RECOVERING FROM CATASTROPHIC DISASTER IN ASIA

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RECOVERING FROM CATASTROPHIC DISASTER IN ASIA

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CHAPTER 1

DISASTER RECOVERY IN ASIA: AN INTRODUCTION

Ziqiang Han and William L. Waugh, Jr.

ABSTRACT

This chapter provides the foundation for the book. The objective of this chapter is to outline the theme of the book and to provide the context for the chapters that follow. Disaster recovery is a challenge for governments and for affected communities, families, and individuals. It is a challenge, because recovery from catastrophic disasters can be much more complicated and elusive than what can be addressed by national and international aid organizations given the time and other resources. The short literature review provides the research context, and the overview of the book describes each of the chapters briefly.

Keywords: Recovery; disaster; literature review

Asia has experienced devastating disasters over the centuries. Proximity to the seismically active "Ring of Fire" and other plate boundaries, long Pacific and Indian Ocean coastlines, major river and tributary courses, desert and semidesert areas, and other geographic features create a diversity of risks and potential hazards. The very size of the Asian continent means that hazards differ

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considerably from one region to another. It also means that it is difficult to generalize about risk and vulnerabilities in Asia. However, history has demonstrated that the risk of catastrophic disaster is very real. One listing of "worst" natural disasters included the 1876–1979 Famine in North China, which left 9 million dead, and the 1931 Yellow River Floods in Central China, which left 4 million dead. River flooding, cyclones, and earthquakes with hundreds of thousands dead completed the list (Szczepanski, 2017). Greater attention is also being paid to the slow onset disasters associated with climate change.

John West (2014), the director of the Asian Century Institute, has stated that "Asia is the world's most disaster-prone region…." According to the Emergency Events Database (EM-DAT) that collects disaster impact data globally since 1988, Asia is the most frequently impacted continent, having 9,380 occurrences of disasters during 1900–2016, and sharing about 41.65% of the global events. In the last decade (2004–2014), 80% of disaster fatalities in the world occurred in Asia mostly due to earthquakes and tsunamis. Drought and famine also caused a substantial percentage of fatalities. The decade, cited by the Asian Century Institute, included the 2004 Indian Ocean earthquake and tsunami with 260,000 deaths, the 2005 Pakistan earthquakes with 75,000 deaths, the 2008 Sichuan earthquake with 90,000 deaths, the 2008 Myanmar Cyclone Nargis disaster with 140,000 deaths, and Japan's 2011 earthquake, tsunami, and nuclear facility failure. Floods, droughts, severe storms, and other events associated with climate change contributed to the death toll in Asia. In 2008 alone, humanitarian aid totaled US$16.9 billion with most going for short-term emergency response and relief (West, 2014). Note that the human costs of disasters vary by source and sometimes are unknown.

Changes in response and recovery approaches vary over time, and some of the 2004–2014 disasters have had significant impact on how we respond to disasters. For example, the 2004 Indian Ocean earthquake and tsunami provided lessons on the management of mass casualty events. So many people were killed, and identifying casualties and preserving records were difficult. The tsunami was the largest disaster in Swedish history because of the number of Swedish nationals who lost their lives in Thailand due to the tsunami (Elhakeem, 2014). Considerable attention has been paid to the 2005 Pakistan earthquakes because of the damage done to infrastructure, as well as to people. School buildings collapsed. Roads were destroyed in areas already difficult to access. Water reservoirs were destroyed, forcing a return to traditional, less safe, and less reliable water sources. The 2011 Japan earthquake and tsunami became a cascading event in which the earthquake created a tsunami and damaged a nuclear facility. Disasters are often cascading events, and we learn to anticipate the impacts of disaster, such as the fires that are caused by earthquakes and wildfires caused by drought and heat waves.

Why does Asia have so many catastrophic disasters? High population density, extreme poverty, and a geography that leaves many communities vulnerable to hazards contribute to the risk. Weak governance structures and economies in some large countries complicate response and recovery. In addition to human casualties, homes are lost, businesses are destroyed and the means of production are interrupted, infrastructure is destroyed and access is obstructed, farm land is lost and food production is interrupted, residents are displaced, and the environment is so severely damaged that affected populations do not want to return to their homes. Rebuilding lives is not the only challenge. Some communities do not recover while some communities recover remarkably quickly. Not only the scale of the disaster but also many other variables affect the recovery process. Local leadership (governance) and internal and external linkages (social capital) are also important (Aldrich, 2017; Alesch, Arendt, & Holly, 2009; Dynes, 2006; Phillips, 2009).

