

“Build Back Better” Principles for Reconstruction

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Synonyms

BBB; Reconstruction; Recovery

Introduction

“Build Back Better” signifies an ideal reconstruction and recovery process that delivers resilient, sustainable, and efficient recovery solutions to disaster-affected communities. The motivation behind the Build Back Better concept is to make communities stronger and more resilient following a disaster event. Statistics from the United Nations Environment Programme in 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 according to studies by the Red Cross. Both natural and technological/man-made disasters have seen nearly exponential rises in the number of disasters over time.

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). Traditionally, post-disaster reconstruction consisted of simply repairing the physical damage that has been induced by a disaster. However, Kennedy et al. (2008) 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. The reconstruction and recovery period following a disaster poses an opportunity to address and rectify vulnerability issues found in communities.

As a result of witnessing the ongoing impacts of disasters on communities, a concept started to emerge where post-disaster reconstruction was to be taken as an opportunity to not only reconstruct what was damaged and return the community to its pre-disaster state but to also seize the opportunity to improve its physical, social, environmental, and economic conditions to create a new state of normalcy that is more “resilient” (Boano 2009). This concept was termed “Build Back Better,” suggesting that successful recovery of communities following disasters needs to amalgamate the rehabilitation and enhancement of the built environment along with the psychological, social, and economic climates in a holistic manner to improve overall community resilience. The phrase “Building Back Better” became popular during the large-scale reconstruction effort following the Indian Ocean Tsunami disaster in 2004 after which it became more officially embraced with the creation of sets of BBB Guidelines to steer recovery and reconstruction activities toward achieving this goal (Clinton 2006).

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This chapter reviews what BBB entails and presents the key elements required to improve post-disaster reconstruction and recovery practices to build back better. First, existing guidelines and reports providing recommendations for BBB are introduced. Key information from the guidelines and reports is used to then identify the key concepts which represent Building Back Better. Finally, each concept and its importance for building back better are reviewed.

The Need for Building 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 substandard building materials and designed with little earthquake resistance. 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.

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. The Tsunami Evaluation Commission Synthesis Report in 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: nonadherence to design and construction policies for buildings and infrastructure, insufficient focus given to certain aspects of the recovery process such as livelihood development programs and small business support programs, overruling of local government agencies, and neglecting vulnerable groups of people in the community.

Complete recovery requires attention to many different elements. BBB was defined by Khasalamwa (2009) 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 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 including those mentioned above and ensure that affected communities are regenerated in a resilient manner for the future.

Existing Guidelines for Building Back Better

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. He introduced ten propositions for building back better.

Clinton's propositions were:

- 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 include:

- United Nations Disaster Relief Organization's "Principles for Settlement and Shelter" in 1982 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" in 2005 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" in 2005 which mentions role allocation and coordination of stakeholders, community-centered recovery operations, and hazard-based sustainable risk reduction practices
- Monday's "Holistic Recovery Framework" in 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" in 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" in 2011 which focuses on the safety and well-being of the community, needs-based resource allocation, community engagement, equity, and tailored solutions
- Canterbury Earthquake Recovery Authority's "Recovery Strategy" in 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

Key Concepts

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. The key concepts introduced in the guidelines for improving reconstruction and recovery efforts and building back better include: risk reduction, psychosocial recovery, economic recovery, effective implementation, and monitoring and evaluation. The next few subsections describe these key concepts in further detail.

Risk Reduction

Risk reduction identifies all actions taken toward reducing disaster risks in communities to improve the physical resilience in the built environment. Previous post-disaster experiences have emphasized the need to identify prevalent hazards and determine solutions to be undertaken to reduce risks imposed on people. The Red Cross's World Disaster Report in 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 with proper planning, design, and construction methods. The Victorian Bushfires Royal Commission Final Report in 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 the use of tax incentives to encourage mitigation work (Bakir 2004). The 2008 South Asia Disaster Report by the nongovernmental organizations Duryog Nivaran and Practical Action recommended producing hazard and vulnerability maps and enforcing building codes to avoid development-related disasters in the future. The two primary ways of risk reduction are through improving structural designs and through better land-use planning.

