Chapter 9
Social Resilience and Critical Infrastructure Systems

Benjamin D. Trump, Kelsey Poinsatte-Jones, Meir Elran, Craig Allen, Bojan Srdjevic, Myriam Merad, Dejan M. Vasovic, and José Manuel Palma-Oliveira

Abstract Resilience analysis and thinking serve as emerging conceptual frameworks relevant for applications assessing risk. Connections between the domains of resilience and risk assessment include vulnerability. Infrastructure, social, economic, and ecological systems (and combined social-ecological systems) are vulnerable to exogenous global change, and other disturbances, both natural and anthropologically derived. Resilience analysis fundamentally seeks to provide the groundwork for a 'soft landing', or an efficient and robust restoration following disturbance as well as the ability to reduce harms while helping the targeted system rebound to full functionality as quickly and efficiently where possible. Such applications are consistent

B.D. Trump (✉)
US Army Corps of Engineers, Engineer Research and Development Center, Vicksburg, MS, USA

University of Lisbon, Lisbon, Portugal
e-mail: Benjamin.D.Trump@usace.army.mil

K. Poinsatte-Jones
US Army Corps of Engineers, Engineer Research and Development Center, Vicksburg, MS, USA

M. Elran
Tel Aviv University, Tel Aviv-Yafo, Israel

C. Allen
University of Nebraska, Lincoln, NE, USA

B. Srdjevic
University of Novi Sad, Novi Sad, Serbia

M. Merad
National Center for Scientific Research, Paris, France

D.M. Vasovic
University of Niš, Niš, Serbia

J.M. Palma-Oliveira
University of Lisbon, Lisbon, Portugal

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with The National Academy of Sciences (NAS) definition of resilience, which more broadly denotes the field as "the ability to plan and prepare for, absorb, recover from, and adapt to adverse events" (Larkin S, Fox-Lent C, Eisenberg DA, Trump BD, Wallace S, Chadderton C, Linkov I (2015) Benchmarking agency and organizational practices in resilience decision making. Environ Sys Decisions 35(2):185–195). Given this definition, we seek to describe how resilience analysis and resilience thinking might be applied to social considerations for critical infrastructure systems. Specifically, we indicate how resilience might better coordinate societal elements of such infrastructure to identify, mitigate, and efficiently recover from systemic shocks and stresses that threaten system performance and service capacity.