

State Disaster Recovery Planning Guide



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INTRODUCTION AND PURPOSE

This document is written for those tasked with the development, maintenance, and implementation of a state disaster recovery plan.ⁱ It is intended to serve as an evaluative guidebook from which users can draw from widely accepted steps derived from planning processes and informative best practices adopted in other states. The Guide also includes a series of questions following each major section of the document that are posed to the reader in order to encourage reflection and an assessment of current activities followed by actions targeting identified issues.

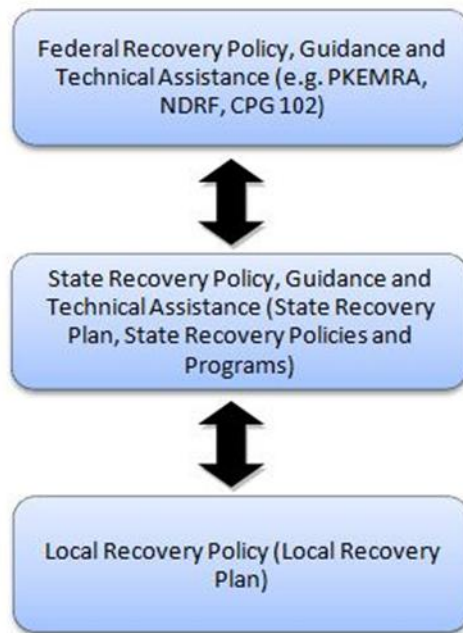
The information presented in the following pages can also be used to assess where a state plan stacks up relative to emerging federal planning standards.ⁱⁱ This guide will draw from and blend the emerging elements of the **National Disaster Recovery Framework (NDRF)** and FEMA's **Comprehensive Preparedness Guide 102 – Disaster Recovery Planning: A Guide for the Whole Community with Plan Quality Principles** thereby providing information that is grounded in new federal policy guidance with that derived from the latest research in the planning field. It is also important to note that federal planning guidance is still evolving and as a result, this guide is not intended to be overly prescriptive like many “how-to-guides.” Rather the document offers a set of broad planning-based principles that are intended to assist states begin to assess the issues and elements tied to the development of a state disaster recovery plan.

While a growing number of guides are being developed to assist local governments develop disaster recovery plans, very little has been done to develop a similar guidance document for state recovery plans. There is a similar lack of attention placed on the role of states in disaster recovery in the academic and planning literature. This State Disaster Recovery Planning Guide is designed to fill this gap. Following Hurricane Katrina, a growing number of reports, guides, research papers, books, and policies have emerged. Perhaps most significantly, the Post Katrina Emergency Management Reform Act (PKEMRA) was passed which required FEMA to develop improved disaster recovery planning guidance. This has resulted in the development of the National Disaster Recovery Framework (FEMA, 2011) and the more recent Comprehensive Preparedness Guide 102, Disaster Recovery Planning.

In the academic community, Hurricane Katrina focused a great deal of attention on the problems associated with the lack of pre-event planning for post-disaster recovery at the federal, state, and local level (Berke and Campanella 2006; Burby, Nelson and Sanchez 2006; Kunreuther 2006; Olshansky 2006; Olshansky and Johnson 2010; Smith 2011). At the state level, a recent study found that state disaster recovery plans did not adhere to basic planning practices (Smith and Flatt 2011).

The state plays a vital role in disaster recovery, serving as the linchpin between federal and local policies and actions (see figure 1). And yet, the role of the state remains a little studied phenomenon, while clear guidance on what constitutes a good state recovery plan does not exist. The State Disaster Recovery Planning Guide emphasizes the role of the state in coordinating disaster recovery efforts, including the critically important task of developing and implementing a high quality disaster recovery plan that supports local recovery efforts, including pre-event planning for post-disaster recovery.

Figure 1: The State and its Connectivity to Federal and Local Recovery Planning



WHAT IS DISASTER RECOVERY?

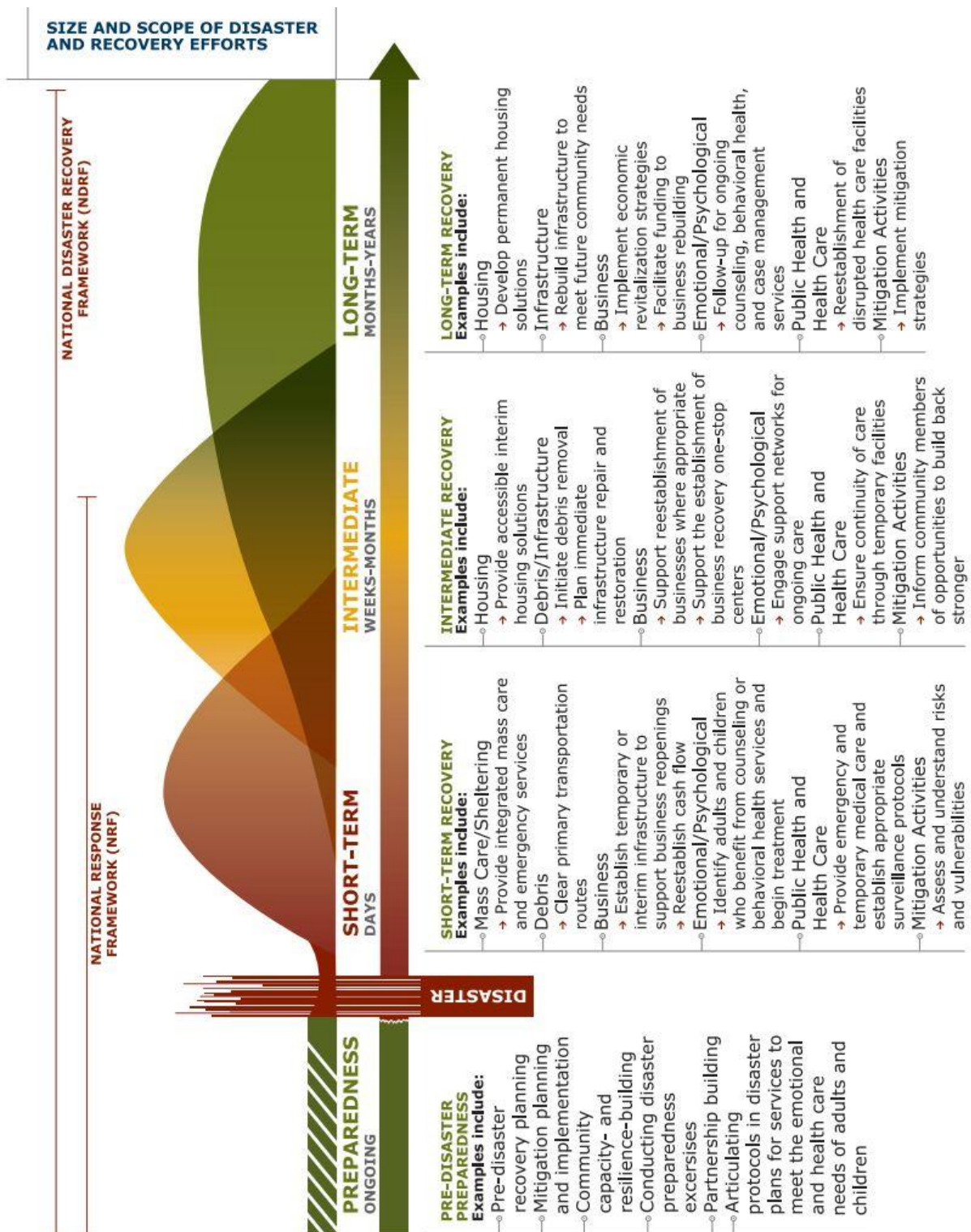
Disaster recovery can be defined as the “differential process of restoring, rebuilding, and reshaping the physical, social, economic, and natural environment through pre-event planning and post-event actions” (Smith and Wenger 2006, p. 237). This definition addresses several key themes that will be discussed throughout this guide, including 1) disaster recovery occurs at differing rates for differing segments of society based on a number of pre-event conditions, including differential access to information, previous levels of disaster experience (both across the assistance network and individuals affected by disaster), differing levels of disaster recovery preparedness, and access to political power and influence; 2) recovery is more than the reconstruction of the buildings and infrastructure – it also entails the reconstitution of social networks, the reestablishment of the economy, and the repair or preservation of the natural

environment; and 3) recovery involves an important temporal element tied to tasks undertaken both before and after a disaster occurs, including planning.

The Disaster Recovery Process

One way to depict disaster recovery is as a linear process, in which a series of broad activities or phases help to simplify what is a complex process involving a host of stakeholders. Figure 2 provides a broad conceptual depiction of the process, highlights two important federal programs (National Response Framework and NDRF) including their overlapping nature, and emphasizes the temporal aspects of both pre- and post-disaster actions. Prior to the adoption of the NDRF, the National Response Framework (NRF) addressed both response and recovery-related activities. With the more recent adoption of the NDRF the two federal frameworks are viewed as serving two important and integrated roles. As the graphic implies, the NRF is principally focused on pre-event planning and post-event response-related activities. The overlapping time period with the NDRF, to include the **short-term** and **intermediate phase of recovery** shows how the actions taken in the response phase, including, for example, emergency sheltering, feeding operations, and search and rescue activities, affect the overall trajectory of intermediate and long-term recovery operations that follow. Similarly, intermediate recovery activities, including for instance the restoration of power, debris clearance, and repairs to housing, public facilities, and infrastructure blend into more long-term recovery challenges such as the possible relocation of flood-prone communities and the reconstruction of housing and infrastructure that received major damages. In the case of the NDRF, good pre-event planning and the implementation of a sound long-term recovery plan should be closely connected to the federal resources available through the new national recovery policy. In the case of major disasters, recovery efforts may require a concerted effort lasting several years.

Figure 2: The Disaster Recovery Process



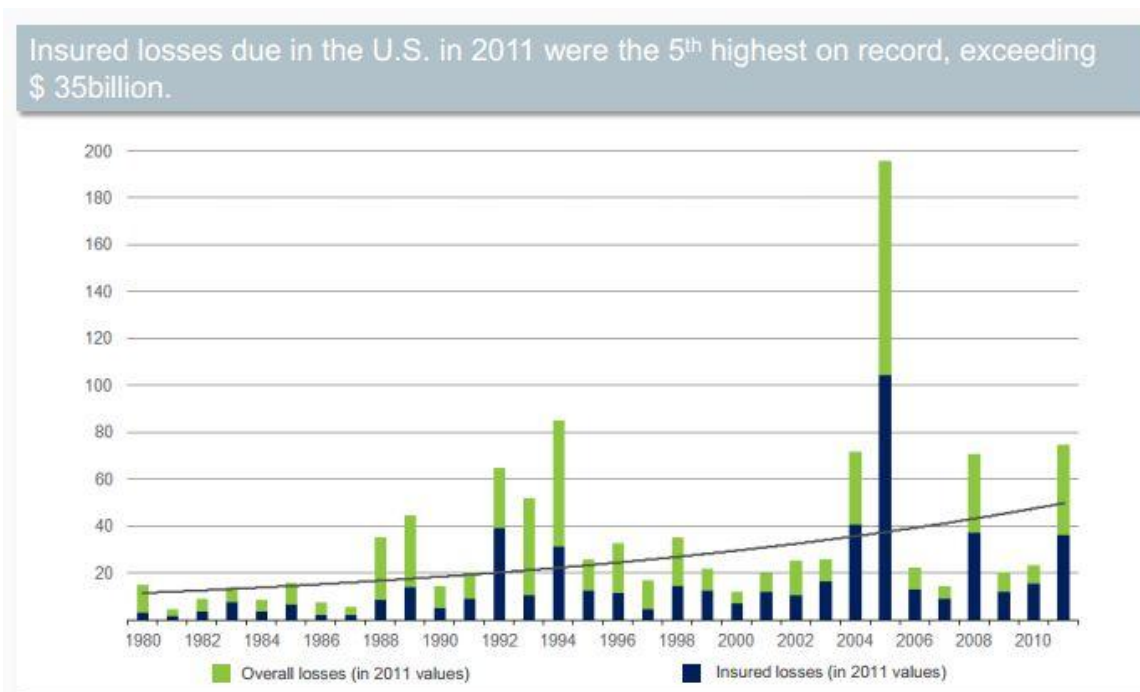
Source: Federal Emergency Management Agency. 2011. National Disaster Recovery Framework. Washington, D.C.: FEMA

Why Plan for Disaster Recovery?

Disaster-related damages in the United States continue to rise at a rapid pace (Figure 3). As these damages increase over time, the recovery process is becoming increasingly costly, necessitating large scale post-disaster investments in recovery and reconstruction activities. These activities may include the repair of damaged communities and associated infrastructure, housing, and businesses. Restoring local and regional economies and addressing negative environmental impacts associated with disasters are costly while programs designed to assist the socially vulnerable and help re-establish housing and community infrastructure are complex and time consuming to administer.

One of the best reasons to develop a pre-disaster recovery plan is to avert or minimize the likelihood of a disaster occurring in the first place. This can be achieved by comprehensively incorporating hazard mitigation measures into disaster recovery procedures. The failure to link hazard mitigation and disaster recovery has resulted in repeated disasters over time even in those locations where large sums of federal, state, private sector, and individual resources were expended to repair communities following previous events.

Figure 3: Insured Disaster Losses in the United States 1980 - 2011. ⁱⁱⁱ



Source: Munich Re. Natural Catastrophe Year in Review. January 4, 2012.

<http://www.ctnow.com/media/acrobat/2012-01/67158951.pdf>

Another important reason to invest the time required to develop a pre-disaster recovery plan is the need to reconcile the seemingly conflicting aims associated with the speed and quality of recovery. The failure to plan for disaster recovery can compromise both the speed and quality of recovery as communities, states, and FEMA struggle to address what amount to a number of widely recognized issues that are likely to arise during this time period. Common problems include:

- The untimely and inequitable distribution of assistance;
- The lack of effective coordination and communication across groups and the larger network of aid providers; and
- The tendency for federal, state, and local governments to be overwhelmed given the multitude of tasks before them, many of which have not been adequately planned for, or have not been effectively assigned to other members of the disaster assistance network beforehand.

Disaster recovery planning provides a procedural and action-oriented vehicle to prepare in advance of a disaster for the multitude of complex challenges that follow extreme events. Planning also helps to marshal the varied resources needed in order to expedite post-disaster recovery and reconstruction activities in a thoughtful and coordinated manner. A plan, adopted by state agencies and the Governor, also enables the use of agreed-to planning and regulatory powers in the aftermath of a state and federally declared disasters.

Understood in more specific terms, disaster recovery planning serves several important aims, including:

- Achieving greater disaster resilience (see the following section on disaster resilience);
- Improving the speed and quality of disaster recovery through the more effective use of available resources;
- Building the capacity of the state to assist local governments in the recovery process through the delivery of pre- and post-disaster training, education, and outreach initiatives;
- Maximizing the coordinated distribution of assistance pre- and post-disaster;
- Providing a collaborative decision making framework;
- Improving the efficient and equitable distribution of resources before and after disasters;
- Providing a process to inject hazard mitigation into the recovery process^{iv}; and
- Establishing a means to monitor the implementation of recovery planning policies and projects over time, including the development of measureable benchmarks.

Question: Does your state disaster recovery plan adequately address the aims cited above? If not, how would you propose to do this and who should be involved? Are there other issues that your state recovery plan should consider?

Disaster Resilience

Disaster resilience is often described as the ability of a community to withstand a severe shock and quickly rebound to some post-disaster condition that represents pre-event conditions or, better yet, a “new normal” based on lessons and improvements made that make a community less vulnerable and more adaptable to future events (Paton and Johnston 2006). While hazard mitigation represents a key theme of disaster resilience, natural hazard and planning scholar Tim Beatley argues that resilience represents a broader concept. He suggests that disaster resilience must include the ability to **adapt** to changing conditions while building and sustaining a greater **organizational capacity** to include the adoption of hazard mitigation techniques as well as the formation of enduring cooperative institutions and networks capable of supporting not only hazard mitigation, but also disaster response and recovery (2009, pp. 6-7).

Many of the underlying factors or activities taken by various stakeholders that contribute to greater disaster resilience are directly or indirectly related to disaster recovery-related activities. A number of key factors described by David Godschalk that further define disaster resilience include:

- “Designed in advance to anticipate, weather and recover from the impacts of natural or terrorist hazards”
- “...built on principles derived from past experience with disasters”
- Comprised of “networked social communities and lifeline systems”
- “...adapting and learning from disasters”
- “...strong and flexible (rather than brittle and fragile)”
- “...new development is guided away from known high hazard areas and their vulnerable existing development is relocated to safe areas”
- “...buildings are constructed or retrofitted to meet code standards based on hazard threats”
- “...natural environmental protective systems are conserved to maintain valuable hazard mitigation functions”
- “...governmental, non-governmental, and private sector organizations are prepared with up-to-date information about hazard vulnerability and disaster resources, as linked with effective communication networks, and are experienced in working together (2003, pp. 136-137).

Question: Does your state disaster recovery plan discuss disaster resilience? If so, does the plan account for the factors described above?

The Timing of Assistance

The metrics used by government officials tasked with disaster recovery operations are often tied to the speed of recovery. The ability to return to a sense of normalcy after an event is a common refrain among those affected, including elected officials who often face intense pressure to quickly distribute post-disaster assistance, pick up debris and clear roads, restore utilities, re-open schools, rebuild communities, and provide public services (Geipel 1982). This problem is similarly felt by state and federal officials who are tasked with assisting local governments recover. In many cases, state and local governments are further challenged as they scramble to develop a “recovery plan” in the aftermath of a disaster while they are simultaneously attempting to administer a multitude of recovery activities noted earlier in this document.

Given the intense pressure to show some type of progress, those tasked with recovery at local, state, and federal levels of government may either forego the post-disaster planning process altogether or fail to adequately address a number of important planning activities that undergird good planning practice (Smith 2011). Understood in its most basic form, a plan should help establish a larger vision that the state or local government aspires to during the disaster recovery process and identify a series of steps designed to achieve it.

Developing a well thought out plan of action takes time and a commitment to inclusive decision making that involves a network of stakeholders beyond those found in the public sector. At the state level, recovery plans must account for the inherent tension between speed and plan quality and provide adequate resources to assist those involved in the creation of the state plan while assisting communities build the capacity and commitment needed to develop local disaster recovery plans before a disaster strikes.

Closely associated with what Rob Olshansky refers to as speed versus deliberation in post-disaster recovery is the value of investing the time necessary to develop a recovery plan before an event occurs. At the local level, this has been described as the ability to reconcile **short-term restoration** and **long-term redevelopment**. Addressing these issues effectively and comprehensively is best performed prior to a disaster and benefits from the direct involvement of planners that are trained in the assessment of competing alternatives (Smith and Deyle 1998). This is not to say that others cannot fulfill this duty. In fact, it has been shown that good recovery planning is tied to an ability to facilitate the formation of a supportive coalition, knowledge of what to do, and an ability to act (Geipel 1982; Oliver-Smith 1990). At the state level, the ability to identify what may appear to be competing alternatives and the adoption of

direction-setting goals and policies are similarly important and benefit from the use of plan-making techniques (Smith 2011).

