Disaster Recovery Annotated Bibliography - Planning

This document was developed to provide information on the state of knowledge on disaster recovery. This document includes a list of articles collected in the Fall of 2018. To obtain relevant articles, a list of keywords was used to search Google Scholar and University Library Databases. These keywords were: “community disaster recovery”, disaster recovery”, “post recovery planning” “pre disaster planning”, and “national planning recovery”. An additional search of academic journals that are related to the planning field was then undertaken to ensure that articles from these journals were not overlooked. These journals included: *Journal of the American Planning Association, Journal of Planning Education and Research, Applied Geography, Land Use Policy, Environment and Planning A, Planning Theory, Progress in Planning*. After collecting articles, each article was then systematically reviewed to ensure relevance. The articles needed to address community level recovery (including issues related to housing, economic, infrastructure, planning, etc.) or note issues that affect recovery outcomes (e.g., differences in housing outcomes for rental versus owned housing). Next, we reviewed the reference list of identified articles to determine if any articles had been missed in the initial collection process. If there were additional articles that were missed, we collected the information and searched for the title of the article. After processing each article, the articles were than compiled into the Zotero software.

The Zotero bibliographic database is open to the public to view at: https://www.zotero.org/groups/2278263/recoveryguidancetamu/items

**Planning**

**Articles that discuss aspects of the planning process, specific plans, plan development, and plan evaluation.**


Problem, research strategy, and findings: Resilience has become an important planning goal for state and local government, providing a policy arena in which to integrate historic preservation and disaster mitigation, but significant questions remain about that relationship. There has been no study of coordination between preservation and hazard mitigation planning at the state level, and there is no widely available methodology for assessing the flood exposure of historic resources. In this study, we use mixed methods to address these two issues. We evaluate the degree to which state historic preservation plans and state hazard mitigation plans reflect an effort to connect planning processes or goals. We then use the states of Kentucky, Florida, and Colorado to assess the suitability of publicly available spatial data for identifying flood-exposed historic resources, paying special attention to the National Park Service’s Certified Local Government (CLG) program and the National Trust’s Main Street program. We find that historic preservation and disaster planning are unevenly integrated at the state level. While publicly available data are often effective in identifying historic resources located within floodplains, the
usefulness of these data vary based on location and resource type. We find that CLG and Main Street communities may be well positioned to take a leadership role in planning for the protection of historic resources from floods.


We are witnessing an ever-increasing level and intensity of disasters from Ecuador to Ethiopia and beyond, devastating millions of ordinary lives and causing long-term misery for vulnerable populations. Bringing together 26 case studies from six continents, this volume provides a unique resource that discusses, in considerable depth, the multifaceted matrix of natural and human-made disasters. It examines their bearing on the loss of human and productive capital; the conduct of national policies and the setting of national development priorities; and on the nature of international aid and bilateral assistance strategies and programs of donor countries. In order to ensure the efficacy and appropriateness of their support for disaster survivors, international agencies, humanitarian and disaster relief organizations, scholars, non-governmental organizations, and members of the global emergency management community need to have insight into best practices and lessons learned from various disasters across national and cultural boundaries. The evidence obtained from the numerous case studies in this volume serves to build a worldwide community that is better informed about the cultural and traditional contexts of such disasters and better enabled to prepare for, respond to, and finally rebuild sustainable communities after disasters in different environments. The main themes of the case studies include: • the need for community planning and emergency management to unite in order to achieve the mutual aim of creating a sustainable disaster-resilient community, coupled with the necessity to enact and implement appropriate laws, policies, and development regulations for disaster risk reduction; • the need to develop a clear set of urban planning and urban design principles for improving the built environment’s capacities for disaster risk management through the integration of disaster risk reduction education into the curricula of colleges and universities; • the need to engage the whole community to build inclusive governance structures as prerequisites for addressing climate change vulnerability and fostering resilience and sustainability. Furthermore, the case studies explore the need to link the existence and value of scientific knowledge accumulated in various countries with decision-making in disaster risk management; and the relevance and transferability from one cultural context to another of the lessons learned in building institutional frameworks for whole community partnerships.


In the face of natural disasters, very often Italy has missed the opportunity to introduce new models and development projects. Solutions that would introduce new and immediate social-economic and urban planning regeneration processes have not been found, and very often the focus has been merely on need to reconstruct buildings that have been destroyed or damaged. After an earthquake, strategies that take into account the needs of residents and boost the economy with efficient urban planning strategies and civil protection plans have never been adopted. Permanent key centres have never been developed to cope with problems that exist before, during and after the earthquake. The scope of this paper is to define strategies that take account the experience of the past in order to lay the plans for the resurgence of the territory
after an earthquake. This paper addresses the unresolved post-earthquake issue in Central Italy dating to August 2016-January 2017, in three steps: 1. Chronological assessment of how difficult post-earthquake situations were managed in the past, and the role of planning today. Critical descriptions of a number of successful post-earthquake transition phases in Emilia-Romagna, Umbria, and Marche regions, and the serious errors made after other disasters (Historical centre of Aquila etc.). Evaluation of the current role of Regional Planning, in pre and post-earthquake situations. 2. Scenarios, suggestions and operational proposals for Earthquake Damaged Areas. Assessment of the situation in Central Italy, where there have been a number of earthquakes in the period between August 2016 to January 2017, based on the positive and negative aspects of other experiences. The need of local communities to return to the area as quickly as possible is discussed, not only in terms of reconstruction. The contents of Projects for essential urban structures at a District, Municipal and Associated Districts Administration Area level are defined. 3. Programmatic suggestions for the resurgence of the territory based on the “productive landscape” economic and social model. New forms of social housing, integrated tourism and farming activities, and support for farming and breeding activities typical of the area are identified together with advanced cultural districts, while semi-abandoned rural buildings are once again placed on the market.


Problem: Even if significant reductions in global greenhouse gas emissions are achieved, some amount of climate change appears to be inevitable. Local, regional, state, and federal planning and regulation should begin to address how to adapt to these changes. Purpose: This article presents a policy synthesis of adaptation planning issues, using California as a case study. We examine the institutional and regulatory challenges and tradeoffs that climate change poses in six particularly vulnerable areas: water resources, electricity, coastal resources, air quality, public health, and ecosystem resources. We discuss obstacles to adaptation planning and successes overcoming these barriers, and suggest how planning can incorporate adaptation. Methods: This article presents a policy synthesis of adaptation planning issues, drawing on our recent research on California’s experience and related literature. We summarize the results of six studies that draw on quantitative and qualitative information gathered through surveys, interviews, and literature review. Results and conclusions: Planners should use forward-looking climate data that include higher water and air temperatures, sea-level rise, and increased numbers of extreme events like heat waves, floods, and wildfires when making decisions about future development, infrastructure investments, open-space protection, and disaster preparedness. Climate change will exacerbate conflicts between goals for economic development, habitat protection, and public safety, requiring stronger interagency coordination and new laws and regulations. Takeaway for practice: Local and regional planners can help society adapt to a changing climate by using the best available science, deciding on goals and early actions, locating relevant partners, identifying and eliminating regulatory barriers, and encouraging the introduction of new state mandates and guidelines.


When Superstorm Sandy struck the New York City metropolitan area, it brought to light serious limitations in the ability of federal disaster aid programs to serve the residents of high-cost, high-density cities. Our current models of rehousing, repair, and rebuilding are geared towards low-density,
owner-occupied, single-family homes. Yet, over half the world’s population lives in dense, urbanized areas, many of which are susceptible not only to hurricanes, but also to earthquakes, tsunamis, and tornadoes.


Considerable research has focused on how pre-disaster actions degrade ecosystem resilience that exacerbates risk to human communities. In contrast, little is known about how ecosystem resilience benefits people during disaster recovery, and how pre- and post-disaster recovery planning and decisions affect ecosystem resilience. This article offers a critical review of the contributions of research and gaps in knowledge about ecosystem resiliency, and the role of pre-disaster recovery planning and post-disaster adaptive actions in protecting and restoring ecosystems. Critical dimensions of ecosystem protection in the context of recovery planning and adaptive actions are examined, including: impacts of degradation of ecosystem services; recovery strategies to sustain ecosystem services; and role of recovery planning in use of eco-science. Recommendations for future research are offered that cover the need to develop alternative interdisciplinary theoretical frameworks to improve knowledge to analyze and prescribe effective protection and restoration strategies, and to create decision support tools for scenario building and testing to improve pre-disaster recovery plans.


The practice and scholarship of planning has shifted from physical design to process. Process emphasizes diversity, openness, and consensus but is not fully equipped to offer a shared vision in political arenas dominated by fragmentation and conflict. New urbanism has revived the idea that planning is about physical design, but this concept does not fully embrace a holistic vision of community building. This article explains how sustainable development extends the positive attributes of the first two approaches and offers a multigenerational vision of community building. This vision integrates multiple societal values and enhances local imagination, understanding, and commitment to defining solutions for the common good.


State policy designed to stimulate reluctant local governments to take risk reduction actions has mixed results. Incentive and collaborative policies meet with considerable variation in local responses. Direct state regulatory policy is effective in especially high risk areas, but has limited geographic coverage. Planning mandates induce widespread local response to natural hazards, but local implementation varies considerably, with differences in the effects of mandated design features. The article suggests that different regulatory and incentive policy mixes be used to entice local involvement. Policy mixes should be adapted to the differences in local governments’ commitment and technical capabilities.
This study evaluates long-term housing recovery in Jamaica following Hurricane Gilbert of 1988. Particular emphasis is placed on the impacts of a large scale housing aid program initiated by international donor agencies and the Jamaican government. Data were obtained through a survey of 240 households in disaster-stricken areas and through in-depth open-ended interviews of key informants. Householders and informants were asked to respond to questions on disaster impacts and recovery strategies used in rebuilding. Implications of the Hurricane Gilbert experience for improving disaster recovery and development efforts are then discussed. Finally, a proposed strategy for developing recovery planning programs, which emphasizes local participation and initiative, is presented.

The focus of this article is planning for resiliency in the aftermath of a catastrophe. First, the authors offer their conception of planning for resiliency as a goal for recovering communities, and the benefits of planning in efforts to create more resilient places. Next, they discuss major issues associated with planning for postdisaster recovery, including barriers posed by federal and state governments to planning for resiliency, the promise and risks of compact urban form models for guiding rebuilding, and the failure to involve citizens in planning for disasters. Finally, they discuss lessons from prior research that address these issues and policy recommendations that foster predisaster recovery planning for resilient communities.

