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Re-conceptualising "Building Back Better" to Improve Post-Disaster Recovery

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1 Introduction

Statistics from the United Nations Environment Programme (UNEP, 2008) show an increase in the number of natural disasters over time attributing to growing populations, urban growth in risk-prone areas due to scarcity of land, and global warming. Along with increasing frequency, recent disasters show an increase in magnitude and resulting destruction (Red Cross, 2010).

Despite the increasing number of disaster experiences, post-disaster activities remain inefficient and poorly managed and need to be improved according to Halvorson and Hamilton (2010), Lloyd-Jones (2006) and Sawyer et al. (2010). The slogan "Build Back Better" first emerged during the multi-national recovery effort following the Indian Ocean Tsunami (Clinton, 2006, Lyons, 2009), as the need to improve current reconstruction and recovery practices and generate safer communities emerged.

The aim of this paper is to understand the origins and definition of the concept of Building Back Better (BBB) in post-disaster reconstruction and recovery in order to create a framework which would allow practical application of BBB concepts to improve post-disaster reconstruction and recovery. This paper discusses the importance of BBB practices for successful recovery of communities following disasters; examines existing guidelines which include recommendations for BBB; identifies key concepts critical to BBB; analyses these concepts; and reviews shortcomings in existing BBB guidelines. This information is utilized in this paper to develop an all-inclusive set of 'BBB Principles' which form part of a 'BBB Framework' that can be employed to guide post-disaster reconstruction and recovery practices in order to build back better.

2 What is "Build Back Better"?

The South Asia Disaster Report (DNS and PA, 2005) states that disasters are produced due to the weaknesses and vulnerabilities of communities, countries and structures to withstand encountered hazards. Wisner et al. (2004) defines vulnerability as the lack of capacity to anticipate, cope with, resist and recover from the impact of a hazard. The destruction and loss of human lives from the 2005 Kashmir Earthquake in Pakistan was primarily due to the collapse of inappropriately built structures constructed on earthquake-prone land using sub-standard building materials and designed with little earthquake resistance (DN and PA, 2008, Halvorson and Hamilton, 2010). Poorly planned and sometimes illegal developments and their resulting impacts on the environment worsened the damage from the Mumbai Floods in 2005. A similar situation was seen in Sri Lanka after the Indian Ocean Tsunami (DN and PA, 2008).

Restoration of the damaged physical, social, economic and environmental impacts of disasters is a complicated and drawn-out process. Reconstruction and recovery projects often focus on quick restoration of affected communities which can replicate and worsen existing vulnerabilities faced by the community (Johnson et al., 2006, Lyons, 2009, TEC, 2007). The Tsunami Evaluation Commission Synthesis Report (TEC, 2007) provided examples where escalated pressures and the need for fast rebuilding and recovery processes following a disaster can further increase the vulnerability of a community. Examples include: non-adherence to design and construction of policies for buildings and infrastructure; insufficient focus given to certain aspects of the recovery process such as livelihood development programmes and small business support programmes; overruling of local government agencies; and neglecting vulnerable groups of people in the community.

Disaster management is commonly represented by four phases: mitigation, preparedness, response and recovery (Rubin, 1991). Berke et al. (1993) stated that of these four phases recovery is the least understood. After the initial post-disaster response activities during the emergency and restoration periods it is important to move quickly to the reconstruction and long-term recovery phase in order to restore a sense of normality in affected communities as soon as possible. Despite the increasing number of post-disaster reconstruction experiences encountered, this phase still remains inefficient and poorly managed (Halvorson and Hamilton, 2010, Lloyd-Jones, 2006, Sawyer et al., 2010). Traditionally, post-disaster reconstruction consisted of simply repairing the physical damage that has been induced by a disaster. However, authors such as Kennedy et al. (2008) and Lyons (2009) pointed out that rebuilding the built environment and infrastructure exactly as they were prior to a disaster often re-creates the same vulnerabilities that

existed earlier. If restored to pre-disaster standards disaster-affected communities would face the same difficulties if exposed to another disaster event in the future. Mitchell (1999), Lewis (2003) and Kijewski-Correa and Taflanidis (2012) noted that the reconstruction and recovery period following a disaster poses an opportunity to address and rectify vulnerability issues found in communities.