Developing a strong pre-disaster plan should speed the recovery process as the time consuming tasks associated with developing working relationships needed to foster good inter-organizational coordination are addressed up front, post-disaster policies are developed in advance, and resource distribution mechanisms are established. While state recovery plans may be modified in the aftermath of an event given unforeseen consequences, the development of a framework for action and investing in the equally important planning process provides a means to identify advocates and leaders, develop trust, and form partnerships that are keys to a successful disaster recovery. Good pre-disaster recovery planning also allows for and recognizes the emergence of new groups and institutions that may not have been involved in a recovery planning process or were created to address identified shortfalls in funding, policies or programs after a disaster strikes.

Question: Has your state disaster recovery plan adequately addressed the balancing of speed and deliberation among state agencies and organizations, to include providing the support needed to assist local communities adequately deal with this issue?

Disaster Recovery Assistance Network

Developing a state recovery plan provides an important collaborative decision-making framework as the recovery process benefits from the participation and active, sustained involvement of multiple stakeholders. A state recovery plan should go beyond describing the actions of state agencies after a disaster by including a much wider array of participants, working together in a coordinated manner. Smith refers to this larger group as a **disaster recovery assistance network** (2011).^v Members of the network may include:

- Public Sector Organizations (federal, state, and local governments);
- Quasi-Governmental and Non-Governmental Organizations (community development corporations, homeowner’s associations, special service districts, regional planning organizations, professional associations, and colleges and universities);
- Non-Profit Relief Organizations (non-profits, community-based organizations, and foundations);
- Private Sector Organizations (businesses and corporations, financial and lending institutions, insurance, and media);
- International Aid Organizations and Nations; and
- Individuals and Emergent Groups.

Disaster recovery assistance networks are highly varied and have the potential to change over time. The makeup of assistance networks differ due to a number of pre-event conditions, such as past disaster experience, the presence of organizations that have been established to address other issues (and become involved in disaster recovery planning), recovery planning advocates that recruit new members, and guidance provided by the public sector.^{vi} Changes to the network may include the expansion or contraction of members. It can also mean changes in the base of knowledge and experience possessed by individual members and organizations within the network. A critical part of this knowledge base should include a keen understanding of local needs and the resources available across the network to address the many challenges associated with disaster recovery.

Federal, state, and local agencies and organizations are collectively referred to as government actors and are often thought of as those who lead disaster recovery efforts. In practice, disaster recovery does not always have a clear champion, particularly at state and local levels of government. As a result, states and local governments often rush to develop ad-hoc post-disaster committees (see Sidebar: *The Governor's Commission on Recovery, Rebuilding, and Renewal*). The designation of state and local organizations willing and able to initiate the coordinative tasks required to effectively plan for post-disaster recovery activities represents an important first step in the larger ongoing process of pre-event planning for post-disaster recovery. At the federal level, FEMA has taken on greater ownership of this role through the passage of the Post-Katrina Emergency Management Reform Act, the creation of the NDRF, and most recently the CPG 102, Disaster Recovery Planning Guide. It is important to note that while federal and state emergency management agencies have assumed this role, they alone do not possess the requisite programs, staffing, and expertise to address the many issues tied to disaster recovery. Other organizations, which are briefly discussed next, represent important players in this process.

Quasi-governmental and nongovernmental organizations assist communities and regions address a number of governmental activities, including planning.^{vii} Yet their involvement is often underutilized even though **regional planning organizations**, for instance, assist with both the development of plans (e.g., comprehensive land use plans, hazard mitigation plans) and the administration of numerous pre- and post-disaster grant programs. Similarly, **universities** and the research findings they produce that are tied to the study of natural hazards and disasters can inform disaster recovery policymaking and planning.^{viii} The accompanying sidebar highlights an example of research findings that have been effectively translated into practice.

Sidebar: Translating Research to Practice

The influence of scientific research on federal and state policies regarding natural hazards mitigation and disaster recovery can be seen in the following example.

The National Earthquake Hazard Reduction Program

The National Earthquake Hazards Reduction Program (NEHRP), created by the National Earthquake Hazards Reduction Act in 1977, is a federal initiative that uses engineering and science-based investigation techniques to better understand earthquake hazards and human behavior, and then strives to translate natural hazards and disaster-related research findings into practice, including that associated with disaster recovery. NEHRP also seeks to use this information to improve the adoption of earthquake risk-reduction techniques, which can be accomplished by conducting post-disaster assessments of structural failures and successes, improving the predictive capabilities of earthquake models, and proposing strengthened building codes and land use planning techniques.

The National Earthquake Hazards Reduction Act emerged from the 1964 Alaska Earthquake and the 1971 San Fernando Earthquake (Birkland 2006, p.134). The Alaska earthquake prompted a major study by the National Research Council involving engineers, physical scientists, economists, and sociologists. Their findings, published in 1970, constitute one of the most comprehensive studies of a single earthquake event. Shortly thereafter, an earthquake struck the San Fernando Valley, which spurred California to pass a series of laws addressing the seismic retrofitting of bridges and earthquake-related zoning, and creating the Seismic Safety Commission (Birkland 2006, pp.130-134).

California's evolving earthquake program reflects the active involvement of elected officials, engineers, and earth scientists (Geschwind 2001; Olson 2003) and has proven more effective in informing federal and state policy than hurricane-related research (Birkland 2006, p. 126). Gaining a better understanding of how earthquake engineers and scientists have influenced policy can help further the connection between research and practice that address other hazards and span other professions, including planning, which has not proven nearly as effective in shaping earthquake policy (Birkland 2006).

NEHRP has also been influential in the advancement of knowledge associated with disaster recovery (National Research Council 2006) Many of the flaws in disaster recovery, including the idea of recovery as a strictly linear process, the equation of recovery with the physical reconstruction of damaged communities, and the failure to adequately recognize the needs of socially vulnerable groups, have been addressed through NEHRP-funded research. In addition to engineering and social science-related studies, NEHRP has helped develop

decision-support tools and applied materials for the practitioner (National Research Council 2006).

This sidebar was drawn directly from the text: Planning for Post-Disaster Recovery: A Review of the United States Disaster Assistance Framework (Smith 2011, pp. 92).

Non-profit relief organizations are often less constrained by many of the highly prescriptive rules associated with government-based recovery programs and policies, which can make them more nimble and able to provide assistance with greater speed than other more bureaucratic organizations. In addition, non-profits often seek to address the needs that other organizations fail to address. This makes them important members of an assistance network. Their efficacy, however, can be constrained if they are not involved in the development of resource distribution strategies and, as a result, the types of assistance they provide are not coordinated with others.

Members of the **private sector** include a broad set of actors that provide a number of services that are directly related to disaster recovery. Examples include the provision of insurance, the financing of development, the design and construction of buildings and infrastructure (and their reconstruction following a disaster), consulting services (including the writing and management of pre- and post-disaster grants, the writing of plans, and provision of policy counsel), the provision of basic goods and services, and the provision of jobs in their role as corporations and businesses (Smith 2011, p. 157-158). In the State of Mississippi following Hurricane Katrina, the Governor's Commission on Recovery Rebuilding and Renewal was created and led by a number of private sector officials which emphasized a set of defined tasks and established deadlines and persons accountable for their implementation (for more information on the Governor's Commission approach to disaster recovery, see Sidebar: *The Governor's Commission on Recovery, Rebuilding, and Renewal* and *After Katrina: Building Back Better than Ever* (2006)^{ix}).

In larger overseas disasters, it is common for **international aid organizations** and other **nations** to provide both pre- and post-disaster assistance. In the U.S., federal agencies, states, and local governments do not have the international agreements or governmental protocols in place to readily accept this type of assistance, which may include financial, technical, and administrative-based aid. The capacity to engage in disaster recovery in the U.S. could be enhanced by drawing from international research and practice, including in particular the importance of developing an enhanced level of **absorptive capacity**, or the ability to receive external assistance effectively (Smith 2011, pp. 195-233). Among the most important lessons for states is the need to develop the capacity to receive external assistance from the federal government and other nations while developing state-level policies that reflect the need to assist local governments build their capacity to accept and effectively use outside assistance when offered through grants-in-aid, donations, volunteers, and financial contributions.

The strength of plans is closely aligned with the direct involvement of those they are intended to affect. Understood relative to disaster recovery, this includes **individuals** directly impacted by an event. All too often people in this situation are referred to as “disaster victims,” which can discount their deep understanding of local conditions and needs after a disaster (Smith 2011, pp. 240-242). Instead, individuals directly affected by disasters should be involved in the development of state and local pre-disaster recovery plans and post-disaster assistance strategies.

Following disasters it is also common for groups to emerge that did not exist prior to the event. **Emergent groups** possess the following characteristics: 1) they form in response to a perceived need that is not being met, 2) they are informal, 3) they assume tasks they have not previously undertaken, and 4) they assume these tasks for a limited period of time (Dynes 1970; Stallings and Quarantelli 1985). Given these characteristics, it may appear difficult to incorporate emergent groups into pre-event recovery plans. While specific emergent groups cannot be incorporated into pre-event recovery plans, plans can and should be flexible enough to account for unforeseen conditions like the emergence of groups post-disaster, thereby providing a venue for their involvement and others as identified in the post-disaster environment.^x Emergent groups can also change over time and become more formal organizations that play an ongoing role in long-term recovery.

Question: Does your state recovery plan include representatives from all members of the disaster assistance network? Are there others to consider that are not discussed in your plan?

THE ROLE OF THE STATE IN DISASTER RECOVERY

States can serve as the linchpin that brings organizations together in support of local needs both before and after disasters. Historically, states have focused on inter-governmental relationships which include recognizing the strengths and limitations of existing federal recovery policy and programs and the needs and capabilities of local governments.^{xi} The ability to serve a coordinative function addressing broader issues of **governance** (i.e. working together collectively across organizations noted in the assistance network to solve complex multi-institutional problems) is more challenging, but brings with it significant benefits.

Key state roles include:

- Develop a state-level organization responsible for coordinating and managing disaster recovery that utilizes an established organizational structure, includes appropriate state agencies and other stakeholders, and evaluates supporting agency policies to determine how they can influence disaster recovery outcomes.
- Identify a State Disaster Recovery Coordinator or Manager and establish clear authorities for the position.

- Establish an organization capable of fostering good public-private sector interaction and link it to the larger disaster recovery structure.
- Develop recovery guidance documents that are tied to existing state programs and local government actions, provide clear benchmarks for recovery outcomes and processes, and ensure the use of sound public participation techniques during the development of recovery plans and policies.
- Identify funding, staffing, and the potential realignment of operations to support disaster recovery activities, including resources that may be needed to assist new state-level organizations.
- Establish a means to engage and support local communities, many of whom may be overwhelmed after a disaster. This may include assessing local capacity in order to identify local needs and focus state assistance, developing a state-funded local recovery planning process that can be used to facilitate disaster recovery, and focusing mutual aid-based assistance on disaster recovery needs.
- Link hazard mitigation and disaster recovery operations through the implementation of the state's pre-existing state hazard mitigation plan.
- Consider establishing state requirements that foster increased levels of local disaster recovery preparedness.
- Conduct disaster recovery exercises and convene the state recovery organization on an ongoing basis (CPG 102, p. 2-3).

Question: Does your state recovery plan adhere to the state recovery roles outlined in CPG 102 and this guide?

After experiencing a disaster, states often develop organizations to supplement existing disaster recovery operations. While this approach is less preferable to the development of a strong, multi-organizational disaster recovery team beforehand, it is important to recognize this reality given its frequency. Post-disaster recovery organizations can take several forms, including a commission or task force, a legislatively authorized state office of disaster recovery, or the designation of an existing state agency as the lead recovery office. A commission or task force is often appointed by the governor, established following major disasters, and comprised of a range of stakeholders in the larger assistance network. The State of Mississippi, which used the commission approach following Hurricane Katrina (see accompanying sidebar), also created a legislatively authorized state office (Governor's Office of Recovery and Renewal) that has continued to operate over time. For instance, the Office of Recovery and Renewal assisted with flooding along the Mississippi River in 2008 and the Deepwater Horizon oil spill in 2010.

A legislatively authorized state office of disaster recovery typically involves the creation of a new office to address identified disaster recovery needs. Examples of this approach can be found in Vermont following Hurricane Irene and Iowa following a series of storms and floods in 2008. Another example of this approach is the Louisiana Recovery Authority established after Hurricane Recovery. The 33 member body is tasked with identifying and obtaining funding for disaster recovery activities, coordinating the distribution of assistance, and supporting community-level disaster recovery planning. For more information about the Louisiana Disaster Recovery Authority, see <http://lra.louisiana.gov/assets/docs/searchable/StrategicPlan0809.pdf>

The designation of an existing state agency represents another approach used by some states including Florida following a series of hurricanes in 2004 and Kansas following an EF-5 tornado in 2007 that devastated Greensburg Kansas. In the case of Florida, the Florida Department of Community Affairs led this effort while the State of Kansas established a single point of contact to coordinate cabinet level activities.^{xii}

Sidebar: The Governor’s Commission on Recovery, Rebuilding, and Renewal

The Mississippi Governor’s Commission on Recovery, Rebuilding, and Renewal, established in the wake of Hurricane Katrina, provides a unique example of how members of the private sector, working in tandem with federal, state, and local officials, nonprofit organizations, foundations, technical experts, and citizens, were able to develop a planning document that would help chart the state’s recovery. While the commission was designated a nonprofit, it was privately funded and local business leaders filled key leadership positions on its various committees. Chairman, James Barksdale—a native Mississippian, former chief executive officer and co-founder of Netscape, chief executive officer of AT&T Wireless, and chief information officer of Federal Express—was appointed by the governor shortly after the storm made landfall.

The commission was comprised of over 500 volunteers serving on numerous committees. Committees and subcommittee chairs included the head of Mississippi Power, the publisher of the Sun Herald newspaper, a former oil company executive, bank presidents, a former mayor, and a homebuilder who also ran a prominent kitchen appliance manufacturing company, as well as state agency representatives and nonprofit leaders. In addition, the commission included geographic committees with chairmen appointed from the six most heavily damaged coastal counties as well as representatives from southeast and southwest Mississippi.

The Governor’s Commission approach differs from that of most state-level recovery committees, which are typically led by agency officials and financed by state government resources. In fact, it could be argued that this model provided greater horizontal and vertical

integration (discussed later in this guide) than the traditional state agency-centric approach. For instance, leadership positions were principally filled by individuals who resided in stricken communities. Their in-depth understanding of local conditions and needs grew out of extensive public meetings; the assessment of disaster impacts; and the fact that their homes, businesses, and communities were directly affected by Katrina. The formation of geographic committees provided additional local knowledge and a means to express local needs to other committee chairpersons. And each committee included state agency officials, who provided important information to commission participants regarding existing state and federal programs and who helped to develop policy recommendations that addressed identified gaps in assistance.

The sense of urgency among participants was clear. For instance, the commission held a six-day planning workshop called the Mississippi Renewal Forum about one month after Katrina. The purpose of the forum was to assist communities develop urban form-based recovery plans. The hosting of this community design-based event so soon after the disaster highlights the tension between being proactive and making decisions when communities are able to effectively engage in decision-making processes that have the potential to reshape their physical, social, and economic condition.

*The commission's work as a formal body culminated with the report *After Katrina: Building Back Better Than Ever*. This document, which proposed a broad series of recommendations across the committees' topical areas, was completed by the end of December, just three months after the commission was formed. The speed with which the commission acted, which was due in large part to its organizational structure and the application of private sector procedures, provided the impetus for federal, state, and local action. For instance, the state of Mississippi was more effective, on a per capita basis, than Louisiana in obtaining supplemental appropriations from Congress. Some have argued that this resulted from having a Mississippian as the chair of the Senate Homeland Security Appropriations Committee and a governor who was a former Washington lobbyist and leader of the Republican National Committee (Olshansky and Johnson 2010). But while critically important, the strong vertical connectivity and understanding of how Washington politics operates account for only part of the reason that Mississippi was able to procure a disproportionate amount of available financial resources. The second factor, which is often discounted, was the commission's ability to link political power with good data in a timely manner.*

Many of the proposed recommendations have been adopted by the state and local communities. Examples include the formation of the Renaissance Corporation, the creation of community-based design studios intended to help residents and communities with

building and land use decisions, and the adoption of flood insurance rate maps that were updated after the storm. Following the issuance of the commission's report, the governor created the Governor's Office of Recovery and Renewal to help communities work through the implications of various policy choices; seek out sources of funding to assist with the implementation of recovery recommendations; and provide technical assistance through education, outreach and training initiatives.

Much of this sidebar was drawn directly from the text: Planning for Post-Disaster Recovery: A Review of the United States Disaster Assistance Framework (Smith 2011, pp. 182-183).

Question: For those states that have developed post-disaster state-level recovery organizations, were these organizations codified in law and/or folded into the state's ongoing operations?

Developing good pre-disaster state recovery plans can provide an important coordinative process fostering partnerships between members of the larger assistance network. Actively reaching out to new partners can expand the collective capacity of the network while providing additional resources, including new ideas and perspectives that may not have been considered previously. Important questions to consider during the development of a robust disaster recovery network include:

- What resources does each member of the network possess, and how can they be used to support pre-disaster recovery planning and post-disaster actions without duplicating efforts or contradicting the plan's vision for recovery?
- Based on an assessment of needs and existing capabilities, what resources are lacking and who might be able to provide them?
- How can members of the assistance network effectively link their goals and policies to those of other relevant organizations, thereby building a stronger coalition of support guided by a common purpose or vision?

Sidebar: Federal and State Recovery Policy and Guidance

In order to develop a strong state disaster recovery plan it is important to understand relevant national, state, and local policies as well as existing documents intended to assist states undertake recovery planning. Next we discuss the National Disaster Recovery Framework, the Robert T. Stafford Act, the Post-Katrina Emergency Management Reform Act (PKEMRA), Comprehensive Preparedness Guide 102 (Disaster Recovery Planning) and relevant state recovery legislation, policy, and guidance materials.

The recent approval of the **National Disaster Recovery Framework** represents a significant federal achievement and signals a greater federal commitment to disaster recovery planning. It builds on the creation of FEMA's **Emergency Support Function 14, Long-Term Community Recovery** (often referred to as ESF-14).^{xiii} ESF-14, as well as the more recent creation of Recovery Support Functions (RSF's) is discussed in the State Recovery Planning Process section of this guide.