Divided into three sections, this edition of Urban Land Use Planning deftly balances an authoritative, up-to-date discussion of current practices with a vision of what land use planning should become. It explores the societal context of land use planning and proposes a model for understanding and reconciling the divergent priorities among competing stakeholders; it explains how to build planning support systems to assess future conditions, evaluate policy choices, create visions, and compare scenarios; and it sets forth a methodology for creating plans that will influence future land use change. Discussions new to the fifth edition include how to incorporate the three Es of sustainable development (economy, environment, and equity) into sustainable communities, methods for including livability objectives and techniques, the integration of transportation and land use, the use of digital media in planning support systems, and collective urban design based on analysis and public participation. “‘Incomparable’ is the only way to describe the fifth edition of this classic text. My fourth edition is worn from a decade of constant use, and I thought there was no way to make Urban Land Use Planning any better, but the fifth edition proves me wrong. It is not merely the best book on the subject; it is, as far as I am concerned, the only book.”—Dwight H. Merriam, FAICP, CRE, and past president of the American Institute of Certified Planners “This has always been the one definitive text and reference book for students and practitioners of local land use planning and the fifth edition continues that tradition.”—John Landis, chair of the city and regional planning department, University of California, Berkeley

Problem, research strategy and findings: A pre-disaster recovery plan that considers how a community should be redeveloped is a logical first step to support resiliency during high uncertainty and rapid change, yet limited attention has been given to recovery plans. In this study, we evaluate local disaster recovery planning in eight southeastern states and find that such planning receives limited public support: Less than one-third of vulnerable local jurisdictions had a recovery plan, and those plans received low plan quality scores. Unfunded state mandates produce weaker plans than plans in other states without mandates. We find that a collaborative network of stakeholders initially intent on reordering priorities results in stronger plans. Takeaway for practice: Local recovery planning should be designed to operate under conditions of high uncertainty. Local jurisdictions can choose plan design options that reflect how they build capability for recovery planning: 1) standalone community-wide recovery plan; 2) comprehensive land use plan; 3) emergency management plan; and 4) small area recovery plan. Because recovery planning lacks a public constituency, and is new to most local jurisdictions, the stand-alone community-wide recovery plan design option is the most effective at building local commitment. This option involves a plan-making process that concentrates time, effort, and resources focused on a building a network of stakeholders who likely have the greatest responsibility in rebuilding efforts because they care most about the impacts of a disaster


Problem, research strategy, and findings: Land use planning is key to mitigating natural hazards and the effects of climate change. Communities adopt multiple plans that directly and indirectly address hazard mitigation; the integration of local plans can significantly affect future community vulnerability to hazards. We develop a resilience scorecard to assess the degree to which the network of local plans targets areas most prone to hazards and then evaluate the coordination of local plans and test it in Washington (NC), a community vulnerable to coastal floods and projected sea-level rise. We find that local plans are not fully consistent and do not always address the areas in a community most vulnerable to floods or sea level risks; moreover, some plans actually increase physical and social vulnerability to hazards. While these results indicate the validity of a resiliency scorecard, we were forced to use a narrow range of vulnerability indicators; better data would improve the process. Takeaway for practice: Planners can assume a crucial role in improving planning for hazards by using the scorecard to identify conflicts among local plans, assessing whether local plans target areas most vulnerable to specific hazards. Planners can inform the public and decision makers about missed opportunities to improve local hazard mitigation planning. To support such important efforts, the U.S. Federal Emergency Management Agency and other federal agencies should consider developing additional databases that are widely applicable and available.

When a disaster strikes, especially one of the dimensions of Hurricane Katrina or Rita that decimated New Orleans and several other cities along the Gulf Coast, the immediate, human response is to help the stricken places immediately. Universities share this impulse, justifying their pursuit as fulfilling their service missions. But unlike individuals, universities have wider missions and often look to comply with other parts of their missions. We learn in "Overcoming the Challenges," that the universities in question did pursue the broader ends. They not only offered service but also developed coursework related to the New Orleans planning process and in this very article, are attempting to generalize knowledge from the experience, that is, engaging in action research. The Cornell/Illinois/Columbia/Association of Community Organizations for Reform Now (ACORN) case is one way in which universities responded, but there were other approaches. Let me discuss some of those, using the University of Pennsylvania as an example.


Disasters—natural ones, such as hurricanes, floods, or earthquakes, and unnatural ones such as terrorist attacks—are part of the American experience in the twenty-first century. The challenges of preparing for these events, withstanding their impact, and rebuilding communities afterward require strategic responses from different levels of government in partnership with the private sector and in accordance with the public will. Disasters have a disproportionate effect on urban places. Dense by definition, cities and their environs suffer great damage to their complex, interdependent social, environmental, and economic systems. Social and medical services collapse. Long-standing problems in educational access and quality become especially acute. Local economies cease to function. Cultural resources disappear. The plight of New Orleans and several smaller Gulf Coast cities exemplifies this phenomenon. This volume examines the rebuilding of cities and their environs after a disaster and focuses on four major issues: making cities less vulnerable to disaster, reestablishing economic viability, responding to the permanent needs of the displaced, and recreating a sense of place. Success in these areas requires that priorities be set cooperatively, and this goal poses significant challenges for rebuilding efforts in a democratic, market-based society. Who sets priorities and how? Can participatory decision-making be organized under conditions requiring focused, strategic choices? How do issues of race and class intersect with these priorities? Should the purpose of rebuilding be restoration or reformation? Contributors address these and other questions related to environmental conditions, economic imperatives, social welfare concerns, and issues of planning and design in light of the lessons to be drawn from Hurricane Katrina.


NREL is taking a proactive approach to lessen the impacts of climate change as disasters occur more frequently and with greater intensity. For the last 15 years, NREL has provided expertise, tools, and innovations to private industry; federal, state, and local governments; nonprofit organizations; and communities during the planning, recovery, and rebuilding stages after disaster strikes. Now, NREL is taking a proactive approach to lessen the impacts of climate change as disasters occur more frequently and with greater intensity.

Coastal hazards including storm surge, sea-level rise, and cyclone winds continue to have devastating effects on infrastructure systems and communities despite costly investments in risk management. Risk management has generally not been sufficiently focused on coastal resilience, with community stakeholders involved in the process of making their coastline, as a system, more resilient to coastal storms. Thus, without stakeholder earlier involvement in coastal resilience planning for their community, they are frustrated after disasters occur. The U.S. National Academies has defined resilience as “the ability to prepare and plan for, absorb, recover from, and more successfully adapt to adverse events” (National Research Council). This article introduces a methodology for enabling stakeholder-involved resilience discussions across physical, information, cognitive, and social domains. The methodology addresses the stages of resilience - prepare, absorb, recover, and adapt - and integrates performance assessment with scenario analysis to characterize disruptions of risk-management priorities. The methodology is illustrated through a case study at Mobile Bay, Alabama, USA.

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In January, 2010 an earthquake struck Haiti near its capital of Port-au-Prince, causing possibly the largest urban natural disaster in modern times. Within a week of the earthquake, hundreds of informal camps were erected across Port-au-Prince by persons displaced by the earthquake, termed internally displaced persons (IDPs). This paper attempts to determine the extent to which the geographic distribution of these IDP camps can be explained using geographic factors such as topography, population density, and availability of open space. A logistic regression model revealed that the three factors most predictive of IDP camp distribution were distance from the international airport, distance from the city center, and elevation. Together with five other significant variables, the logistic model predicted the presence of IDP camps in a 50-m-cell grid across the study area with up to 70% accuracy. Further statistical analysis explained roughly 35% of variance in IDP camp size, though these results were difficult to interpret. The resulting method and predictive maps are promising in their ability to inform natural disaster managers when preparing for extensive displacement, evacuation, or sustenance of an urban population following a natural disaster. These methods can be used to improve estimates of risk and social vulnerability to natural hazards. However, more research is needed to validate the methods for other locations and natural disasters.

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Community recovery planning is an evolving area of practice. The Federal Emergency Management Agency (FEMA) released the National Disaster Recovery Framework (NDRF) in 2011. Building on FEMA’s efforts, the Center for Hazards Research and Policy Development (CHR) at the University of Louisville, in collaboration with the Kentucky Division of Emergency Management and the Kentucky Department for Local Government, developed a framework for supporting state and local community recovery efforts in Kentucky through a series of stakeholder interviews, focus groups, and feedback.

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The mounting frequency and scale of natural disasters, increasing urbanization, a growing reliance on interdependent technologies and infrastructure, and inflated expectations of emergency response interventions are responsible for greater disaster vulnerability and demonstrate the need to establish more resilient communities ahead of a disaster. The decisions of the private sector are among the reasons for increased vulnerability, for example through unsustainable or unsound real estate development. One factor that is known to impact resilience is social capital, particularly as manifested in strong social networks. The built environment has been shown to influence social networks in multiple ways. Research has shown that walkable, mixed-use neighborhoods with a higher concentration of social gathering places and public space encourage the development of social capital and place attachment through an increase in social interaction. The built environment is a physical, social, and symbolic anchor for residents. Most importantly for resilience, it can be a support system for social networks. The private sector influences this relationship through real estate development decisions. This paper examines how characteristics of the built environment that influence social networks contributed to greater resilience to Hurricane Katrina along the Mississippi Gulf Coast. Given that social networks increase community resilience to all types of disasters, that social networks are shown to be influenced by certain types of space, and that the built environment is a common intervention for urban planners, this paper explores the potential for creating cities that are more resilient by encouraging private development that fosters social networks.


Community resilience (CR)–ability to withstand and recover from a disaster–is a national policy expectation that challenges health departments to merge disaster preparedness and community health promotion and to build stronger partnerships with organizations outside government, yet guidance is limited. A baseline survey documented community resilience-building barriers and facilitators for health department and community-based organization (CBO) staff. Questions focused on CBO engagement, government-CBO partnerships, and community education. Most health department staff and CBO members devoted minimal time to community disaster preparedness though many serve populations that would benefit. Respondents observed limited CR activities to activate in a disaster. The findings highlighted opportunities for engaging communities in disaster preparedness and informed the development of a community action plan and toolkit.


