

Chapter 2

Mitigation

2.1 Mitigation Defined

Mitigation of the impacts of natural and anthropogenic hazards (e.g., earthquakes and pollution, respectively) and the secondary hazards they may trigger (e.g., tsunamis, health problems) can be categorized as a four sequence program starting with preparedness, followed then by recovery response, recuperation/rehabilitation, and reconstruction. Each sequence can have substages carefully planned and technologically up-to-date with the aim, first of minimizing injuries and death that affected citizenry, and second to stabilize social fabrics by taking into consideration factors that can reduce physical, medical, and mental health caused stress on populations. This is done, first by supplying sufficient water, food, shelter and sanitation facilities for displaced populations (to minimize the chances of sickness and disease or their spread), and by having healthcare readily available. This may be followed by protecting property, and infrastructure to maintain services such as transportation, water, gas, and electricity. This is accomplished by preplanning to reduce the risk from a disaster (e.g., building structures according to code, flood monitoring and warning systems) and by sustaining educational and employment opportunities, thus maintaining a functioning economy.

2.2 Preparedness

Disaster preparedness in mitigation scenarios originates with a local government and may evolve into a national effort, or in a dire situation may require an international response. There are several elements considered essential to preparedness programs. These include the following: (1) establish a coordinated leadership; (2) identification of one or more hazards likely to impact a location (site vulnerability); (3) increase public awareness through education and training such as practiced in

Japan and California USA in response to earthquakes; (4) emphasize what citizens should do when alerted to the probable onset of a hazard event (e.g., flooding) or the sudden onset of a hazard (e.g., earthquake) including evacuation plans to safe shelters stocked with water, food, and medical supplies; (5) a risk assessment for potential disasters; (6) investment in applied research and technology transfer of successful new mitigation methods; (7) incentives to apply new preventive measures that can lessen an impact of a hazard (e.g., flood control methods); and (8) assure the readiness of medical and search and rescue teams to respond. Experts in the subject emphasize that a disaster preparedness and management program can be improved in a community, large or small, urban or rural, by education of citizens and higher education that prepares cadre responding to a hazard to be flexible and able to adapt to social and cultural norms in a society [1]. They further believe that a system for enhanced information flow is necessary for locales to be able to link to a global network geared to disaster risk management. Impacted locales can communicate via computer the needs they have or will have as the result of a hazard and that may be served quickly by transportation mobility capability the world now has. The global networking during the West African Ebola outbreak was responsible for rapid response by governments, businesses and the people themselves, notwithstanding the WHO 5 month delay in declaring a public emergency. This response helped rein in the epidemic by bringing in medical experts and supplies, setting up clinics to care for the afflicted, educating the public on the transmission of the disease and how to prevent its spread, and reestablishing critical infrastructure. As noted in the Introduction, 2 years after the Ebola outbreak, West Africa was free of the Ebola disease.

Medical response to disasters depends on the infrastructure an impacted locale has (e.g., health facilities, transportation routes), trained personnel on call (e.g., medical doctors, nurses, search and recovery personnel), and supplies (e.g., medicines, vaccines). When a natural or anthropogenic hazard brings disaster to a location, hospital or health clinic personnel go into a triage mode and identify patients with the most serious conditions that require immediate treatment. Outpatient treatment should include counseling for Post Traumatic Stress Disorder.

It is especially important to regularly update hazard response protocols so as to be able to meliorate chaotic situations that can develop during the first few days after a disaster impacts a location. The preparedness extends into post-hazards planning for recuperation, rehabilitation, and reconstruction with the purpose of reducing the degree of vulnerability (exposure) of a location from like future events. This requires risk assessment and its regular updates.

Reference

1. Jensen, S. J., Feldmann-Jensen, S., Johnston, D. M., & Brown, N. A. (2015). The emergence of a globalized system for disaster risk management and challenges for appropriate governance. *International Journal of Disaster Risk Science*, 6, 87–93.

Mitigation of Dangers from Natural and Anthropogenic
Hazards

Prediction, Prevention, and Preparedness

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2016, XIV, 127 p., Softcover

ISBN: 978-3-319-38874-8