. Conclusions and Further Steps

This review collected information on the practical application of the determinants and recommendations examined. An analysis of the key components described under each determinant revealed shared good practices that aim to strengthen the application of the *EI* study recommendations:

Understanding the local context is seen as fundamental to the design and implementation of shelter projects that target a greater impact among direct *and indirect* beneficiaries. The local context is composed of a wide range of elements, such as location elements (environment, culture, seasonal factors, socioeconomic profile, policies), features of housing (use, local building culture, settlements, construction processes), resources (materials, labor skills, land, markets and costs), hazards and disaster-resilient practices, local capacities,[13] and communication and knowledge-exchange codes. This means that the more projects adapt to the context, the greater degree of adoption and replicability the technical solution will have. Therefore, CRS and similar organizations need to develop or adapt holistic assessment tools, while engaging local communities, to design and implement resilient shelter projects for which adoption will extend beyond project participants.

Access to resources (materials, finance, labor and land) usually represents a significant barrier to communities affected by disasters and is also a difficult determinant for organizations to influence. Working to understand and support the recovery of local markets and supply chains, and engaging with local vendors and workers may help to overcome the barrier of access, by making appropriate materials and skilled labor more available. Likewise, the provision of financial inputs may contribute to people's ability to leverage money from other sources, while alternative financing tools (savings groups, collaborative lending tools and private insurance) should be explored by the humanitarian sector to decrease the gap between aspirations and actions.

Learning and communications processes are extremely relevant to ensure a wider adoption of disaster-resilient practices within and beyond project participants. In this sense, learning processes should enable and empower people to understand and apply disaster-resilient principles rather than to simply replicate a rigid housing design proposed by a project. Moreover, this review highlights the importance of developing context-based learning and communication strategies that take into account knowledge-exchange methods and tools, audiences and senders, and adapt the message accordingly. Exploring new technologies and methods for knowledge exchange can be an opportunity for the sector to increase its reach, while further research may also be needed to understand and develop communication and adult learning tools.

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13. CRAterre (2015) *Assessing Local Building Cultures for Resilience & Development*.

Strategic collaboration with government in post-disaster contexts has gained importance due to recent disaster responses in which governments took a lead role. A common reflection was the high construction standards demanded by governments—sometimes in direct response to a disaster—which were at odds with traditional construction techniques and available materials. Affected communities were unable to meet such stringent requirements that often called for the use of complex construction techniques and expensive materials that were not locally available. However, this is also seen as an opportunity for the humanitarian sector to influence government interventions to establish or strengthen and enforce building codes, and to develop appropriate technical guidelines by engaging in strategic collaboration with governments. Therefore, the role of humanitarian actors may need to evolve beyond technical assistance to disaster-affected populations, to adapt to new scenarios, especially if the sector is looking to influence other key elements at a structural level, such as DRR, recovery processes, education, land tenure and environment.

These are the further steps proposed to address the recommendations and conclusions of this report at the institutional level:

4.1 Awareness and knowledge

■ A more robust roll-out strategy needs to be defined to increase awareness of the *EI* study among CRS and non-CRS field staff, especially among both local and international shelter practitioners, to build their capacity in the areas highlighted as important by the study. Internally, for CRS, this strategy could use existing tools, such as CRS Learns and staff learning plans, as part of the induction process and combined with other key learnings.

■ Increase awareness of the *EI* study recommendations in broader contexts, and develop translations of the *EI* report into languages such as French and Arabic.

■ Develop learning materials for adults, and communication strategies and tools, with the help of learning and communication experts. Explore and test learning processes that involve youth and children, to achieve behavioral change.

4.2 Assessment tools

■ To reduce the gap between research and action, and to ensure an understanding of community perspectives, create context-assessment tools based on the *EI* study learnings and recommendations to use in the design of shelter projects, and in other sectors. These should include tools to assess the affected population's competing priorities over time, characteristics of the local context, the full dimension of the concept of "home", and barriers to BBB, as well as types of disaster and risk assessments. These tools can draw on existing multi-sectoral tools from Promoting Safer Building processes, protocols and partners, such as CRAterre and CARE.

4.3 Monitoring, evaluation, accountability and learning

■ As part of the context-assessment tools, develop an *EI* MEAL toolkit that includes processes for defining context-appropriate indicators, a predefined indicator bank[14] for the *EI* recommendations, and a means for monitoring processes to ensure accountability to beneficiaries.

■ Provide strong evidence from the use of the *EI* study approach and measure program impact among indirect beneficiaries, including, to the extent possible, any sustained benefits after project closure. Evaluate case studies of projects with *EI* study components.

4.4 Research

■ Ensure the appropriateness of humanitarian interventions through further research into behavior change focused on shelter projects, and include self-recovery frameworks, with CRS partners and researchers. This research should aim to understand the complex range of influences on decisions made by disaster-affected communities, as well as recovery pathway variables, such as the shifting of priorities among communities over time, characteristics of the local context, and the full dimension of the concept of "home".

■ Given the importance of communication, knowledge exchange and continued learning from the *EI* study approach, engage in research to better understand how these processes work and what the factors are that affect them, such as trust, technology and cultural mindset.

4.5 Engage with the public and private sectors

■ Focus on sustainable and context-based solutions in a changing environment. Develop and test strategies to define how humanitarian actors can work with governments at different levels (from national to local) from response through recovery. This can address building codes and incremental technical guidelines, strategies for intervention and support in recovery processes, institutionalized DRR, education, land tenure and environment, among others.

■ Develop alternative ways to support indirect beneficiaries and communities, such as exploring potential engagement with the private sector in financing—from conventional loans to crowdfunding and collaborative lending opportunities—and insurance tools.

4.6 Preparedness and recovery

■ Ahead of emergencies in locations with recurrent disasters, develop assessments of *EI* study determinants as well as early recovery strategies, with local and public institutions using existing country profiles, within CRS, the Caritas network, the PSB working group, Global Shelter Cluster partners and other forums.

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14. Disaster Risk Reduction and Resilience Indicator Bank: For technical advisers, project managers and MEAL personnel is a tool developed by CRS, Cafod and Caritas Australia for humanitarian practitioners, to assist in project design involving DRR and resilience building in communities.

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