

The Future of Emergency Management: The Search for A Paradigm and Policy Guide¹

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Abstract:

A great deal of emphasis and attention is being given to the future of emergency management as well as current theoretical constructs designed to guide research and help practitioners reduce disaster. The following paper illustrates that while the Disaster Resistant Community, Disaster Resilient Community and Sustainable Development concepts provide many unique advantages for disaster scholarship and management, they fail to sufficiently address each of the hazards, phases, actors, variables and disciplines pertaining to calamitous events. In making this argument, the paper asserts that any future paradigm and policy guide must be built on - yet go further than - Comprehensive Emergency Management. The paper also notes the importance of vulnerability as it relates to disasters, and consequently suggests that “invulnerable development” is better suited to guide scholarly and practitioner efforts to understand and reduce disasters.

Introduction

The following paper reviews several popular disaster reduction concepts and examines their relative merit. It argues that the Disaster Resistant, Disaster Resilient, and Sustainability concepts may be partially flawed in that they are not completely built upon Comprehensive Emergency Management and previous research, and consequently fail to recognize the importance of vulnerability in the discussion about disaster. In light of these weaknesses, the paper suggests that Invulnerable Development may be a more appropriate academic concept and policy guide than the previously mentioned alternatives. Before proceeding with this comparative analysis, the paper will provide background information about comprehensive emergency management.

Comprehensive Emergency Management

Comprehensive Emergency Management (CEM) emerged in 1979 from the United States National Governor’s Association due to the realization that there was a need for inclusive emergency management policies and procedures. CEM incorporated all hazards, phases and actors pertinent to emergency management (Drabek and Hoetmer 1991). In spite of its breadth, the CEM concept was not immune to problems or drawbacks. By focusing

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too much on hazards CEM failed to recognize many social, political, economic, cultural and other variables. CEM's depiction of the phases of emergency management was too simplistic. CEM was also limited somewhat to emergency managers and related officials in the public sector. CEM was accordingly too reactive and incomplete as a paradigm.

In spite of these weaknesses, the Comprehensive Emergency Management concept contributed much to the development of emergency management. It expanded the types of disasters that would be addressed by emergency managers. It simplified and categorized the disaster life cycle, and helped to identify the important functions of those working in the emerging profession. CEM also expanded (albeit insufficiently) the individuals and organizations that should be involved in emergency management. With these strengths and weaknesses in mind, it may be argued that any future concept should be built on – yet go further than - Comprehensive Emergency Management. For this reason, it is necessary to critically evaluate the Disaster Resistant Community, Disaster Resilient Community, and Sustainable Development concepts within the CEM framework.

Disaster Resistant Community

The Disaster Resistant Community (DRC) model has been defined as a, “means to assist communities in minimizing their vulnerability to natural hazards by maximizing the application of the principles and techniques of mitigation to their development and/or redevelopment decision-making process” (Geis 2000, 152). The DRC paradigm is therefore predicated upon the principles of natural hazards mitigation. The primary benefit of the DRC is its focus on prevention. Another advantage of the DRC is that it encourages communities to be proactive due to the availability of federally funded grants.

While the DRC paradigm aids in the understanding of how to prevent natural disaster losses, it does have some inherent weaknesses. For instance, the DRC model seems to be applicable to extreme hazardous events related to the natural environment only. The DRC model does not cover all the phases of emergency management and therefore limits the involvement of actors other than urban planners, redevelopment agencies and engineers. Another weakness is that the focus on resistance may ignore social, cultural and political variables. Finally, the DRC model is unable to incorporate all of the academic disciplines associated with disasters as it is mostly discussed by Geographers, Engineers, and Urban Planners. The DRC thus possesses beneficial and detrimental attributes .

Disaster Resilient Community

There is perhaps no single and agreed upon definition of what Disaster Resilience or a Disaster Resilient Community actually means. Nonetheless, the literature frequently uses the concept to imply the ability to respond or bounce back to normalcy after a disaster occurs. Some scholars do not define Disaster Resilient Communities but are more interested in discussing the dispositional, cognitive and environmental characteristics of resilience (Paton's et al. 2000, 175). Others imply that resilience may have some

applicability to the minimization of losses and damages when a disaster occurs (Mileti 1999). However, the Disaster Resilient Community is most commonly related to social factors (e.g. economic, psychological and cultural) pertaining to response and recovery.