The Robert T. Stafford Disaster Relief and Emergency Assistance Act was passed in 1988 in order to better coordinate post-disaster federal assistance. The Stafford Act provides guidance on three key FEMA post-disaster programs: the Public Assistance, Individual Assistance, and Hazard Mitigation Grant Programs. The Stafford Act also describes the National Flood Insurance Program (NFIP). For more information and a digital copy of the Stafford Act, please see Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988, 42 U.S.C. 5121, et seq., as amended.

The National Response Framework (NRF) serves as a federal guidance document that is focused on the role of the federal government in response. Prior to the passage of the Post Katrina Emergency Management Reform Act (PKEMRA), the NRF was the principal federal policy guidance purported to address disaster recovery. The realization that the NRF did not adequately address disaster recovery-related issues, needs, and governmental functions led to the passage of the PKEMRA. For a copy of the NRF please see National Response Framework <http://www.fema.gov/pdf/emergency/nrf/nrf-base.pdf>.

The **Post Katrina Emergency Management Reform Act (PKEMRA)** required FEMA, working in partnership with the US Department of Housing and Urban Development and a number of other federal agencies, to develop a National Recovery Strategy. This led to what is now called the National Disaster Recovery Framework (NDRF). The NDRF and its associated planning requirements will be discussed in the next section of this guide. For a copy of the PKEMRA please see Post Katrina Emergency Management Reform Act of 2006, Public Law 109-295. ADD LINK HERE

Comprehensive Preparedness Guide 102 (Developing Recovery Plans) introduces the concepts of the National Disaster Recovery Framework, including federal, state, and local roles and responsibilities; provides a general coordinating inter-organizational structure (including Recovery Support Functions); discusses the value of pre- and post-disaster planning; and describes how hazard mitigation can and should be integrated into post-disaster recovery activities.

A few states have developed **State Recovery Planning Guidance** in advance of PKEMRA and the NDRF. Examples include the **State of Florida's Post-Disaster Redevelopment Plan** (see

Florida PDRP sidebar) program and the **University of Oregon's Partnership for Disaster Resilience**. In both cases, the programs focus on the delivery of assistance to local governments. For more information on these two programs please see:

<http://csc.uoregon.edu/opdr/recovery> and

<http://www.floridadisaster.org/Recovery/IndividualAssistance/pdredevelopmentplan/Index.htm>. The Florida Post-Disaster Redevelopment Planning guidebook can be accessed at:

<http://www.floridadisaster.org/recovery/documents/Post%20Disaster%20Redevelopment%20Planning%20Guidebook%20Lo.pdf>

Question: Does your state recovery plan account for the emerging federal policy changes? If not, have you stayed abreast of these changes, including staying connected with your FEMA region's Disaster Recovery Coordinator?

THE STATE DISASTER RECOVERY PLANNING PROCESS

Determining who should be involved in the State Disaster Recovery planning process tends to elicit a range of answers among state officials assigned this task. In many states, the division of emergency management is tasked with organizing this process, including the implementation of the plan (if one exists) when a disaster occurs. Historically, the rationale for this approach is the ongoing working relationship between state emergency management agencies and FEMA. In reality, the issues surrounding disaster recovery involve much more than the administration of FEMA programs. Disaster recovery also includes issues tied to economic development, land use, codes and standards, the provision of temporary and long-term housing, reconstruction, debris management, infrastructure, and critical facilities (each of these issues are discussed later in this guide in the section titled topical planning elements). As a result, a number of states have taken a different approach and developed state recovery committees and plans led by an organization located outside of emergency management.^{xiv}

Good state recovery plans should serve a number of critical roles:

- 1) State recovery plans should identify the broad disaster assistance network (see p. 4) of resource providers involved in pre- and post-disaster recovery planning, capacity building, and operational activities.
- 2) State recovery plans should provide a mechanism to bridge the delivery of pre- and post-disaster federal assistance and the capacity needed to implement these programs at the local or community level.

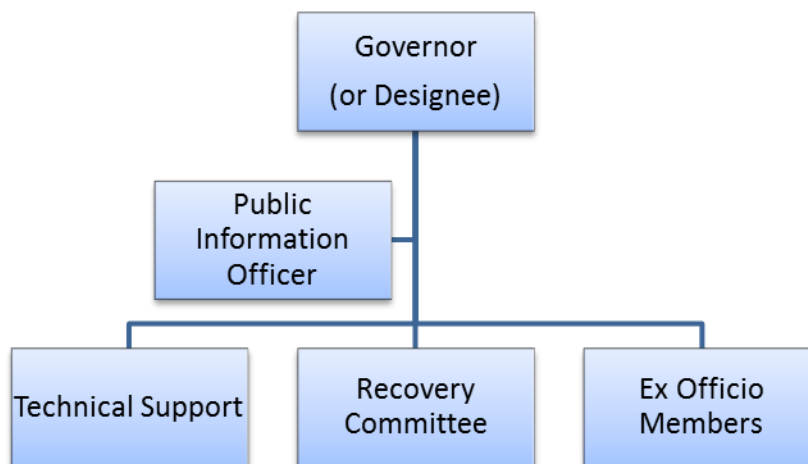
- 3) State recovery plans should identify state-level policies and programs designed to assist local governments build greater capacity to confront the challenges associated with disaster recovery.
- 4) State recovery plans should identify and address gaps in existing programs based on a **stakeholder analysis**.^{xv}
- 5) State recovery plans should include state programs and policies that can be used to achieve complementary aims in both the pre- and post-disaster environments.^{xvi}

Question: Can you think of other important roles your recovery plan should play that are uniquely relevant to your state?

STATE DISASTER RECOVERY COMMITTEE

One of the most important first steps in the development and maintenance of a state recovery plan is to create a **State Recovery Committee** (Figure 4). The State Recovery Committee should include the active participation of members of the disaster recovery assistance network. The makeup of a state recovery planning committee should not be constrained by the proposed list presented in Figure 5 and will vary across states depending on differing issues uncovered in your risk assessment, capability assessment, and stakeholder analysis (e.g., differing hazards, state policies and programs, and existing knowledge, experience, and training). It is also important to select an individual and proxy for each committee position that is committed to the process and able to make policy decisions on behalf of the organization (or they are able to seek appropriate guidance and approval when needed).

Figure 4: State Disaster Recovery Committee



Developing a state recovery committee in advance of a disaster allows for the time required to develop a clear and functional **organizational structure** that addresses a number of key issues, including:

- The creation of committee by-laws, including the appointment of a chair or co-chair, the identification of voting committee and subcommittee members, operational activities like meeting schedules, and the creation of a larger decision-making process.
- Developing and approving legal and regulatory authorities in concert with recognized state legislative and gubernatorial officials and existing laws and statutes.
- Defining clear roles and responsibilities of the committee, including pre- and post-disaster roles, such as developing and implementing the state recovery plan, and the types and scale of disasters that trigger the implementation of adopted policies and regulatory measures.

Recovery committees typically include a number of **subcommittees** assigned to specific tasks like housing, infrastructure, environment, and inter-governmental coordination and governance. These subcommittees often conduct a more in-depth analysis of a particular issue and report back to the larger committee with recommendations for approval by voting members. This may include the development of goals and policies and suggesting parties who should be responsible for their implementation and monitoring.

The recovery committee and associated subcommittees should maintain adequate **technical staff support** to help collect, assimilate, and analyze data; record meeting minutes; draft the plan; present the plan to broad audiences and solicit their feedback; and other duties as required.

Figure 5: Proposed State Recovery Committee Membership

Organization	Position
Emergency Management	<ul style="list-style-type: none"> • State Recovery Coordinator (as suggested in the NDRF and CPG 102) • Hazard Mitigation Officer • Public Assistance Officer • Individual Assistance Officer • Public Information Officer
Public Health	
Economic Development Office	<ul style="list-style-type: none"> • Community Development • Housing (this position may be drawn from a state housing agency) • Travel and Tourism

State Planning Office	
State Climate Office	
State Budget	
State Archives and History	<ul style="list-style-type: none"> • State Historic Preservation Office
Environment and Natural Resources	
State Geology	
Transportation	
State Facilities	
Agriculture	<ul style="list-style-type: none"> • Extension Service • State Veterinarian • Marine Resources
State Coastal Management Agency (found in coastal states, including those that border the Great Lakes); Sea Grant	
Social Services	
Education	<ul style="list-style-type: none"> • Universities (state and private institutions and faculty; university centers focused on the study of natural hazards and disasters) • Community Colleges • Primary Education (including those involved in curriculum development)
Governor's Office	
Regional Planning Organizations	
Organization(s) and/or local official(s) representing counties (e.g., County Commissioner's Association)	
Organization(s) and/or local official(s) representing municipalities (e.g., State League of Municipalities)	
Organization(s) representing small business	
Organization(s) representing nonprofit interests	<ul style="list-style-type: none"> • Environment • Social Justice • Other as identified
Emergent groups (identified after a disaster occurs)	
Ex-Officio Members ^{xvii}	<ul style="list-style-type: none"> • Federal Emergency Management Agency • Economic Development Agency • Housing and Urban Development

	<ul style="list-style-type: none"> • National Oceanic and Atmospheric Administration • Environmental Protection Agency • United States Department of Health and Human Services • Center for Disease Control • United States Department of Agriculture • United States Army Corps of Engineers • United States Geological Survey
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The composition of the state recovery committees should be comprised of representatives from different levels of government, non-profits, and members of the private sector, among others. A broad based committee membership is vitally important in order to:

- Maximize the collective understanding of issues that may affect the state and its communities, economies, and environment.
- Coordinate the timely distribution of resources across the assistance network in a manner that addresses local needs.
- Provide access to resources, including funding, technical assistance, and information.

Question: Are the roles of your state recovery committee clearly stated and codified in state policy or law? Do you have adequate staff support?

THE PURPOSE OF THE RECOVERY COMMITTEE

The recovery committee should serve several roles:

- 1) Ensure that a group is in place that is responsible for taking action through a coordinated process that is understood and accepted by the participants;
- 2) Develop, maintain, and update the state recovery plan over time based on new information (including as part of a regular plan update cycle and following disasters);
- 3) Solicit regular feedback from local government officials and other members of the disaster recovery assistance network to ascertain if the state is adequately meeting local needs before and after disasters (including assessing post-disaster needs that exceed traditional state and federal recovery programs);
- 4) Ensure that the recovery plan provides a sound decision-making framework focused on both pre-event planning and post-event actions;

- 5) Advocate for state needs, including the regular evaluation of policies adopted or proposed by federal, state, and other organizations that affect state recovery capabilities, influence hazard vulnerability, or affect the timely and equitable distribution of pre- and post-disaster assistance.

WRITING THE STATE RECOVERY PLAN:

APPLYING PLAN QUALITY PRINCIPLES AND THE NATIONAL DISASTER RECOVERY FRAMEWORK^{xviii}

The remainder of this how-to-guide focuses on the components of a state recovery plan, which are drawn from Plan Quality Principles (Figure 6) as well as disaster recovery research, policy, and practice. Plan Quality Principles derive their content from widely accepted planning practice that has been honed over time. Many of the studies that have used these principles to evaluate plan quality are tied to natural hazards and disaster management, including state and local hazard mitigation plans (Godschalk et al. 1999; Berke, Smith and Lyles 2011) and state disaster recovery plans (Smith and Flatt 2011, Sandler and Smith 2012). This has led to advances in evaluative criteria related to recovery plans which are reflected in this document.

Figure 6: Plan Quality Principles^{xix}

Vision and Issue Identification	A vision statement defines the principal underlying themes and intent of the plan (e.g., achieving a sustainable and resilient recovery). Issue identification includes a description of the plan’s focus (e.g., disaster recovery).
Fact Base	The fact base is an analysis of current and projected conditions within the study area, which in this case is the state. The fact base should include an assessment of relevant plans, policies, and programs; fiscal, legal, and administrative capabilities to address recovery (e.g., capability assessment); existing and future land use trends; demographic and other social characteristics (including current and projected growth rates); indicators of economic conditions; environmental characteristics; and a hazard identification and vulnerability assessment.
Goals	Goals are statements of future desired conditions that are tied to the overall vision. Goals are instrumental in setting a direction to guide policies and actions described within the plan.
Policies	Policies are statements intended to guide public and private decisions and should achieve identified goals. Policies should also be specific and tied to definitive actions.

Implementation	Implementation is defined as the process used to carry out policy-driven actions through the identification of resources, responsible organizations, and the timing of assistance.
Evaluation and Monitoring	Evaluation and monitoring are necessary to track changes in the fact base, assess the progress of recovery according to predetermined benchmarks, and update the plan over time.
Internal Consistency	Internal consistency is the degree to which the plan’s vision, issues, goals, and policies are clearly linked and mutually reinforcing.
Interdependent Actions	Interdependent actions refer to the vertical and horizontal integration of organizations involved in recovery. Described in the context of the state plan, vertical integration is the coordination between public sector organizations (e.g., local, regional, state, and federal) whereas horizontal integration is the coordination across state agencies and departments.
Participation	Participation is measured by the level of engagement and involvement of the disaster recovery assistance network in the preparation, monitoring, evaluation, and implementation of the recovery plan.
Organizational Clarity	Organizational clarity is defined by the overall legibility of the plan. The clarity is influenced by the degree to which the plan is logical and consistent and whether it includes visual aids such as charts and diagrams to clearly convey information.

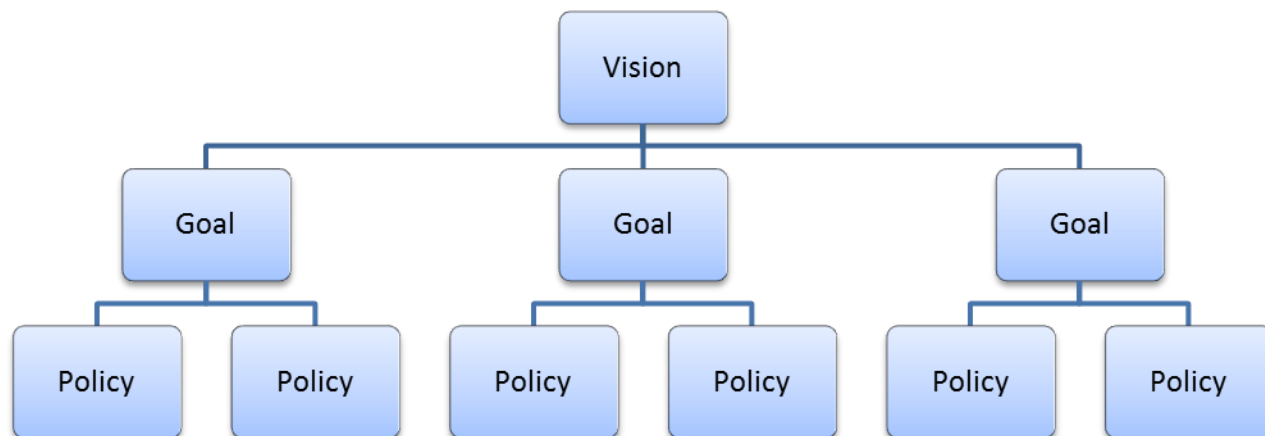
Next, we discuss each of the plan quality principles in more detail in order to explain their importance, describe how they are interconnected, and provide an argument why good plans should contain these elements. Best practices have also been identified in other state recovery plans and will be used to further clarify the relevance of key dimensions and provide lessons and ideas for those involved in the development of a state recovery plan.

INTERNAL PLAN QUALITY PRINCIPLES

A functional plan is comprised of interconnected elements (described here as principles) that foster a future- and action-oriented process (Figure 7). For instance a plan should contain an overarching vision that helps to frame the goals, policies, and projects. The **vision** sets the direction of the plan. Understood in the context of disaster recovery, a vision statement may refer to the state’s aim to assist communities and larger assistance networks become more economically, socially, and environmentally resilient through sound pre-event planning and post-event actions. **Goals** should achieve the aims of the vision statement and are the key

direction-setting elements of the plan. An example of a goal statement is: The state will develop an education, outreach, and training strategy to enhance the recovery planning capabilities of local governments.

Figure 7: Disaster Recovery Planning Hierarchy



State **policies** described in the recovery plan should include a mix of **voluntary** and **regulatory** procedures. Ensuring that policies meet identified recovery goals outlined in the plan provides vertical connectivity between goals and associated policies and serves as the vehicle for achieving the intent of the plan. When policies conflict with the aims of stated goals, it is up to those responsible for the plan’s development to identify these problems and take corrective action in order to ensure that policies and goals are internally consistent. An example of a state recovery policy is: The state will develop a state disaster recovery planning clinic focused on the development and implementation of disaster recovery training for local officials. Another example of a state disaster recovery policy is: The state will require local governments to develop pre-disaster recovery plans.

A big part of disaster recovery involves the physical reconstruction of damaged housing, public infrastructure, critical facilities, and businesses. This requires the identification of post-disaster recovery **projects**, such as the repair of downed power lines, schools, housing, and businesses. It also means, whenever possible, to incorporate hazard mitigation into these repairs or physically relocate these structures to an area that is less vulnerable to identified hazards. Ideally, high-risk structures and infrastructure have been pre-identified in the state and local hazard mitigation plans and funds have been sought to reduce their vulnerability before a disaster strikes. The pre-disaster identification of potential projects and development of grant applications in advance can significantly speed the projects’ implementation. Many recovery projects are undertaken at the local level such as the site-specific repair of damaged community facilities, infrastructure, and businesses and as such would be part of a local disaster recovery plan. State-level projects may include the repair, reconstruction, or relocation of state-owned

facilities (e.g., parks, state agency buildings, and prisons) and state infrastructure such as state-owned roads, bridges, and dams.

The funding of disaster recovery projects, such as those tied to infrastructure repair, housing assistance, and hazard mitigation are typically tied to FEMA's Public Assistance, Individual Assistance, and Hazard Mitigation Grant Program, respectively. It is also incumbent on state officials to assess how well these federal programs are meeting local needs; identify additional grant and loan programs that span the larger assistance network and consider if the state should develop state recovery programs to fill identified gaps in assistance.

States also play an important role in the development of policy that supports the repair and reconstruction of community facilities and the fostering of positive working relationships with private sector interests whose operations affect communities, state and regional livelihoods, and economies. For instance, the state may adopt a policy that requires the incorporation of hazard mitigation measures into the repair or reconstruction of damaged state or local public facilities and infrastructure. The state may also encourage a similar policy for privately owned infrastructure, which can have significant implications as the majority of public infrastructure is privately owned (Flynn 2007, p. 139). In many cases, private sector owners can and do incorporate mitigation measures into their facilities to minimize the disruption of services and loss of revenue.

The **fact base** is the data underlying the plan, and as such, the collection, analysis and display of that information should help to convey the issues facing the state and inform the ways in which these issues will be addressed. For example, the fact base might include information about state-owned facilities and property and data layers that display this information geospatially. In turn, analytical tools and models may be used to produce specific data outputs based on various disaster scenarios as a way to inform potential policy choices and their implications. A plan's vision, goals, policies, and projects should be closely tied to information and data that provides the rationale for such actions, effectively conveying what planning scholar John Friedman terms transferring knowledge to action (1987).