Recounting the details of thousands of catastrophic disasters in Asia would be a monumental task. In 2015, there were US$45.1 billion in economic damage, 53.9 million people affected, and 16,046 deaths, in 160 natural disasters. The disasters included earthquakes in Nepal, Afghanistan, Tajikistan; 33 major tropical cyclones in Southeast Asia and in the Pacific; severe flooding in China, India, Indonesia, Myanmar, Pakistan, and Sri Lanka; deadly heat waves in India and Pakistan; and major droughts covering large areas of the continent. In 2015, two major international agreements were adopted to increase sustainable development and to address the impacts of climate change and increase resilience. Areas identified as needing attention were building resilience in urban areas, increasing regional cooperation, addressing slow-onset disasters, early warning systems, and use of technology in disaster response and recovery (United Nations Economic and Social Commission for Asia and the Pacific, 2016).

Linking disasters and development is challenging, particularly for the governments that have to align policies and programs and resources to make the linkage work (Kapucu & Liou, 2014). The breadth of disaster recovery issues makes policy making, program design, and program implementation very difficult. Successful linkage requires considerable investment in political and administrative capacity building (Waugh & Liu, 2014). Central government agencies cannot always provide housing that is appropriate for the culture (Ganapati, 2014). Disaster recovery involves social, economic, political, cultural, and physical processes in cultural contexts that are often very diverse. Rebuilding communities has to include rebuilding social networks, restoring livelihoods, improving governance capacities, and supporting local culture and values, as well as reconstruction of homes and businesses and infrastructure. Rebuilding lives is a much more complicated process than

rebuilding structures. Moreover, linking disasters to development is the "building back better" approach that the international community supports, and national governments are encouraged to adopt conflicts with pressures, to act quickly with medical, food, and shelter aid, and to stay engaged with affected communities for an extended period. Common wisdom is to focus on building community resilience before and during disasters so that communities can manage their own recovery or communicate their priorities to regional and central authorities and to external aid missions. Greater resilience can speed recovery and ensure that communities are better prepared for the next natural or man-made disaster. Greater resilience can also help affected communities feel less as victims and more as citizens in control of their own destinies.

Both practitioners and researchers recognize that disaster recovery is the least understood aspect of emergency management (Smith & Wenger, 2007). Claire Rubin reviewed her 30 years of experience and studies on long-term recovery in 2009, and she concluded, "the research and knowledge base in the realm of long-term recovery is seriously inadequate to the needs we face today" (Rubin, 2009, p. 1). Moreover, most of these studies mainly reflected experiences from the Western countries, the United States in particular, and there is a lack of Asia's perspective.

Restoration, reconstruction, rehabilitation, and reinstitution are similar terms that are often used interchangeably with disaster recovery. Restoration implies that things are brought back to the original pre-disaster state after a disaster, whereas rehabilitation focuses more on the restoration of people than things. Similarly, reinstitution suggests some kind of restoration of the rightful claimants of owners. Reconstruction, on the other hand, centers on the physical rebuilding of human communities in the post-disaster period. Recovery, the most inclusive term, refers to "moving a disaster-impacted community to a healthy state which can include restoration, reconstruction and social change," which "may or may not be the same as the pre-impact level" (Dynes & Quarantelli, 2008; Quarantelli, 1999).

Early disaster recovery studies recognized recovery as ordered, knowable, and predicable, with an emphasis on the building environment (Haas, Kates, & Bowden, 1977). For example, in Haas et al.'s classic study, the recovery process consisted four overlapping periods: the emergency period, the restoration period, the replacemental reconstruction period, and the commemorative, betterment, and developmental period. However, later studies have shown that the recovery process does not follow a predictable timeline and that the recovery process is actually a dynamic, interactive decision-making process rather than a static and linear process (Mileti, 1999; Nigg, 1995; Rubin and

Popkin, 1990). Disaster recovery could be conceptualized as "the differential process of restoring, rebuilding, and reshaping the physical, social economic and natural environment through pre-event planning and post-event actions" (Smith & Wenger, 2007, p. 237).