The importance of reviewing and changing building designs and codes to improve the structural integrity of buildings and infrastructure following a disaster is widely understood but is however less frequently attained successfully in practice due to a range of common issues. Poor regulative powers and the lack of strict enforcement can lead to building code changes being disregarded resulting in substandard structures in the rebuild. When the Indian Ocean Tsunami struck, enforcement of building codes was mainly restricted to urban and suburban areas in Sri Lanka. The rural and coastal areas were the main victims of the disaster, where the lack of strict structural standards resulted in magnified damage (Pathiraja and Tombesi 2009). Extra costs incurred by adopting new technologies and materials to improve structural resilience also discourage compliance of new building codes worldwide (Batteate 2006).

The experiences of post-disaster reconstruction efforts worldwide have provided lessons which can be adopted when implementing structural changes to avoid the abovementioned issues and build back better. BBB theory suggests that hazard-based building regulations should be created using multi-hazard assessments in areas chosen for redevelopment and reconstruction. Consistent regulations and a strong legal framework are necessary to assist the adoption of building codes and regulations and ensure that structural changes improve the built environment (Clinton 2006). As structural improvements are expensive and unaffordable especially in post-disaster settings, long-term funding needs to be made available to cover extra costs for structural improvements and

promote adoption. Quality of reconstruction can be maintained by arranging inspections during construction by local governmental authorities. Stakeholders involved in the rebuild such as builders, engineers, and architects should be trained on revised building codes and other specific requirements to avoid inconsistencies and produce good quality results in order to build back better.

A land-use planning strategy was used in the post-disaster recovery efforts following the Indian Ocean Tsunami and the Samoan Tsunami, resulting in the relocation of coastal communities further inland to prevent future impacts of coastal hazards (Kennedy et al. 2008). The mandatory resettlement operations in Sri Lanka and Samoa were problematic due to the lack of consideration given to the lifestyles of the local people which led to the loss of their sea-dependent livelihoods, dissatisfaction with their new settlements, and illegal return of people to the original coastal lands (Kennedy et al. 2008). A recurring issue with relocation is the focus given to moving communities away from a certain hazard resulting in exposing communities to new unanticipated hazards. Well-intended land-use planning measures can also fail due to the lack of knowledge and awareness of local people who do not conform to new regulations and the lack of experience and knowledge of local governing authorities who do not enforce new regulations (Kennedy et al. 2008).

Therefore, it was recommended by Baradan (2006) that hazard assessments of current land sites and possible new land sites should be carried out, after which risk zone maps are to be created which divide the land into zones based on the level of risk. Appropriate land uses and new planning and building regulations based on the risk zone maps are to be created. The risk zone maps should be legislated and included in council development plans and approval permit procedures to ensure compliance. Examples, such as Taiwan's Mitigation Plans, the Philippines Municipal Maps, and the Christchurch City Plan in New Zealand following the Canterbury earthquakes, display successful application of BBB measures to create safer developments. If resettlement to lower-risk lands is opted for, Mannakkara and Wilkinson (2012b) recommend that a comprehensive resettlement strategy should be created with community consent which takes into account risk levels of new lands, community preferences, and livelihood and lifestyle opportunities offered in the new locations for resettlement to be a success.

DN and PA (2008) encourage educating communities about risks and the importance of risk reduction measures and engaging them in collective risk reduction efforts. The Participatory Flood Risk Communication Support System (Pafrics) developed in Japan to educate locals and other stakeholders including NGOs and local governments on flood risks and risk management strategies is an example of a participatory tool.

Psychosocial Recovery

Supporting psychosocial recovery of affected communities has been identified as essential for building back better (Davidson et al. 2007). Post-disaster recovery often focuses on providing fast solutions in an attempt to reestablish a sense of normality in affected communities as soon as possible (Khasalamwa 2009). The focus on speed results in overlooking the real needs of communities. The community is often not consulted to provide their input on reconstruction and recovery (Boano 2009). The lack of community consultation and participation leads to the provision of recovery solutions that are not suitable. For example, some of the new houses constructed in Sri Lanka by humanitarian agencies during the Indian Ocean Tsunami rebuild featured bathrooms made with half-heighted walls and shared bathrooms for males and females which were culturally unacceptable (Ruwanpura 2009). Locals were unhappy with the reconstruction of homes following the 1999 Marmara Earthquake in Turkey as their local life, culture, and aesthetics were not considered. Khasalamwa (2009) stated that insufficient attention to social, cultural, and ethnic facets of communities during recovery can exacerbate preexisting vulnerabilities. Separation during

disasters and resettlement operations disrupt community cohesion and psychological recovery (Florian 2007).