Fact bases found in state recovery plans should include:

- Land use data, including current and future proposed land uses by type, possible changes in land use following a major disaster (e.g., relocation or resettlement of housing and supporting infrastructure);
- An inventory of state-owned facilities and infrastructure, including their location relative to identified hazard areas;
- Demographic data, including the geographic distribution of differing populations in known hazard areas;

- Economic information about the state, including the distribution of the state’s industries and businesses (including corporations, mid-sized and small) relative to identified hazard areas;
- Hazards information derived from the hazards analysis found in a state hazard mitigation plan, including the hazards prevalent in the state as well as a chronology of past disasters and their impact;
- The findings of the state-wide vulnerability assessment, including expected losses by differing disaster scenarios and updates to the assessment following disasters;
- An inventory and assessment of existing federal, state, and local disaster recovery programs and policies (including associated funding mechanisms) as well as those programs and policies that may affect the state’s ability to address the challenges associated with disaster recovery (note: the identification of programs and policies that may hinder the state’s ability to achieve the goals outlined in the plan should be flagged, amended as necessary, and the changes incorporated into the state disaster recovery plan);
- A listing of state agencies and their role in recovery operations, including pre- and post-disaster activities such as the means by which recovery programs and policies will be coordinated.

A good plan has in place clear **implementation** procedures that make it actionable. This is accomplished by setting clear timelines for completion, identifying those responsible for implementation, holding them accountable, and where possible linking a plan’s policies and projects to the funds and additional resources (supporting policies, staffing, and technical capacity) needed to carry them out (see accompanying sidebar).

Sidebar: State of Florida’s Local Mitigation Strategy Plan Update Requirements

The State of Florida’s Division of Emergency Management, per Florida Administrative Code, requires all communities that have developed a local hazard mitigation plan (referred to in the State of Florida as a Local Mitigation Strategy or LMS) to submit annual updates to specific elements of the LMS. Plan updates include: 1) a current list of members of the LMS working group or committee, including the designated chairperson and their contact information; 2) an up to date list of proposed hazard mitigation measures (referred to as actions, initiatives or projects); and 3) a description of major changes that may have occurred since the last plan update, including those changes that affect the local hazard assessment, critical facilities list, repetitive flood loss properties or maps.

*The efficacy of plans is closely associated with the creation of strong and clear **monitoring** and **evaluation** requirements. The monitoring of a plan should be undertaken on a regular*

*basis as well as following a disaster. Similarly, plans should be updated routinely as new information is obtained, new members are added to the network, and policies change over time. Developing a robust monitoring and evaluation process allows those responsible for the plan's implementation to assess whether the goals, policies, and tasks as stated in the plan are being accomplished in accordance with established timelines and by individuals identified within the organizations responsible for accomplishing them. Creating policies and tasks that are measurable facilitates the identification of clear indicators of achievement and enables the tracking of progress over time. For instance, broad direction-setting goals should be linked to measurable policies and projects. Another way to ensure the effective evaluation of a plan is to conduct regular **exercises** that involve members responsible for the plan's implementation (see accompanying sidebar)*

Question: Does your state recovery plan address the plan quality principles discussed above? If not, do you think that your plan follows a logical approach that serves as a sound decision making tool?

Sidebar: Exercising the Recovery Plan

A recovery exercise can be defined as a process used to simulate the conditions found during a disaster recovery operation and assess the performance of those involved in it.^{xx} A good recovery exercise should test the functionality of the assigned roles and responsibilities of the network, including the tasks, policies, and organizational processes assumed by the group to address specific issues outlined in the exercise. Based on the results, participants should delineate a set of specific areas that are working well in addition to those areas that need improvement.

Exercising a plan provides an important vehicle to monitor and evaluate the quality and functionality of the plan over time and under differing conditions. Lessons drawn from exercises should be incorporated into the plan through the modification of existing policies or the creation of new ones. Exercises should also be used to test the effectiveness of the existing lines of communication across the network; the degree to which policies, programs, and financial resources are coordinated temporally and across the network; and the flexibility of the plan's operational rules and protocols to account for unexpected issues that often arise during recovery.

Developing and conducting exercises provide several tangible outcomes, including:

- *An assessment of the extent, content, and quality of inter-organizational communications across the assistance network;*

- *An assessment of the resources (funding, policies, and technical assistance) available to address pre- and post-disaster recovery operations;*
- *An evaluation of the gaps between available resources and local needs before and after disasters;*
- *The clarification of existing roles and responsibilities across the assistance network;*
- *An evaluation of the temporal distribution of resources;*
- *An evaluation of the level of horizontal and vertical integration found across the assistance network;*
- *Evidence for needed changes in funding criteria, existing policies, and the provision of capacity-building efforts; and*
- *A collection of recommended improvements targeting the individual and collective performance of those involved in disaster recovery operations.*

The results of a well-constructed exercise should improve the overall readiness of the disaster recovery assistance network to both invest the pre-event resources needed to build the collective capacity of all members (through training, education, and outreach efforts), while preparing them to address the many challenges and issues they will face in the aftermath of a disaster.

Exercises may include a number of types:

- *Orientation (e.g., workshops and training);*
- *Drill;*
- *Tabletop (e.g., basic and advanced);*
- *Full-Scale; and*
- *Multi-Site.*

*An **orientation exercise** is typically used to inform a planning team about a plan and its contents. Understood relative to what has been discussed about recovery planning, an orientation exercise should be conducted early in the plan-making process in order to bring all parties up to speed and get their feedback on the content of the plan and suggested changes. A **drill** focuses on a specific element of the plan and has been historically focused on response-related activities. Examples include a fire, tornado, or earthquake drill. Applied to disaster recovery activities a drill might include the testing of how states stand up and deploy disaster recovery teams from across a region to a disaster site. A **tabletop exercise** includes the presentation of a hypothetical scenario to an assembled group in which it is their responsibility to solve posed problems and verbally convey their proposed solutions to the exercise facilitator. An **advanced tabletop** exercise adds stakeholders that respond to the requests and strategies posed by the original group. Understood in the context of a*

disaster recovery exercise, if the original group in the tabletop exercise is comprised of state agency officials and they were tasked with the development of a post-disaster emergency housing strategy, additional stakeholders included in the advanced tabletop exercise might include private sector housing providers who were asked to collectively address a given problem and come up with a feasible solution considering the information provided.

*This interactive approach provides a more realistic scenario and requires the players to adjust their strategy based on new and often conflicting information and resources. It does not, however, involve an assessment of operations in the field. A **full-scale exercise** involves the request for and deployment of resources in the field. Full-scale exercises more closely mimic the conditions found after disasters. Further, the scenarios are played out in real time and follow a specific time horizon. In the case of the temporary housing example, a full scale exercise might include FEMA, state agency officials, local government officials (e.g., town manager, building inspectors, public works officials, and land use planners) and temporary housing vendors who may be tasked with the identification of appropriate temporary housing sites and the delivery, staging, set up, maintenance, decommissioning, and sale of the units.*

*A **multi-site exercise** most closely approximates an actual event as resources are deployed over a region, involving multiple stakeholders as is common in disasters. In this case, additional stakeholders may be included, such as emergency management officials from adjacent states, technicians from out-of-state power companies (that can assist with electrical hookups and the construction of temporary power distribution throughout group sites), and multiple temporary housing vendors from across the country (FEMA maintains an on-call cadre of temporary housing vendors to deliver units following major disasters). The involvement of out-of-state assistance also helps assess the adequacy of a state's existing inter-state **mutual aid agreement**.*

*Much of the information described in this sidebar is derived from *Emergency Management Exercises: From Response to Recovery* (Phelps 2011). For more information on disaster recovery exercises, see the following resources: FEMA's Emergency Management Institute courses, including *Integrated Emergency Management Course: All Hazards Recovery and Mitigation (E901 IEMC)*; *Community Specific-Hurricane Recovery and Mitigation (E930 IEMC)*; and *Community Specific-Earthquake Recovery and Mitigation (E930 IEMC)*. It is important to note that these exercises pre-date the passage of PKEMRA and the creation of the NDRF. As a result, these exercises should be updated to reflect more recent policies as well as research findings published following Hurricane Katrina regarding the role of pre-disaster recovery planning.*

Question: When was the last time you exercised your state recovery plan? If your plan has been exercised, do you think it was successful? Were lessons incorporated via plan updates that were vetted through the recovery committee and approved?

Plans should also be **internally consistent** as reflected in a set of interconnected, consistent, and complementary set of goals, policies, and actions that are tied to a sound fact base and common vision. Taking this approach strengthens the plan, while fostering the achievement of an agreed upon strategy. Failure to develop internally consistent planning elements can result in contradictory goals, policies, and actions that can undermine the plan's effectiveness and lead to confusion during implementation. For instance, if a plan's vision seeks to advance disaster resilience, each goal, policy, and project should strive to achieve this aim. Similarly, goals, policies, and projects should be reviewed to ensure that they do not contradict one another.

Given the diversity of most disaster recovery assistance networks, and the likelihood of change to that network over time, it is critical to invest the time needed to develop internally consistent goals, policies, and actions that are agreed to by those tasked with the plan's implementation while allowing for some degree of flexibility to modify the plan based on changing pre- and post-disaster conditions and the identification of additional stakeholders. Creating a plan that is internally consistent can help avoid contradictory actions, while maximizing finite resources and improving the temporal distribution of resources before and after disasters.

EXTERNAL PLAN QUALITY PRINCIPLES

External plan quality principles include organizational clarity and plan compliance.

Organizational clarity is an important, but sometimes overlooked element in planning. The clarity of a planning document helps to ensure its functionality and ease of use by those involved in its creation, implementation, monitoring, and update over time. Specific elements that enhance organizational clarity include creating a clear organizing structure for the plan; cross-referencing goals, policies, and actions; providing adequate supporting documentation; and using appropriate **visual aids** like maps, pictures, and graphs. An **organizing structure** provides a clear framework outlining how the planning process is to be managed and should include a description of the roles and responsibilities of those involved. **Cross-referencing** of goals, policies, projects, and actions demonstrates the interconnectivity of these direction setting elements while easing the monitoring and evaluation of the plan over time.

Undertaking this process and displaying it visually in the plan allows for an overall assessment of interconnectivity while uncovering areas that may be contradictory or duplicative. This allows for making necessary modifications prior to implementation in order to avoid these potential pitfalls, thereby supporting the concept of internal consistency.

Supporting documentation, which is closely associated with the plan's fact base, includes information about how the plan's data has been collected, the methods used to perform analytical processes (e.g., risk assessment, capability assessment), a description of the

participatory process used to develop the plan, and references to any data obtained from external sources. The collection and maintenance of supporting documentation, including the source, accuracy, and validity of this information strengthens the standing of the plan and may be used to refute claims that the plan's actions are not based on sound information. The compilation of supporting documentation can help to address political pressure to alter the plan or redress potential legal challenges should they arise.

Maintaining a historical archive of this information is also important as it provides an ongoing record of the data that can be used to track changes over time in both pre- (e.g., exposure of building stock to various hazards; demographic shifts; and policy and program creation, modification or elimination) and post-event conditions (e.g., past geospatially documented losses across events and building types, post-disaster resettlement of vulnerably communities and infrastructure, and reinvestment in declared disaster areas). A historical archive can also inform or defend past decisions that may have been incorporated into the plan by someone else who is no longer involved in the planning process. This can prove particularly useful in those cases where states stand up a temporary disaster recovery office, task force or committee and discontinue it several years after the event has passed.

Visual aids should be used judiciously to help clarify issues, summarize technical data, and visually display differing types of information. The use of **Geographic Information Systems**, for instance, may be used to overlay multiple sets of geospatial data, conduct analyses, and present the information in a visually appealing manner. For instance, GIS could be used to overlay known high hazard areas, differing land uses (both existing and proposed), varied demographic data, and areas considered for disinvestment and/or relocation following major disasters. GIS could also be used as a decision-making tool in the aftermath of a disaster by overlaying damage assessment data in impacted communities in order to determine how to deploy disaster recovery teams and assess financial needs and the grants best suited to address these needs.

State recovery plans should describe relevant **compliance** issues tied to state and federal laws and regulations that are tied to recovery planning and related activities. For example, a small but growing number of states are encouraging local governments to develop recovery plans and assisting them accomplish this aim through education, training, and other capacity building initiatives (see Florida's Post Disaster Redevelopment Program). At the state level, compliance also refers to any state requirements of local jurisdictions, how a state plans to build the capacity necessary to meet accepted planning standards, and how the state proposes to hold local jurisdictions accountable to these standards over time (see accompanying sidebar). Following major disasters it is common for states to revisit and strengthen existing statewide codes and standards. Ensuring that these new regulations are incorporated into state recovery

plan updates and reassessed relative to pre-existing goals and policies is also important and should be part of any post-disaster plan monitoring process.

Sidebar: Florida's Post-Disaster Redevelopment Planning Program

Florida statutes require that all 203 coastal counties and municipalities develop a post-disaster redevelopment plan. After the 2004 and 2005 hurricane seasons, which saw five hurricanes strike the Florida coast (Charley, Frances, and Jeanne in 2004; Katrina and Wilma in 2005), the state realized that it needed to develop more explicit disaster recovery planning guidance for coastal counties and municipalities. As a result, the Florida Coastal Management Program, working with the state Department of Community Affairs (DCA), Division of Community Planning, began the Florida Post-Disaster Redevelopment Planning Initiative.

The first phase of the program, which started in 2007, involved the development of draft guidelines. These guidelines were based on a review of the disaster recovery planning literature, an assessment of other local recovery plans, and suggestions from a state focus group comprising federal, state, and local government officials; university faculty; and Florida planning organizations. According to the focus group,

A Post-Disaster Redevelopment Plan identifies policies, operational strategies, and roles and responsibilities for implementation that will guide decisions that affect long-term recovery and redevelopment of the community after a disaster. The plan emphasizes seizing opportunities for hazard mitigation and community improvement consistent with the goals of the local comprehensive plan and with full participation of the citizens. Recovery topics addressed in the plan should include business resumption and economic redevelopment, housing repair and reconstruction, infrastructure restoration and mitigation, short-term recovery actions that affect long-term redevelopment, sustainable land use environmental restoration, and financial considerations as well as other long-term recovery issues identified by the community.

In the second phase, which is currently under way, the guidelines are being applied to five counties and one municipality. The DCA chose a sample of coastal and inland jurisdictions as well as a municipality in order to assess the merits of multijurisdictional plans versus plans developed at the municipal level. A working group has also emerged to share information and consider regional coordination measures. Key topics include land use, housing, administration of financial resources, environmental restoration, health and social services,

and economic redevelopment. Each participating jurisdiction has been assigned a consultant who will assist in coordinating the process and developing the plan. Stakeholder groups have also been formed to lead the overall planning effort. The pilot communities are intended to serve as models for the rest of the state and possibly the nation.

The third phase assesses the plans that used the guidelines during their development and will utilize the findings to modify the guidance materials. Post-Disaster Redevelopment Planning: A Guide for Florida Communities, which further clarifies recommended planning processes across different types of Florida communities, is used to conduct regional workshops designed to educate communities about the nature of the redevelopment process, describe the planning requirements, and provide information about available funding. The third phase will also recommend whatever changes or new legislation is necessary to codify disaster redevelopment planning requirements.

The following sidebar was drawn directly from Planning for Post-Disaster Recovery: A Review of the United States Disaster Assistance Framework (Smith 2011, p. 44).

STATE DISASTER RECOVERY POLICIES:

ORGANIZATIONAL ISSUES AND TOPICAL ELEMENTS

Next we discuss specific policies that should be addressed in a state recovery plan. While the list of issues and policies is extensive, it is not necessarily exhaustive as states will likely identify issues not covered here before and after disasters strike. The pre-identification of issues and associated policies that are likely to arise allows those involved in the planning process to plan for these eventualities and coordinate the timing and distribution of resources that span the assistance network. By planning for these largely predictable needs, not only are states more able to address these needs, they can devote additional time and resources to those issues that may emerge unexpectedly following a disaster.

ORGANIZATIONAL ISSUES

Key **organizational issues and policies** include:

- Leadership
- Inter-organizational Coordination
- Communication
- Financial Management
- State Personnel and Network Staffing
- Disaster Recovery Operations

- Capacity Building Initiatives (including training, education, outreach, and exercises for state and local officials)
- Resolving Disaster Recovery Disputes
- Legal Issues, Laws, and Authorities
- Post-Disaster Data Collection
- Linking the State Recovery Plan to Federal Guidance
- Linking the State Recovery Plan to other State Planning Guidance

Leadership

Effective leadership is a crucial element of effective disaster recovery operations (Nakagawa and Shaw 2004). Leadership can be described across three dimensions: technical/administrative, political, and collaborative (Smith 2011, pp. 332-334). Technical and administrative leadership is expressed through the training of people in plan-making, grant writing, and program administration. Political leadership involves the ability to influence the behavior of others, including members of disaster recovery assistance networks. It also means demonstrating the political will to advance the public good even when faced with opposition. Collaborative leadership involves a mix of both technical and administrative actions in the face of political realities. Building enduring coalitions requires advancing both aims.

Inter-organizational Coordination

A central purpose of the state recovery plan is to foster and maintain strong inter-organizational coordination and communication. As such, all state plans should include a **state recovery committee** that has the requisite skills to address the issues described in the recovery plan, and therefore should include representation from members of the disaster recovery assistance network. The committee should also possess the ability to rapidly bring in new members on a temporary or permanent basis depending on those issues that may emerge unexpectedly, which is common following major disasters.

One way to describe inter-organizational coordination among members of the assistance network is the level of horizontal and vertical integration present (Berke, Kartez and Wenger 1993; Smith 2011). **Horizontal integration** is the level of coordination found across state agencies and organizations. This type of coordination is manifest in the purposeful development of complementary policies found in state agency plans and programs. Strong horizontal integration is also the result of repeated interaction, the sharing of information, and the degree to which agencies engage in collaborative decision-making activities.

Vertical integration represents the degree of coordination between federal, state, and local levels of government. States can serve as an important intermediary and facilitator of vertical integration through the identification of local needs, an assessment of the degree to which existing federal programs meet these needs, and developing state programs to address

identified shortfalls. State recovery plans can help to improve vertical integration by explicitly linking these important aspects of recovery. Good state recovery plans foster both horizontal and vertical integration.