Problem, research strategy, and findings: Stakeholder participation facilitates efficient identification of recovery needs, dynamic exchange of information, and consolidation of diverse perspectives as well as builds long-term trust and social capital between stakeholders. Yet, planners often fail to use the full potential of participatory planning when they are caught in the fast-paced, uncertain, and complex post-disaster environment. We draw lessons from case studies on recovery planning after three major disasters: the Indian Ocean tsunami (2004), Hurricane Katrina (2005), and the Wenchuan earthquake (2008) in China. We collected qualitative data about participatory planning using key informant interviews with stakeholders, supplemented by field observations, records of planning meetings, and government documents. We find that stakeholder participation in disaster recovery planning can happen in nontraditional yet effective ways, including indirect representation and active opposition. Disasters can
rebalance power relationships and create more opportunities for participation by marginalized groups. Stakeholders’ participatory behaviors evolve over the course of recovery due to shifting priorities, intensified resource competition, and the difficulty of using “normal” participatory mechanisms. Takeaway for practice: Stakeholder participation, a time-consuming process, can actually speed up recovery in the long run. Planners must critically examine the local community’s social and power structures, identify potential for nontraditional participation, tap into networks of indirect representation, and adapt to the changing landscape of actors and local interests to contend with the challenges of participation in disaster recovery and make use of new opportunities as they arise.


Following a major disaster, shortages of resources and the increased costs of building materials are likely to slow post-disaster reconstruction. To examine the resource needs for post-disaster housing reconstruction, a longitudinal study was conducted between 2008 and 2010 of the Wenchuan earthquake-impacted Mianzhu City in China. Cost escalation of the common materials of brick, cement, aggregate and steel shows the varying correlation between material requirements and the reconstruction progress. Based on in-field surveys and interviews, the underlying drivers that contributed to changes in the cost of these materials were identified. Findings suggest that apart from physical disaster impacts and urgency of housing reconstruction, other effects, such as legislative interventions and the economic environment, are primary factors in explaining changes in resource requirements. Cost changes for brick and aggregate were to a great extent influenced by local policies and mandates. In contrast, cost changes for non-localized materials such as cement and steel were largely dominated by broader economic effects and domestic strategies in China. To reduce potential resource cost fluctuations and their impacts on recovery, robust post-disaster reconstruction planning is needed and requires systematic mapping and monitoring of resource demands over the reconstruction period.


Presenting cutting-edge domestic and international approaches, Catastrophic Disaster Planning and Response explains how to effectively plan for and manage the consequences of a catastrophe. Recognizing that a business-as-usual approach to preparing for and responding to such events is doomed to fail, the book fills a gap in emergency management education. It introduces the many considerations that influence how we plan for and respond to large-scale catastrophes and how it differs from preparing for smaller-scale emergencies. Written by a recognized expert in emergency management, this volume is a thorough study of the planning process and response procedures for catastrophic disasters. Topics discussed include: The history of catastrophic events, both in and outside the United States How catastrophes differ from disasters and emergencies and how they are all part of the emergency management continuum The varying definitions of catastrophes and their political and societal implications The main ethical and value dilemmas that one will likely face before, during, and after a catastrophe The legal framework associated with government response to catastrophes The post-catastrophic environment that an emergency manager might experience, with a focus on logistics, critical infrastructure, mass care, and mass evacuation Planning strategies and skills an emergency manager can employ to mitigate the effects of such an event The use of crisis leadership skills and how to
lead and influence others in a catastrophic situation Recent major events provide valuable lessons that demonstrate the characteristics of a catastrophic disaster, the special issues of response and recovery, and the necessary preparation on international, national, and local levels. Offering best practices using recent real-world case studies, the book provides a foundation for continued study and critical reflection.

Catastrophic Disaster Planning and Response is one of only two books utilized by the U.S. Coast Guard (USCG) in their elite 2010 Flag Office/SES Executive Change Leadership Program (ECL) curriculum. The ECL program develops the executive leadership skills of USCG Admiral-selects awaiting Senate confirmation, as well as members of the Department of Homeland Security’s federal Senior Executive Service (SES), which in 2010 included representatives from the U.S. Secret Service, the Transportation Security Administration, Immigration and Customs Enforcement, the U.S. Border Patrol, Citizenship and Immigration Services, and FEMA. Readily adaptable for classroom use, this cutting-edge professional reference provides qualifying instructors with access to teaching materials and a test bank.


Problem, research strategy and findings: The 8.8 magnitude earthquake and subsequent tsunami that struck south-central Chile on February 27, 2010, affected 75% of the country’s population and damaged or destroyed 370,000 housing units (about 10% of the housing in six regions). Within six months, the Ministry of Housing and Urban Development published a plan to repair or rebuild 220,000 units of low- and middle-income housing with government assistance within four years. By February 2014, 94% of the housing was complete. The successful rebuilding effort had strong leadership at the national and local levels and used existing programs and institutions. The management staff adapted programs over time to meet the needs of local conditions. When compared with housing recovery programs in other countries, Chile’s program stands out, combining national government management with local citizen input. The reconstruction plan also included updated zoning plans, road and infrastructure improvements, heritage recovery, and new master plans for affected cities. Going forward, the earthquake created an opportunity for Chile to use the recovery planning to expand national urban policy and to develop a framework for citizen participation at the local level. Takeaway for practice: Successful planning in disaster recovery involves strong government leadership and coordination together with the engagement of local government and the participation of citizens.


A number of indices have been developed for measuring vulnerability to disasters, but little attention has been paid to recovery indices. Post-disaster periods are usually divided into four phases. The terms established by the United Nations Development Programme for post-disaster phases—relief, early recovery, recovery, and development—are used in this article. This research examines the hypothesis that the boundaries between post-disaster recovery phases are fuzzy and should be defined by the progress achieved in the recovery process, rather than by the amount of time elapsed since the event. The methodology employed involved four steps: fieldwork, mapping, identification of indicators, and assessment. The case study area was the city of L’Aquila in the Abruzzo region of central Italy, which was struck by an earthquake in April 2009. For each phase of the recovery process in L’Aquila a score was calculated based on the progress observed in 2016, 7 years after the earthquake. The highest score went to the early recovery phase (14 points), followed by the recovery phase (13 points), the development
phase (12 points), and the relief phase (4 points). The results demonstrate the possibility of defining post-disaster recovery phases in an affected area based on measuring achievements through indicators rather than defining recovery phases in terms of elapsed time after a disaster.


Community emergency planning had its roots in military analogies which viewed emergencies as extensions of “enemy attack” scenarios. Such thinking was embedded in early structural arrangements and was generalized as the appropriate normative model for all emergencies. This model viewed emergencies as conditions of social chaos which could be rectified by command and control. is inadequate based on a knowledge of behavior in emergencies and the model is dysfunctional for planning. A more adequate model is presented, based on conditions of continuity, coordination and cooperation. military analogies, provides a more adequate set of assumptions as the basis for planning.


EPA is assisting several community-led efforts to build energy efficiency and sustainability into post-disaster redevelopment plans. EPA is one of 16 federal agencies involved in the Federal Emergency Management Agency’s (FEMA) Emergency Support Function (ESF) #14 (Long-Term Community Recovery) under the National Response Framework.


The research examines the shift from flood-resistant policies and plans to flood resilience. We use a case study of New Orleans since Hurricane Katrina to illustrate this unfolding process and the emergence of a “living with water” approach to green infrastructure. The article highlights the challenges of this shifting policy landscape through the case of the Lafitte Greenway, a green infrastructure project that transformed a three-mile corridor of underutilized public land into a linear park running through flood-prone neighborhoods. Through the experience of creating this greenway, planners in New Orleans learned valuable lessons about US disaster rebuilding policies and how to implement green infrastructure in urban neighborhoods.


Problem, research strategy, and findings: Conventional hazard mitigation and pre-disaster recovery planning processes typically begin with hazard scenarios that illustrate probable events and analyze their impacts on the built environment. The processes conclude with responses to the hypothetical disruption that focus on “hardening” buildings or structures or removing them from threatened areas. These approaches underline the importance of natural and social sources of adaptive capacity. Three
“proof-of-principle” exercises designed to strengthen the Federal Emergency Management Agency (FEMA)’s Risk MAP (Risk Mapping, Assessment, and Planning) process in Washington State suggest how better to conduct hazard mitigation and recovery planning. Each begins with workshops where stakeholders identify built, natural, and social assets that contribute to human wellbeing (HWB) before introducing earthquake scenarios that affect HWB. Participants then identify assets that could facilitate adaptation to changed circumstances (a “new normal”). Participants discuss how these assets would achieve the goals of comprehensive community planning as well as hazard mitigation and recovery from disaster. Neighborhood-scale social organization emerges as an important priority. Takeaway for practice: Asset-based approaches enable communities to better recover from disaster and adapt to a post-disaster “new normal.” By premising planning discussions on a more holistic set of assets, communities can balance physical recovery goals with qualities that help them to adapt to future change. Furthermore, thinking about recovering before an event actually occurs can enlarge the menu of mitigation strategies. Planning for adaptation can also help communities achieve many non-risk-related objectives.


Problem: Literature emphasizes that the public should participate in the planning of postdisaster recovery, but several challenges impede such participation. Purpose: This article examines what hindered public participation in a particular housing reconstruction project and suggests how planners can better enable public participation in planning after disasters. Methods: The article is based on a case study of a housing reconstruction project sponsored by the World Bank in the Şirinköy neighborhood of the city of Gölcük in northwestern Turkey after the August 17, 1999, earthquake. In addition to reviewing secondary sources, our primary data collection methods for the case study included onsite participant observation and conducting in-depth semistructured interviews and a focus group. Results and conclusions: The case demonstrates that the World Bank defined the public in public participation narrowly, only seeking participation from project beneficiaries and excluding such relevant local stakeholders as the local government and community-based organizations. This occurred because the World Bank took a project-based approach and had limited knowledge of local capacities. Even the feedback received from project beneficiaries was not incorporated into the housing plans due to World Bank’s sense of urgency, concern for cost effectiveness, and inflexible terms and conditions of the loan. Takeaway for practice: Planners and policymakers should broaden the definition of public in public participation in postdisaster housing projects. Rather than focusing narrowly on project beneficiaries, they should include other stakeholders in the broader urban development process. They should also put people before plans in postdisaster housing reconstruction, giving disaster victims a real chance to have a say in planning processes and outcomes.