Social issues arising in post-disaster environments are primarily related to social/cultural/religious/ethnic factors, and psychological factors. Reconstruction is a chaotic and stressful time for individuals who are also experiencing trauma. These communities require various forms of assistance as part of building back better. Personalized advice and one-on-one support provided to families in Columbia during the 1999 earthquake recovery were a success. Similar forms of personal assistance were provided during the Victorian Bushfire recovery in Australia as well. James Lee Witt Associates (2005) recommended arranging specialized assistance for vulnerable communities. Providing psychological support and counseling are essential during recovery. The establishment of information centers which offer easy access to recovery-related information for the community is also recommended. Upholding a sense of community spirit and improving community cohesion through organizing group activities are recommended for social recovery. The Canterbury Earthquake Recovery in Christchurch proposed sports, recreation, arts, and cultural programs to engage the community and provide a sense of normality.

One of the first steps to be taken in post-disaster recovery efforts in order to build back better is to understand the local context of the affected community through needs assessments and surveys in order to provide appropriate assistance to satisfy the community (Khasalamwa 2009). The reconstruction and recovery policies must then be developed based on local requirements to support and preserve the local culture and heritage. Batteate (2006) stated that maintaining community involvement throughout recovery is integral for BBB success. The importance of decentralization to empower disaster-affected communities by enabling them to take responsibility of the recovery effort and become involved in decision-making has been stressed by literature. The establishment of community consultation groups is an effective way to communicate with the community. Community consultation groups consisting of community leaders from preexisting community groups and reputed members of the community to liaise between the wider community and governmental authorities have been successful in Sri Lanka and India. Existing community groups can also be called upon to assist with recovery activities.

Economic Recovery

Supporting economic recovery of the community and supporting livelihood regeneration and entrepreneurship are also an important part of recovery. Disasters cause damage to the economy of communities with the disruption of businesses and income-generating industries leading to issues such as high inflation rates and poverty. The adverse effects of disasters on the economy can also impede the overall recovery of a city. Hurricane Katrina displayed a disaster's long-term impacts on higher education and health care in New Orleans, which were the foundations of the city's economy, eventually leading to a decline in population numbers as people moved away in search of better opportunities.

Post-disaster recovery efforts to date have shown support for economic recovery with strategies such as: "cash-for-work" programs, provision of business grants, "asset replacement" programs to provide industries with necessary resources, and training programs to up-skill locals and help them find work. In Aceh, Indonesia, tsunami-affected people were trained and employed in reconstruction to provide them with a source of income alongside the opportunity to become involved in their own recovery (Kennedy et al. 2008). In Japan following the 2011 earthquake and tsunami, the government decided to consolidate smaller fishing markets into large fishing centers to enable fishermen to support each other (Okuda et al. 2011). The Christchurch City Council's Central City Plan proposes fast-tracking of building consents for businesses to allow faster repair and construction work.

Despite the implementation of such initiatives, post-disaster economic recovery is reportedly slow and below pre-disaster levels. The lack of success in economic recovery initiatives can be attributed to insufficient backing from policies and legislation for employment creation and lack of consideration given to the needs of affected communities.

Clinton (2006) said in his BBB propositions that “a sustainable recovery process depends on reviving and expanding private economic activity and employment and securing diverse livelihood opportunities for affected populations.” Thus, the uniqueness of BBB comes from the integrated approach it proposes by giving economic recovery as much importance as reconstruction and aiming to provide solutions to suit local dynamics and preferences.