Communication

All of the specific disaster recovery tasks described in this guide are interconnected and benefit from a spokesperson or persons who can assist with the time consuming task of conveying pertinent information over time, both before and after a disaster strikes. The identification of an External Affairs / Public Information Officer assigned this responsibility is an important part of any good state recovery plan. While information may be conveyed by a variety of state agency officials, non-profit representatives, public sector officials, and other members of the assistance network, a clear communication and outreach strategy should be developed that effectively addresses both communication within the recovery committee and the conveyance of information to those outside of it. Elements of the strategy should include:

- Utilizing multiple forms of media (e.g., newspapers, internet, television, radio, social media) based on intended audiences.
- Conveying a common message across the assistance network tied to agreed-upon elements of the state recovery plan.
- Engaging members of the media in the pre-event recovery planning process, including educating them about the nature of recovery and its complexities and developing ways to solicit their assistance to disperse recovery-related information and dispel misinformation in both the pre- and post-disaster environment.
- Developing an approach to share information and engage in an ongoing dialogue with individuals and organizations that are external to the recovery committee, including the development of a venue to solicit feedback and engage in plan updates.

Financial Management

Developing sound state pre-event **financial management procedures** and capabilities to deal with the influx of federal, state, and other funding from across the assistance network is crucial. The failure to do so can lead to an overwhelmed state financial management system. In other cases, a poor financial management system does not reflect or capture the breadth of assistance available from non-governmental sources. This, in turn, can slow the disbursement of funding, result in inadequate procedures to handle post-disaster audits, limit contributions from outside donors, and hinder the coordinated and timely distribution of financial assets across the network. Specific financial management-related issues that should be a part of a state recovery plan include:

- **State Management Costs.** State management costs are typically developed by state emergency management agencies as part of an agreement with FEMA in order to gain access to post-disaster federal funding. In most cases, management cost plans include a description of the administrative costs needed to manage post-disaster grant programs, including personnel, travel, facilities, and training costs. State management cost plans are typically developed to estimate the costs associated with the post-disaster administration of the Individual Assistance (IA), Public Assistance (PA), and Hazard Mitigation Grant Program (HMGP).
- **State “Rainy Day” Fund.** States should maintain a rainy day fund to supplement post-disaster federal assistance that often fails to meet all of the needs expressed by members of the assistance network. Developing and sustaining this type of fund over time will benefit from a clear set of financial management policies, including a decision-making board and a set of well thought out eligibility criteria (see accompanying sidebar).
- **Grants Management.** Post-disaster recovery is driven to a large extent by the access to and expenditure of grants from a variety of sources. The ability to effectively manage and coordinate this array of funding streams, their varied eligibility criteria, and differing funders, necessitates a strong state-level grants management strategy. Good grants management also requires ensuring an adequate number of grants managers are available. These individuals should be experts (or know who to contact to get answers) regarding the eligibility criteria of individual funding sources as well as how differing sources of funding can be combined, leveraged, and modified to meet local needs both before and after disasters. Also, the ability to assist local communities write eligible grants, document expenditures, and monitor the implementation of grants over time are all important skills that should be possessed by state officials. Closely associated tasks also include contracting and procurement of necessary services and material needed during recovery operations. Specific state-level actions may include hiring additional private sector grants managers, engineers, housing counselors, and debris management specialists. This is important as states have differing hiring laws and contracting procedures that may limit their ability to hire temporary state personnel and may be required to rely on post-disaster contractor labor.

Question: Does your state have in place the ability to rapidly expand the staffing that may be needed to administer large post-disaster grant programs? Is this procedure codified in your state disaster recovery plan?

Sidebar: North Carolina's Disaster Recovery Programs after Hurricane Floyd

In 1999, after Hurricane Floyd, the North Carolina state legislature appropriated \$836 million to address needs that were not met by the federal government. The money was drawn from the state's "rainy day" fund, which was set aside to address unexpected financial shortfalls and budgetary deficits. The broad intent of the Hurricane Floyd Reserve Fund was to help local governments achieve a more sustainable recovery across economic, social, and environmental dimensions than would otherwise have been attainable with just federal assistance programs.

The redevelopment package included twenty-two new state programs administered by ten different agencies. Programs included the remapping of the state's floodplains, the construction of replacement housing, the development of infrastructure for new communities, money to supplement the relocation of low-income residents outside of areas subject to repeated floods, the purchase and relocation of hog farms and junkyards located in the floodplain, and the hiring of redevelopment center staff, including "housing counselors" to walk individuals through the array of state and federal programs.

Hurricane Floyd was a category 2 storm on the Saffir-Simpson scale (i.e., winds ranging from 96 to 110 miles per hour) when it made landfall. The devastation it caused, however, was due not to high winds but rather to the tremendous amount of rain that fell across eastern North Carolina, which was already drenched by rains from Hurricane Dennis two weeks earlier. Saturated soils, the size of the storm, and the amount of rainfall all contributed to the magnitude of flooding (Bales, Oblinger and Sallenger 2000).

During the days that followed, approximately 6,600 square miles of eastern North Carolina were under water. In many communities, the flood stage exceeded the 100-year flood event. Fifty-two people lost their lives, and over 1.5 million people lost power. More than 67,000 homes were damaged, thousands of which were inundated by over five feet of water. More than 1,000 roads were closed, including two interstate highways. Twenty-four wastewater treatment plants were flooded or severely damaged. More than 1,400 water rescue missions were conducted. Two hundred twenty-seven shelters were opened, housing approximately 62,000 people; an estimated 41,000 more people took shelter in motels, local fire stations, and churches.

The Red Cross, Salvation Army, the Baptist Men, and other relief organizations established over 100 feeding stations, while the North Carolina Emergency Management Division (NCEMD) provided 450,000 MREs (meals ready to eat). And about two-thirds of disaster assistance claims were from those living outside the 100-year floodplain—the area subject to a 1 percent annual chance of flooding.

The flood highlighted the state's outdated flood insurance rate maps (FIRMs), a primary purpose of which is to delineate the 100-year floodplain. Structures located in this mapped area are subject to National Flood Insurance Program regulations. Historically, creating and updating FIRMs has been the responsibility of the Federal Emergency Management Agency (FEMA). However, the federal funds allocated to maintain the maps are insufficient to keep up with changes in flood hazards caused by new development and by physical changes in the hydrology of the nation's floodplains.

As a result, the state used \$22 million of the Hurricane Floyd Reserve Fund to initiate the North Carolina Floodplain Mapping Program, marking the first attempt by a state to assume responsibility for creating and updating FIRMs. In addition to recognizing the importance of improving the state's understanding of flood hazard vulnerability, the legislature approved several programs targeting the relocation of flood-prone housing. In eastern North Carolina, many residents owned homes of relatively low value that had been flooded repeatedly. FEMA's Hazard Mitigation Grant Program (HMGP) provides eligible homeowners with pre-disaster fair market value for their homes should they agree to participate in the voluntary program. Recognizing that HMGP funds would be insufficient for many residents to purchase a suitable replacement home in good condition outside the floodplain, North Carolina established the State Acquisition and Relocation Fund to provide up to \$75,000 in additional funds per household to enable homeowners to make such a purchase. Individual homeowners who sustained damages but were not eligible for the "buyout program" may have been eligible for the state's Repair and Replacement Program, which made repair grants available to low-income homeowners if the repair costs did not exceed the value of their structures.

The flooding associated with Hurricane Floyd destroyed entire communities. The construction of new communities required new water, sewer, and drainage systems. With this in mind, the state infrastructure program was created to enable the construction of subdivisions outside the floodplain, thereby shifting development to higher ground and reducing the likelihood of future flood-related losses. Also recognizing that a shortage of affordable housing existed in eastern North Carolina before the flood, the state required that at least 50 percent of the eventual owners of homes located within new state-funded developments be individuals and families of low or moderate income affected by Floyd.

In addition to the establishment of communities within the floodplain, the flood exposed other inappropriate land uses, including hog farms and auto junkyards that had contributed to the environmental degradation of the region. Flooded hog farm operations led to widely disseminated media images of dead hogs and ruptured waste lagoons, while large-scale junkyards added an oily sheen to the floodwater and further contaminated already polluted

waterways. In order to reduce future flood-related losses and improve water quality in the rivers across eastern North Carolina, the state's recovery assistance strategy included programs to purchase both types of facilities from willing sellers and relocate them. Once these operations were removed, the land where they had once been located was converted into open space in perpetuity.

Although North Carolina's programs are perhaps the most far-reaching of any state's post-disaster efforts to address the shortfalls in federal assistance, the Hurricane Floyd Reserve Fund suffered from some of the same problems that occur at the federal level, including the failure to plan for recovery. Four factors reduced the scope of recovery envisioned by the governor: (1) a state recovery plan was not in place before the event, nor was one developed afterwards; (2) there was no single agency or organization responsible for coordinating the overall effort; (3) there were competing programmatic objectives across federal and state programs; and (4) the program design and administrative procedures did not account for the level of local government capacity to implement federal and state programs simultaneously.

After Hurricane Floyd, the state legislature debated whether to create what was widely dubbed the disaster recovery "Marshall Plan." Initial discussions centered on how the recovery programs could revitalize eastern North Carolina, which was suffering from a declining rural economy, a lack of quality affordable housing, and deteriorating environmental conditions. Although an array of state programs was created, the state failed to create a long-range recovery framework designed to systematically address the breadth of problems facing the region.

Two weeks after the hurricane, the NCEMD brought together state agencies, nonprofits, federal agencies, and nationally recognized experts from nearby universities to discuss developing a recovery plan for eastern North Carolina. The initial effort was an outgrowth of the Sustainable Redevelopment Working Group, created after Hurricane Bonnie in 1998 but never put into practice: the group focused on how the existing recovery and mitigation programs could be linked to broader economic, societal, and hazard mitigation goals, but it was told not to address the need for a recovery plan as one would be developed in time. But this never happened.

Instead, the North Carolina Redevelopment Center was created and tasked with managing most state recovery programs. Emphasis was placed on developing programmatic rules rather than on creating a multi-stakeholder recovery plan that would guide new programs, integrate existing state policies, and involve the larger assistance network in a comprehensive manner. The result was the unrealized potential of what remains perhaps the most significant creation of state programs following a disaster in U.S. history.

After a disaster, local governments, particularly those with a limited capacity to administer basic municipal services, are incapable of implementing large-scale grants without significant assistance. This reality was not effectively incorporated into the Redevelopment Center's activities. The center hired an insufficient number of state-level grant managers to help local governments develop and implement state grant applications and instead hired housing counselors to assist individuals directly. Although these housing counselors provided an important service, walking disaster victims through a confusing assortment of programs, local governments were overwhelmed with the unprecedented plethora of federal grant and loan programs that followed, and the creation of new state programs further taxed their abilities to administer assistance. Communities relied heavily on the use of consultants, many of whom also became quickly overwhelmed as they tried to assist multiple clients. Moreover, grant deadlines were established for some programs but not for others, thereby hindering the simultaneous implementation of coupled programs, such as the buyout of flood-prone properties and the development of new housing and infrastructure.

North Carolina's programs were designed to complement existing federal programs while taking advantage of a unique window of opportunity to address preexisting chronic problems in the eastern part of the state. While these efforts represent one of the most progressive attempts to incorporate sustainable development principles into recovery, the grand vision initially proposed could have been further realized by the adoption and implementation of a disaster recovery plan.

The following sidebar was drawn directly from Planning for Post-Disaster Recovery: A Review of the United States Disaster Assistance Framework (Smith 2011, pp. 56-58).

State Personnel and Network Staffing

In many ways, the development of a **State Personnel and Network Staffing** strategy represents an expansion of FEMA's traditional management cost approach and includes not only a larger array of state agency employees, such a strategy should address issues such as **post-disaster deployment protocols, the role of permanent, temporary, and time-limited staff; the use of contractors;** and the **hiring of staff to manage a state recovery** office. A state recovery office may contain a **director** (or State Disaster Recovery Coordinator as described in the NDRF) and staff including a **press officer, field staff, technical specialists** (e.g., emergency housing, economic development, and finance), and **counselors** (e.g., housing, grants management, social services, legal support). The use of mutual aid agreements with other states provides another important means to help bear the burden of additional responsibilities associated with disaster recovery (see accompanying sidebar).

Sidebar: The Emergency Management Assistance Compact

The Emergency Management Assistance Compact (EMAC), which was approved by Congress in 1996, provides a codified vehicle for requesting assistance from other states and local governments after federally declared disasters. Initially proposed by the Southern Governors' Association, it has become a nationwide effort.

EMAC staff serve to buttress existing personnel or spell state and local employees who may have been working extremely long hours under trying conditions. An important aspect of the compact involves the categorization, or "typing," of resources (including personnel) that are needed to accomplish specific tasks. Having experienced staff trained in clearly defined specialty areas greatly improves the efficacy of the team as a whole and enhances each agency's or individual's ability to assume assigned responsibilities (Waugh 2006).

The use of EMAC in long-term recovery activities is less prevalent than it is in response efforts (Waugh 2006) although there is evidence to suggest that this trend is changing. State and local officials have begun using EMAC to deploy grants management specialists, floodplain managers, building officials, and engineers during recovery. However, because clear, institutionalized, nationwide protocols for EMAC and long-term recovery have not yet been developed, access to those individuals, groups, and organizations that possess a number of pertinent skills and resources remain underutilized. For example, if EMAC were to deploy personnel pre-event to build local capacity and assist in recovery plan making, it could help to address the long-standing schism between emergency managers and land use planners, thereby furthering recovery efforts. The failure to link the efforts of EMAC to the National Response Framework or the more recent National Disaster Recovery Framework further limits the ability to foster collaboration, which is critically important during response and recovery efforts (Waugh 2006).

State and local units of government also maintain pre-event mutual aid agreements, which vary in timing and scope. This type of assistance differs from EMAC largely because it is not necessarily triggered by a federal disaster declaration, which is an important distinction as most events do not merit such a declaration. Further, state and local mutual aid agreements can stipulate the delivery of assistance in the pre- or post-disaster environment. In practice, however, mutual aid agreements have been response oriented and have failed to include the sharing of resources needed to address long-term recovery needs.

Given existing policy and its current limitations, the ability of both EMAC and mutual aid agreements to address disaster recovery needs could be improved through renegotiated agreements between FEMA and state, interstate, and inter-local parties. Important changes might include clarifying the nature of disaster recovery assistance—typing procedures,

developing pre-event resource-sharing agreements (and the means to pay for them), and expanding the scope of technical expertise available to include members from across the assistance network.

The following sidebar was drawn directly from Planning for Post-Disaster Recovery: A Review of the United States Disaster Assistance Framework (Smith 2011, p. 48).

Question: Does your state have in place the procedures needed to effectively use EMAC as a means to garner disaster recovery assistance from other states? Could your mutual aid agreement with other states be modified to include the provision or receipt of assistance from those experienced in pre-event planning for post-disaster recovery?

Disaster Recovery Operations

The post-disaster deployment procedures of staff should be established and embedded in the personnel policies of state agencies involved in **disaster recovery operations**. This allows agencies to prepare for the eventuality of being required to assume post-disaster recovery activities while also maintaining non-disaster specific duties. It also helps to inform personnel as to their expected roles, the possibility of being deployed to disaster sites for an extended period of time, and allows for the creation of adequate back-up personnel who are able to relieve others as part of a coordinated strategy. States should also develop clear rules regarding the appropriate mix of permanent, temporary, and time-limited staff depending on existing state laws and regulations (see accompanying sidebar).

Sidebar: Virginia Department of Emergency Management Recovery and Mitigation Joint Field Office Standard Operating Procedures

The State of Virginia developed a Recovery and Mitigation Joint Field Office Standard Operating Procedures in order to “maximize the effectiveness of mitigation and recovery activities” (2011, p.1). While an important part of the SOP focuses on the means by which the delivery of Public Assistance, Individual Assistance, and Hazard Mitigation Grant Program funds are administered, these activities are nested within a larger discussion of short-term, intermediate, and long-term recovery activities, including the steps needed to facilitate the transition between each. The categories of responsibilities include Community Planning/Capacity Building; Post-Event Assessment of Damages; Joint Field Office Operations; Housing; Infrastructure; Economic; Agriculture; Environmental; Health; Social and Community Services; Volunteers; Finance; Contract Assistance; and Consumer Assistance.

Further, recovery priorities, objectives, and organizational responsibilities are delineated across each of the recovery phases. For each, the resources needed to accomplishing these

planning elements are noted, including the resources (e.g., staffing, supplies, and equipment) required. For instance, the state maintains a state reservist program (70 trained staff) as well as an adjunct emergency workforce comprised of pre-identified state employees that can be temporarily assigned to assist with recovery activities.

In addition, the state has developed a number of pre-event agreements and contracts with other organizations to assist with disaster recovery and post-event hazard mitigation assistance. For instance, the state has developed Emergency Management Assistance Compact guidance to draw on those from other participating states that possess expertise in hazard mitigation and disaster recovery. Additional agreements include those established with state engineers and architects to assist with post-disaster damage assessments and the Department of Forestry to help estimate the amount of woody debris generated after disasters and assess tree damage. Finally, the state maintains an on-call contract with two private sector firms to assist them with disaster recovery operations as assigned.

Network staffing procedures should also include assessing the capacity of the larger assistance network to deliver specific services and resources, and based on that assessment, develop appropriate hiring strategies. For instance, the Red Cross and Salvation Army regularly play a role in the provision of emergency shelter and food, whereas other non-profits and foundations may provide housing counseling services. The ability to effectively coordinate and therefore avoid duplicative efforts maximizes the collective abilities of the larger assistance network. Another way to expand the personnel strength of the network is to draw on those from adjacent states through mutual aid agreements. Expanding existing state agreements to include grants managers, housing counselors, and other disaster recovery personnel, particularly those that have valuable experience working in post-disaster recovery settings can prove invaluable when effectively incorporated into existing state recovery teams.

A major problem facing local governments and individuals throughout the disaster recovery process is the often overwhelming amount of information one must digest after a disaster and effectively performing the number of tasks before them. This may include trying to understand a series of complex, disconnected, sometimes conflicting grant and assistance programs that are explained by a changing series of federal and state grants administrators. During this time there is also an overriding sense that the quicker communities can return to a sense of normalcy the better. As a result, elected officials, often reacting to public discontent, seek to speed up the process rather than taking the time needed to survey the damages and come up with a well-constructed plan of action.

In order to address the improved distribution of disaster recovery-related information, states, working in partnership with local officials, FEMA, Small Business Administration (and other federal grant providers), the Red Cross and other non-profits, insurance providers, quasi-

governmental organizations, emergent groups, and others as identified should develop (in advance of a disaster) procedures for standing up **disaster recovery information centers** (often referred to as Disaster Recovery Centers). The location and makeup of DRC's, which are typically set up in a disaster-affected areas by FEMA, should be closely coordinated with state and local officials and their locations sited in a manner that reflects the results of federal damage assessments and an assessment of community needs. If necessary, provisions should be made to provide transportation to and from the sites for individuals seeking post-disaster recovery information that would be unable to otherwise due to their health, mobility, and damage to road networks and public transportation. Those staffing DRC's should include **grant and loan specialists** from the various providers of assistance, **insurance representatives**, **housing counselors** (trained in assisting homeowner's and renters navigate the array of housing programs), and **hazard mitigation specialists** who can provide homeowners and business owners with information about incorporating hazard mitigation measures into the repair and reconstruction of their home.