Long-term recovery from disasters presents a formidable challenge to affected communities, requiring sound strategies to restore the health and livelihoods of those affected. This paper examines exemplary practices related to long-term recovery and redevelopment from disasters in other countries, and identifies key themes and promising practices relevant to the United States and other countries. From the eight disasters examined, we find that successful recovery efforts emphasized local empowerment, organization
and leadership, and planning for sustainability – three broad approaches that characterized the practices employed by other countries. We believe these practices offer examples that can help to inform disaster management within the U.S., whether contributing to the forthcoming legislatively mandated National Disaster Management Framework or to implement such policy once the document is released. The research suggest three ways to enhance disaster recovery: (1) incorporate long-term recovery goal; (2) expand the knowledge base; (3) develop outcomes towards disaster recovery planning.


Human suffering and losses of lives and property in natural disasters can be reduced with appropriate planning for hazardous areas. Federal policies addressing these problems, however, have yet to recognize the importance of planning as the cornerstone of effective local hazard mitigation. In fact, federal programs make planning more difficult because they encourage the intensive use of hazardous land and shield local governments and private decision makers from financial losses in the disasters that inevitably follow. To unleash the power of planning for hazard mitigation, federal policies must be revised so that they help build local understanding of risk commitment to hazard mitigation, and support for planning. A number of actions can be taken now to begin moving in this direction. In the long term, however, new legislation is needed to reduce subsidies that sustain and encourage development in hazardous areas and to increase assistance for planning.


Examines housing recovery in the aftermath of a natural disaster from a rights perspective, discussing the general right to housing, that right in a disaster context, & a legal human rights framework for housing recovery.


In September 2008, Hurricane Ike caused massive damages to Galveston Island’s residential structures including four public housing developments. These developments were located in neighborhoods with some of the lowest incomes and highest percentages of people of color on the Island. Four months later, the Galveston Housing Authority (GHA) decided to demolish all four developments consisting of 569 housing units due to the damages to the buildings. Today, despite federal regulations requiring reconstruction, court orders mandating replacement of the demolished units, and available funding, only 142 low-income apartments have been rebuilt. We used the social vulnerability framework to understand these outcomes through the ability of groups to shape post-disaster recovery decisions. This paper argues that one of the overlooked characteristics of social vulnerability is a diminished ability to participate in post-disaster decision-making. We found that social vulnerability limited participation through three distinct mechanisms: the physical displacement of public housing residents, the stigmatization of public housing, and the reduction of residents to housing units in the debates. There were few local advocates arguing for the preservation of public housing units and even fewer remaining residents to speak up for themselves in the face of strong local resistance to the reconstruction of public housing units or the return of public housing residents. The void of a strong and authentic local pro-public housing perspective in
Galveston provided an opening for various local campaigns to claim that their desired plan benefited the poor. The disaster recovery became an opportunity to remove or reduce public housing units and therefore public housing residents. Our findings show the dynamic features of vulnerability. While static factors of vulnerability can limit access to resources for recovery, dynamic processes of social marginalization and exclusion limit the voices of socially vulnerable groups in recovery decisions and exacerbate marginalization.


Disaster recovery is a key capability of federal, state, and local government. To support this capability effectively practitioners need useful and validated metrics to document how well a community is recovering from a particular disaster. This study developed and categorized recovery indicators according to the Federal Emergency Management Agency (FEMA)’s Recovery Support Functions and Recovery Mission Area Core Capabilities through a literature review, an evaluation of the pre-disaster recovery plans for 87 coastal jurisdictions, and a case study of two communities (New Hanover County, North Carolina, and the City of Hoboken, New Jersey). Metrics identified in the literature were validated through the recovery plan review and the case study. The research team also identified sources for both baseline and current status data. Based on these findings, a user-friendly checklist for practitioners was established, which will be piloted with practice partners during a future disaster recovery initiative.


Communities engage in various ways with stakeholders around plan development. This project aims to validate quantitative content analysis scores for participation in disaster recovery plans with follow-up key informant interviews. Recovery plans from 87 counties and municipalities adjacent to the U.S. Atlantic and Gulf Coast were collected and content analyzed using a plan coding protocol. Four jurisdictions – two with high and two with low scores in the plan quality principle of participation – were selected for follow-up key informant interviews.


Disaster recovery involves a delicate balance between mitigating risks posed by future hazards and acquiescing to the desire of the community to return to normal. Even the best plans and policies put forth under such conditions often do not address all factors that are critical for successful recovery. If there are no plans, it becomes much more difficult to assess a community’s recovery progress over time. In communities lacking robust planning capacity, metrics that characterize a community’s baseline and post-disaster status may serve as a roadmap to inform the best use of limited resources and focus energy and attention where it is most needed. To assist with this, a disaster recovery tracking tool comprised of 79 metrics was developed and tested to determine if it could be used to characterize recovery progress, identify problems with recovery, and support proactive recovery planning to improve future recovery and resilience.
This paper describes how the inhabitants of Llico, a small fishing town in Chile, organized to move from the coastline to avoid a tsunami that devastated their homes and livelihoods and then to manage immediate responses. It then describes how long it took for state support to arrive and how the inhabitants were marginalized from planning and implementing the reconstruction processes. As a result, this poorly served their needs and priorities and failed to utilize their knowledge and organizational capacities. Here and elsewhere in Chile, post-catastrophe reconstruction processes miss the opportunity to improve living conditions for the affected communities and to develop policies for disaster management that incorporate and use their social capital.


In the devastation that follows a major disaster, there is a need for multiple sectors to unite and devote new resources to support the rebuilding of infrastructure, the provision of health and social services, the restoration of care delivery systems, and other critical recovery needs. In some cases, billions of dollars from public, private and charitable sources are invested to help communities recover. National rhetoric often characterizes these efforts as a “return to normal.” But for many American communities, pre-disaster conditions are far from optimal. Large segments of the U.S. population suffer from preventable health problems, experience inequitable access to services, and rely on overburdened health systems. A return to pre-event conditions in such cases may be short-sighted given the high costs - both economic and social - of poor health. Instead, it is important to understand that the disaster recovery process offers a series of unique and valuable opportunities to improve on the status quo. Capitalizing on these opportunities can advance the long-term health, resilience, and sustainability of communities - thereby better preparing them for future challenges. Healthy, Resilient, and Sustainable Communities After Disasters identifies and recommends recovery practices and novel programs most likely to impact overall community public health and contribute to resiliency for future incidents. This book makes the case that disaster recovery should be guided by a healthy community vision, where health considerations are integrated into all aspects of recovery planning before and after a disaster, and funding streams are leveraged in a coordinated manner and applied to health improvement priorities in order to meet human recovery needs and create healthy built and natural environments. The conceptual framework presented in Healthy, Resilient, and Sustainable Communities After Disasters lays the groundwork to achieve this goal and provides operational guidance for multiple sectors involved in community planning and disaster recovery. Healthy, Resilient, and Sustainable Communities After Disasters calls for actions at multiple levels to facilitate recovery strategies that optimize community health. With a shared healthy community vision, strategic planning that prioritizes health, and coordinated implementation, disaster recovery can result in a communities that are healthier, more livable places for current and future generations to grow and thrive - communities that are better prepared for future adversities.

Problem, research strategy, and findings: The number of people displaced either temporarily or permanently from natural disasters has been increasing at an unprecedented rate. As a result, there is a growing need for a systematic framework of resettlement planning after disasters, to either rebuild in place (in situ) or to relocate, and whether to do so independently or collaboratively with their neighbors. To gain an in-depth understanding of how resettlement is advanced, I focus on a region in Chuetsu, Japan, supplemented with cases in New Orleans (LA) and Tohoku, Japan. Results suggest that resettlement decisions, processes, and outcomes reflect both larger socioeconomic trends and interactions between governments, communities, and households. Although the governments’ speed of resettlement planning and implementation initially set the pace, informal communication within communities most influenced decision making. In addition, inherent community dynamics, especially styles of communication, directly influenced resettlement decisions and outcomes. Takeaway for practice: Although every disaster is unique in its context, communities are the key players in determining resettlement outcomes. Key points of consideration include: a) resettlement decision processes vary based on the inherent characteristics of communities; b) government officials often emphasize speed, even though it undermines overall quality of rebuilding; c) reestablishing livelihoods of equal or greater satisfaction to that before the disaster is important; and d) local communities are often capable of identifying and acting for their needs, regardless of governmental intentions. Planners need to support the establishment of a system in which communities are empowered by governments to make the most suitable decisions for sustainable livelihood recovery.


Our research evaluates the planning, implementation, and long-term outcomes of the housing reconstruction program focusing on the cases of five villages; we conducted interviews with 145 affected villagers, government officials, nongovernmental organization (NGO) practitioners, academics, and other stakeholders.


The article focuses on critical factors for post-disaster resilience and recovery in New Orleans, Louisiana, such as shared long-term networks and community identity. Forced migration of entire communities through green-spacing was the result of post-disaster recovery in New Orleans. Vietnamese residents in New Orleans East in 1980, started rebuilding their community despite City Council ordinance to turn New Orleans East into a non-residential green zone.


Disasters impact communities and individuals and disrupt social-technical systems and community functions. Consequences of disasters can be minimized if communities and people reduce their vulnerabilities and increase their resilience. Disaster response received significant attention from the researchers and practitioners alike. In a sense it is easy to study short term disaster response. Investment
in immediate disaster response also makes sense for policy makers. Unfortunately research on disaster recovery is very limited and it is considered the ignored phase of emergency management and existing knowledge and applied research of this phase is seriously lagging behind compared to what is required today. Disaster recovery is usually perceived and understood as a slow phase that begins after critical decisions and needs are met after a disaster. There is also a perceived notion that the government agencies at all levels have committed resources more to disaster response and relief efforts and less to recovery (and mitigation) efforts. Thus it is important to pay heed to this crucial phase of managing disasters. Recovery is a long process that offers ample opportunity to rebuild and redevelop resilient and sustainable communities. The chapter highlights that a shared effort to redevelop, restore, and rebuild a community requires effective intergovernmental and cross-sector collaboration and cooperation. Recent recovery experiences in the US, especially post-Katrina, have shown a considerable lack of coordination between different government agencies as well as political conflicts in planning and executing recovery efforts. The complex nature of recovery planning and efforts requires pre-disaster and post-disaster collaboration between different stakeholders including private, public, nonprofit organizations and citizens. This chapter focuses on collaborative governance principles applied to disaster recovery using the recent National Disaster Recovery Framework (NDRF) in the U.S. as an example. The development of NDRF is also included briefly in the chapter. This chapter is important to gauge the usefulness of a national level recovery framework. This framework may assist in altering the general perception about the Federal government’s lack of effort and planning towards disaster recovery.