One question always raised in disaster recovery studies is recovery to where, that is, the goals of recovery. Generally, there are three categories of recovery goals: (1) the restoration of the status quo to the pre-disaster situation, (2) reconstruction as a chance to realize structural improvement, and (3) no clearly defined recovery goals. Of course, there is usually the simultaneous co-existence of multiple recovery aims in reality, and the goals may change periodically (Geipel, 1991). The approach of perceiving "recovery" as restoration can be problematic, because returning to pre-disaster levels does not necessarily mean building back for the better (Ganapati, Cheng, & Ganapati, 2012). Furthermore, recovering to the pre-disaster situation implies restoring the pre-event inequality, exploitation, and vulnerability as well (Oliver-Smith, 1990). This is especially common in some underdeveloped areas in developing countries with extreme poverty, chronic injustice and exploitation, and high-risk exposure, as has been witnessed in recent disasters in Pakistan (Mustafa, 2003) or Haiti (Olshansky & Etienne, 2011). The idea of building back better or recovering better should be adopted, especially in the case of developing countries where building back better is indeed possible (Mulligan & Nadarajah, 2012) if the ideas of development, vulnerability, and risk reduction are integrated into recovery activities (Shaw, 2006), with the physical and social planning integrated with one another to address local needs in culturally appropriate ways (Mulligan, Ahmed, Shaw, Mercer, & Nadarajah, 2012). Hence, beyond a return to previous "normality," there are opportunities to integrate disaster mitigation, vulnerability reduction, and sustainable development into the recovery process, in hopes of achieving improvement through recovery.

In terms of *measurement*, most of studies on family recovery tend to adopt a multidimensional measurement. Housing and economy are the two commonly included dimensions from the physical aspect, while individuals' perception of recovery and/or social–psychological quality of life are other dimensions. Social role adaptation and physical health recovery are the ones less included. In Haas et al.'s classic study about family recovery, housing recovery, jobs recovery, and perceived recovery were used as the indicators of family recovery. Following the two crosscutting themes of the importance of kinship linkage and the loss of family functions in early disaster studies, long-term family recovery in Bolin's work predominately covers three dimensions: housing recovery, economic recovery, and emotional recovery in

terms of quality of life (Bolin, 1982, 1994). Bates and Peacock developed the Domestic Assets Scale, which captures the economic value of household facilities of household functional areas (Bates & Peacock, 1992). It was later modified and adopted for assessing the impact of Indian Ocean tsunamis on households (Arlikatti, Peacock, Prater, Grover, & Sekar, 2010). Recent studies about disaster recovery include more dimensions. For instance, Abramson et al. developed a five-dimensional measurement for individual disaster recovery after the Hurricane Katrina disaster, including housing stability, economic stability, physical health, mental health, and social role adaptation (Abramson, Stehling-Ariza, Park, Walsh, & Culp, 2010). Another study examining disaster survivors' recovery after the Bam earthquake in Iran employed a measure of quality of life that included four dimensions: physical health, psychological state, social relationships, and environment (Ardalan et al., 2011). In Tatsuki (2007)'s study about life recovery after the 1995 Kobe earthquake, life recovery measure was drawn from 14 items that captured the respondents' perception of life fulfillment/readjustment (seven items), life satisfactions (six items), and future prospect (one item). Han, Ba, Xin, and Zhong (2016) adopted the Sustainable Livelihoods Approach's physical, human, natural, financial, and social capital's measurement in their study on family recovery after the 2008 Wenchuan earthquake in China.

For *measurements at the community or macro level*, housing and population restoration are the two most common dimensions included. However, many studies included more dimensions, such as physical infrastructure or social infrastructure like community linkages. Alesch et al. (2009) proposed that community disaster recovery should include the restoring of basic services, replacing damaged infrastructure capacity, rebuilding critical social and economic elements of the community system, or reestablishing relationships among critical elements of the community. A wide range of indicators, such as changes in population and residential units, vacancy rates, affordability of housing, retention of local residents, structural improvements, extent of retrofitting, quality of life, the time taken for reconstruction, the quality of reconstruction, and residents' satisfaction, are proposed to measure recovery outcomes in some studies (Loukaitou-Sideris & Kamel, 2004). On the basis of recovery experience in New Orleans after Hurricane Katrina, housing rehabilitation, public service and infrastructure, and labor force and employment are recognized as the key indicators of recovery at the macro level for analysis (Liu, Fellowes, Mabanta, & Program, 2006). In the special issue of the *International Journal of Mass Emergencies and Disasters* in 2012, which covered the theorization efforts of disaster recovery, the built environment (Alesch & Siembieda, 2012), ecosystems (Berke & Glavovic, 2012), economic recovery (Chang & Rose, 2012),

institutional dimensions (Smith & Birkland, 2012), and social dimensions (Tierney & Oliver-Smith, 2012) of disaster recovery are discussed.