Complete recovery requires attention to many different elements. The devastation and large-scale reconstruction effort following the Indian Ocean Tsunami in 2004 was the catalyst that gave rise to the phrase and concept: "Build Back Better" (BBB). BBB was defined by Clinton (2006), Khasalamwa (2009) and Roberts (2000) as a way to utilize the reconstruction process to improve a community's physical, social, environmental and economic conditions to create a more resilient community; where resilience is defined as "the capacity to absorb stress or destructive forces through resistance or adaptation"; or "the capacity to manage, or maintain certain basic functions and structures during disastrous events;" or "the capacity to recover or 'bounce back' after an event" (Twigg, 2007). Therefore what the concept of BBB proposes is a broad holistic approach to post-disaster reconstruction in order to address the wide range of prevalent issues such as those mentioned above and ensure that the affected community is regenerated in a resilient manner for the future.

3 Existing Guidelines for Building Back Better

Former US President Bill Clinton's (2006) "Key Propositions for Building Back Better" was the earliest known official document to be published which attempted to provide a comprehensive guideline for implementing BBB practices in post-disaster environments. The report was based

on and aimed at the Indian Ocean Tsunami disaster. Clinton (2006) introduced ten propositions for BBB.

Clinton's propositions were (Clinton, 2006):

- Proposition 1: Governments, donors and aid agencies must recognize that families and communities drive their own recovery.
- Proposition 2: Recovery must promote fairness and equity.
- Proposition 3: Governments must enhance preparedness for future disasters.
- Proposition 4: Local governments must be empowered to manage recovery efforts, and donors must devote greater resources to strengthening government recovery institutions, especially at the local level.
- Proposition 5: Good recovery planning and effective coordination depend on good information.
- Proposition 6: The UN, World Bank, and other multilateral agencies must clarify their roles and relationships, especially in addressing the early stages of a recovery process.
- Proposition 7: The expanding role of NGOs and the Red Cross/Red Crescent Movement carries greater responsibilities for quality in recovery efforts.
- Proposition 8: From the start of recovery operations, governments and aid agencies must create the conditions for entrepreneurs to flourish.
- Proposition 9: Beneficiaries deserve the kind of agency partnerships that move beyond rivalry and unhealthy competition.
- Proposition 10: Good recovery must leave communities safer by reducing risks and building resilience.

Several other guidelines directly and indirectly proposing BBB-based recovery and reconstruction operations can be found, such as:

- United Nations Disaster Relief Organization's "Principles for Settlement and Shelter" (Clinton, 2006, Kennedy, 2009) which addresses stakeholder role allocation; needs-based provision of resources to the community; and risk reduction.
- The Government of Sri Lanka's "Post-Tsunami Recovery and Reconstruction Strategy" and "Build Back Better Guiding Principles" (GoSL, 2005a) which include needs-based resource allocation and provision of locally appropriate solutions; community participation and consultation in recovery activities; equity; transparency between stakeholders; risk reduction and consideration of future sustainability; and livelihood support.
- Federal Emergency Management Agency's "Rebuilding for a more Sustainable Future: An Operational Framework" (FEMA, 2000) which mentions role allocation and coordination of stakeholders; community-centred recovery operations; and hazard-based sustainable risk reduction practices.
- Monday's "Holistic Recovery Framework" (2002) which addresses enhancing the quality of life in the community, economic vitality and the quality of the environment; risk reduction; and participatory decision-making in recovery activities.
- Bam's Reconstruction Supreme Supervisory and Policymaking Association's "Bam's Reconstruction Charter" (Omidvar et al., 2010) which includes policies for reconstruction management; community participation, employing suitable construction technology and

materials; preserving cultural and architectural heritage; and ensuring stability of construction.

- Victorian Bushfire Reconstruction and Recovery Authority's "Recovery and Reconstruction Framework" (VBBRA, 2011) which focuses on the safety and wellbeing of the community; needs-based resource allocation; community engagement; equity; and tailored solutions.
- Christchurch Earthquake Recovery Authority's "Recovery Strategy" (CERA, 2013) which entails leadership and integration to manage recovery activities using a participatory approach; regenerating the economy; restoring and enhancing the community; reconstruction of the built environment; and restoring natural and healthy ecosystems.