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Adoption of good disaster preparedness practices (practices) can mitigate recurrent problems in community disaster management. However, there are obstacles to adoption of such practices; these obstacles include lack of experience with disasters (experience) and lack of an effective planning process (planning). Since the uncertainty that results from insufficient experience is a given, while planning reflects an organizational choice, this study investigates whether effective planning compensates for lack of experience in promoting the adoption of good practices. Analyses of survey data reveal that jurisdictions with the most experience tend to have effective planning and to have adopted good practices. Among jurisdictions with little experience, those with effective planning are significantly more likely to have adopted good practices than those without it. Process-oriented planning activities, such as multidisciplinary simulations and task forces, are more effective than technical activities, such as writing standard procedures. Public agencies can therefore undertake planning activities that increase opportunities to prepare effectively for uncertain future events.


Disaster recovery planning for organizations is fundamental and often urgent. Planning supports the firm’s ability to recover the core business functionality of its software, data, and systems after the occurrence of a natural or man-made disaster. Organizations must take steps to protect their software, systems and data backups from natural disasters, power outages, and even terrorist attacks. However the issue of disaster recovery is often awash in checklists or marooned in mundane statistics. Such sterile approaches tend to lead key managers, CEOs, and CIOs to relegate disaster recovery planning to a lower
priority when they become overwhelmed with planning minutiae or bored with staid presentations. This paper introduces a theatre metaphor to enable a lively discussion and deeper understanding of disaster recovery planning. Specifically, we introduce the concept of workshopping a play. We explore this new approach from the world of theatrical productions to illuminate and deepen understanding of the importance of testing, evaluation, and reworking of scenarios for each potential disaster.

Khailani, D. K., & Perera, R. (2013). Mainstreaming disaster resilience attributes in local development plans for the adaptation to climate change induced flooding: A study based on the local plan of Shah Alam City, Malaysia. *Land Use Policy, 30*(1), 615–627. [https://doi.org/10.1016/j.landusepol.2012.05.003](https://doi.org/10.1016/j.landusepol.2012.05.003)

The threat of natural hazards in urban areas are typically addressed through land-use zoning and building regulations. Climate change phenomenon compel urban planners to devise comprehensive measures to adapt for more frequent and intense hazards. The paper argues for mainstreaming disaster resilience attributes in local development plans as an overarching adaptive measure. The aim of this paper is to assess the extent to which the local development planning system in Malaysia has responded to the vulnerability reduction and resilience improvement needs of the civil society in order to adapt to climate change induced flooding. It is based on a social survey involving a purposive sample of 250 households to identify the adaptation needs of the civil society, and an analysis of the contents of Shah Alam Local Development Plan to verify the response of the planners to those needs. The findings indicate that the planners have been fairly sensitive to the flood risks faced by people and incorporated policies and strategies in the local development plan to minimize exposure of the people and property to flood hazard and improve the adaptive capacity of the urban settlements. However, the sector based organization of the plan prepared by the federal level planners was found to be not adequately incorporating the indigenous knowledge of coping strategies. Therefore, the paper calls for strengthening the participatory planning and development capacity of the local authorities for more resolute mainstreaming of disaster resilience in local development plans.


Our goal for this special issue of the Journal of the American Planning Association was to collect articles that could help us to better understand the post-disaster environment and provide insights to help planners operate more effectively in this world. How have planners found ways to address these unique circumstances, in which everything seems to move faster, information is constrained, money flows more freely, and new opportunities arise?


In April 1997, Grand Forks, North Dakota, and East Grand Forks, Minnesota, experienced a disastrous flood. Both cities have been textbook examples of success according to the Federal Emergency Management Agency. They have an updated infrastructure, paid for largely by the federal government. Their downtowns are on the road to recovery with new construction and businesses. The paths of the two cities have diverged in the social and political aftermath of the flood. East Grand Forks, following consultant suggestions, instituted extensive citizen participation initiatives. East Grand Forks has experienced political stability and citizen satisfaction. Grand Forks relied primarily on bureaucratic guidance to react to the disaster. Grand Forks has experienced changes in government structure, turnover
of elected and appointed officials, and much less positive citizen evaluation. This study examines the
effect of perceptions of citizen participation on the citizens’ evaluation of the success of the recovery.

the Evidence, 0(0), 0885412218812080. https://doi.org/10.1177/0885412218812080

As a group, renters experience a broader range of housing problems than do owners, and disasters worsen
these problems. Yet to date, housing tenure has been relatively understudied compared to other
vulnerability characteristics. This review addresses the differences in housing needs faced by renters and
owners during and after a disaster. It examines variation between renters and owners, recent studies of a
disaster’s impacts on each group by disaster phase, and disaster-related housing policies and programs.
This research explores significant questions related to the housing needs of renters in times of disaster,
yielding important insights for policy makers and local planners.

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Talca, Chile, has been negatively impacted by both a major 2010 earthquake and the ensuing
reconstruction process. Talca’s poor have been forced out from their neighborhoods and relocated to
remote areas where employment, public transportation, and basic services are limited. Based on extensive
community development work in Talca, this article analyzes the dynamics that have led to these
conditions and the insufficiently supported alternative community-based initiatives that could have
allowed Talca to redevelop in more sustainable and equitable ways. Planners need to systemically
understand the implications of programs often pushed in times of emergency as urgent and inevitable that
may not favor a healthy long-term redevelopment of communities recovering from disasters, be politically
savvy and courageous to denounce and resist them when necessary, and work with/for communities to
define and promote more just and sustainable postdisaster futures.

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Recent studies have shown substantial variation within and between states in the levels of local planning
for hazardous materials emergencies. To explain these variations, literature on strategic planning, disaster
planning and team effectiveness was used to construct a model of Local Emergency Planning Committee
(LEPC) effectiveness in developing emergency plans. Data from Michigan LEPCs showed that
emergency planning outcomes (e.g., quality and degree of completion of critical planning tasks and
submission of plans for approval) were correlated with internal factors such as member inputs, staffing
and structure, and emergency planning resources. External factors such as community support and recent
hazard experience also affect success, possibly by endowing emergency planning with importance for
LEPC members either directly (e.g., recent evacuation experience) or indirectly (community support
arising from the high priority given emergency plans by others). These results suggest that community
planners should take such strategic actions as developing community support and redesigning the LEPCs
structure to be more effective in preparing for hazardous materials emergencies.
Planning is an important avenue to community emergency preparedness. The practice of emergency response planning is best thought of as a process - a continuing sequence of analyses, plan development, and the acquisition by individuals and teams of performance skills achieved through training, drills, exercises and critiques. The process varies considerably among communities. In some communities, planning is formalized by a specific assignment of responsibility to an office having an identifiable budget. In other communities, planning is informal: Responsibility is poorly defined, and a limited budget is dispersed among many agencies. Similarly response plans and procedures may be mostly written or mostly unwritten. Such variability exists despite federal and state requirements for community emergency planning because local governments vary in their capacity (especially funding) and their commitment to emergency management. Thus, for many years, higher levels of government described their standards for emergency preparedness as “guidance.” Over the years, researchers have identified eight fundamental principles of community emergency planning that can be used to increase a community’s level of preparedness.


This is the second of two special issues in Progress in Planning exploring emerging research agendas in planning. It brings together scholars from diverse schools working on new areas of research and application in urban design and planning. Emergent research agendas include both novel areas of research and important shifts in the direction of a research area. The challenge for planning schools is to reflect critically on these changes and develop long-term research agendas that can better position our field in society and academia, and provide a basis from which to assess our academic programmes. The chapters in this issue display the different scales and fields of planning, including planning for: disaster recovery; climate change, especially opportunities for mitigation; shrinking cities in the First World; and rapidly urbanising informal and impoverished cities in the global South. At the same time, the chapters identify research areas that respond to major social and environmental changes. Olshansky and Chang highlight the increasing losses from catastrophic disasters, and address the need for disaster recovery planning. Wheeler, Randolph and London focus on climate change, and, noting the urgency of action now, their research agenda emphasises opportunities for planners to develop research and policies to reduce greenhouse gas emissions. Hollander, Pallagst, Schwarz and Popper look at increasing economic and population trends in many First World cities that result in city ‘shrinkage’. They present new opportunities for improving cities’ green space networks and natural features, and for research. The trebling of urban population in African cities by 2050, in conditions of poverty and informality, is the major trend driving Parnell, Pietriese and Watson’s chapter. They present an agenda for new planning theories and for supporting empirical research to address the actual conditions of African cities.

The publication summarizes the outcomes of the International Symposium on Rebuilding After Earthquakes, sponsored by Stanford University in August 1990. Approximately 40 planners participated, including presenters from Yugoslavia, Armenia, Italy, Algeria, Mexico, and Nicaragua who illustrated parallels between their country’s redevelopment experiences following major earthquakes. The document provides advice for planners who face rebuilding of residential and other properties: the need to work across traditional professional boundaries; advice on pre-earthquake steps, such as assuring consistency between plans and development regulations; and the importance of creating the legal authority, structure and plans for future development. The presenters also stressed the value of regional planning and appropriate site planning considerations for temporary housing, and the worth of identifying geologic, seismic, and structural hazards before an earthquake hits. In addition, they addressed social considerations planners should take into account, particularly when confronted with historic preservation issues; homeowners’ safety concerns; the disparate effects on small business owners within the older central business districts; and the reestablishment of neighborhoods following the catastrophe.


The article discusses the use of a city resilience index for measurement of cities’ comparative resiliency, which could help cities with post-disaster long-term recovery strategies. Topics discussed include benefits of a city resilience index, housing and historic resources as the two essential components of city resilience index, use of a city resilience index for implementation of urban revitalization policy. It mentions establishment of a framework for reconstruction and building of cities.


