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Policy Learning and Policy Change: Katrina, Ike and Post-Disaster Housing

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Abstract

Hurricane Katrina has spawned a great deal of research on various issues, including problems and failures in disaster preparation, response and recovery. Less attention has been paid however, to scholarly analyses of policy learning and change with regard to post-disaster housing. The focus of this paper is to fill that gap by analyzing the extent of policy learning and policy changes adopted after Katrina, and by examining the response three years later to Hurricane Ike. We reviewed key legislation and used theoretical insights drawn from the policy literature as a framework for examining post-disaster policy changes and outcomes. We find that as a policy issue, post-disaster housing continues to be a 'wicked' and 'messy' policy problem, exacerbated by unrealistic expectations of governmental agencies, and characterized by a weak advocacy base. To this end, we offer some policy and planning considerations in our conclusion.

Key words: disaster recovery; affordable housing; advocacy coalitions

Introduction

Housing issues are critical to the disaster recovery process, yet continue to be an under-studied area in disaster research (Tierney, Lindell, and Perry 2001). Both financial and natural disasters result in housing dilemmas, particularly for displaced populations. For instance, past disasters such as the 1993 Midwest floods, Hurricanes Hugo and Andrew in 1989 and 1992 respectively led to catastrophic damage to residential housing units.

Over 9,000 homes were destroyed and 26,000 homes were damaged by Hugo, and over 50,000 homes were destroyed and 136,000 homes were damaged by Hurricane Andrew (Comerio 1998; Morrow 1999). As one scholar noted, "In a five- year period from 1989 to 1994, five U.S. disasters caused $75 billion in damage, half of which was to residential structures: 200,000 units were destroyed or severely damaged and over 600,000 were damaged and in need of repair" (Comerio 1998, p.15). While disasterrelated housing has been a major problem for a number of years, it was the devastation and displacement caused by Hurricane Katrina that put the issue of disaster housing policies and related land development issues into the national spotlight (Levine, Esnard and Sapat 2007).

Research on various aspects of the impact of Katrina has been abundant and rich, including the first collection of essays on Katrina published by the Social Science Research Council (http://understandingkatrina.ssrc.org/). Less attention has been paid, however, to scholarly analyses of policy learning and post-disaster housing changes in response to Katrina and the hurricanes that have followed. The aim of this paper is to fill this gap by focusing on the lessons learned after Katrina to deal with post-disaster housing. In particular, we explore answers to the following questions. What were the lessons learned and policy changes made after Katrina to deal with disaster housing? Were these lessons manifested in policy outcomes following hurricanes that affected the Gulf coast after Katrina? To answer these questions, we use a model of event-based learning posited by Birkland (1997, 2006) to focus on the kinds of policy learning (May 1992) that took place after Katrina. In this article, we also extend and add to current theories and research on policy learning, which have not focused on factors that hinder policy learning, and by analyzing policy outcomes following policy learning and policy change. Focusing on the lessons learned in this domain also contributes to an understanding of post-disaster housing, an area in which scholars have repeatedly highlighted the need and importance for more research (Comerio 1997; Comerio 1998; Levine et al. 2007; Quarantelli 1982; Tierney et al. 2001, p.105; Welsh and Esnard 2009).

We begin with an overview of theories of policy learning and event-driven policy change that form the main theoretical foundations of this paper and based on these theories, develop our theoretical expectations for policy learning in the context of postdisaster housing. Next, we briefly review the policy framework for U.S. disaster housing prior to Katrina. In the third section, we look at post-disaster housing issues with respect to temporary and permanent housing after Katrina and the main policy changes that were adopted to deal with the failures that arose. Based on our analysis of post-disaster housing following Hurricane Ike in the fourth section of our paper, we find that despite lessons learned and policy changes made after Hurricane Katrina, disaster housing and policy learning in this area are still problematic. Following this discussion, we draw on the insights raised from our analysis to argue that post-disaster housing issues encompass characteristics of a "wicked policy problem" (Rittel and Weber 1973) or "messy policy area" (Jochim and May 2010), are exacerbated by unrealistic expectations

of federal and other government agencies, and lack a strong advocacy base. We also identify additional lessons learned and important issues that need to be considered in federal, state, and local disaster housing policies.