State Capacity Building Initiatives

A good recovery plan requires the development of a robust pre- and post-disaster **capacity building strategy** that includes a well thought out training, education, and outreach program targeting not only state and local government officials, but also members of the larger assistance network. **Training initiatives** may include conducting **grants management workshops** and associated **financial management training** that spans the resource providers found in the disaster recovery assistance network; developing standardized local **procurement and contracting documents** tied to issues like debris management and consulting services that can be modified to reflect local laws and policies and put in place before a disaster strikes; conducting workshops on the **role of non-profits**, including faith-based groups and foundation-related support that may offer assistance but come from outside the affected community; meeting to discuss **post-disaster staffing needs at the local level**; and training **regional planning organizations** to assist local governments develop pre-disaster recovery plans and help write and administer pre- and post-disaster grants.

Educational efforts should strive to continuously inform members of the assistance network of the latest policies, programs, grants, and activities of those tasked with recovery efforts. States may choose to reach out to **colleges and universities**, including land-grant institutions and affiliated extension-based organizations (e.g., sea-grant and extension service) to assist with these efforts, including the dissemination of the latest research findings related to disaster recovery in a manner that is transferable to practice. **Outreach programs** should build informational campaigns that include the active recruitment of those that should be involved in pre- and post-disaster recovery planning activities including capacity-building initiatives. In order to enhance the efficacy of state-level capacity building efforts program development

should involve **local government representation** (as part of the state recovery committee) so as to ensure that local perspectives and their understanding of local conditions can be incorporated into state-level initiatives (see accompanying sidebar).

Question: How often does your state host disaster recovery-specific training and other capacity building initiatives? Do you think this is adequate? Can you think of other members of the larger disaster recovery assistance network that might be able to help you with this?

Sidebar: State of Mississippi Governor's Office of Recovery and Renewal

Following the hosting of the Mississippi Renewal Forum and the completion of the Governor's Commission report, After Katrina: Building Back Better Than Ever (see the Governor's Commission on Recovery, Rebuilding and Renewal sidebar earlier in this document), the Governor created the Governor's Office of Recovery and Renewal. This group was tasked with four primary objectives: identifying sources of recovery funding beyond those offered by FEMA, to include Congress, non-profits and foundations, and private sector interests; providing policy counsel to the Governor, state agency representatives, and local officials; identifying organizations best suited to implement the recommendations found in the Governor's Commission report; and delivering training, educational programs, and outreach efforts intended to assist coastal recovery and build local capacity (Mississippi Office of the Governor, 2005). Four activities led by the Governor's Office of Recovery and Renewal exemplify these objectives. They include the development of the Mississippi Alternative Housing Program, the hosting of disaster recovery workshops and regular meetings with local officials, explaining the implications of new advisory flood recovery maps and their implications for recovery, and the hosting of the Governor's Recovery Expo.

Mississippi Alternative Housing Program

The Mississippi's Governor's Office of Recovery and Renewal, working with the Housing Committee of the Governor's Commission and several private sector design firms, developed a 400 million dollar proposal in light of a Congressional appropriation seeking the design, construction, placement, and management of an improved emergency housing program. The idea, which originally emerged from the Mississippi Renewal Forum, sought to demonstrate that better long-term housing alternatives could be created than those used by FEMA after major disasters. While the State of Mississippi, building on the work begun during the Mississippi Renewal Forum, developed the concept and shepherded it through Congress, the states of Louisiana and Alabama, two states that were also affected by Hurricane Katrina, were allowed to submit competing proposals.

The State of Mississippi was awarded funding to design, construct, and deploy three housing types: the Park Model, the Mississippi Cottage, and the Green Mobile (Figure 2). The Park Model, a 492 square foot unit was intended to serve as a temporary home for a small family, typically located on a homeowner's lot while they rebuilt their home. The dwelling was built on a permanently attached wheeled undercarriage so that it could be maneuvered into tight spaces, quickly made operational, and wheeled out of a community after a permanent home was rebuilt for the tenants. The Mississippi Cottage included two and three bedroom models attached to a wheeled undercarriage that could be removed in order to set the unit on a permanent foundation if purchased by the tenant. Both the Park Model and Mississippi Cottages were intended to serve as reusable units if not purchased by the original occupant. The Green Mobile included 1 and 2 bedroom units that were focused on energy efficiency, building on earlier work by a Mississippi State University Professor who originally developed the unit as an alternative to the mobile home for low-income, rural residents.

Informational Workshops and Policy Briefings

The Governor's Office of Recovery and Renewal included staff in Jackson, Mississippi, (the state capital) as well as field staff located on the coast. A major role of the staff were to keep local officials, residents, non-profits, and others aware of policy issues and uncover local needs that were not being met by traditional disaster recovery programs. This information was discussed among staff and the Governor on a regular basis and attempts were made to identify appropriate programs, modify policies, or create new ones to meet these needs. One approach regularly used by staff was to host informational workshops whereby federal agencies, non-profits, foundations, and private sector programs were discussed with local officials.

Communicating Risk: The Post-Disaster Adoption of New Flood Insurance Rate Maps and Building Codes

One of the most contentious issues surrounding disaster recovery efforts in Mississippi was the uncertainty surrounding reconstruction standards on the coast. Hurricane Katrina's storm surge, recorded in excess of 30 feet in some areas, devastated the 15 coastal communities located along its 80 mile-long coastline. It also exposed residents to what coastal scientists and storm surge modelers already knew; Mississippi's Gulf Coast communities are among the most vulnerable to the effects of hurricane-induced storm surge in the United States. Prior to the storm, FEMA was in the midst of a restudy of the state's FIRMs. After Katrina struck, FEMA refocused their efforts to create what are called Advisory Base Flood Elevation (ABFE) maps. The maps were intended to provide a more accurate representation of coastal flooding based on the latest information and use of techniques that had improved since the previous maps were created. The ABFE's were also intended to

help communities make more informed permitting and land use decisions during the initial process of reconstruction while the final FIRM's were being developed.

Many coastal residents, community leaders, and the New Urbanists brought in to assist with recovery were initially opposed to both the use of the ABFE maps and the adoption of new FIRMs citing the increased cost of reconstruction. In some cases, individual homeowners did, in fact, rebuild prior to the adoption of new standards. The Governor's Office of Recovery and Renewal regularly met with community officials and residents along the coast to discuss the importance of using the best available data to inform post-disaster reconstruction activities as well as the importance of adopting the Flood Insurance Rate Maps once completed. Coastal communities ultimately came to the realization that the advisory standards should be adopted during reconstruction as compliance with the final standards would be required in order to remain in the National Flood Insurance Program.

The storm and its effects also reopened a dialogue that had remained largely dormant since Hurricane Camille struck in 1969. Prior to Hurricane Katrina, the State of Mississippi remained one of the few coastal states that did not maintain a state-wide building code. The state, which, encouraged adoption, left the decision up to county and local officials. Eventually 5 of the 6 coastal counties chose to adopt a building code while Mississippi chose not to adopt a statewide building code.

Governor's Recovery Expo

Another approach used to convey information to a number of stakeholders involved the hosting of the Governor's Recovery Expo. This two-day event, attended by over 50,000 people, was designed to inform residents, builders, and local officials about a number of issues surrounding disaster recovery, hazard mitigation, and risk communication. For instance, over 50 workshops were held, addressing varied building techniques being used during reconstruction (e.g., modular and panelized construction) the steps needed to comply with new building codes and standards (e.g., post-disaster ABFE's and new FIRM's), how to incorporate hazard mitigation measures into repair and reconstruction (e.g., wind retrofitting, flood-proofing facilities, elevated construction), post-disaster grant-making and disaster recovery eligibility issues, and interpreting new ABFE's.

In addition, more than 80 booths were set up, including those staffed by home improvement retailers, federal and state agencies, developers, non-profits, and foundations. Mississippi's National Public Radio conducted their live radio show inside the Coliseum during the expo. The show helped to further advertise the event and offer a chance for public officials, including the Governor, mayors, and federal and state agency officials to discuss pertinent policy issues associated with recovery. Located outside the facility, over 20 homebuilders set

up modular housing units on the grounds in order to show prospective buyers replacement housing options.

*The following sidebar was drawn directly from the forthcoming text *Lessons from Natural Hazards Planning for Climate Change Adaptation* (Glavovic and Smith 2013).*

Resolving Disaster Recovery Disputes

The lack of good pre-event planning and other capacity-building efforts not only hinders the overall recovery process, they can lead to greater inter-organizational conflict. Disaster recovery is often laden with conflict due to inter-state competition for scarce resources (in large, multi-state disasters), confusing grant programs, the inequitable and/or untimely distribution of resources, and differing interpretations of the rules driving program administration (Smith 2011, p. 266). One way for states to address such problems is through the application of well-tested **alternative dispute resolution techniques (ADR)** (see accompanying sidebar). States often have in place existing **dispute settlement centers** that apply techniques such as mediation, facilitation, negotiation, and policy dialogue to settle a range of conflicts. These organizations should be brought into the larger state recovery committee and tasked with developing programs to address pre-identified issues that engender conflict and train members of the assistance network to plan for this eventuality using recognized ADR principles such as:

- regular interaction
- sharing information
- creating incentives to participate
- demonstrating the benefits of ADR
- clarifying the fact base
- identifying new perspectives and creating multiple options, and
- redressing of power imbalances (Smith 2011, pp. 296-307).

Settlement centers should also be prepared to address the rise in conflicts in the post-disaster environment by developing a cadre of on-call staff to assist when needed.^{xxi}

Sidebar: The Role of Negotiation in Post-Disaster Resource Allocation Disputes

In the post-disaster setting, policy formulation and implementation are strongly influenced by the use of negotiation techniques. In the competition for scarce resources, those states, communities, and other entities that can effectively apply negotiation tactics stand to benefit, while those that are not skilled in negotiation are less likely to procure needed resources (Smith 2004, session XIII, p. 7, session XIV, pp. 30–31.). The ability to effectively negotiate is tied to the strength of one’s bargaining position relative to others involved in the process, and the strength of one’s position is closely associated with and bolstered by

the work done before negotiations begin: gathering information, identifying options, and garnering support (Fischer 1983; Ozawa and Susskind 1985).

In 1999, Hurricane Floyd struck North Carolina, causing major flooding that resulted in estimated losses of \$6 billion (Barnes 2001; Maiolo 2001). Along with North Carolina, nine other states—Connecticut, Delaware, Florida, Maryland, New Jersey, New York, Pennsylvania, South Carolina, and Virginia—were declared federal disaster areas. Given the size of the event, it was clear that Congress would pass emergency appropriations to supplement the federal assistance available under the Stafford Act.

After the disaster, a GIS-based analysis undertaken by the North Carolina Division of Emergency Management showed that up to 10,000 homes might be eligible for hazard mitigation assistance. From its experience following Hurricane Fran in 1996, the state recognized that because local government officials were overwhelmed (many were still dealing with Hazard Mitigation Grant Program [HMGP] projects associated with Fran), it could take a year or more to complete and submit projects to the Federal Emergency Management Agency (FEMA) for approval. Among the most time-consuming tasks was collecting the information necessary to conduct individual benefit-cost analyses.

State officials argued that the HMGP was inappropriately designed to be used effectively after a major disaster given its high degree of complexity and slow administration. At the same time, noting the limited number of federal grants designed to address large-scale housing needs, local officials and leaders in state government viewed the HMGP as both a recovery and a mitigation program. For instance, the governor was very clear that he expected the state to figure out new ways to speed assistance to those affected by Floyd, including the large number of low- and moderate-income residents in eastern North Carolina whose agriculturally based economy had already been in decline before the flood (Smith 1999). Thus, the supplemental appropriation became an integral part of a larger state-led housing recovery program, assisting over 4,000 families to relocate outside the floodplain (North Carolina Emergency Management Division 2000) (see the sidebar on North Carolina's disaster recovery assistance programs).

The supplemental appropriation language reads: "Up to \$215,000,000 may be used by the Director of FEMA for the buyout of homeowners (or relocation of structures) for principal residences that have been made uninhabitable by flooding caused by Hurricane Floyd and surrounding events and located in the 100-year floodplain." (Office of the Inspector General 2001, p. 12). The resulting policy language was strongly influenced by the active involvement of North Carolina officials who, working closely with members of the Congressional Appropriations Committee, sought to define the buyout parameters.

Once the broader eligibility criteria were established, the State of North Carolina entered into negotiations with FEMA officials to establish an agreed-upon method for determining cost-effectiveness that did not involve the use of traditional benefit-cost analysis models. Following several weeks of discussions and debate, FEMA decided that proxies for cost-effectiveness could be used for the state's top priority—the purchase and demolition of flood-damaged homes. Homes located in the 100-year floodplain were deemed eligible if they met one of the following criteria: (1) they were permanent structures other than manufactured homes that received five feet or more of water inside the structure (excluding basements); (2) they were manufactured homes (mobile homes) that were inundated by one or more feet of water above the first habitable floor and were deemed substantially damaged by an authorized local official; (3) they were structures determined to be substantially damaged (i.e., they sustained damages exceeding 50 percent of their pre-disaster value); (4) they were deemed uninhabitable because of environmental contamination; or (5) they had been previously demolished because of environmental contamination as a result of the flood (Office of the Inspector General 2001, pp. 12-13). The agreement represented a major accomplishment as it meant that FEMA would alter long-standing interpretations of program eligibility rules. FEMA agreed to proceed even though the policy met with resistance from the agency's Office of the Inspector General (IG) and some members of Congress.

FEMA, like other federal agencies, has an IG office assigned to monitor the use of federal funds. IG officials questioned why benefit-cost analyses were not performed in North Carolina after Hurricane Floyd and whether structures deemed eligible had, in fact, met a substantial damage threshold used in previous disasters (Office of the Inspector General 2001, pp. 12-13).

Even though the IG opposed the approach, the State of North Carolina successfully used negotiation tactics with FEMA, including the use of verifiable data, to obtain desired policy aims from the federal agency. Having determined how many homes were eligible for assistance helped speed the approval of large sums of money and provided significant leverage to negotiate an array of policy decisions tied to program implementation. Other states in the declared disaster area were denied similar requests or were required to wait months to receive an answer to specific policy interpretations that had been resolved in North Carolina.

Several factors played a role in the differential treatment of North Carolina compared to other states. Of the ten states, North Carolina was the most heavily affected and drew the most significant attention from the media and members of Congress. Recognizing that the scale of the potential federal assistance would draw substantial scrutiny, the state

developed a defensible method to estimate losses and showed that current eligibility determination techniques would take too long to implement. It also aggressively pursued a negotiated settlement with FEMA, whereas other states were less assertive—in part because of their weaker bargaining positions. Finally, the disaster spanned two FEMA regions, each with different levels of experience in the large-scale buyout of flood-prone properties. North Carolina was fortunate to be part of FEMA Region IV, whose experienced mitigation staff had developed a close working relationship with state and local officials as a result of being stationed in the area since Hurricane Fran.

The following sidebar was drawn directly from Planning for Post-Disaster Recovery: A Review of the United States Disaster Assistance Framework (Smith 2011, pp. 297-298).

Question: Does your state have a law in place that encourages the use of dispute resolution procedures to settle conflicts? Have you considered the use of dispute resolution practitioners (drawn from professional associations, non-profit conflict management agencies, etc.) to aid in the resolution of post-disaster-related disputes?

Legal Issues, Laws, and Authorities

Disputes and a number of recovery issues described throughout this document are tied to **legal issues, laws, and authorities**. Examples may include enabling legislation that grants the authority of an organization to oversee emergency management operations at the state level (e.g., the state emergency management agency) or lead disaster recovery efforts (as part of a new post-disaster organization); laws that govern mutual aid agreements between states; laws such as the Stafford Act, Disaster Mitigation Act of 2000, and the Post-Katrina Emergency Management Reform Act that guide the activities of federal agencies following a federally-declared disaster.

In order to ensure the authority and legal standing of state recovery plans, they should contain a written declaration to this effect and should be signed by the Governor as well as cabinet representatives. State recovery plans should also be integrated into **state emergency management enabling legislation** that typically grants authority to state emergency management agencies to act on behalf of the state.

Collection, Analysis, and Archiving of Post-Disaster Data

The effective **collection, analysis, and archiving of post-disaster data** is of critical importance to a state for several reasons:

- Data is used to help determine whether a state and affected counties merit a federal disaster declaration.
- Data can be used to help deploy limited assets and resources.
- Data can be used to argue for additional resources from Congress (in the form of

supplemental appropriations)^{xxii} and other members of the assistance network (e.g., foundations, corporations, international aid organizations and other nations) (see accompanying sidebar).

- Data can be used to uncover previously unrecognized issues and stimulate plan updates.
- Data that is appropriately archived can serve as a key part of a state’s fact base and used to track not only disaster losses, but also the efficacy of policies and projects adopted over time (e.g., hazard mitigation funding and post-disaster resource distribution strategies).

Sidebar: The State of Texas Strategic Funding Timeline following Hurricane Ike

In September 2008, President Bush signed HR 2638, which approved the allocation of \$21.3 Billion in Emergency Supplemental Appropriations for a number of federal disaster declarations. The State of Texas was the principal beneficiary of these funds and as a result was faced with the massive task of disseminating information about the varied programs, their eligibility criteria, and associated timelines for disbursement and implementation. As noted earlier in this document, the ability to effectively coordinate the influx of post-disaster assistance plays a major role in disaster recovery outcomes at the community level.

Texas developed a strategic funding timeline in which the eight major federal programs were 1) identified and described^{xxiii}, 2) their eligibility criteria explained, 3) the timeframes for grant application development and submission noted, and 4) the expected date when funding would be released. This cross-program timeline chart was supplemented by a detailed timeline for each of the eight programs including when and where public hearings on the programs will be held, application due dates, the method of program funding distribution, which state agency administers the federal grant program, and other general information including non-federal match requirements.

The rapid collection of post-disaster data that informs the response to and recovery from an event is initially performed as part of a damage assessment. The results of a damage assessment also help to evaluate the resources needed to assist communities recover while serving as an important metric to determine whether a state and their associated counties merit a state or federal disaster declaration and the assistance that follows.

State recovery plans should include a discussion of their disaster declaration process. Specific items that should be described in the plan include:

- *State disaster declaration procedures, including state disaster declaration criteria and associated state-level recovery programs (see accompanying sidebar).*
- *A staffing plan needed to conduct state-level damage assessments in cooperation with*

local emergency management officials.