How can we plan and design stronger communities? From New Orleans to Galveston to the Jersey Shore, communities struck by natural disasters struggle to recover long after the first responders have left. Globally, the average annual number of natural disasters has more than doubled since 1980. These catastrophes are increasing in number as well as in magnitude, causing greater damage as we experience rising sea levels and other effects of climate change. Communities can reduce their vulnerability to disaster by becoming more resilient—to not only bounce back more readily from disasters but to grow stronger, more socially cohesive, and more environmentally responsible. To be truly resilient, disaster preparation and response must consider all populations in the community. By bringing together natural hazards planning and community planning to consider vulnerabilities, more resilient and equitable communities are achievable. In Planning for Community Resilience the authors describe an inclusive process for creating disaster-resilient communities. Based on their recovery work after Hurricane Ike in Galveston, Texas, they developed a process that relies on the Disaster Impacts Model. This handbook guides any community through the process of determining their level of hazard exposure, physical vulnerability, and social vulnerability with the goal of determining the best planning strategy. Planning for Community Resilience will be invaluable to professionals working to protect their community from disturbance, including city planners, elected officials, floodplain managers, natural hazard managers, planning commissioners, local business leaders, and citizen organizers.
In this paper we propose to explore the complex node of post disaster reconstruction, knowledge and data necessary to support spatial planning, and new information technologies. The methodology that is illustrated assumes that post-event damage assessments are useful to verify to what extent hazard and risk assessments that were available to planners to make decisions before the disaster were correct and if they were actually used as a basis for locational and zoning choices. Our contribution is aimed at the creation and design of knowledge bases accounting for the dynamic evolution of disasters. New web based technologies provide the opportunity to collect and analyse dynamic territorial crisis data using crowdsourcing and crowdmapping platforms. The proposed methodology permits to sort and classify a very large set of different types of data generated through the web. Semantic conceptualization using ontologies is performed to identify and select the information produced during the emergency that can support spatial planning in the post disaster reconstruction. The city of Tacloban in the Philippines, affected by the Super Typhoon Haiyan in November 2013 constitutes the test case for applying the methodology that has been developed.


Problem, research strategy, and findings: U.S. communities rarely plan for recovery after a disaster, but planners have the skills to help communities redevelop, particularly in rebuilding housing, a key to community recovery. Planners, however, need appropriate and timely data on initial damage and rebuilding over time to apply for available funding, determine needs for temporary housing, address equity issues, develop appropriate policy interventions, track progress, and communicate transparently with all stakeholders. There is no accepted cost-effective and systematic method of providing those data. We developed a scalable method in which we photograph and assess the extent of home damage and rebuilding by reorienting existing damage assessment methods to provide data that can be linked to GIS and other local data to meet planning needs. We test the utility of our approach in West (TX), the site of a catastrophic fertilizer facility explosion in 2013. We compare our damage assessments to county property tax reappraisals after the disaster, finding that our approach is more accurate, generally identifying less damage and greater rebuilding than the county assumed. We conclude that our method improves on windshield surveys and other suggested methods of collecting damage and rebuilding data; it can provide efficient assessments of damage and rebuilding in technological disasters. Takeaway for practice: We created a simple and cost-effective method of assessing initial damage to homes after a disaster and of measuring the extent of rebuilding. This method provides photos and easy-to-understand data that planners can use to meet multiple reporting requirements, to reassess redevelopment strategies, and to report progress to stakeholders.


Introduction: Three jurisdictional earthquake resilience planning initiatives respectively conducted in California, Washington State, and Oregon are compared: SPUR Resilient City (SPUR), Resilient
Washington State (RWS), and Oregon Resilience Plan (ORP). This paper presents an exploratory analysis that reveals divergent and convergent themes across the resilience planning initiatives, with the goal of informing similar initiatives in the future. Methods: Data for this exploratory study comes primarily from the reports produced by the initiatives, but also initiative presentations, limited correspondence with initiative organizers for clarifications, and personal experience. Extensive computer-assisted text analysis was done to analyze, synthesize, and visualize the content of the SPUR, RWS, and ORP reports.

Results: The SPUR initiative was the inspiration for both RWS and ORP. As such, an evolution of ideas is evident from the first initiative (SPUR) to the most recent (ORP). While the SPUR initiative was a model for the RWS and ORP initiatives, the process and outcomes of the latter two initiatives were more similar than to the original SPUR initiative. Both the RWS and ORP initiatives were significantly smaller in scope. These two initiatives also made creation of recovery-based performance measurement frameworks—timetables of expected and desired recovery estimates—even more central to the process of identifying seismic resilience recommendations.

Discussion: The SPUR, RWS, and ORP initiatives have had demonstrated impact on jurisdictional pre-event planning, mitigation, and preparedness efforts. However, the impact of the specific innovations developed by the three earthquake resilience planning initiatives is not clear because of the limited degree that the resilience definition and performance measurement framework for each initiative were explicitly integrated to produce the respective recommendations. For example, Washington State’s Seismic Safety Committee made recommendations similar to their RWS recommendations as part of past initiatives that did not use a resilience lens or a recovery-based performance measurement framework.

Conclusion: More systematic research into the innovative elements of the SPUR, RWS, and ORP initiatives, such as development of the recovery-based performance measurement frameworks, is warranted given the initiatives’ popularity and influence on the National Institute of Standards and Technology’s Community Resilience Planning Guide.


A major challenge in enhancing the resilience of communities stems from current approaches used to identify needs and strategies that build the capacity of jurisdictions to mitigate loss and improve recovery. A new generation of resilience-based planning processes has emerged in the last several years that integrate goals of community well-being and identity into recovery-based performance measurement frameworks. Specific tools and refined guidance are needed to facilitate evidence-based development of recovery estimates. This article presents the participatory modeling process, a planning system designed to develop recovery-based resilience measurement frameworks for community resilience planning initiatives. Stakeholder engagement is infused throughout the participatory modeling process by integrating disaster recovery simulation modeling into community resilience planning. Within the process, participants get a unique opportunity to work together to deliberate on community concerns through facilitated participatory modeling. The participatory modeling platform combines the DESaster recovery simulation model and visual analytics interfaces. DESaster is an open source Python Library for creating discrete event simulations of disaster recovery. The simulation model was developed using a human-centered design approach whose goal is to be open, modular, and extensible. The process presented in this article is the first participatory modeling approach for analyzing recovery to aid creation of community resilience measurement frameworks.
While post-disaster moratoria should be tailored to the needs of the individual community, there are some basic components found in most ordinances, including: Purpose, Duration, Procedures and Permitting. The following sections describe each of the common elements in more detail and provide standard language that can be considered by Colorado local governments. The model language used in this document is based on several existing ordinances and programs from varying communities around the state and the nation, including municipalities and counties. The language is illustrative only; consult local counsel to tailor language for your jurisdiction.

Disaster vulnerability is socially constructed, i.e., it arises out of the social and economic circumstances of everyday living. Most often discussed from the perspective of developing nations, this article extends the argument using American demographic trends. Examples from recent disasters, Hurricane Andrew in particular, illustrate how certain categories of people, such as the poor, the elderly, women-headed households and recent residents, are at greater risk throughout the disaster response process. Knowledge of where these groups are concentrated within communities and the general nature of their circumstances is an important step towards effective emergency management. Emergency planners, policy-makers and responding organisations are encouraged to identify and locate high-risk sectors on Community Vulnerability Maps, integrating this information into GIS systems where feasible. Effective disaster management calls for aggressively involving these neighbourhoods and groups at all levels of planning and response, as well as mitigation efforts that address the root causes of vulnerability.
earthquake provided an opportunity to evaluate the extent to which the quality of state-mandated, locally prepared seismic safety elements reduce earthquake damage. We found that fewer homes were damaged when local governments had developed high-quality factual bases, formulated goals for improving seismic safety, crafted regulatory policies to manage development in hazardous areas, and advanced policies that made the public aware of seismic risks. We conclude that including a high-quality seismic safety element in land use plans can reduce property damage associated with seismic events. Our work has broad implications for land use planning.


Given the scale and the complexity of urban disaster, significant efforts have been intensified by the International Humanitarian Community over the last decade to develop an effective operational mechanism in post-disaster and conflict response, to create synergies between short-term relief measures and long-term development, and to maximize the efficient use of limited resources. In spite of the positive impact of these efforts on humanitarian response, the historical separation between relief, recovery and development continues with significant practical implications on the effectiveness of humanitarian response programs, especially in urban disasters. This paper explores the viability of employing well-established planning knowledge to provide systematic ways to integrate the sectoral response activities, especially in complex urban settings, that help link the humanitarian response with recovery and development. A conceptual and operational framework named Early Recovery Road Map (ERRoMap) using urban planning knowledge is suggested as a new dimension to be added to the traditional role of the Global Cluster for Early Recovery (GCER) in the International Humanitarian Cluster System. The ERRoMap employs the three conceptualized terms of planning efforts: process, context, and outcome to re-organize the function of a ‘City’ under time-pressure. The process of making an ERRoMap is aimed to bridge the emergency response with recovery through organizing facts about disaster impacts in urban settings; identify essential areas for early recovery, join-up efforts of humanitarian actors and facilitate their communications with development actors.


Problem, research strategy, and findings: The process of long-term recovery, if done well, can minimize post-disaster disruption, address problems that existed before the disaster struck, and improve the future resilience of a community. The U.S. government, however, historically has lacked a systematic approach to supporting community recovery. This study describes the history of federal policies for supporting community recovery after disasters, with particular attention to the roles of the Federal Emergency Management Agency (FEMA) and the Department of Housing and Urban Development (HUD). We conclude by considering the new National Disaster Recovery Framework (NDRF). This historical review suggests that the federal government needs to emphasize the following: providing resources for community recovery planning; facilitating increased flows of information after disasters; streamlining FEMA assistance to public agencies; explicitly working to reduce the barriers between FEMA and HUD; and incorporating equity into recovery policies. Recovery policies also need to include incentives to achieve substantive goals of rebuilding in a way that is sustainable, equitable, cost-effective, and timely, and that reduces the chances of future disasters. Takeaway for practice: Local community planners can
draw several lessons from this historical account. First, they should become aware of the various post-disaster programs now, before disaster strikes. Second, knowledge of post-disaster policies and programs will enable planners to use them creatively and effectively if disaster strikes. Third, in the midst of reconstruction, planners need to continually seek opportunities to promote betterment and resilience to natural hazards.


Disasters disrupt the physical stock of cities, infrastructure systems, social and economic systems, and the lives of residents. In an instant, a disaster demolishes much of what urban planners strive to accomplish: systems that support the lives of residents. Despite our best efforts, disasters will continue to occur, and urban planners have a critical role to play in guiding the recovery of what has been destroyed. Successful application of planning policies can serve to reduce the long-term effects of disasters. Planning and management of post-disaster recovery processes is emerging as an important new area of planning research. The lingering problems of recent catastrophes, as well as heightened concern that disasters will become more frequent and costly, have raised the salience of this issue in policy and research agendas.