Theories of Policy Learning and Event-Related Policy Change

Theories of policy learning and change have received a fair amount of attention by both policy scholars and political scientists. Deutsch (1966) discussed policy learning in terms of the feedback in enhancing governmental "learning capacity". Heclo (1974) defined social learning as "a relatively enduring alteration in behavior that results from experience" and discussed how "political learning" leads to new policy innovations and policy change. Scholars of policy implementation, Majone and Wildavsky (1979), examined how implementation was a trial-and-error evolutionary process to find feasible policy solutions. Policy learning has also been seen as the spread of ideas as discussed by Kingdon (1984) in examining the spillover of ideas from one policy domain to another or as the "pinching of ideas" that are copied or borrowed from similar policies in other locales. Similarly, policy learning has been conceptualized as the notion of "lessondrawing" (Rose 1993) where lessons can be drawn from tested experiences in other jurisdictions (space) or borrowed across time from past experiences. Related to the concept of lesson-drawing, is the conceptualization of learning as policy transfer (Bennett 1991; Dolowitz 1997; Dolowitz and Marsh 1996, 2000) where knowledge about policies, administrative arrangements, and institutions from one place or time are transferred for use in developing administrative arrangements, policies, institutions, etc. in another time and/or place. (Dolowitz and Marsh 1996). Akin to the idea of policy transfers is the notion of policy innovation and diffusion of innovations across various jurisdictions, implicitly incorporating the idea of learning from other communities (Berry and Berry 1990, 1992; Gray 1973; Sapat 2004; Walker 1969). Policy-oriented learning, defined as learning about "relatively enduring alterations of thought or behavioral intentions that result from experience", is also critical to the scholarly framework on advocacy coalitions as espoused by Sabatier and Jenkins-Smith (1993).

Of these various policy learning theories, some of which focus on psychological or cognitive learning, it is theories about policy learning from events and institutional learning that are pertinent to the arguments in this paper. Policy learning from policy failures has been articulated most clearly by May (1992), who argues that policy failures can foster three types of learning: instrumental policy learning, social policy learning, and political learning. May (1992) defines instrumental policy learning as learning "about the viability of policy instruments or implementation designs" (May 1992, p.332). This form of learning focuses on the recognition of the limitations of particular policy instruments or implementation approaches. Prima facie evidence of instrumental learning is seen from policy adaptation and redesign. Sometimes however, policy change, which is not actually

related to the problems revealed by a given event, can occur, leading to what May (1992) terms mimicking or "superstitious instrumental learning". (p. 336).

Social policy learning, on the other hand, as defined by May (1992) refers more to learning about the "social construction of a policy or program" (p. 336). The main focus in social learning is the policy problem itself and the policy goals and involves the "interplay of ideas about how problems come about and how they can be solved" (Birkland 2006, p. 16). With its focus on social construction, it is a recognition of the post-modern condition in which the inevitability of multiple views on issues are explicitly recognized (Fiorino 2001) and where a "discursive democracy" (Dryzek 1990) needs to bring about some sort of social consensus that will result in policy change. Political learning as conceptualized by May (1992) is different from instrumental or social learning and consists of "a strategy for advocating a given policy idea or problem" (p. 336) leading to more sophistication in the advocacy of ideas and problems.

Using May's (1992) ideas of learning from policy failures as a foundation, Birkland (1997, 2006) posits a model of event-related policy change. In his model, Birkland (2006) points out that "focusing events" can trigger policy learning, given the existence of certain conditions. In particular, he discusses six propositions: 1) Most participants in a policy domain want to address/solve problems revealed by a focusing event, but proposed depictions of the problems and consequent solutions are likely to be contingent on varying motivations and interests; 2) big events trigger the most attention as smaller events are often more successfully addressed by existing policies; 3) group mobilization is linked in time to focusing events; 4) an increased discussion of policy ideas leading to social and instrumental policy learning is likely to accompany group mobilization; 5) policy change (not mimicking) is likely to result from policy learning; and, 6) lessons learned can be "forgotten" and policy learning can decay over time (p. 17-21). Using these propositions, Birkland (2006) goes on to argue that if certain actions occur at various points after a focusing event, learning and subsequent policy change is more likely. Learning in this case is a modified version of Busenberg's (2001) definition of learning as "a process in which individuals apply new information and ideas or information and ideas elevated on the agenda by a recent event to policy decisions" (Birkland 2006, p. 22). The focus of Birkland's model then is on the "lessons learned" from events as reflected in the policy-making process. Birkland (2006) applies his model to a detailed and careful analysis of case studies in several areas such as aviation security and 9/11, homeland security, earthquakes, and hurricanes and shows that when a focusing event is sufficiently large and serious enough to gain widespread attention, learning and policy improvement and change does occur.

In this paper, we apply the concepts of policy learning and event-based policy change to analyze the kinds of policy learning as defined and measured by May (1992) that occurred in post-disaster housing following Katrina. Based on May's definition, we expect that some form of instrumental learning, at least prima facie evidence in the form

of new laws and instruments, would be adopted. With regard to social learning, our expectation based on May's framework was that after Katrina, there would be a shift in policy goals and there would be increasing recognition of post disaster housing problems. For political learning, we expected some changes in political strategy by key interest groups to lead to more sophisticated advocacy.