In *determinants of family or household recovery*, there are five major clusters of influencing factors: the socioeconomic characteristics of the family; the external aid coming from informal personal social networks and local organizations; disaster impact and disruption degrees; macro community features such as pre-disaster planning, post-event response, and recovery, as well as the collective activities within communities; and external institutional help such as higher levels of government assistance programs. In early studies of family recovery, the family is always seen as an open system that can use both internal and external resources. The demographic attributes, disaster impact (including both direct impact and social disruption), and family recovery capacity, including both internal resources like insurance or financial assets or external resources through their personal social network or aid from formal organizations like government or nongovernmental organizations are the main factors influencing family recovery after disasters (Bolin, 1994; Drabek & Key, 1984; Haas et al., 1977). For the demographic attributes, most studies found that the disaster recovery status would vary according to the main family members' life cycle (age) and ethnicity and that socioeconomic characteristics are measured in varied ways such as income or saving (Arlikatti & Andrew, 2011; Bolin, 1994; Drabek & Key, 1984; Haas et al., 1977; Peacock, Killian, & Bates, 1987). These internal factors may directly or indirectly influence the external resources and paths of getting resources.

Determinants of community recovery or recovery at larger area: Quarantelli and Dynes have summarized the determinants of disaster recovery (Dynes & Quarantelli, 2008; Quarantelli, 1999). According to their summary, pre-disaster patterns and social trends, economic factors, government policies, and prior community recovery planning were the main influencing factors involved in disaster recovery. From the institutional perspective, effective intergovernmental relationships are essential to efficient recovery. The long-term recovery process is a dynamic process that involved both federal and state influence, community needs for action, and community planning and implementation capacity, including personal leadership and the ability to act and the knowledge of what to do (Rubin, 1985; Rubin & Barbee, 1985).

Federal Emergency Management Agency (FEMA) summarized the common features among communities that had successful recovery stories from their long-term community recovery programs. Acting quickly; planning for recovery proactively; engaging the community; developing partnerships, networks, and effective coordination strategies; making decisions and managing recovery locally; managing financial acquisition well; keeping organizations

flexible; integrating mitigation; and preparedness into recovery are the common features of community with better recovery (FEMA, 2011a, 2011b). The Government Accountability Office (GAO) also concluded that (1) having clearly defined recovery roles and responsibilities among stakeholders, (2) effective coordination and collaboration among recovery stakeholders, and (3) periodic evaluation of and reporting on the recovery process were the three primary characteristics of successful disaster recovery efforts after reviewing five catastrophic disasters (Czerwinski, 2009, 2012). Lessons from developing countries also suggested that (1) incorporating long-term recovery goals into disaster response and pre-disaster planning, (2) expanding the knowledge base by incorporating research into recovery and harnessing lessons learned from international experiences, and (3) developing an outcome-oriented approach to disaster recovery planning, including the measurement of community-level outcomes, could be key approaches to enhance disaster recovery (Garnett & Moore, 2010).

The importance of personal network in facilitating family recovery and the collective actions within community concepts are reconstructed using the term of social capital in recent years (Aldrich, 2012; Dynes, 2006). Studies examining the role of social capital, regardless of measured from the network approach or civic engagement method, in either micro or macro levels of recovery indicate that social capital plays an important but complex role in disaster recovery. First, social capital, especially the resources embedded in personal social networks are important for both response and recovery (Fussell, 2006). Second, the feeling of bonding and cohesion within communities could facilitate collective action for post-disaster recovery (Chamlee-Wright & Storr, 2011a; Storr & Haeffele-Balch, 2012). However, it may also strengthen the obstacles for people on the periphery of society by pushing the "public bad" to other communities (Aldrich & Crook, 2008), increase the possibility of rent seeking for available resources (Chamlee-Wright & Storr, 2011b), or push the social capital disadvantaged groups to a more vulnerable situation (Hawkins & Maurer, 2010), especially when resources were limited.

OVERVIEW OF THIS BOOK

Chapter 2, "Social Capital and Changes in Post-disaster Recovery Process: Observations From China After the 2008 Wenchuan Earthquake," is written by Ziqiang Han of the Institute for Disaster Management and Reconstruction, Sichuan University–The Hong Kong Polytechnic University. Using data from a two-wave survey of households affected by the earthquake, he concludes

that informal organizations were the most prominent, formal organizations that had the greater impact. The average degree of social capital increased during the recovery, and inequalities in social capital decreased. Recovery can strengthen communities.

