

Resilient Policies in Asian Cities

Mitsuru Tanaka • Kenshi Baba
Editors

Resilient Policies in Asian Cities

Adaptation to Climate Change and Natural
Disasters

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Preface

Japan suffered severe damage due to the Great East Japan Earthquake in March 2011, which was the largest earthquake and tsunami on record. This disaster led to a widespread focus on the prevention and minimization of damage from disasters and on keyword such as “resilience” and “resilient” from post-damage reconstruction perspective. These concepts refer to the ability of the citizens or the existence of social systems that would allow society to appropriately deal with and recover from external impacts (external forces) of severe natural disasters, such as earthquakes, volcanic eruptions, typhoons, and floods. These terms also refer to a social structure that will permit the protection of citizens’ safety, lives, and health once society has obtained these abilities. Resilience could be said to be one of the most essential factors of modern society.

Indeed, after the Great East Japan Earthquake, the term “resilience” was adopted in Japan from the perspective of the ability to develop a strong resistance to, quickly recover from, and adapt to the damage from disasters. Resilience formed the basis of the keyword “national resilience,” which was established in 2013 via the *Basic Law for National Resilience that Contributes to Disaster Prevention and Reduction*.

The international community has also adopted the concept of resilience as it relates to the abovementioned natural disasters, and there are more than a few discussions about information networks, energy supply, ecology/biodiversity, and climate change from a broad standpoint. For example, in 1970, Holling stated that resilience within an ecological context was “system resilience, the ability to absorb change and disturbance, and the ability to maintain the relationships between system components.” Furthermore, the general public defines resilience as the strength of resistance to strong shocks and stresses and the speed of mental and physical recovery. It is thus used in the psychological and medical fields.

Regarding the concepts of “resilient” and “resilience,” which have many meanings, this book will focus on the environmental/energy context and will discuss the application of resilience in regional societies and cities in particular.

In Part I, the concept of resilience will be systematically organized per previous studies, and, while discussing the meaning of resilience, the types of indices for

grasping and measuring resilience will be developed and proposed, and the results of the trial implementation in large Japanese cities will be summarized.

In Part II, a case study will be conducted based upon an analysis of individual applications of the concept of resilience in Asian cities, including those of Japan, the Philippines, and Thailand, and a methodology for constructing a resilient regional and local society will be proposed.

In Part III, we will refer to the mayor's initiative to establish and spread the concept of resilience as a summary of this book, and we will summarize the results and proposals developed by this research.

Although Asian countries, including Japan, are home to many diverse regions with unique features, they also have delicate and fragile natural environments, as well as areas that are at risk of large-scale disasters. Additionally, as we entered the twenty-first century, the effects of climate change have been actualized in various locations globally. As identified in the IPCC Fifth Assessment Report, disaster risks accompanying abnormal weather are predicted to increase and accelerate. The risks associated with climate change, and large-scale disasters that are expected to bring, take many forms over a broad range. These include enormous typhoons and hurricanes, sea level rise, the intensification of storm surges along the shore, heavy rain and floods, increased frequency of landslides in inland areas, the effects of rising temperatures on agriculture and lowered food production, increased heat stress and health hazards, the spread of infectious diseases, and the progression of water shortages and desertification. Regarding the expansion of climate change risks, the creation of responsive, resilient regional communities is being pursued, and this is thought to be the primary factor in the recent major focus on "adaptation" for climate change issues.

Thus, this book reanalyzes and reorganizes the concept of resilience, proposes paths to implement resilient regional societies that can adapt to risks per said concepts, and facilitates understanding of today's concerns. We sincerely hope that this book will be used to spread practical initiatives everywhere and that as many readers as possible will be able to use this book.

In conclusion, this book is based upon research results from studies implemented via support from the Ministry of the Environment's Environment Research and Technology Development Fund (1-1304) and the Ministry of Education, Culture, Sports, Science and Technology's research fund "Social Implementation Program on Climate Change Adaptation Technology (SI-CAT)," and it summarizes the knowledge obtained by the said studies. We would like to express once again our gratitude for all of the support our research received.

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