Regardless of the definition, the concept of resilience possesses both pros and cons. On the one hand, resilience: 1) does not assume that disaster prevention is always possible, 2) captures the social, cultural, psychological and economic variables that seem to be left out of the Disaster Resistant Community concept, and 3) may include previously excluded disciplines such as Psychology, Anthropology and Economics. On the other hand, it is unclear if the concept of resilience is concerned with all types of hazards and vulnerabilities. The term resilience also seems to be applicable mainly to the response and recovery phases of disaster. Furthermore, resilience may unfortunately imply a return to normalcy after disaster instead of a reduction of future vulnerability. Moreover, resilience may not include all of the actors and disciplines interested in disasters. Hence, the Disaster Resilient Community concept also goes further than Comprehensive Emergency Management in some areas while falling short in others.

Sustainable Development/Sustainable Hazards Mitigation

Sustainable development has traditionally been defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED 1987, 43). In disaster studies, Mileti declares that sustainability implies that "a locality can tolerate - and overcome - damage, diminished productivity, and reduced quality of life from an extreme event without significant outside assistance" (1999, 4). Commonly referred to as Sustainable Hazards Mitigation, this perspective explores the connections among culture, environmental management, development and disaster reduction. The argument is that:

losses from natural disasters occur because of development that is unsustainable; that natural disasters occurring in unsustainable communities can restrict efforts toward sustainability through their impact on environmental degradation, ecological imbalance, hindered socioeconomic development, and lower quality of life; and that more resilient human communities are better able to mitigate natural disaster losses (Mileti et. al. 1995, 122).

The central finding of sustainable hazards mitigation is that a shift in culture (e.g. values, attitudes and behavior) will be necessary if unsustainable practices are to be avoided and hazard mitigation is to be sustainable in the future. Mileti's recommendations for change include: 1) better land use planning and management to limit settlement in dangerous areas, 2) the enforcement of building codes and standards to protect people and property, 3) increased reliance upon insurance to cover possible financial losses from disaster, 4) enhanced prediction, forecasting and warning systems, and 5) improved engineering for buildings and infrastructure to minimize death and damage associated with disaster (1999, 155-207).

Like Resistance and Resilience, the Sustainable Hazards Mitigation concept also has advantages and disadvantages. On the positive side, sustainability notes the importance of "process" for disaster reduction. It also adds to the understanding of the complex relation between development and disasters. Finally, the sustainability concept it incorporates many variables (e.g. culture, environmental protection, technology) for disaster reduction.

In spite of these important benefits, there are many weaknesses with the sustainability perspective (McEntire 2000a, McEntire 2000b). Sustainable development seems to be related to natural hazards alone and ignores other types of disasters and mass emergencies. Also, Sustainable Hazards Mitigation focuses on a limited number of phases, and consequently cannot capture the wide range of actors involved in disaster management. Moreover, it is unknown if sustainable development addresses all of the variables related to disaster because it focuses heavily on land-use planning, engineering and technology. For this reason, sustainable development seems to be related to Environmental Science, Geographers, Urban Planners and Engineers (but may not adequately include many of the Social Sciences including Sociology, Political Science, Anthropology, Psychology, etc).

As a result, there is rightfully some uncertainty and unease about the relation of sustainable development and disasters. One observer points out that "hazards play largely a symbolic role in the sustainable development debate, with limited, if any, impact on the shaping of sustainable development policies" (Berke 1995, 13). In a more negative tone, Hooke has noted that the term sustainable development is, or should be out, of the disaster debate (1999). In a 1 January 1999 e-mail to the author, the well-known disaster Sociologist, E.L. Quarantelli, observed that sustainable development "is usually more a statement of ideological position than a very useful tool either for scientific or practical purposes." Others favor a more complex perspective and "contend that natural hazards should not be considered as a subset of sustainable development problems, but should be viewed as a separate set of problems that often, but not always, overlap with sustainable development problems (Berke 1995, 14 referring to Kriemer and Munasinghe 1992; see also Mitchell 1999, 505). The dangers of relying upon the sustainable development concept have been eloquently stated by Berke:

it is clear that all adverse impacts of [disasters] will not be eliminated as is currently put forth in much of the sustainable development literature. The knowledge gained by [disaster] researchers and the extensive experience of [disaster] practitioners needs to be meaningfully introduced into the sustainable development debate. Otherwise, naïve assumptions about sustainable development eliminating [disaster] impacts could lead to the shaping of flawed policy (1995, 14).

