

Chapter III

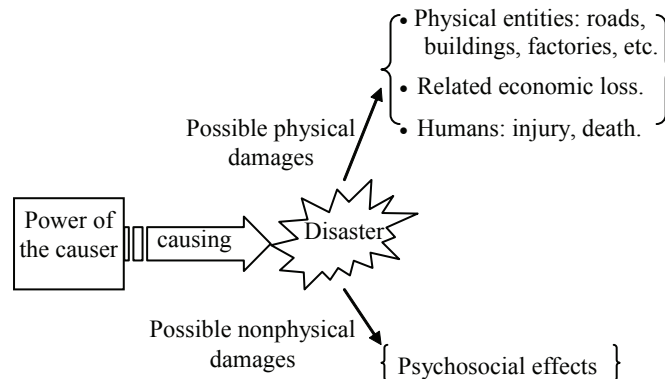
Psychosocial Effects: A Silent Influence

TWO POSSIBLE EFFECTS OF A DISASTER

According to the American Red Cross, a disaster is an occurrence, such as a hurricane, tornado, storm, flood, high water, wind-driven water, tidal wave, earthquake, drought, blizzard, pestilence, famine, fire, explosion, volcanic eruption, building collapse, transportation wreck, or other situation, that causes human suffering or creates human needs that the victims cannot alleviate without assistance. Basically, this definition covers all natural, conventional disasters. Since the attacks of September 11th, 2001, terrorist-related threats or attacks represent a newly realized danger to the public. For example, before September 11, 2001, Americans did not worry much about terrorism; after the attacks, they worried intensely. In this context, we define a *disaster* as an occurrence that threatens a society, causes human suffering, or damages goods such as buildings, communication systems, infrastructures, living environments, and so forth. In this definition, society, humans, and goods are called affected entities, and the force behind the occurrence is the causer or source of the disaster. The causer can be human-made or a natural force.

If a disaster occurs, a force or power by the causer acts on the affected entities and produces an effect, namely, the disaster. When the causer activates this force, two results may occur. First, the affected entities may suffer physical and/or chemical changes due to the power of the causer, such that their physical structures or functions get hurt—for example, property damage or physical casualties. Second, the causer might not create any direct physical damage but cause other consequences, which we call psychosocial effects. Usually, the latter effect is associated with the former when the causer activates its power. For example, the 1995 terrorist attack, during which Sarin nerve gas was released into the Tokyo subway system, not only caused physical casualties to people onsite but also produced a wave of mass anxiety in nearby areas. However, the latter result can play a threatening role, depending on type of the causer. For example, if the causer is a biological agent used as a threat, the targeted population would experience worry and fear. The associated characteristics, such as the uncertainty about whether, or when, a threat will become a real attack, the difficulty in determining the scope of the attack, and the possibility of contagion, may even heighten the level of fear and anxiety, resulting in additional psychosocial damages. Based on the 1995 Sarin gas attack in Tokyo, research suggests

Figure 3.1. Two forms of potential damages



that a similar biological threat, if it materialized, would produce four psychological casualties for every one physical casualty, though the estimated ratio of psychological to physical casualties ranges from 4 to 1 to as high as 50 to 1 (Demartino, 2002).

Figure 3.1 sketches the two possible effects of a disaster: physical and nonphysical damages. If we consider the formation of the former audible or visible, then the formation of the latter is silent or invisible. Physical damages are usually obvious when a disaster occurs; for example, if a tornado touches down, the damages appear immediately. Thus, the physical impacts of a disaster tend to receive more attention and greater study because of their obvious consequences. By applying complex statistical methodology with predefined probability distributions for the key input variables, many studies have estimated possible death tolls, property damage, and dollar costs as a means to predict the potential effects of a disaster in advance and suggest appropriate preparations (Garrett, 2005; Karesh & Cook, 2005; Meltzer et al., 1999; Mileti, 1999; NRC, 2006; *Washington Post*, 2005). To help create emergency response plans, the U.S. Department of Homeland Security (DHS) has developed 15 national planning scenarios relating to possible terrorist attacks, disease outbreaks, and natural disasters (Lipton, 2005). Assessments and predictions surrounding these 15 scenarios focus mainly on estimating potential damages to properties and their related economic costs. Similarly, the National Earthquake Hazard Research Program (NEHRP)–sponsored “Second Assessment of Research on Natural Hazards” concentrates on dollar losses from a wide array of natural hazards, severe weather-related events, and earthquakes.

The latter effects, though silent, have powerful public implications as well. A disaster can impair people’s physical bodies and minds; possible effects range from common signs such as fear and anxiety to fatigue and sadness, depression, or possible stress disorders. The worst potential consequence is a psychiatric disorder, which can occur after experiencing or witnessing life-threatening events, such as military combat, natural disasters, terrorist incidents, serious accidents, or violent personal assaults. Such disorders significantly impair a person’s daily life. Therefore, people exposed to a disaster display different reaction and symptom levels during and/or after the disaster, such that some are more affected than others, depending on the nature of the event and the characteristics of the persons who have experienced or witnessed it (Koopman et al., 1995; NSW, 2000).

Possible psychosocial effects usually emerge immediately rather than long after the actual disaster, and fear and anxiety represent common reactions to imminent threats and actual disaster events (Bar-

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