- *A well-coordinated means to collect, analyze, display, and archive the data. This requires the development of a standardized process, created in consultation with FEMA and local officials that enables the state to collect comparable federal, state, and local data over time; the creation of analytical tools capable of querying, sorting, and performing basic statistical analyses; and the development of an approach that allows for the archiving of damage assessments once completed, including the geo-referencing of the data.*

Sidebar: State of North Carolina Tiered Disaster Declaration Process

The State of North Carolina’s Recovery Guide describes a unique three tiered disaster declaration process in which the state has the authority to determine and type differing disasters based on their severity. These disaster types trigger differing state and federal recovery programs, including those created to assist communities following non–federally declared disasters.

Requirements for a Type 1 disaster include a declared local state of emergency, a major disaster declaration by the president of the United States has not been declared, and preliminary damage assessments meet or exceed the criteria established for the Small Business Administration Loan Program or the four criteria have been met: a minimum of \$10,000 in uninsurable losses, uninsured losses exceed one percent of a jurisdictions annual operating budget, an approved hazard mitigation plan is in place, and the jurisdiction is compliant with the National Flood Insurance Program. A Type 1 disaster triggers state Individual Assistance and state Public Assistance programs that follow traditional FEMA IA and PA grant eligibility criteria.

A Type II disaster may be declared by the state if the president of the United States declares a major disaster. The governor reserves the right to make this decision. A Type II disaster triggers all programs associated with a Type I disaster as well as the State Acquisition and Relocation Fund and supplemental repair and replacement housing grants (see previous sidebar describing the State of North Carolina recovery programs following Hurricane Floyd).

A Type III disaster may be declared by the state if the president has declared a major disaster declaration, damage assessments indicate that the level of damages will result in an increased federal cost share (compared to smaller events that trigger a 25% non-federal cost share), and the governor chooses to call for a special session of the state legislature to consider additional state funding to create state programs designed to address unmet local needs. Eligible programs in a Type III disaster include all programs associated with Type II disasters as well as those authorized by the general assembly.

For more information on the State of North Carolina's Tiered Disaster Declaration process see NC General Statute 166A: North Carolina Emergency Management Act at www.ncqa.state.nc.us/EnactedLegislation/Statutes/HTML/ByChapter/Chapter_166A.html

The varied members of the assistance network collect an array of post-disaster data that can be used to help inform pre- and post-disaster recovery policy. Therefore, it is critical that the recovery committee recognize this important issue and develop a policy that helps to clarify how this data is collected, shared, used to inform recovery policy, and archived over time. One way to address this issue is to develop a **disaster recovery data subcommittee** whose job is to develop proposed policies and standards that will enhance the effective use and management of data. In the post-disaster environment there is often a massive influx of data created by federal and state agencies, local governments, non-profits, quasi-governmental organizations, and members of the private sector. These same organizations also collect an array of data during day-to-day operations that is also relevant and this data should be assessed and mined, when appropriate.

Linking the State Disaster Recovery Plan to Federal Guidance

The emergence of the **National Disaster Recovery Framework** and **Comprehensive Preparedness Guide 102** represent a new national commitment to disaster recovery. As such, developing a state recovery plan that is effectively tied to these two policies and their associated guidance materials is critically important for a number of reasons:

- FEMA and the range of federal agencies involved in disaster recovery have committed to use the approach stipulated in the NDRF and CPG 102, to include the creation of a federal Disaster Recovery Coordinator (reporting to the Federal Coordinating Officer) and the staffing of Recovery Support Functions (RSF's) by federal agency staff following federally declared disasters (see Figure 8).
- The NDRF and the CPG 102 strongly encourage states to designate a State Disaster Recovery Coordinator.^{xxiv}
- Developing a state plan that meets emerging FEMA guidance will enhance state-federal partnerships; similarly, identifying local needs in the state plan can help further expand the vertical integration of plans to include improved federal-state-local relationships.
- As federal recovery policy matures and clearer guidance is developed, plans that meet explicit federal requirement may receive tangible benefits that other states with less robust plans do not.

Specific items that are worthy of review in CPG 102 include:

- A discussion of the interconnectivity between federal, state, and local recovery planning.

- The expected roles of the Federal Disaster Recovery Coordinator, Recovery Support Functions, and the State Disaster Recovery Coordinator.
- Stakeholder roles and responsibilities.
- A series of annexes that include, among other information, a crosswalk that discusses key elements of disaster recovery plans.
- Characteristics of effective recovery planning

For more information on the NDRF and CPG 102 see: Federal Emergency Management Agency. 2011. National Disaster Recovery Framework. Federal Emergency Management Agency. 2012. Comprehensive Planning Guide 102.

Figure 8: Recovery Support Functions

<p>RSF: Community Planning and Capacity Building Coordinating Agency: Department of Homeland Security (DHS)/FEMA Primary Agencies: DHS/FEMA, Department of Housing and Urban Development (HUD) Supporting Organizations: Corporation for National and Community Service (CNCS), DHS, Department of Commerce (DOC), Department of Defense (DOD), Department of Energy (DOE), Department of Interior (DOI), Department of Justice (DOJ), Department of Transportation (DOT), Department of Education (ED), Environmental Protection Agency (EPA), Small Business Administration (SBA), Treasury, United States Department of Agriculture (USDA).</p>
<p>RSF: Economic Coordinating Agency: Department of Commerce (DOC) Primary Agencies: DHS/FEMA, DOC, DOL, HUD, SBA, Treasury, USDA Supporting Organizations: CNCS, DOE, DOI, EPA, Department of Health and Human Services (HHS).</p>
<p>RSF: Health and Social Services Coordinating Agency: HHS Primary Agencies: CNCS, DHS (FEMA, National Protection Programs Directorate (NPPD) and Office of Civil Rights and Civil Liberties (CRCL), DOI, DOJ, Department of Veterans Affairs (DVA), ED, EPA, HUD, USDA Supporting Organizations: DOD, DOE, DOT, National Voluntary Organizations Active in Disaster (NVOAD), SBA, Treasury</p>
<p>RSF: Housing Coordinating Agency: HUD Primary Agencies: DHS/FEMA, DOJ, HUD, USDA, U.S. Access Board Supporting Organizations: CNCS, DVA, EPA, HHS, NVOAD, SBA</p>
<p>RSF: Infrastructure Systems Coordinating Agency: DOD/USACE Primary Agencies: DHS (FEMA AND NPPD), DOD/USACE, DOE, DOT Supporting Organizations: DHS, DOC, DOD, DOI, ED, EPA, Federal Communications Commission (FCC), General Services Administration (GSA), HHS, Nuclear Regulatory Commission (NRC), Treasury, Tennessee Valley Authority (TVA), USDA</p>

RSF: Natural and Cultural Resources**Coordinating Agency: DOI**

Primary Agencies: DHS/FEMA, DOI, EPA

Supporting Organizations: Advisory Council on Historic Preservation (ACHP), Council on Environmental Quality (CEQ), DOC, DOE, Heritage Preservation, HUD, Institute of Museum and Library Services (IMLS), Library of Congress (LOC), National Endowment for the Arts (NEA), National Endowment for the Humanities (NEH), USACE, USDA

Source: National Disaster Recovery Assistance Framework, Predecisional Draft, October 2010, pp. 41-58.

Question: Does your state recovery plan include the delineation of state-level RSF's that will partner with federal RSF's following a federal disaster declaration? If so, have you thought of bringing these two groups together before a disaster occurs to discuss the specifics of post-disaster collaboration, including joint roles and responsibilities and the involvement of others that may not clearly fall within existing RSF's?

Linking the State Disaster Recovery Plan to Other State Planning Guidance

State disaster recovery plans should also provide a clear mechanism to **link to other state planning guidance and associated policies**. Taking this approach provides a tangible way to expand the level of inter-organizational (horizontal) coordination across members of the larger assistance network. Developing a set of integrated policies with state agencies (many of whom are not traditionally associated with emergency management) is critically important as disaster recovery requires the active involvement of a diverse coalition. Developing an integrated recovery strategy that assesses the policies of other agency plans and policies also helps to avoid developing a state recovery plan dominated by federal emergency management programs that do not always address state and local needs. Taking a broader view also helps to more effectively coordinate the many established policies and programs found among state agency plans that typically have personnel and budgets assigned to their implementation and monitoring (see accompanying sidebar).^{xxv}

Key state-level plans that merit close attention include:

- Emergency Operations Plan
- Hazard Mitigation Plan
- Land Use Plan (if applicable)
- Economic Development Plan
- Environmental Conservation and Protection Plan
- Housing Finance Plan
- Public Health Plan

- Social Services Plan
- Transportation Plan
- Facilities Plan

In many ways, the effective integration of existing state plans can bolster the strength and support of the state recovery plan, including those elements of existing plans that address the topical planning elements discussed next.

TOPICAL ISSUES

In addition to addressing broad organizational issues, state recovery plans should include policies that address a number of key topical areas. Additional areas may be identified by state recovery committees both before and after disasters that are germane to unique state and local conditions and should be included in the plan. These topical areas should be operationalized through the creation of specific policies and tasks.

Key topical issues include:

- Housing
- Infrastructure
- Debris Management
- Critical Public Facilities
- Reconstruction
- Hazard Mitigation
- Social Services
- Economic Development
- Environment

Housing

Housing-related issues represent perhaps the most important and challenging aspect of disaster recovery. State housing policies should address the following areas:

- The development of a housing strategy that accounts for emergency, temporary, transitional, and permanent housing solutions that span the needs of renters and owners.
- A strategy to effectively blend federal, state, non-profit, insurance-based, private sector financing, and other potential sources of housing assistance in order to achieve the state's vision and associated goals tied to housing recovery.
- A strategy to inject hazard mitigation into housing recovery and reconstruction activities including the possible relocation of homes away from known hazard areas, the state-

wide adoption of improved construction standards, and the adoption of policies that discourage development in high hazard areas.

- The post-disaster reconstruction of an appropriate balance of permanent and rental housing stock, including affordable housing.^{xxvi}
- The equitable distribution of pre- and post-disaster recovery housing assistance across members of the assistance network that manage housing-related programs.
- The development of pre-disaster inter-agency agreements between state agencies and other organizations that address housing issues on a daily basis, including state emergency management, state commerce, quasi-governmental housing agencies, non-profits, financial management agencies, the state disaster recovery organization, and others as appropriate so that housing policies, post-disaster housing assistance, and reconstruction strategies are consistent and meet the goals outlined in the state recovery plan (see accompanying sidebar).

Question: Does your state recovery committee include a housing subcommittee? Does your recovery plan adequately address the multitude of housing issues described above?

Sidebar: Housing Recovery in the State of Alaska

In response to localized flooding that severely impacting a rural Alaskan village, the state Department of Homeland Security and Emergency Management convened the Alaska Disaster Housing Task Force. The task force included government agencies, the private sector, volunteer organizations, and state universities. In close coordination with local leaders and the community, the state was able to rebuild nine homes destroyed by floodwaters in 49 days. The development of the multi-disciplinary task force was critical given a number of unique conditions found in Alaska, including the limited construction season, the rapid onset of winter, and the logistical challenges involved in this effort. In addition, the state coordinated efforts with the Cold Climate Housing Research Center (CCHRC) to ensure the homes were designed to be appropriate for the geography, culture, and climate of the area, including the incorporation of energy efficient design features, which provide significant annual cost savings to the residents.

Following the event, the state continued to work with the CCHRC to evaluate the designs used for this rural location and plans to make necessary adjustments to the housing designs and methods used to transport building materials into future affected communities. The team has identified a number of factors that should be considered such as the condition of existing road systems, the time of year housing may be needed, and soil conditions in and around housing sites. As the project evolves other factors may be identified that present additional logistical challenges. The application of lessons learned from past events to

inform the development of pre-disaster housing solutions is intended to enhance the timely delivery of high quality post-disaster housing in Alaska.

Infrastructure

Another important topical area to address in the state disaster recovery plan is **infrastructure** (e.g., water and sewer, roads and bridges, levees and dams, and electrical distribution systems). States and communities have also increasingly embraced the concept of protecting and expanding **green infrastructure**, such as river corridors, open space, wetland and floodplains (green infrastructure will be discussed in more detail in the environmental topical area). State pre-disaster infrastructure policies should address the following issues:

- The temporary and permanent repair of damaged state and locally-owned infrastructure, including the establishment of pre-disaster contracting vehicles among those tasked with these duties.
- The incorporation of hazard mitigation into post-disaster repair and reconstruction of damaged infrastructure, including the creation of policies and criteria to support the relocation and/or abandonment of infrastructure in select high hazard locations that may also serve to protect or re-establish green infrastructure (see accompanying sidebar).^{xxvii}
- Mutual aid agreements with public utility companies (including those from other states) to ensure the adequate staffing required to repair damaged power distribution systems (including downed power lines) in a timely manner. These agreements should also stipulate the process for sharing resources and staff as needed to make necessary repairs, assist the state write and manage infrastructure grant programs, and share best practices.
- A strategy to provide back-up power to critical state-owned facilities.
- A coordinated debris management strategy to remove debris from roads, water and sewer plants, and other public infrastructures in a timely manner, thereby allowing for the repair and reopening of these facilities.

Debris Management

Debris Management-related activities are a costly and time consuming process. States serve as an intermediary between what tend to be federal debris management policies promulgated by FEMA through the Public Assistance Program, and local governments who typically release contracts to private sector firms to pick up the debris. States also oversee debris management activities undertaken on state-owned properties like state parks, state-owned roads, and government facilities. In both cases, states should have in place clear **local and state-level contracting guidance** and associated training programs. States should also develop clear **monitoring requirements** that meet federal guidelines in order to facilitate the reimbursement

of debris management costs initially borne by state and local governments. State debris management plans should also address items such as the potential pre-event delineation of regional debris management sites, the process used to waive road weight limits for trucks hauling debris, methods used to sort vegetative and construction and demolition debris, hazardous waste disposal, and the removal of debris from private property.

Critical Public Facilities

The ability to maintain the functionality of state and local **critical public facilities** in the aftermath of a disaster is crucial as they provide essential services and house those organizations that perform them. Examples of state and local critical public facilities may include state and local **emergency operations centers** and **disaster field offices** (used during disaster recovery operations), **emergency and evacuation shelters**, **National Guard facilities**, **public safety offices**, **police and fire stations**, and **hazardous and radiological facilities**. While initially discussed in the context of public infrastructure, water and wastewater treatment facilities, power stations, and schools (that often serve as public shelters) may be considered critical public facilities. State recovery plans should address how those responsible for their maintenance propose to keep these facilities functioning during and after disasters, designate alternative sites should they become inoperable, and describe the multiple uses of these facilities during response as well as long-term recovery operations.

Reconstruction

The physical **reconstruction** of damaged housing, infrastructure, critical facilities, and businesses involves a complex set of interconnected issues that should be addressed in a state recovery plan. Planning for this eventuality benefits from the creation of **pre-and post-disaster decision making forums** (e.g., state and local recovery committees); policies that describe the timing and conditions under which rebuilding will occur, such as coordinating the resources available across the assistance network to rebuild damaged communities, encouraging the adoption of **temporary building moratoria** at the community level (the state may develop model building moratoria ordinances for local governments to use or modify)^{xxviii} in order to assess impacts and take the time needed to evaluate the adequacy of existing recovery policies (e.g., the adequacy of existing local building codes and standards); and the adoption of new and improved state-level building codes and standards based on a post-disaster assessment of damages and the application of new and improved techniques to assess risk.

Hazard Mitigation

Adopting new state-level building codes and standards represents one of several **hazard mitigation** techniques. The post-disaster adoption of these techniques should be closely coordinated with the vision, goals, and policies found in the **State Hazard Mitigation Plan**.^{xxix} All states are required to develop a state hazard mitigation plan in order to remain eligible for

pre- and post-disaster hazard mitigation assistance as well as other types of post-disaster federal aid. The principal components of a state hazard mitigation plan include:

- Hazard identification and risk assessment
- Capability assessment
- A hazard mitigation strategy
- Implementation, monitoring, and evaluation
- Public participation

For more information about the required elements of a state hazard mitigation plan see FEMA's hazard mitigation planning guidance document: *Multi-Hazard Mitigation Planning Under the Disaster Mitigation Act of 2000* (2008).

In the aftermath of disasters, states have an opportunity to consider the adoption of higher standards and policies that can reduce the likelihood of future losses, particularly when a disaster has publicly exposed what often amount to long-standing vulnerabilities. Examples of hazard mitigation techniques that could be implemented after a disaster and as such, should be noted in a state recovery plan include:

- Education and outreach activities.
- Protection and conservation of natural systems, such as wetlands and floodplains, barrier islands, steep-sloped areas, and wildlands.
- Structural hazard mitigation measures such as the construction or strengthening of levees, dams, and other protective measures.
- Non-structural measures such as the relocation of homes, businesses, and infrastructure away from hazardous areas and the adoption of building codes that account for natural hazards and their potential damaging effects.
- Land use policies that strive to guide future development away from known hazard locations through a mix of incentives and sanctions.
- Insurance programs (e.g., homeowners, National Flood Insurance Program, wind, earthquake, fire, reinsurance).
- Natural hazard assessment and mapping.
- State investments and financing strategies that account for hazard risk (see accompanying sidebar).

Sidebar: The State of Iowa: Linking Hazard Mitigation and Disaster Recovery through the Documentation of Losses Avoided and the Use of the 406 Hazard Mitigation Grant Program

Documenting Losses Avoided. The State of Iowa conducts an assessment of hazard mitigation actions undertaken by communities on a regular basis. Emphasis is placed on the documentation of losses avoided following events that strike an area in which hazard mitigation projects have been undertaken. The documentation of these benefits is one of the requirements established by FEMA in order to merit the designation of the State Hazard Mitigation Plan as “enhanced.” The enhanced plan status entitles Iowa to a larger allocation of Hazard Mitigation Grant Program funds following a federally declared disaster.

The Iowa Homeland Security and Emergency Management Division (HSEMD) works with the State Hazard Mitigation Team (SHMT) to collect necessary data drawn from a number of sources including a review of Local Hazard Mitigation Plans and the Local Hazard Mitigation Plan-Data Collection Worksheet. This tool is used to organize data and information that is required for the local mitigation plan and provides an electronic format for data collection at the local level. The Local Data Collection Worksheets are used to validate the State’s existing hazard assessment, vulnerability assessment, goals, objectives, proposed and completed mitigation measures, and local plan integration procedures.

In May of 2008, the State of Iowa experienced a major flood event. The post-disaster collection of data included that which was used to help assess losses avoided due to past mitigation measures, namely the conversion of property to open space. The HSEMD Mitigation staff conducted a loss avoidance study titled 2008 Iowa Mitigation Success Story – Avoided Losses through Property Acquisition and Relocation for Open Space. The study focused on 12 Iowa communities and 703 properties that were acquired following past flood events and would have sustained damages again due to the severity of the 2008 flood. A total of \$98,707,041 in documented losses was avoided due to past mitigation measures.