While this observation took place over five years ago, others continue to recognize that the modernization of the emergency management house is unintentionally weakening the

foundation upon which it is built (Rubin 2000). Thus, the sustainable development concept has unquestionably made contributions to the field, but it may not be totally appropriate or adequate for the disaster problem.

The Need for Invulnerable Development

By now it should be apparent that a holistic perspective is needed to serve as a future disaster paradigm and policy guide. The concept of “Invulnerable Development” has been created and proposed as a way to integrate findings in disaster studies. Invulnerable development is defined as “*development pursued in such a manner as to address vulnerabilities*” (McEntire, in progress; McEntire 2000a; McEntire 2000b). The term “invulnerable” suggests efforts to reduce liabilities from both the physical and social arenas. The term “development” conjures up the building of physical and social/organizational capacity to deal effectively with disaster in these diverse settings as well. Together these terms imply a broad but focused type of progress that attempts to decrease the frequency or severity of disaster by reducing liabilities and increasing the capabilities of distinct but overlapping environments (see McEntire, forthcoming). *Invulnerable development accordingly conjures up decisions and activities that are intentionally designed and implemented to: 1) assess liabilities and capabilities, 2) reduce risk and susceptibility, and 3) raise resistance and resilience to disaster.*

The invulnerable development concept possesses many positive features. First, because vulnerability is the foundation of the invulnerable development concept, it is consequently related to all types of disaster agents. Depending on the location and construction of buildings, and the availability and effectiveness of warning and evacuation systems, a society may be vulnerable to natural agents such as earthquakes, flooding, volcanoes, tornadoes, hurricanes and the like. A community may be vulnerable to technological triggers if it has not taken steps to prevent or prepare for nuclear plant accidents, utility failures, industrial explosions, computer malfunctions, plane crashes, hazardous materials spills and the unforeseen consequences of bio-technological advances. Vulnerability to civil type disasters is also a possibility due to alienating social, political and economic relationships, or the lack preparedness measures for riots, violence or terrorist activity. A society can also be vulnerable to environmental or biological disasters depending upon its ability to enforce laws to protect nature, foresee negative consequences of biotechnology, or prevent the spread of infectious diseases. Of course, it would be misleading to assume that the vulnerabilities of one agent do not interact with those of another. Invulnerable development therefore recognizes that there are many unique combinations of vulnerability, which therefore have an impact upon all types of disasters.

Invulnerable development is also advantageous in that it is related to each of the four phases of emergency management. Invulnerable development is related to mitigation in that it notes how vulnerability may be reduced through hazard mapping, the appropriate location of settlements, the use of structural mitigation devices, sturdy construction techniques, environmental protection, a slower pace of (or controlled) urbanization, a reversal of social marginalization, a changing of cultural attitudes, political will to do

something about disasters, a reduction of poverty, early warning systems, the careful use of technology, strengthening the infrastructure, and the careful use of hazard containing devices such as dams. Invulnerable development is related to preparedness in that it notes how training, community education, insurance coverage, and the availability of disaster related resources reduce liabilities and build capacities. It is also related to preparedness in that vulnerabilities may be created or minimized through planning and exercising for emergency medical care, search and rescue, warning, evacuation, sheltering, media relations and other important response functions. Invulnerable development also acknowledges that preparedness and planning measures are strong determinants of whether a community will reduce its future vulnerability during disaster recovery operations. Insufficient or inappropriate steps taken for preparation may therefore increase the vulnerability of communities to disaster (Britton, 1986). Invulnerable development is likewise related to a more efficient, effective and appropriate form of disaster response in that it increases the capacities of responders by delegating authority to the local level, avoiding overly stringent bureaucratic operating procedures, encouraging self reliance among the affected population, improving decision making in crisis situations, and discouraging the creation of dependency through well-intentioned although sometimes ineffective and counter-productive relief operations. Invulnerable development is also related to this phase because, as Britton suggests (1986), the failure to effectively perform emergency operations functions (e.g. emergency medical care, warning, evacuation, sheltering, etc.) increases the vulnerability of society to disasters that cannot be prevented. In addition, failure to take necessary safety precautions during search and rescue, damage assessment and debris removal increases vulnerability to disaster. Finally, invulnerable development is related to disaster recovery because it integrates the provision of disaster assistance with local capacity building. For instance, disaster assistance may, depending upon how it is distributed and received, encourage dependency or reduce one's vulnerability to future disaster. Invulnerable development also links reconstruction, relocation and redevelopment back to mitigation for the reduction of future vulnerabilities. Furthermore, the handling of debris may lead to environmental degradation which may create future disasters. Moreover, this concept also addresses the emotional vulnerability of people by helping them to cope with and bounce back from disaster losses. Invulnerable development therefore addresses disasters management in a holistic and integrated manner. Such an approach is imperative because even the best efforts to prevent or reduce disaster will fail. Also, an integral part of disaster vulnerability is the inability to cope or respond effectively. Attention must therefore be given to each phase in order to reduce vulnerability to prospective, current and future disasters.