4 Key Categories for Building Back Better

The concepts proposed to achieve BBB during reconstruction and recovery in the various guidelines in the previous section feature similarities. Aspects such as role allocation of stakeholders, community participation and risk reduction appeared in most of the guidelines. To understand the fundamentals of BBB as a concept, it is valuable to analyse the complete list of propositions from all prominent documents and guidelines which depict effective post-disaster reconstruction and recovery and the concept of BBB. This analysis will aid the determination of core concepts and principles that can be used to represent the notion of building back better. Table 1 provides a complete list of concepts recommended by different guidelines and is used as a tool to assess the frequency at which each concept is mentioned.

Table 1: BBB Concepts from Build Back Better Guidelines[1]

The term "score" in Table 1 is used to depict the number of BBB guidelines that mention each concept, out of the seven BBB guidelines studied. This score suggests the recognition given to each concept in achieving successful recovery in order to build back better where higher scores (i.e. being mentioned in a greater number of guidelines) correspond to greater recognition. The prominent concepts mentioned in all or more than 50% of the guidelines studied were identified and categorized based on the particular area of recovery they represent in table 2. "Area of recovery" is an informal term used to represent the aspect of recovery in consideration, i.e. whether it is linked to people, economy, rebuilding, risk reduction etc. in order to understand where each concept belongs in the recovery process.

[1] A – Key Propositions for Building Back Better Clinton, W. J. 2006. Lessons Learned from Tsunami Recovery: Key Propositions for Building Back Better. New York: Office of the UN Secretary-General's Special Envoy for Tsunami Recovery.
B – Principles for settlement and shelter, UNDRO UNDRO 1982. Shelter After Disaster: Guidelines for Assistance. New York: United Nations Disaster Relief Organisation.
C – Post-Tsunami Recovery and Reconstruction Strategy and Build Back Better Guiding Principles, Sri Lanka GoSL 2005a. Post-Tsunami Recovery and Reconstruction Strategy. Colombo.
D – Rebuilding for a more Sustainable Future: An Operational Framework, FEMA FEMA 2000. Rebuilding for a More Sustainable Future: An Operational Framework. *FEMA Report.* Washington, DC: Federal Emergency Management Agency.
E – Bam's Reconstruction Charter, BRSSPA, Iran Omidvar, B., Zafari, H. & Derakhshan, S. 2010. Reconstruction management policies in residential and commercial sectors after the 2003 bam earthquake in Iran. *Natural Hazards,* 54 (2)**,** 289-306.
F – Recovery and Reconstruction Framework, VBRRA, Australia VBBRA 2009. 100 Day Report. *Victorian Bushfire Reconstruction and Recovery Authority.* Melbourne: Victorian Bushfire Reconstruction and Recovery Authority, VBBRA 2011. 24 Month Report. *Victorian Bushfire Reconstruction and Recovery Authority.* Melbourne: Victorian Bushfire Reconstruction and Recovery Authority.
G – Recovery Strategy, CERA, New Zealand CERA. 2013. *Canterbury Earthquake Recovery Authority* [Online]. Available: http://cera.govt.nz/ 2013].

Table 2: Categorisation of recovery areas

The various recovery areas identified in table 2 were grouped together based on their role in the recovery process to create formal "recovery categories". The BBB Framework would first identify the key recovery categories that need to be considered for building back better, after which each category would be sub-divided in order to address more specific issues. Reducing risks and providing safety in the built environment through structural improvements and through consideration of location is one such recovery category. All aspects in relation to this area of recovery can be grouped into one category. Since this category deals with *safety and risk reduction* it can be titled "Risk Reduction".

4.1 Risk Reduction

Risk Reduction can be identified as a core category required for building back better. The importance of risk reduction is portrayed in Table 1: Concept 10 has a score of 7, concept 14 a score of 4, concept 19 a score of 5, and concepts 11 and 12 scores of 3. From the information at hand Risk Reduction can be defined as: measures put in place to improve the community's physical resilience to natural hazards.

Previous post-disaster experiences have emphasized the need to identify prevalent hazards and determine solutions to reduce risks imposed on people. The Red Cross's World Disaster Report 2010 (Red Cross, 2010) disclosed that the risks seen in cities are due to a number of reasons such as: growth in informal or illegal settlements; inadequate infrastructure; and building on sites at risk from hazards. The report also stated that many past disasters could have been anticipated and avoided before-hand with proper planning, design and construction methods.