Monday (2002) stated that one of the first steps needed for effective economic recovery is to obtain accurate information about the local population through data collection and consultation with local governmental authorities, and a comprehensive economic recovery strategy must be created that is tailor-made to suit each different community based on data obtained. Where applicable, attractive and flexible low-interest loan packages, business grants, and resources should be provided to support the livelihoods of the disaster-affected. Training programs should be held to support people in improving their existing livelihoods or acquire new skills. Mannakkara and Wilkinson (2012a) propose that business support and counseling services should be provided to assist with the economic recovery. Rebuilding of businesses must also be facilitated through special fast-tracked permit procedures. Incentives such as subsidized accommodation must be provided to attract builders from other areas to participate in rebuilding.

Effective Implementation

A successful recovery effort requires effective and efficient recovery solutions as part of building back better. Two ways in which the efficiency and effectiveness of post-disaster recovery can be improved are through better management of stakeholders and through the use of appropriate post-disaster legislation and regulation.

One of the most common issues with post-disaster environments is the difficulty in coordinating between stakeholders to produce a unified outcome. Initially, there is often no organization in charge of the overall recovery effort. The lack of guidance leads different stakeholders to participate disjointedly promoting personal agendas which conflict with the interests of the local community (Batteate 2006). For example, nongovernmental organizations (NGOs) who operated in Sri Lanka following the Indian Ocean Tsunami constructed homes which were unsuitable for locals and were largely abandoned. The pressure for fast results during recovery also prevents well-intentioned stakeholders from considering community needs. Ambiguity about the roles of different stakeholders is another issue. The Victorian Bushfires Royal Commission report, 2010, stated that the roles of personnel involved in the recovery effort were unclear which led to the duplication of some activities. Many stakeholders involved in recovery have no previous experience in post-disaster environments leading to ad hoc responses (Kennedy 2009). Often post-disaster interventions are governed by the national government without sufficient consultation or power given to local councils (Clinton 2006). Local-level organizations with useful local knowledge lack the capacity to operate to their full extent when impacted by disasters and are therefore excluded from recovery efforts. The lack of proper role allocation, coordination, and involvement of local-level stakeholders is a common issue found in post-disaster reconstruction environments.

A step taken to improve the management of large numbers of stakeholders in major disasters in order to build back better is the creation of a separate body to act as a recovery authority. Examples of recovery authorities created to manage reconstruction include: the Bureau of Rehabilitation and Reconstruction (BRR) in Indonesia following the Indian Ocean Tsunami, Bam’s Reconstruction

Supreme Supervisory and Policymaking Association (BRSSPA) in Iran following the 2003 Bam Earthquake, the Victorian Bushfire Reconstruction and Recovery Authority (VBRRA) in Australia following the 2009 Victorian Bushfires, and the Canterbury Earthquake Recovery Authority (CERA) following the 2010 and 2011 Canterbury earthquakes in New Zealand. The recovery agencies contributed to the success of recovery to differing extents. Clinton (2006) said that stakeholders must operate with a common set of standards, approaches, and goals in order for recovery to be a success. Twigg (2007) proposes that the recovery authority should be responsible for establishing clear roles and responsibilities for the different stakeholders to divide recovery tasks based on resources and skills and avoid duplication.

Functional partnerships and linkages established between organizations can enhance reconstruction projects. Post-disaster recovery is a unique environment which requires deviation from normal procedures. Information sharing between organizations is one such deviation. The Federal Emergency Management Agency in the United States advocates the sharing of information, contacts, resources, and technical knowledge between organizations to help recovery activities (FEMA 2000). Knowledge from past disasters should be retained and transferred to the government and other relevant organizations who will be involved in future post-disaster efforts. Twigg (2007) recommends that local government should be included as a key stakeholder in the recovery effort and also given the responsibility to manage local-level activities.

Another obstacle preventing successful BBB-centered recovery is the absence of proper controls to enforce BBB principles. Having BBB knowledge and producing recovery plans in-line with these principles are futile without proper legislation and regulations in place to ensure they are implemented. A common challenge in post-disaster environments is the sudden increased work load, especially in the building industry, along with a drop in the workforce across local organizations which slow down and impede recovery activities. Post-disaster reconstruction requires time-consuming activities such as hazard analysis, land selection, infrastructure development, and rebuilding to be done in a relatively short period of time. It is important to facilitate recovery-related activities by simplifying, fast-tracking, and exempting certain rules and regulations using special legislation.