Problem: Catastrophic disasters like Hurricane Katrina disrupt urban systems, economies, and lives, and pose huge problems for local governments and planners trying to organize and finance reconstruction as quickly and effectively as possible. Purpose: This article aims to summarize the key planning challenges New Orleans faced following the August 29, 2005 flooding in order to identify lessons planners can apply following future disasters. Methods: In this case study we sought to observe key decisions about the recovery as they unfolded. Collectively, we spent months in New Orleans in 2005, 2006, and 2007, and interviewed leaders of all the planning efforts to date. One of us played a lead role in the design and execution of the Unified New Orleans Plan (UNOP), and all observed and/or participated in neighborhood-level planning activities. Results and conclusions: We agree with previous findings on post-disaster recovery, confirming the importance of previous plans, citizen involvement, information infrastructure, and external resources. We also observe that the recovery of New Orleans might have proceeded more effectively in spite of the inherent challenges in post-Katrina New Orleans. Many local difficulties are a result of the slow flow of federal reconstruction funding. Despite this, the city administration also could have taken a more active leadership role in planning and information management earlier; the city’s Office of Recovery Management has since improved this. On the positive side, the Louisiana Recovery Authority has been a model worth emulating by other states. Takeaway for practice: Planning can inform actions as both proceed simultaneously. Had New Orleans planners not felt so compelled to complete plans quickly, they might have been more effective at providing reasoned analysis over time to support community actions and engaging a broader public in resolving difficult questions of restoration versus betterment. A center for collecting and distributing data and news would have better informed all parties; this remains an important need.
Hurricane Katrina was the greatest urban and regional disaster in U.S. history. The rebuilding of New Orleans and surrounding areas of Louisiana and Mississippi will require the largest and most complex planning effort in my lifetime. To succeed, we must learn from disasters of the past, while also applying the planning knowledge of the present. From past disasters, we know that successful reconstruction requires both outside funding and local citizen involvement. As planners, we know that the processes should be rich in data, imagination, communication, and participation. Optimistically, a new New Orleans will involve improved flood safety, revitalized neighborhoods, housing opportunities for all, and equitable treatment of all residents. Planners have an obligation to take an active role and advocate for the funding and full participation necessary to achieve these goals. The alternative would be a city that is poor, unsafe, and unequal. This is the greatest planning problem most of us have ever seen, and it warrants a correspondingly large response.

Shortly before dawn on 17 January 1994, the magnitude 6.7 Northridge Earthquake struck the Los Angeles region in southern California, costing over 48 billion in direct losses and leaving 25,000 housing units uninhabitable. Exactly one year later, a magnitude 6.9 earthquake struck the Kobe region of Japan, causing approximately 150 billion in losses, the loss of over 6,400 lives, and severe damage to nearly 450,000 housing units. This paper reports on a study that sought to understand the local and individual planning and reconstruction decisions following these two earthquakes, set within the larger context of regional and national policies. It summarizes reconstruction progress and planning decisions for seven urban districts in the two affected areas. The next catastrophic urban disaster to strike a developed nation will be extraordinarily expensive, and prudence demands preparedness for both post-disaster financing and planning processes; provision of temporary and permanent housing requires external funding and local flexibility; local governments need to combine firm safety regulations with citizen participation in reconstruction planning; and post-disaster planning to be fast, effective, equitable, and provide some improvements over previous conditions requires well-funded planning processes, rich in information and communication.

Sustainable redevelopment following disasters has been a main policy objective of post-disaster recovery efforts over the past few decades. Yet, nine years after the 1999 Marmara earthquake in Turkey, the redevelopment of risky housing areas is still a point of debate on the urban planning and disaster mitigation agenda. However, planning studies on mildly and moderately damaged areas located in the centre of Istanbul are ongoing. This article presents the evidence of a pilot project undertaken by Zeytinburnu Municipality, Istanbul, four years after the Marmara earthquake. The aim is to generate a debate on the preconditions required for a sustainable urban regeneration approach in the post-disaster recovery phase. The results of the pilot project underline the importance of capacity building in sustaining
social capital, strengthening the legal framework, restructuring planning regulations, and managing the
housing redevelopment process by taking advantage of a window of opportunity afforded by the disaster
recovery period.

Platt, S., & So, E. (2017). Speed or deliberation: a comparison of post-disaster recovery in Japan, Turkey,

This paper compares recovery in the wake of three recent earthquakes: the Great East Japan Earthquake in
March 2011; the Van earthquake in Turkey in October 2011; and the Maule earthquake in Chile in
February 2010. The authors visited all three locations approximately 12-18 months after the incidents and
interviewed earthquake specialists, disaster managers, urban planners, and local authorities. A key
challenge to post-disaster recovery planning is balancing speed and deliberation. While affected
communities must rebuild as quickly as possible, they must also seek to maximise the opportunities for
improvement that disasters provide. The three case studies bring this dilemma into stark relief, as
recovery was respectively slow, fast, and just right in the aftermath of the events: the Government of
Japan adopted a deliberate approach to recovery and reconstruction; speed was of the essence in Turkey;
and an effective balance between speed and deliberation was achieved in Chile.

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This article examines the proposition that city neighborhoods can fare better under policies that promote a
city’s recovery than they can when recovery is not an objective, and that the greatest benefit may be
expected in neighborhoods that have severely lost residents and commercial services. Depleted
neighborhoods are the natural arena for a recovery undertaking. Lest readers suppose that this article is
something which it is not, it should be said at the outset that an undertaking to achieve a city’s
recovery—at least in the rigorous definition used here—is not known to me. In the absence of an example
that can be appraised, support for the proposition must be sought in an analysis of circumstances and
potential policies that would make a recovery undertaking practical. The potential policies depend upon a
set of related ideas which could benefit from further development and refinement (to which it is hoped
interested readers will contribute) and above all from tests in particular neighborhoods in several cities.
Foremost among these ideas is that of recovery itself. Others which will be elaborated in due course are
compatible redevelopment of depleted neighborhoods, the changing nature of cities as expressed in
changes in hospitality to different kinds of employment, and finally strategic planning as an alternative at
neighborhood and city levels to both comprehensive planning, on the one hand, and single-purpose
planning, on the other. Although precision is not possible, depleted neighborhoods, as referred to here,
will be distinguished from other kinds.

Puppim de Oliveira, J. A., & Paleo, U. F. (2016). Lost in participation: How local knowledge was
[https://doi.org/10.1016/j.landusepol.2014.09.023](https://doi.org/10.1016/j.landusepol.2014.09.023)

This article aims to identify gaps in public participation in land use planning to improve risk governance,
using the case of the Great East Japan Earthquake (GEJE) in 2011. Overreliance on technical information
and on the opinion of experts is occurring side by side along with negligence of local knowledge and lack
of effective public participation in decision-making, creating a sense of overconfidence regarding
scientific knowledge and new infrastructure’s abilities to withstand future disasters. Using the case study
method in GEJE, our research identified three main overall gaps in participation. Firstly, a lot of local
knowledge from previous experiences was not incorporated into land use plans in the region even after similar events in the past. Secondly, there was technical information that alerted to possible risks for land use in certain areas, but this information did not impede development in risk areas due to lack of effective participation in the land use planning processes. Finally, Japan allows participation in many land use planning processes, but some of the most important decisions, such as on the sitting of nuclear plants had little or any local participation. Thus, strengthening public participation in land use by closing those three gaps could improve risk governance and resilience of localities to cope with large natural and technological disasters in the future.


This article describes how New Orleans ACORN members established a highly productive partnership with more than ninety urban planning students and faculty from Cornell, Columbia and Illinois in 2006 to produce a resident-inspired recovery plan for the Ninth Ward. The article explains how participants in this complex community/university partnership overcame significant racial, class, and age barriers to produce “The People’s Plan for Overcoming the Hurricane Katrina Blues” that successfully used primary data regarding building conditions and residents’ rate of return to encourage public officials, in the spirit of Paul Davidoff, to reinvest in this historic area of the city.


Recovery is an important but understudied phase in the disaster management cycle. Researchers have identified numerous socio-demographic factors that help explain differences in recovery among households, but are less clear on the importance of place, which we define as a household’s locality and local governance. In this paper, we examine the influence of place on disaster recovery through a study of the 2013 Colorado floods. Our findings are based on data collected from interviews, observation of recovery meetings, and a survey of 96 flood-affected households. We show that place shapes a household’s disaster recovery by structuring: (1) physical exposure to hazards; (2) which local government has jurisdiction over recovery decisions; (3) local planning culture and its approach to citizen participation; and (4) the strength of social capital networks. Our findings expand the recovery literature and show that place-level variables should be taken into consideration when conceptualizing household recovery and resilience.

The need to consider disaster risk reduction at the time of recovery is well-recognized. Viable disaster risk reduction measures should resolve the root causes of predisaster vulnerabilities. Accordingly, we investigated the recovery from the impact of Cyclone Aila in Koyra Upazila, Bangladesh, which was severely damaged by this 2009 cyclone. Our research focused on understanding pre-Aila vulnerabilities to cyclone impact and examined the degree of inclusion of vulnerability reduction measures within the recovery process. A composite methodology that included an institutional survey, key informant interviews, collection of the judgment of experts, focus group discussions, and a score-based quantification technique was adopted. Through a process of understanding pre-Aila vulnerabilities, recognition of the root causes of these inherent weaknesses, and identification of appropriate measures for pre-Aila vulnerability reduction, a set of 23 indicators were selected to represent the most desirable vulnerability reduction measures to implement during recovery. A score-based technique was applied to measure the degree of inclusion of vulnerability reduction within the recovery with respect to the indicators. The scoring result shows that the degree of inclusion of vulnerability reduction within the recovery was poor. The result specifies that among the 23 indicators of potential vulnerability reduction measures, 10 are completely missing and the rest are only partially included. The overall findings imply that the Koyra community continues to live with a vulnerability similar to that of the pre-Aila period.


This paper examines area-based approaches (ABAs) in urban post-disaster contexts. After introducing the main features of ABAs, the paper discusses current practice in humanitarian response, and the need within urban areas to draw lessons from urban development approaches, from which ABAs have emerged. The paper then presents lessons from research concerning the application of ABAs in relation to phases of the project management cycle: assessment and design, implementation, and monitoring, evaluation and learning. The paper ends with a brief discussion. Overall, it argues that for ABAs to be effective, they need to draw on longstanding lessons from urban development, plan for a longer timeframe for their actions than is otherwise often the case in recovery operations, and consider the need to scale up actions for wider city application.