The Victorian Bushfires Royal Commission Final Report (2009 Victorian Bushfires Royal Commission, 2010) recommended the amendment of the Australian Building Code following the Victorian Bushfires ensuring greater safety standards. The Royal Commission suggested identifying bushfire-prone areas and adopting suitable building and planning controls. The National Mitigation Strategy produced in Turkey following the Kocaeli and Duzce earthquakes of 1999 also stated the need for site-specific hazard identification before reconstruction as well as retrofitting and updating structural codes and using tax incentives to encourage mitigation work (Bakir, 2004). The 2008 South Asia Disaster Report by the non-governmental organizations Duryog Nivaran and Practical Action (DN and PA, 2008) recommended that hazard and vulnerability maps are produced and building codes enforced to avoid development related disasters in the future.

The suggestions show that risk reduction is primarily achieved in two ways: through improving the structural designs of the built environment to enhance its ability to resist damage from disasters; and through hazard-based land-use to avoid or manage prevalent risks. This evidence enables the subdivision of the Risk Reduction category into two sub-categories which will be referred to as “Principles” that allow Risk Reduction to be incorporated in reconstruction and recovery to build back better: Principle 1 Improvement of Structural Designs, depicting improving structural designs and enforcing them through revised building codes; and Principle 2: Land-use Planning, representing the use of hazard and risk-based land-use plans to minimise risk.

Another recovery area seems to focus on the community such as: including the community in recovery, empowering the community, providing recovery solutions based on community needs, considering social aspects, and enhancing and supporting psychological recovery. These aspects can be grouped together into another category. This category can be named "Community Recovery" as it deals with community-relevant aspects in recovery. Supporting economic recovery of the community and supporting livelihood regeneration and entrepreneurship is also an important part of recovery. These aspects can also be included in the category "Community Recovery" as they are relevant to the recovery of the community as a whole and each individual.

4.2 Community Recovery

Aspects such as improving the social and economic conditions of the community for long-term sustainability by supporting livelihoods and regenerating the economy (Table 1, concept 8, score = 5); providing needs-based, locally and culturally appropriate recovery solutions (Table 1, concepts 15, 16, 19 and 24 with scores of 5, 7, 5 and 3 respectively); and focusing on community well-being (Table 1, concept 23, score = 3) form the category Community Recovery. Chamlee-Wright and Storr (2009), Chang (2010) and (Kennedy, 2009) identified that keeping the community together and involving them in collective activities (such as social gatherings, participation in reconstruction and recovery work) and providing psychological support trigger them to recover from the trauma incurred after a disaster. They also fuel the determination to support the recovery process and move forward (Kennedy, 2009, Chamlee-Wright and Storr, 2009, Chamlee-Wright and Storr, 2011). The recovery effort following the Victorian Bushfires portrayed a good attempt at psycho-social recovery of affected people through the provision of "case managers" for each family to provide individualised information and resources to support

recovery, as well as through providing services such as counselling, youth support, children support, men's getaways, memorial services, and community events (VBRRA, 2010).

A core theme which encapsulates the idea of BBB is that recovery should be driven by the community and that all operations require consultation and participation of locals. This idea bears importance in Table 1 with high scores: Concept 1 is scored at 7, concept 15 at 5, concept 16 at 7 and concept 23 at 3. Recovery activities are for the benefit of the affected local community. Therefore the needs, dynamics, culture and other pre-existing socio-political, environmental and physical issues in the area need to be determined and considered (Khasalamwa, 2009, DN and PA, 2008, James Lee Witt Associates, 2005, Olshansky, 2005). Davidson et al. (2007) and Lyons (2009) stressed that decentralized approaches empower people and provide a greater level of satisfaction about the outputs (Davidson et al., 2007, Lyons, 2009).