Invulnerable development is also related to all of the actors that are or need to be involved in disaster reduction. The public sector plays an important role in invulnerable development. The support given to vulnerability reduction by political leadership is imperative if citizens and government entities are to take the disaster problem seriously. It is the legislators that pass laws to encourage the enactment of safety, prevention and preparedness measures. The government is also an important player in invulnerable development as it is charged with the responsibility of enforcing disaster regulations. All levels of government, and most government agencies, have at least some involvement in

disaster mitigation, preparedness, response and recovery. Therefore, it is important that the branches and departments of local, state and federal governments work together to reduce liabilities and increase capacities. Invulnerable development also recognizes the crucial role that the private sector plays in the reduction of vulnerability. Businesses, corporations, industries and other private entities determine to a large extent the probability of disaster in a community. The pursuit of profits at all costs, the location of manufacturing plants, the treatment of labor, the level of respect shown to safety precautions and the environment may have bearing on disaster. The manner in which companies extract, ship and store natural resources, and convert them into consumable products also figures into disaster vulnerability. What is more, the private sector is heavily involved in numerous activities (e.g. construction, health care, mass media emergency communications, the donation of relief, insurance, consulting, etc.) related to disaster. Invulnerable development therefore recognizes how the private sector may contribute to or reduce vulnerabilities. The non-profit sector is also acknowledged to be an important participant of invulnerable development. Charitable organizations are frequently involved with vulnerable populations such as women, children, the elderly, disabled persons, and minority groups. They help to promote development measures that may have a bearing on vulnerability, especially as they relate to education, health care, and employment. Furthermore, community based agencies, the Red Cross, Salvation Army, religious affiliations, emergent groups, and international non-governmental humanitarian organizations are major players during response operations. They provide valuable services including the distribution of disaster assistance (such as food, shelter, mental health counseling and reconstruction assistance to disaster victims) that may either reduce or unintentionally create future vulnerabilities. Finally, invulnerable development is especially aware of the importance that the public at large has in the creation or reduction of vulnerability. People's vulnerability is often determined by their values, attitudes and practices. The apathy shown towards disasters, and the defiance of disaster legislation and safety precautions, are major explanations for increased vulnerability. Also, the low degree of personal responsibility often shifts vulnerability to other people, businesses or the government. Therefore, the activities of the public, private and non-profit sectors will always be incomplete unless individuals take vulnerability into consideration. Invulnerable development is particularly cognizant of the important role that the public at large plays in reducing disasters.

Because vulnerability is so clearly related to each of the agents, phases and actors involved in disaster, it becomes evident that the invulnerable development concept takes into account the wide array of disaster-inducing or disaster-intensifying variables. Put differently, invulnerable development explicitly recognizes that various forms of vulnerability are to blame for calamity, and that these have to be addressed if disasters are to be mitigated or minimized in quantitative or qualitative terms. The specific variables that are captured by invulnerable development may, *at a minimum*, be placed under physical, social, cultural, political, economic, technological and developmental categories. Physical variables include an accurate assessment of potential hazards, the safer (or less hazardous) location of people and settlements, the use of structural mitigation devices, proper construction techniques, and the avoidance of further environmental degradation. Social variables consist of educating the public about disasters, improving the provision