However, while the rich literature on policy learning provides a good foundation for deriving these theoretical expectations and understanding how policy learning takes place, less attention has been paid to why policy learning does not occur in certain areas, or why policy changes adopted in response to focusing events do not get implemented or outcomes are not realized as intended. In this paper, we attempt to address this gap by analyzing the conditions under which policy change and learning do not lead to intended outcomes. To this end, in addition to analyzing whether policy learning occurred, we use scholarly accounts and newspaper reports of post-disaster response thus far to explore how these lessons learned and post-disaster housing policy changes made after Katrina affected policy responses and implementation of post-disaster housing (primarily temporary and permanent housing) after Hurricane Ike.

Our methodology and data sources involved a review of past scholarly research on post-disaster housing, a Lexis-Nexis database search of all major laws and regulations passed after Katrina, congressional investigation and testimonies provided by agency officials before Congress, and newspaper articles. The database search of the laws was undertaken to find evidence of *prima facie* laws and instruments indicating if instrumental learning had occurred. Congressional investigations and testimonies, along with newspaper articles were examined to see if social learning and political learning by interest groups and key policy actors had taken place and if subsequent policy changes had occurred. We must note the limitations of our data here: while we attempted to include all major laws and regulations and key articles, the discussion is based on our interpretation and categorization of these legislative changes and pertinent aspects of the information as applied to this paper. Other researchers could categorize this information or additional information differently. However, while these limitations exist, a number of our findings are supported by prior research on housing recovery following other disasters (Bolin and Stanford 1991; Comeiro 1997; Peacock, Dash, and Zhang 2007; Peacock, Kilian, and Bates 1987). The next section briefly reviews post-disaster housing policies in place prior to Hurricane Katrina, as context for our discussion of policy learning in this area after this disaster.

Pre-Katrina U.S. Disaster Housing Policy

Post-disaster housing recovery faces many challenges due to the severity of the loss levels, monetary resources, housing needs, shelter availability, medical and other service needs, and demographic factors (Bolin and Stanford 1991, 1999). To understand

postdisaster housing needs, it is useful to look first at Quarantelli's (1995) discussion, which points out that the terms "shelter" and "housing" are often used in unclear and confusing ways in disaster-related housing literature. To clarify the issue, he defines and distinguishes between emergency and temporary sheltering, and temporary and permanent housing. Emergency sheltering usually refers to actual or potential disaster victims seeking quarters outside their permanent homes for very short periods (usually overnight or during the time periods when disaster happens). Temporary sheltering means temporary displacement into other quarters with an expected short stay, accompanied by needs and issues related to daily life. Temporary housing differs from sheltering, in that it is more long-term and may also become permanent, if displaced residents decide to occupy the unit for the long-term. Communities in the U.S. are usually well prepared for sheltering, but housing, especially permanent housing, is often neglected due to procedural delays, poor program administration, or lack of planning to address permanent housing needs. In addition, there is a reliance on market ideologies with respect to housing policy, which leads to the assumption that the market forces will play a role in the restoration and recovery of permanent housing.

As Comerio points out, U.S. post-disaster housing recovery models have focused on four elements (Comerio 1998; Türel 1999): 1) complete redevelopment; 2) financial aid for housing; 3) limited intervention by the government, which provides only supplemental assistance to low-income individuals and households with insufficient or no insurance; and 4) complete reliance on market forces for recovery. The utilization of these models (singly or combined) has depended largely on the nature and severity of the disaster, socio-economic characteristics of the affected local communities, the housing market, the level of damage/destruction, and the extent of private insurance coverage.

At the federal level, the major agencies that are charged with post-disaster housing and related issues are the Federal Emergency Management Agency (FEMA), the U.S. Department of Housing and Urban Development (HUD), the Small Business Administration (SBA), and the National Flood Insurance Program among others. Other agencies, such as the Red Cross, faith-based organizations, non-profits, and even informal coalitions also play a role. Local governments have typically played a larger role in sheltering, and less so in the provision of temporary and permanent housing.