Clinton (2006) stated that "a sustainable recovery process depends on reviving and expanding private economic activity and employment and securing diverse livelihood opportunities for affected populations". The need for economic rejuvenation and encouraging the community to return to their former livelihoods or venture into new ones has been reinforced by many authors such as Haigh et al. (2009), James Lee Witt Associates (2005), Bredenoord and van Lindert (2010), Johnson et al. (2006) and Lyons (2009). Economic recovery and livelihood regeneration can be achieved through initiatives such as cash-for-work programmes (paying locals to become involved in reconstruction work) (Haigh et al., 2009); skills-training programmes (James Lee Witt Associates, 2005); owner-building schemes (Bredenoord and van Lindert, 2010, Johnson et al., 2006, Lyons, 2009); providing job opportunities and sustainable livelihood options (Monday, 2002, Twigg, 2007); and arranging financial help and grants for small businesses and micro-

enterprise schemes (Asian Development Bank et al., 2005, GoSL, 2005b). Red Cross (2010), Batteate (2006) and Winchester (2000) stated that successful livelihood recovery programmes utilize grass-roots schemes and attempt to understand the requirements of the community

The above information shows that BBB-based community recovery incorporates two major factors: considering the psycho-social aspects of recovery; and considering the local economy and re-establishment of livelihoods. These two factors form the basis of two more BBB Principles under the category Community Recovery: Principle 3 Social Recovery which entails supporting psycho-social recovery and Principle 4 Economic Recovery which looks at improving the economic climate of the impacted community.

The last four concepts in Table 2 support effective and efficient recovery practices. A successful recovery effort requires effective and efficient recovery solutions as part of building back better. Thus a third category is formed which can be called “Implementation”, grouping all concepts related to improving the effectiveness and efficiency of implementing post-disaster reconstruction and recovery.

4.3 Implementation

The category Implementation collates the means by which Risk Reduction and Community Recovery can be implemented in an efficient and effective manner. The 24 concepts in Table 1 all contribute to the Implementation category suggesting ways in which reconstruction and recovery should take place to achieve BBB. A commonly arising issue in post-disaster environments is the difficulty in coordinating with the large number of stakeholders involved and determining their specific roles to avoid duplication of activities (DN and PA, 2008, GoSL and

UN, 2005, James Lee Witt Associates, 2005). Clinton's (Clinton, 2006) third and sixth propositions state that government officials should pre-prepare for disasters by considering ways to organize government agencies and institutions with clarification provided as to their roles and responsibilities as well as partnerships with other organizations (Table 1 concepts 6 and 7, with scores of 4 and 1 respectively). The creation of overseeing bodies to coordinate between stakeholders such as the Victorian Bushfire Reconstruction and Recovery Authority (VBRRA) in Australia (2009 Victorian Bushfires Royal Commission, 2010); Bureau of Rehabilitation and Reconstruction (BRR) in Indonesia (Meigh, 2009); and Task Force for Rebuilding the Nation (TAFREN) in Sri Lanka (James Lee Witt Associates, 2005) have been helpful in recovery operations and scored a 4 in Table 1 having been mentioned in many of the guidelines (concept 5). Recommendations by James Lee Witt Associates (2005) also mention the need to train disaster management professionals and public officials to provide them the knowledge and expertise to improve their capabilities in post-disaster operations (Table 1, concept 21, score = 3).

Legislative and regulative measures required to facilitate reconstruction and recovery and risk reduction are pointed out in concepts 12, 13 and 14 in Table 1, with scores of 3, 3 and 4. Employing hazard disclosure laws which prohibit and/or control construction in hazard-prone areas have been recommended by Bakir (2004); Batteate (2006); Duryog Nivaran and Practical Action (DN and PA, 2008); and Mora and Keipi (2006). Haigh et al. (2009) identified the need for legislation to also be simplified and streamlined to assist recovery operations and reduce delays. The creation of national policies for employment creation (Boano, 2009) and resettlement (Frerks and Klem, 2005, GoSL, 2005b) have also been proposed based on previous experiences.

Implementation of post-disaster reconstruction and recovery activities to build back better therefore requires two main concepts: identification of stakeholders and their roles and relationships to enable efficient functioning in the post-disaster environment; and legislative and regulative measures to reduce risks, facilitate recovery processes and provide policies for social and economic recovery. These concepts can be identified as two more BBB Principles under the category Implementation: Principle 5 Stakeholder Management which advocates coordinated stakeholder functions and Principle 6 Legislation and Regulation which requires the use of legislation and regulation to control and facilitate recovery operations.