of health care before and during mass emergencies, slowing the pace of urbanization and finding ways to reverse the marginalization of specific groups and individuals. Cultural variables encompass shaping people's attitudes towards disaster and safety precautions, encouraging self-reliance and personal responsibility, and relying upon traditional coping mechanisms. Political variables entail altering politicians' will to improve emergency management institutions, enforcing non-structural approaches and decentralizing authority to facilitate decision making at the local level. Economic variables embrace increasing wealth, distributing income in a more equitable fashion, insuring against potential economic losses, and dedicating a sufficient amount of resources to disaster mitigation, preparation, response and recovery. Technological variables touch upon the importance of early warning and communications systems in addition to the careful handling of modern equipment, hazardous chemicals and nuclear material. Developmental variables involve the detailed rural and urban planning as well as foresight into large projects aimed at improving the infrastructure, and the provision of disaster relief in such a manner as to foster self-reliance/capacity building in order to avoid creating relationships of dependency. Each of these variables is important because they relate to vulnerability (see, for instance, Britton 1986), and because disasters are not amenable to simple or piecemeal solutions.

Invulnerable development is also beneficial in that it is an important topic of discussion in all disciplines (see Merriman and Browitt 1993). For instance, Geographers attempt to reduce vulnerabilities by recommending the use or non-use of certain locations or structural mitigation devices. Meteorologists attempt to reduce vulnerabilities by giving advance notice of possible weather disturbances. Engineers attempt to reduce vulnerabilities by building structures that are able to withstand and resist strain. Anthropologists attempt to reduce vulnerabilities by exposing constraining attitudes and risky behavior. Economists may help to reduce future vulnerabilities by discussing the important role of insurance in the recovery phase of disaster. Sociologists attempt to reduce vulnerabilities by illustrating what individuals and groups are most susceptible to disaster. Psychologists attempt to reduce vulnerabilities by exposing why people overlook the potential for disaster, and by helping victims and responders understand their emotions and by pointing out those factors that lead to and resolve post-traumatic stress disorder. Epidemiologists and others in the medical field attempt to reduce vulnerabilities by exploring those factors that increase disease, injury and death, or by building the capacities of those who respond to the victims' emergency and long term health care needs. Political Scientists attempt to reduce vulnerabilities by showing what government policies are ineffective or even dangerous. And Emergency Management scholars attempt to reduce vulnerability through discussions about how various preparedness measures (such as community education, planning, training and exercising) improve the performance of emergency functions (such as warning, evacuation, search and rescue, mass care, mass casualty, sheltering, public information, damage assessment, and debris management) for the protection of people. For these reasons, invulnerable development may help unify a fragmented field. Invulnerable development, therefore, seems to have a number of advantages for the scholars and practitioners involved in disasters than the other concepts being proposed for the future of emergency

management. This is not to argue that the other concepts are wrong; it simply means that the others are incomplete.

Conclusions

Scholars are currently calling for a new paradigm in order to facilitate the understanding and reduction of disaster. The Disaster Resistant Community, Disaster Resilient Community and the Sustainable Development concepts each possess unique strengths towards this end, but are nevertheless limited by respective drawbacks. On the other hand, Invulnerable Development seems to have many advantages. Invulnerable development is certainly related to each of the agents, phases, actors, and variables related to disaster. Its focus on vulnerability is a major strength because it is the only thing humans have control over in a disaster situation.

In addition, invulnerable development may help to integrate findings from each of the various disciplines that generate knowledge about disasters and vulnerability. The invulnerable development concept may likewise generate a specific research agenda in that it underscores the importance of vulnerability for drawing out the complex relationship between development and disaster. What is more, invulnerable development expands the research agenda of Disaster Studies because there are numerous factors from both the physical and social environments that interact in complex ways to produce vulnerability. The invulnerable development concept thus helps to generate a holistic but focused roadmap for future disaster scholarship.

In the practical world, the implications of invulnerable development are also consequential. If invulnerable development is indeed a more clear and appropriate concept, it may simplify recommendations for those practitioners who are concerned about reducing disaster. This is to say, the lessons for policy makers may be more easily understood because they are more germane to the disaster problem. For instance, invulnerable development maintains emergency management's goals of protecting life, property and the environment, although it expands how these objectives are to be accomplished. Furthermore, if invulnerable development is in fact a more comprehensive disaster concept, it may truly help promote the worldwide effort which Blaikie et. al. propose (1994, 234-35) to reduce vulnerability as development proceeds. With this in mind, the author invites scholars and practitioners to consider invulnerable development as the future paradigm of emergency - or perhaps more appropriately - vulnerability management. To the extent that invulnerable development does not amount to a future disaster paradigm, the author encourages scholars to consider the importance of comprehensive emergency management and vulnerability when developing alternative models.

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Biography

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