Post-disaster legislation can be used to ensure compliance with BBB-based activities as well as to facilitate normal operations to improve the efficiency of recovery efforts. The lack of enforcement of hazard-related laws and adequate risk-based building controls contributed to the large-scale devastation caused by the 2004 Indian Ocean Tsunami (DNS and PA 2005). The same was seen in countries like Pakistan, Turkey, Samoa, and Haiti. Enforcing updated risk-based building design standards through the use of compulsory building codes and maintaining construction standards through careful inspections is an important regulatory requirement in reconstruction (James Lee Witt Associates 2005). Lack of awareness and understanding of new legislation can also lead to noncompliance. In the post-tsunami recovery effort in Sri Lanka, external nongovernmental organizations (NGOs) who took part did not comply with local standards due to unawareness (Boano 2009). The National Post-Tsunami Lessons Learned and Best Practices Workshop held in Sri Lanka in 2005 highlighted the importance of training stakeholders (especially external NGOs) about existing and newly introduced legislation and regulations. The community's support can also be obtained by educating them about legislation and regulations that must be adhered to in reconstruction and recovery.

Post-disaster legislation can also be used to simplify and assist recovery activities to speed up the recovery process. Legislation that is customarily used to impose security and safety controls (such as building consents) can become an obstacle in high-pressure post-disaster environments. Time-consuming procedures, insufficient resources to process permits, and the lack of fast-tracked

methods delay reconstruction. Delays in permits were a major reason for the holdup in housing repair and rebuilding following the 2005 Bay of Plenty storm in New Zealand (Middleton 2008). Fast-tracked consenting procedures, collaboration with other local councils, and open access to information between stakeholders can help speed up recovery.

Legislation can be used to remove unnecessary red tape to facilitate recovery activities. Meese III et al. (2005) reported a good example in the recovery following the 1994 Northridge Earthquake, USA, where legislative suspensions and emergency powers greatly reduced highway reconstruction time. The construction work provided employment and opening up the highways soon after the disaster helped boost the economy.

Monitoring and Evaluation

The effectiveness and efficiency of post-disaster reconstruction and recovery activities is crucial to the success of a community's restoration following the impact of a disaster event. Having the knowledge of Build Back Better concepts in designing recovery programs is insufficient without systems in place to overlook and monitor implementation. The creation of a recovery strategy to assist in conducting post-disaster reconstruction and recovery activities is a common response following disaster events. Despite having recovery strategies and revisions in legislation and regulation to improve recovery activities, the findings by Tas (2010) indicated that compliance was not monitored in the respective recovery efforts in Sri Lanka and Turkey, leading to poorly executed recovery projects. The lack of properly trained professionals who were competent in post-disaster environments and disaster management activities poorly affects the outcome of recovery efforts. The shortage of effective information and knowledge sharing and dissemination are also reasons for unsatisfactory disaster management practices. Findings from the Business Civic Leadership Center in 2012 on "What a Successful Recovery Looks Like" raised concerns that long-term recovery beyond reconstruction often does not take place due to the lack of mechanisms and expertise which prevents affected communities from satisfactorily "building back better" in the long run.

Recommendations to improve post-disaster recovery efforts through monitoring and evaluation have been provided in many sources of literature. The role of monitoring and evaluation is twofold: (1) to monitor and ensure compliance of recovery activities in accordance with the recovery strategy in place and relevant guidelines and regulations (Clinton 2006) and (2) to obtain lessons for the future and improve future disaster management and post-disaster reconstruction and recovery efforts (Monday 2002).

The 2003 Bam earthquake reconstruction provided a good example where rebuilding was monitored by providing construction supervision which assisted in assuring the quality of the rebuild. Clinton (2006) stated that the Tsunami Recovery Impact Assessment and Monitoring System (TRIAMS) was put in place during the Indian Ocean Tsunami recovery for the most affected countries. The recovery strategy in Christchurch, New Zealand, has also been equipped with monitoring mechanisms. Clinton (2006) suggested that long-term recovery should be monitored through continued data collection to ensure that recovery efforts do not leave communities with residual issues.