Concepts 3, 21 and 22 in Table 1 demonstrate the need to take lessons learnt from disaster experiences and translating them into recovery plans and training programmes to prepare for future events as part of BBB. The Victorian Bushfires Royal Commission (2010); Clinton (2006, 2006); Haigh et al. (2009) and Halvorson and Hamilton (2010) also stress the importance of monitoring and evaluating recovery efforts and producing future recovery plans to create a resilient community who has the knowledge and resources to respond to a future disaster event. Therefore a fourth category is formed representing the monitoring and evaluation exercises that need to be undertaken through all recovery activities. This category is named “Monitoring and Evaluation” and is spread over the three categories Risk Reduction, Community Recovery and Implementation.

5 Build Back Better Framework

The establishment of core categories and principles for building back better enables the creation of a framework that can be used to represent BBB. Figure 1 shows the BBB framework generated.

6 Importance and Implications of the BBB Framework

Despite having several BBB Guidelines as described in the section "Existing Build Back Better Guidelines", the implementation of BBB in post-disaster practices in recent disasters such as the 2009 Victorian Bushfires and the 2010 Haiti Earthquake have had shortfalls. Although knowledge of BBB concepts is existent and recovery plans are produced for guidance there are complications in post-disaster environments such as: balancing the extent of improvement made to structural designs and land-use plans for risk reduction with affordability, time constraints, preferences and traditions of the local community (Baradan, 2006, Boano, 2009, Clinton, 2006, Tas, 2010); coordinating and communicating between the numerous stakeholders involved to avoid duplication of activities and produce efficient results (2009 Victorian Bushfires Royal Commission, 2010, Batteate, 2006, Khasalamwa, 2009); establishing programmes to regenerate and re-establish livelihoods of the people to match their skills, resources and future demands (Khasalamwa, 2009, Clinton, 2006, James Lee Witt Associates, 2005); and facilitating reconstruction and recovery activities to take place for speedy results without compromising quality (James Lee Witt Associates, 2005, Khasalamwa, 2009, Ozcevik et al., 2009). The issues listed above have not been properly dealt with in order to overcome them. For example, although risk reduction through improvement of structural designs and hazard-based land-use planning is proposed by many sources (see Risk Reduction under "Build Back Better Concepts"), issues regarding the affordability and practicality of adopting the enforced structural improvements; and scarcity of land which may restrict the ability to prevent developments in high-risk lands have not been considered.

The numerous guidelines currently available providing instructions for BBB can be confusing for practitioners making it difficult to determine which guideline to follow, which have thus

inhibited adoption up to now. With the creation of the BBB Framework presented in this paper and the recognition of an inclusive set of BBB Principles it is possible to determine solutions for previously overlooked but commonly encountered issues in reconstruction and recovery whilst having an overarching outlook on all different aspects involved. The BBB Framework and its BBB categories and Principles can be used as a starting point to develop recommendations to improve the applicability of BBB concepts in the areas of risk reduction, community recovery and effective and efficient implementation. BBB may be successfully achieved in post-disaster environments through having such a prescriptive, straightforward, comprehensive framework along with legal and Governmental backing.

As a practitioner in either Government, non-governmental or private institutions, the BBB Framework and BBB Principles proposed in this paper serve as a guide to design post-disaster recovery programmes and reconstruction and recovery plans. Individual projects within recovery programmes can be made successful by considering the different areas required for building back better introduced in this paper using the six BBB Principles. The Principles need to be looked at in a holistic manner when designing an overall recovery programme to gain an understanding of the components that need to be included in the recovery effort. It is important to place emphasis on the success of the overall programme as a result of better management and BBB consideration given to individual projects placed under the programme. It is necessary to establish a clear understanding and links between the projects within the programme to expect overall success.

7 Conclusions

Build Back Better (BBB) is an important concept which incorporates adopting a holistic approach to improve a community's physical, social, environmental and economic conditions during post-disaster reconstruction and recovery activities to create a resilient community. Analysis of key literature on post-disaster reconstruction and recovery with suggestions to improve post-disaster practices to build back better led to the identification of four key categories and eight principles which depict BBB. A framework which comprehensively represents the concept of BBB including these categories and principles was produced as the output of this paper.

The various concepts and suggestions presented in existing literature to build back better have not made its implementation straightforward. It is intended that the BBB Framework and BBB categories and Principles determined in this paper are utilized and further developed to provide solutions for commonly encountered complications in reconstruction and recovery activities to make building back better possible.

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