Source: This information was drawn from the Iowa Hazard Mitigation Plan (September 2010). For more information on the process used to assess losses avoided see the section titled “Assessment of Hazard Mitigation Actions” pp. 55-65. A digital copy of the Iowa Hazard Mitigation Plan can be found at http://www.iowahomelandsecurity.org/documents/hazard_mitigation/HM_StatePlan_2-0_EnhancedPlan.pdf

Incorporating 406 Hazard Mitigation into Recovery. The State of Iowa has aggressively pursued the use of 406 hazard mitigation funds post-disaster. As a result, approximately 25 percent of all Public Assistance funds for permanent work, namely the repair and replacement of damaged infrastructure and public facilities, include a 406 hazard mitigation component (FEMA www.fema.gov/mitigation/brief.do?mitssId=7129). Since 2007 the

State of Iowa has used over 400 million dollars in 406 mitigation funds to elevate buildings, implement soil stabilization projects, undertake drainage improvements, protect electrical lines, elevate/relocate critical utilities, and relocate buildings outside of the floodplain.

Source: See Annex 1.4-A. Mitigation Measures (Actions) in the Iowa Hazard Mitigation Plan for more information on the specifics of PA 406 activities.

Question: Does your state recovery plan adequately incorporate hazard mitigation, including for example, the use of the risk assessment to project potential disaster recovery needs following hypothetical events, the incorporation of 406 mitigation measures into the repair of damaged public facilities, and the implementation of pre-identified hazard mitigation projects at the community level?

Social Services

Another important part of a state recovery plan should involve an analysis of proposed goals and policies in the plan in order to determine whether they help or hinder a state's efforts to reduce future vulnerability. If recovery goals and policies increase hazard exposure, consideration should be given to modifying or eliminating them. Additional consideration should be given to how state goals and policies address the closely associated notion of **social vulnerability**. Specific examples of socially vulnerable populations include the poor, elderly, those that do not consider English their primary language, and others that have been historically excluded from decision making processes based on their race, class, and gender.

State recovery plans should address the notion of social vulnerability as part of the provision of **social services**. Activities may include, but are not necessarily limited to policies that address:

- The identification of unmet needs among disadvantaged groups;
- The provision of education and outreach information targeting historically disadvantaged groups;
- The modification of existing response programs to extend the provision of food, medical attention, clothing, and shelter over time following major disasters;
- The development of post-disaster field offices in hard hit areas that include counselors trained in housing programs, financial assistance, insurance, and psychological trauma;
- The development of programs that help to reconstitute social networks (this is often undertaken by non-profits and faith-based organizations);
- The development of state programs that build locally-based community recovery groups;

- The creation of state programs that offer job opportunities for the unemployed, some of which may be tied to recovery-related activities (e.g., construction and debris management).

Question: Does your disaster recovery plan adequately address socially vulnerable populations?

Economic Development

While all states possess an agency tasked with **economic development**, they are not always involved in pre-event planning for post-disaster recovery (see accompanying sidebar). This can prove highly problematic as the agency’s regular duties are directly related to several important elements of disaster recovery. Similarly, a number of other members of the assistance network, including regional planning organizations, business owners, financial management firms, and consulting firms have much to contribute to the dialogue but may not be part of the state recovery committee. Specific economic development-related activities that should be guided by sound pre-disaster recovery policies developed in close coordination with other members of the assistance network include:

- Leveraging pre- and post-disaster funding to create more economically resilient local economies. For instance, this may be achieved, in part, by developing complementary state-level eligibility criteria for grants targeting economic development (e.g., HUD and Economic Development Administration) and risk reduction efforts (e.g., the Hazard Mitigation Grant Program, Public Assistance-406). This also requires investing the time and staff resources needed to help local governments understand the nature of the programs and how they can be coordinated to achieve multiple aims.
- Providing technical assistance to local governments regarding the rebuilding of damaged downtown business districts, the incorporation of risk reduction measures, and developing sound business continuity of operations plans.
- Assisting small businesses, ideally in coordination with the Small Business Administration, to identify appropriate grants and loans to repair and reopen their business in a timely manner following a disaster.
- Training local officials, contractors, and other design professionals (ideally pre-disaster) about the merits of and tools available to incorporate sustainable development principles into reconstruction and recovery efforts.^{xxx}

Sidebar: Linking State Emergency Management and Economic Development in Tennessee Following the Floods of 2010.

In early May of 2010, heavy rains fell in western and middle Tennessee causing major flooding in a number of small towns as well as Nashville. Realizing the extent of damages following what became known as the Nashville floods, a senior Federal Coordinating Officer (FCO) tasked FEMA's Long-Term Community Recovery teams to conduct impact assessments, identify local needs, and coordinate the participation of federal agencies. These tasks were accomplished through the use of FEMA's new Recovery Support Functions (RSFs) (FEMA 2012, p. 65). In addition, the LTCR teams were deployed to the area to assist communities develop post-disaster recovery plans.

As part of their regular duties FEMA's LTCR teams sought to foster greater inter-agency coordination at the state level. One of the most effective state partnerships forged was that between Tennessee Emergency Management Agency and the Department of Community Development. FEMA, working with TEMA helped train state agency staff versed in community economic development to assist local communities identify disaster recovery strategies.^{xxxii}

Environment

Disasters can cause significant **environmental** impacts, threats to **public health**, and damages to **natural systems**. It should be noted in the disaster recovery plan that natural hazards are a normal function of the environment, their presence produces a number of important benefits (e.g., floods recharge water supplies and alleviate drought, hurricanes transport warm equatorial air masses to northern latitudes, floods transport nutrient rich soil downstream during, and fires clear dense undergrowth in forests that are dependent on these occurrences in order to maintain a healthy ecosystem), and attempts to control these phenomena and their effects can lead to a number of negative outcomes. For instance, the excessive use of levees along the Mississippi River has caused nutrient rich soils to flow into the Gulf of Mexico rather than floodplains adjacent to the river or settle in the Mississippi delta. Over time these actions have hindered the historic deposition of soil in the Midwest and coastal wetlands which perform an important protective function for New Orleans and other deltaic communities (see accompanying sidebar).

Sidebar: Advancing the Implementation of Post-Disaster Smart Growth Principles through a Partnership between the Environmental Protection Agency and FEMA

Following the Greensburg Kansas tornado in 2007, FEMA and EPA forged a partnership in which EPA staff agreed to provide technical assistance to disaster-stricken communities as they began their recovery and rebuilding processes. This involved bringing in experts from

around the country to share lessons, techniques, and programs that advanced smart growth design features tied to energy efficiency, urban form, the use of local building materials, low-impact development, and land use. Following site visits and a review of state programs and local ordinances and plans, EPA staff developed policy recommendations and drawings that visually depicted potential recovery scenarios, including those that advance smart growth principles. More recently, FEMA has formalized the partnership with EPA and has brought in EPA staff to assist following the Iowa floods (2008) as well as Hurricane Irene (2011). In the case of Iowa, FEMA partnered with the EPA, US Department of Agriculture, the Rebuild Iowa Office, and the Iowa Department of Economic Development to provide technical assistance to six communities (FEMA 2012, p. 53). At the time this guide was being completed, EPA and the State of Vermont began a project that sought to incorporate smart growth principles into the disaster recovery process following Hurricane Irene.

There remains a close connection between sound environmental stewardship and public health. Specific policies included in state recovery plans designed to counter existing public health threats and recognize the beneficial functions of natural resource protection include:

- *Limiting the placement of certain facilities and products that may result in the release or discharge of hazardous chemicals in areas prone to hazards like flooding, earthquakes, storm surge, landslides, and wildfires.*
- *Educating others as to the appropriate ways to clean flood damaged housing and businesses and safely re-enter disaster stricken communities and homes.*
- *Developing a cadre of public health experts that are available to deploy to disaster areas to assess whether drinking water remains potable, hazardous materials are exposed, and overall public health is threatened.*
- *Ensuring the rapid creation of temporary health care facilities and the repair and reconstruction of those damaged (in less vulnerable locations if necessary).*
- *Establishing strong state programs that protect natural systems like wetlands/floodplains, barrier islands, steep-sloped areas, and areas prone to naturally occurring wildfire through public easements, property purchase, limited state investments, green infrastructure plans, and zoning (as adopted at the local level).*

CONCLUSIONS

This document outlines the elements of a state disaster recovery plan, provides tangible guidance designed to complement guidance being developed by FEMA, offers a framework for action, and describes how the state fits into a larger group of stakeholders that are vital to achieving a successful disaster recovery. While the passage of the Post Katrina Emergency

Management Reform Act, the creation of the National Disaster Recovery Framework, and the writing of disaster recovery planning guidance provides a step forward, disaster recovery planning has yet to be widely acknowledged by states and local governments as an important issue worthy of serious attention. Following disasters states and local governments repeatedly find themselves in a situation where roles and responsibilities remain ill-defined, a clear vision of desired recovery outcomes are nonexistent, goals and policies are developed on the fly, and resulting actions are dominated by a reactionary response to narrowly defined federal programs rather than state and local needs. This must change if we as a nation expect to create more disaster resilient states and communities. Good disaster recovery planning can help achieve this important objective.

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Appendix: State Disaster Recovery Plan Outline

- Purpose
- Authority
- Description of Planning Process
 - Composition and Role of State Recovery Committee
- State Disaster Recovery Plan
 - Vision
 - Background and Fact Base
 - Goals
 - Policies
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- Appendices
 - Glossary of Terms
 - References

ⁱ See Appendix 1 for a proposed state disaster recovery plan outline.

ⁱⁱ At the time this document was written, FEMA was in the process of writing a self-assessment checklist for states and local governments involved in the writing of a disaster recovery plan.

ⁱⁱⁱ The figure represents insured losses and as such underestimates the total costs of the damages incurred, particularly among socially vulnerable groups that are often uninsured or underinsured relative to the general population.

^{iv} For more informational materials and research findings about the benefits of disaster recovery planning see the following: achieving greater disaster resilience and sustainable development (Berke, Kartez and Wenger 1993, Beatley 2009); balancing the speed and quality of disaster recovery (Olshansky 2006); capacity building, maximizing the coordinated distribution of assistance, collaborative decision making, and the efficient and equitable distribution of resources (Smith 2011); and injecting hazard mitigation into recovery (Berke, Kartez and Wenger 1993, Schwab et. al 1998).

^v The disaster assistance network described here is similar (albeit broader) than the **whole community** concept being advanced by FEMA. The whole community concept refers to members of the public sector, private, and non-profit sectors. For more information on this concept, refer to *A Whole Community Approach to Emergency Management: Principles, Themes, and Pathways for Action*. Washington, D.C.: FEMA. A detailed description of the disaster recovery assistance network is found in the text *Planning for Post-Disaster Recovery: A Review of the United States Disaster Assistance Framework* (Smith 2011).

^{vi} Smith (2011) argues that the most important role of the public sector is to facilitate the conditions in which inter-organizational collaboration can thrive across the larger assistance network (p. 402). In order for this to occur significant attention must be paid to developing enduring coalitions, committing more resources to pre-event capacity-building activities, and advancing a pre-disaster recovery planning agenda at the federal, state, and local level.

^{vii} See the *Red River Valley Flood Recovery Action Plan* and the *Association of Bay Area Government's Disaster Recovery Initiative* at quake.abag.ca.gov/recovery/.

^{viii} See Smith (2011, pp. 265-314) for a listing of disaster recovery planning research literature.

^{ix} The state recovery policy document can be accessed at:
www.mississippirenewal.com/documents/Governors_Commission_Report.pdf

^x For more information on the role of emergent groups in recovery see Smith 2011, Chapter 7, pp. 239-264), including the Broadmoor, New Orleans case study (Smith 2011, pp. 116-122).

^{xi} A number of hazard scholars have pointed out that states are often focused on the administration of federal programs rather than investing a sufficient amount of time recognizing the limitations of post-disaster federal assistance and developing state recovery programs designed to address identified shortfalls while building the recovery capacity of local governments and community-based networks (see Smith 2011, Chapter 2, pp. 35-76).

^{xii} The discussion of state disaster recovery organizational types was drawn, in part, from the FEMA document: *Information on State Disaster Response and Recovery Organizational Structures – ESF #14*.

^{xiii} See *Lessons in Community Recovery: Seven Years of Emergency Support Function #14, Long-Term Community Recovery from 2004 to 2011* (FEMA 2011) for examples of ESF-14 long-term recovery plans. For more information on ESF-14, see *Understanding the ESF-14 LTRC Process and Tool Box* (FEMA 2009). *ESF #14 Long Term Community Recovery National Ops Report* (FEMA 2009).

^{xiv} Examples of state recovery organizations located outside of the state emergency management agency include the State of Mississippi's Governor's Commission on Recovery, Rebuilding and Renewal (Hurricane Katrina and the BP Oil Spill), the Rebuild Iowa Office (Iowa Floods), and the Vermont Recovery Office (Hurricane Irene).

^{xv} A stakeholder analysis involves assessing relevant groups involved in a particular process. Specific actions include identifying groups, their interests in the process, their possible goals, the type of power and resources they possess, and who they typically interact with, including the degree of influence they have over others (Berke, Godschalk, Kaiser, and Rodriguez 2006, pp. 275-276). Understood relative to disaster recovery, a stakeholder analysis involves the assessment of the members of the disaster recovery assistance network.

^{xvi} Examples of state programs that merit further investigation include: 1) The U.S Department of Housing and Urban Development Community Development Block Grants (CDBG) and FEMA's post-disaster Hazard Mitigation Grant Program (HMGP) funds to ensure that CDBG expenditures typically used to repair or rehabilitate low-income

housing is not being done in known high hazard areas. Or if it is, hazard mitigation measures are being incorporated into repair and rehabilitation activities. 2) An assessment of the degree to which state farmland preservation programs address attempts to protect farmlands in areas subject to flooding, thereby limiting future development in these areas. 3) Linking anti-sprawl measures and hazard risk reduction initiatives by developing DOT pre-event investment and post-disaster reinvestment strategies in road infrastructure that encourages more compact urban form in areas that are less prone to natural hazards.

^{xvii} Ex officio members representing federal agencies may be drawn from Recovery Support Functions (RSF's).

^{xviii} It is common practice for state and local government officials to pay contractors to write plans. Frequent reasons cited for taking this approach include the lack of staff time, a desire to meet minimal requirements in order to remain eligible for the benefits associated with having an approved plan in place, or a belief that being involved in the planning process is not that important. In practice, there are several reasons why the State Recovery Committee should take the lead on this process, regardless of whether a state chooses to hire a consultant to assist them. 1) State agencies and other members of the recovery committee have a vested interest in improving recovery outcomes. 2) The collective knowledge and experience of the recovery committee should be maximized as the plan should reflect this knowledge and serve as an actionable tool both before and after a disaster occurs. 3) Members of the State Recovery Committee are connected to others involved in disaster recovery at both the federal and local levels of government through often long-standing formal and informal relationships which are critically important when faced with the many issues and complexities of disaster recovery that require multi-institutional collaboration.

^{xix} The description of plan quality principles as applied to disaster recovery are taken from the report, *Assessing the Disaster Recovery Planning Capacity of the State of North Carolina*. July 2011. Smith, Gavin, Victor Flatt, and Dylan Sandler. Institute of Homeland Security Solutions. This report also includes a state disaster recovery plan quality evaluation tool. For a detailed description of how plan quality principles can be applied to disaster recovery plans see Smith (2011), pp. 275-307.

^{xx} The development and implementation of emergency management exercises has a long history in the profession, most of which tend to be focused on response efforts. The degree to which such exercises have been applied to disaster recovery has remained limited and should be expanded.

^{xxi} For more information on the role of dispute resolution in disaster recovery, see *Planning for Post-Disaster Recovery: A Review of the United States Disaster Assistance Framework* (Smith 2011, pp. 292-307, 328-332).

^{xxii} Additional disaster relief funds can be appropriated by Congress following a major disaster. These funds are typically used to address shortfalls in Stafford Act-eligible activities. In order to receive these funds, states are normally required to document their needs and estimate what it may take to address them. Those states that are better able to persuasively convey these needs to members of Congress, using good data coupled with political astuteness are more likely to obtain desired resources when compared to other states that do not follow this approach (Smith 2011).

^{xxiii} The eight programs funded through Congressional appropriation included: Office of Rural Community Affairs Community Development Block Grant, Economic Development Administration Disaster Relief, Health and Human Services Administration for Children and Families, United States Department of Agriculture Community Development, United States Department of Agriculture Farm Services Agency Emergency Conservation program, United States Department of Transportation Emergency Relief program, National Oceanic and Atmospheric Administration Disaster Fisheries program, and the Small Business Administration.

^{xxiv} It also stands to reason that states may choose to develop comparable state-level RSF's in order to more effectively coordinate with federal personnel during long-term recovery operations much like has been done in most states relative to response operations and Emergency Support Functions (ESF's) as stipulated in the National Response Framework.

^{xxv} Local recovery plans also benefit from the close association with other local plans and policies. Two important examples include local comprehensive plans and local hazard mitigation plans. Hazard scholars, for instance, have suggested that recovery plans and hazard mitigation plans should be integrated into pre-existing local comprehensive plans (Godschalk, Kaiser and Berke 1998), while others suggest recovery plans should remain distinct from the comprehensive plan (Smith and Deyle 1998).

^{xxvi} Following major disasters the rebuilding of affordable housing in disaster-affected areas can be difficult to achieve unless appropriate incentives and mandates are adopted, working in partnership with quasi-governmental housing agencies, builders, state agencies, social justice groups, and others (Smith 2011, p. 112).

^{xxvii} FEMA's Public Assistance program can be used to incorporate hazard mitigation into the repair or relocation of damaged public infrastructure. The ability of states and local governments to effectively capitalize on what is often referred to as the "406" program requires a higher degree of direct involvement in the process. This means identifying 406 mitigation opportunities early in the scoping of the project, assessing program eligibility, conducting benefit-cost analyses, forcefully arguing the merits of the project to sometimes skeptical FEMA staff who may be reluctant to approve such projects, and embracing the political will needed to convince local officials and citizens that taking the additional time needed to develop these projects are in the best interest of the community in the long run.

^{xxviii} For more information about local disaster recovery moratoria, see A Model Recovery and Reconstruction Ordinance by Kenneth Topping (pp. 149-167) in *Planning for Post-Disaster Recovery and Reconstruction* (Schwab et. al 1998).

^{xxix} The state is required to establish priorities for the expenditure of federal hazard mitigation funds and as such it has the ability to strongly influence the types of hazard mitigation projects submitted by local governments for approval.

^{xxx} The involvement of the larger assistance network in economic development-related activities is particularly important. For instance, regional planning organizations often assist local governments write plans, manage grants and provide training on issues tied to community and economic development; financial management firms provide the capital needed to stimulate reconstruction activities; insurance companies manage the payout of insurance claims; and private sector consultants write plans, manage debris operations, design and construct housing, infrastructure, office parks and shopping centers, and public facilities.

^{xxxi} In an unfortunate postscript, the state has since eliminated the economic development positions.