Monday (2002) pointed out that monitoring can be used to identify problems with post-disaster interventions and establish lessons learnt. Lessons learnt should be incorporated into revising policy and procedures for future disaster management practices. Bakir (2004) recommends that public education campaigns should be run on lessons learnt, including the community in participatory disaster management. Public seminars have been held and advice notes have been distributed in Australia during the Victorian Bushfires recovery to keep the community informed about revised

guidelines and standards. Workshops have been held in the Philippines, Japan, and California involving the community in vulnerability identification which have been successful (Batteate 2006).

Summary

“Build Back Better” is an important concept for post-disaster reconstruction and recovery, signifying the need to use reconstruction as an opportunity to not only recover from the encountered disaster but to improve the resilience of communities to face and withstand future disaster events. BBB represents adopting a holistic approach toward recovery by addressing risk reduction of the built environment, psychosocial recovery of affected people, and rejuvenation of the economy in an effective and efficient manner. Risk reduction can be achieved primarily through the improvement of structural designs in buildings and infrastructure and through better risk-based land-use planning. BBB requires improved building codes and land-use plans to be enforced using a strong legal framework along with financial backing to encourage adoption. Quality assurance of the rebuild is also integral for building back better.

Psychosocial recovery needs to be addressed to assist communities with moving forward with their lives as an important part of overall community recovery. Psychosocial recovery of affected people needs to be assisted through the provision of support services such as personal case management, counseling, and social activities. Inclusion of community members in recovery activities is another way to support psychosocial recovery and provide recovery solutions that are in-line with community needs as part of building back better.

Economic recovery is essential for the recovery of communities. An informed economic strategy to address and support community-specific issues is the first step toward BBB-based economic recovery. Financial assistance, training, and business rebuilding support need to be provided to assist with economic recovery.

Reconstruction and recovery requires effective management of stakeholders and the use of post-disaster legislation and regulation in order to build back better. The creation of a recovery authority to allocate roles and coordinate and manage stakeholders is recommended. Successful recovery requires local-level partnerships and contribution to provide locally viable recovery solutions. Compliance of BBB-based concepts in recovery needs to be ensured through the use of appropriate post-disaster legislation and regulation to enforce risk reduction and community recovery initiatives. Legislation and regulation can also be used to facilitate post-disaster recovery activities by fast-tracking and exempting normal procedures.

The effective implementation of risk reduction and community recovery initiatives concurrently will result in building back better. Recovery efforts also need to be monitored continuously through short-term and long-term recovery to ensure compliance with BBB concepts and to obtain lessons to improve future disaster management efforts.

Build Back Better: The Way Forward

Understanding and implementing the concept of Building Back Better is integral to improving a community’s resilience following a disaster event in order to achieve positive changes for affected communities. The elements required to build back better which are; risk reduction, psychosocial recovery, economic recovery, effective implementation and monitoring and evaluation, have been introduced and discussed in this chapter. This understanding can be used to create practical

guidelines to design future reconstruction and recovery efforts including all these key facets to effectively build back better. Further comprehension of how these strategies for building back better can be more successfully implemented in different environments can be gained by studying different disaster events in the future. It is also suggested that criteria for measuring levels of resilience should be established which can serve as indicators to measure progress and effectiveness of build back better practices.

The long-term sustainability of resilience in communities instilled by using BBB concepts depends on how they are linked with on-going developmental strategies. It is therefore important for the key concepts identified in this chapter to be incorporated into local and national government policies for community planning and development even during non-disaster periods.

Cross-References

- ▶ [Building Codes and Standards](#)
- ▶ [Building Earthquake Resiliency through Disaster Risk Management Master Planning](#)
- ▶ [Land-use following Earthquake Disaster](#)
- ▶ [Community Recovery following Earthquake Disasters](#)
- ▶ [Psycho-social Recovery following Earthquake Disasters](#)
- ▶ [Economic Recovery following Earthquake Disasters](#)
- ▶ [Legislation changes following Earthquake Disaster](#)

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