In 1998, the American Planning Association published the first guidebook for local planners confronting all types of natural disasters: flood, earthquake, tornado, wildfire, and hurricane. Now APA has issued a report with the latest policies and procedures. The updated manual offers a no-nonsense explanation of the benefits — and limitations — of planning for unpredictable events. Case studies from big cities and smaller towns show what it takes to come back stronger from a natural disaster.


Problem, research strategy and findings: On January 10, 2011, the town of Grantham, Queensland (Australia), was inundated with a flash flood in which 12 of the town’s 370 residents drowned. The overall damage bill in Queensland was AUD$2.38 billion (USD$2.4 billion) with 35 deaths, and more than three-quarters of the state was declared a flood disaster zone. In this study, we focus on the unusual
and even rare decision to relocate Grantham in March 2011. The Lockyer Valley Regional Council (LVRC) acquired a 377-hectare (932-acre) site to enable a voluntary swap of equivalent-sized lots. In addition, planning regulations were set aside to streamline the relocation of a portion of the town. We review the natural hazard literature as it relates to community relocation, state and local government documents related to Grantham, and reports and newspaper articles related to the flood. We also analyze data from interviews with key stakeholders. We document the process of community relocation, assess the relocation process in Grantham against best practice, examine whether the process of community relocation can be upscaled and if the Grantham relocation is an example of good planning or good politics. Takeaway for practice: Our study reveals two key messages for practice. Community relocation (albeit a small one) is possible, and the process can be done quickly; some Grantham residents moved into their new, relocated homes in December 2012, just 11 months after the flood. Moreover, the role of existing planning regulations can be a hindrance to quick action; political leadership, particularly at the local level, is key to implementing the relocation.


Disasters often uncover longstanding problems in a community, including the failure to have planned for recovery. After a disaster, the lack of advance planning may undermine a community’s ability to distribute assistance in an equitable and timely manner and to balance the speed of decision making with a more deliberative approach that includes hazard mitigation and climate change adaptation measures, involves the public and other stakeholders in the decision-making process, and links preexisting plans and policies to recovery goals. The disaster recovery process can be highly contentious, as programs and policies often fail to address local needs, communities struggle to administer the influx of post-disaster financial assistance, jurisdictions compete for aid and public attention, and decisions are made to adopt new construction standards or convert developed land to open space that alter human settlement patterns (G. Smith, 2011). The failure to plan can hinder the ability of communities to create a larger vision of their future in the aftermath of extreme events, or restrict the identification of options, thereby missing opportunities to achieve complementary goals and objectives such as reducing hazards exposure while achieving smart growth and sustainable development policies (Eadie et al., 2001; R. Smith & Deyle, 1998; G. Smith & Wenger, 2006), including those that advance resilience and climate change adaptation (Glovovic & Smith 2014). The failure to develop and adopt good pre-event plans can also lead to postdisaster opportunism, including redevelopment that is unsustainable, inequitable, and vulnerable to future losses, thereby compromising the public good (Freudenberg, Gramling, Laska, & Erickson, 2009; Klein, 2007; Peacock, Morrow, & Gladwin, 1997).


The failure to plan for disaster recovery results in a process of rebuilding that often presages the next disaster. It also limits the collective maximization of governmental, nonprofit, and private resources, including those resources that are available at the community level. As individuals, groups, communities, and organizations routinely struggle to recover from disasters, they are beset by a duplication of efforts, poor interorganizational coordination, the development and implementation of policies that are not shaped by local needs, and the spread of misinformation. Yet investment in pre-event planning for post-disaster recovery remains low. Although researchers pointed to this problem at least twenty-five years ago, an unfortunate reality remains: disaster recovery is the least understood aspect of emergency management.
among both scholars and practitioners. In addition, the body of knowledge that does exist has not been effectively disseminated to those who engage in disaster recovery activities. Planning for Post-Disaster Recovery blends what we know about disaster recovery from the research literature with an analysis of existing practice to uncover problems and recommend solutions. It is intended for hazard scholars, practitioners, and others who have not assimilated or acted upon the existing body of knowledge, or who are unexpectedly drawn into the recovery process following a disaster.


This article discusses the institutional arrangements that influence pre-disaster planning for recovery, and, more importantly, post-disaster recovery outcomes. The importance and value of planning for disaster recovery is well known in the disaster literature, although not often practiced as well as it could be. A theory of disaster recovery must therefore account for the institutional environment referred to here as the disaster recovery assistance framework. Describing the underlying dimensions of this network will help to clarify the process of recovery, uncover ways to improve recovery outcomes, and define the factors that influence the achievement of improved outcomes. Part of the challenge will be in defining these improved outcomes, which could include increased levels of disaster resilience or achieving a more sustainable disaster recovery.


Displacement and dislocation from homes disrupt fundamental social processes necessary for optimal community functioning. Neighborhood and community social capital, collective efficacy and place attachment are social processes that may be compromised following disaster, conflict, and upheaval. A collaborative approach to the preplanning, design, and creation of temporary and transitional communities following large-scale events is discussed. When architects, planners, and behavioral and health scientists collaborate, preexisting neighborhood social processes can be preserved or even strengthened and can facilitate resilient recovery among vulnerable groups (e.g., elders, children and their care providers, the poor, and underserved minorities). Such a cross-disciplinary, eco-developmental approach should result in more healthful, sustainable, and culturally appropriate individual and community level outcomes for vulnerable subgroups. Observations from housing accommodations following Hurricane Katrina are used to inform future efforts to rebuild neighborhoods following disasters.


Community resilience (CR) is a priority for preparedness, but few models exist. A steering council used community-partnered participatory research to support workgroups in developing CR action plans and hosted forums for input to design a pilot demonstration of implementing CR versus enhanced individual preparedness toolkits. Qualitative data describe how stakeholders viewed CR, how toolkits were developed, and demonstration design evolution. Stakeholders viewed community engagement as facilitating partnerships to implement CR programs when appropriately supported by policy and CR
resources. Community engagement exercises clarified motivations and informed action plans (e.g.,
including vulnerable populations). Community input identified barriers (e.g., trust in government) and
CR-building strategies. A CR toolkit and demonstration comparing its implementation with individual
preparedness were codeveloped. Community-partnered participatory research was a useful framework to
plan a CR initiative through knowledge exchange.

experiment to assess community preferences for post-disaster redevelopment options. Land Use Policy,

The Canterbury region of New Zealand was shaken by major earthquakes on the 4th September 2010 and
22nd February 2011. The quakes caused 185 fatalities and extensive land, infrastructure and building
damage, particularly in the Eastern suburbs of Christchurch city. Almost 450 ha of residential and public
land was designated as a ‘Red Zone’ unsuitable for residential redevelopment because land damage was
so significant, engineering solutions were uncertain, and repairs would be protracted. Subsequent
demolition of all housing and infrastructure in the area has left a blank canvas of land stretching along the
Avon River corridor from the CBD to the sea. Initially the Government’s official – but enormously
controversial – position was that this land would be cleared and lie fallow until engineering solutions
could be found that enabled residential redevelopment. This paper presents an application of a choice
experiment (CE) that identified and assessed Christchurch residents’ preferences for different land use
options of this Red Zone. Results demonstrated strong public support for the development of a
recreational reserve comprising a unique natural environment with native fauna and flora, healthy
wetlands and rivers, and recreational opportunities that align with this vision. By highlighting the value of
a range of alternatives, the CE provided a platform for public participation and expanded the
conversational terrain upon which redevelopment policy took place. We conclude the method has value
for land use decision-making beyond the disaster recovery context.

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Like Cornell, Illinois, and Columbia, several faculty and students from MIT went to New Orleans soon
after Katrina, and we continue to work with community groups in the city. Our experiences parallel those
described in the article. Students were emotionally jarred by what they saw soon after the storm.
Reflection went from being an “add-on” to project development to a critical necessity as students came
face-to-face with stark inequality. They struggled with their identity as privileged, often white citizens
with the ostensible job of planning on behalf of poor, angry, usually black New Orleanians. Some
planning students, especially those trained to think of planning from narrowly conceived engineering or
architectural perspectives, were initially put off by the politicized nature of decision making in New
Orleans. On the other hand, many students came to appreciate that planning could make a significant
difference in politics and society. The experiences of ACORN Housing/University Collaborative (AHUC)
seem to confirm this view as well.

hazards. Natural Hazards, 87(2), 699–716. https://doi.org/10.1007/s11069-017-2788-4

Destructions resulted from natural hazards like earthquake, landslide, or flood in the urban roads and
lifelines introduce their negative effects including the psychological damage to citizens as well as
decreased urban functions that usually last for a long time. Thus, a quick and efficient recovery of
infrastructures, lifelines, and service-providing facilities along with reducing reconstruction costs and time are essential. This paper proposed an approach that consists of four models for forming an algorithm in order to quantitating and integrating of the criteria that have decisive influence in the recovery of urban roadways after a natural disaster. Meanwhile, to aggregate and conclude the data that are collected by means of presented functions and formulations, we applied fuzzy VIKOR technique as a compromise ranking method. The model outputs a priority list showing the revival of which urban paths stands in higher priority for recovery operation after a natural disaster. Results show that not only the model is able to precisely quantize the selected criteria and provide an action plan for post-event recovery prioritization, but also it offers an appropriate order of transportation roads priority for recovery operations. Finally, the results from the recovery model application to a roadway system in Tehran area are provided.


In recent years, extreme natural hazards threaten cities more than ever due to contemporary society’s high vulnerability in cities. Hence, local governments need to implement risk mitigation and disaster operation management to enhance disaster resilience in cities. Transforming existing open spaces within cities into emergency shelters is an effective method of providing essential life support and an agent of recovery in the wake of disasters. Emergency shelters planning must identify suitable locations for shelters and reasonably allocate evacuees to those shelters. In this paper, we first consider both the buildings’ post-disaster condition and the human choice factor that affect evacuees’ decision, and propose a forecasting method to estimate the time-varying shelter demand. Then we formulate an integrated location-allocation model that is used sequentially: an emergency shelter location model to satisfy the time-varying shelter demand in a given urban area with a goal of minimizing the total setup cost of locating the shelters and an allocation model that allocates the evacuees to shelters with a goal of minimizing their total evacuation distance. We also develop an efficient algorithm to solve the model. Finally, we propose an emergency shelters planning based on a case study of Shanghai, China.