Chapter 3, "Recovering From Prolonged Negative Destination Images in Post-disaster Northern Japan," is written by David N. Nguyen, a Ph.D. scholar in the Graduate School of Civil Engineering, Tohoku University, and Fumihiko Imamura, the Director of the International Research Institute of Disaster Science, Tohoku University, Japan. They focus on the impact of the 2011 Great East Japan Earthquake and Tsunami on tourism in the Tohoku region. Despite the rebuilding of infrastructure, tourism in the region has not returned to pre-disaster levels. They examine the different media strategies adopted by local officials to change the images of their communities. They recommend more research to determine how best to change tourists' risk perceptions.

Chapter 4, "Restoration of Communities Following the Great East Japan Disaster: The Transformation of Mutual Help Networks Through the Eyes of the Victims," by Morio Onda from Ryutsu Keizai University in Japan, focuses on the perspectives of the victims of the 2011 Great East Japan Earthquake and Tsunami. Using interviews of disaster victims, Onda explores the restoration of social bonds and a sense of community and the development of mutual aid networks. One conclusion is that the greater the self-reliance, the greater the social bonds. The authors also conclude that outside assistance reduces internal connections. Recommendations for further research are included.

Chapter 5, "Lessons From Disaster Recovery in Japan Through Case Studies of Four Earthquakes," is written by Yingying Sun from the Institute for Disaster Management and Reconstruction (IDMR), Sichuan University, Chengdu, China. Sun examines the characteristics of natural disasters in Japan to draw insights on domestic and international disaster response and recovery efforts. Recovery experiences following the Great Hanshin Earthquake of 1995, the West Tottori Earthquake in 2000, the Niigata Chuetsu Earthquake in 2004, and the Tohoku Earthquake and Tsunami of 2011 are compared. Lessons are drawn as Japan prepares for an anticipated major earthquake in the Nankai trough in the next 30 years.

Chapter 6, "Citizen Participation in the Disaster Reconstruction Process: Lessons From the Great East Japan Earthquake," is written by Takashi Tsuji from the National Institute for Environmental Studies in Japan. Tsuji focuses on citizen participation in reconstruction following the earthquake through the development of business plans developed by local governments. On the

basis of field work in three affected communities, Tsuji examines how residents were organized, how community organizations contributed to the participation, and how governance and community organization need to change to ensure local representation and the political legitimacy of decisions.

Chapter 7, "Social Vulnerability in Disasters: Immigrant and Refugee Experiences in Canterbury and Tohoku," is written by Shinya Uekusa from the Department of Sociology, University of Auckland, New Zealand. Uekusa compares the experiences of linguistic minority immigrants and refugees in the two disasters. Data from interviews and two datasets were used to see whether the two groups were more vulnerable than other affected populations. Uekusa concludes that the two groups may be more resilient because of their past experiences with war and other hardships and challenges common wisdom concerning social vulnerability.

Chapter 8, "Disaster Exceptionalism in India: The View From Below," is written by José Manuel Mendes from the Centre for Social Studies, Faculty of Economics, University of Coimbra, Portugal. He focuses on the Kosi River floods in the state of Bihar in August 2008 and its impact on Dalit communities. Using interview data involving national and local leaders and activists in NGOs and Dalit organizations, he concludes that the top-down approach of Indian states under the Disaster Management Act of 2005 gives the state authority to dominate the response and recovery processes, thus permitting social and economic inequities to influence the delivery of assistance.

Chapter 9, "The 2015 Nepal Earthquake: From Rescue to Reconstruction," is written by Chandra Lal Pandey from Kathmandu University, Institute of Crisis Management Studies at Tribhuvan University, and the Southasia Institute of Advanced Studies, Kathmandu, Nepal. He focuses on the impact of the 2015 Nepal Earthquakes that affected large areas of the country and the current status of the recovery effort. He points out information gaps and makes recommendations for further research to improve disaster response and recovery.

Chapter 10, "International Humanitarian Assistance and Disaster Recovery in Asia," is written by William L. Waugh, Jr., Professor Emeritus, Andrew Young School of Policy Studies, Georgia State University in Atlanta. He examines the role of humanitarian assistance in catastrophic disasters and concludes that, despite the development of international agreements, such as the Hyogo and Sendai Frameworks, and international standards for humanitarian assistance, it is difficult for international aid organizations to find the funding and time to engage with affected communities and remain on site long enough to sustain long-term recovery programs. Aid missions generally arrive quickly and work until the available funding ends, and they may not have time to work with local officials and residents to assure that their

priorities are met. Experienced outside agencies may help focus attention on issues like corruption, human trafficking, and gender-related abuse, however.

The collection is multidisciplinary and the perspectives and methodologies are diverse. Each chapter addresses critical issues in catastrophic disaster recovery from politics to restoring the social, cultural, and economic lives of affected populations.

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