The legal foundations for disaster assistance are found in the Robert T. Stafford Disaster Relief and Emergency Assistance Act (The Stafford Act) enacted in 1988 (PL 100-707), which was an amended version of the Disaster Relief Act of 1974 (PL 93-288). It was significantly amended in 2000 (PL 106-390). The specific provisions of this act dealing with sheltering and housing are in various sections: Section 403 (Essential Assistance) discusses the provision of emergency shelters for individuals and households; Section 310 prioritizes public housing assistance based on several housing and community development laws, such as the Housing Act of 1937; and, Section 404 (Hazard Mitigation) indicates that the director of FEMA may "provide property acquisition and relocation

assistance" based on the proscribed terms and conditions. Four types of housing assistance are provided under Section 408 of the Stafford Act:

1) *Temporary Housing:* This assistance is provided either financially, allowing disaster victims to rent a housing unit, or directly, allowing disaster victims to reside in properties acquired by government purchase/lease;

2) *Repair:* FEMA may provide financial assistance for the repair of *owner-occupied* primary residences that sustained damage by a major disaster, which is intended to return the primary residence to a safe, sanitary, and functional condition, not to the pre-disaster condition;

3) *Replacement:* FEMA may provide financial assistance for the replacement of *owner-occupied* primary residences destroyed by a major disaster; and,

4) *Permanent or semi-permanent housing:* Financial or direct assistance to individuals or households may be provided to construct permanent or semi-permanent housing.

It is important to note here that Section 403 and Section 408 of the Stafford Act have different terms and eligibility requirements, which led to considerable confusion after Hurricane Katrina during the transition from Section 403 to Section 408 housing. Overall, the legal provisions of the Stafford Act prior to Hurricane Katrina were also focused primarily on homeowners with limited financial assistance to renters, and did little to address the restoration and repairs of rental housing units, which are often in greater demand after disasters. The policy framework in place also did not have provisions for larger-scale displacement, and did not address longer-term housing in sufficient detail (Hooks and Miller 2006; McCarthy 2009; Rodriguez-Dod and Duhart 2007; Sard and Rice 2005). Most of these policies provided demand-side assistance, not supply-side programs to help restore and repair rental housing stock for those who are in need.

Financial assistance and housing recovery must also be placed in context of affordable housing dilemmas and social and economic inequities (Basolo 1999; Joint Center for Housing Studies 2008) in the pre-disaster period. In Comerio's study of the impact of the Northridge Earthquake, she found that public assistance mainly focused on single-family housing and that renters were neglected. Similarly, others have found that due to various cultural, historical, ecological, and political and economic restrictions (Bolin and Stanford 1991), economically-challenged populations and/or the elderly have greater difficulty in the recovery process and in finding temporary, let alone permanent housing (Berke, Kartez, and Wenger 1993; Bolin and Stanford 1991; Philips 1993; Quarantelli 1995) in the post-disaster period. Typically, in the post-disaster recovery period, social conflicts are magnified and rational planning is omitted when there is pressure to reconstruct quickly (Bolin and Stanford 1991). The overlapping and complex roles of multiple local, state, and federal agencies is also confusing and vulnerable socioeconomic populations have the least resources and the most difficulty in navigating various bureaucratic waters to receive help (Morrow 1997; Peacock and Girard 1997; Tierney 1989). For example,

post-disaster housing problems faced by women, have been highlighted, particularly for women in public housing, elderly, sole heads of households, and those in domestic-violence shelters (Enarson 1999; Enarson, Fothergill, and Peek 2007; Enarson and Morrow 1997; Morrow and Enarson 1997). At the local level, most post-disaster housing planning is *ad hoc*, especially in terms of temporary housing, which is established hastily after the disaster (Johnson 2007), or non-existent in local communities. County and local government plans and coordinated housing recovery plans exist in some cases, but implementable strategies related to long term housing recovery issues remain elusive, thereby abdicating responsibility to various quasigovernmental agencies and voluntary non-profit recovery coalitions (Welsh and Esnard 2009). Post-disaster rebuilding of other related infrastructure and community assets (such as businesses, roads, schools) and related issues such as insurance, government contracting, and financial assistance also impact post-disaster housing. Second-order displacement issues (Feldman, Geisler, and Silberling 2003), such as effectively helping hosting communities absorb and shelter/house evacuees, also affects post-disaster housing. Some of these problems became evident after Hurricane Katrina and are addressed in the next section.

Hurricane Katrina: Policy Failures and Policy Learning

Hurricane Katrina made landfall on August 29, 2005 in an area covering over 90,000 square miles. Over 1,500 people were killed and over 1 million were displaced (U.S. OIG 2008; U. S. Senate 2006). The damage was devastating; over eighty-one billion dollars in estimated damages resulted from Florida, Louisiana, Mississippi, Alabama, and Georgia. Over 1.2 million units of housing were damaged, of which 309,000 units were severely damaged (U. S. Senate 2009, p. 2). Overall, some scholars have argued that the evacuation process was successful in getting almost 1-1.2 million people out of New Orleans (Derthick 2007). However, for the 70,000 people who could not or would not evacuate, the situation was different. While search and rescue missions managed to save a great number of lives, evacuation after the flood became problematic. As documented by the media, observers, and scholars, numerous issues arose in intergovernmental coordination that delayed evacuation (Derthick 2007; Cooper and Block 2006) and media images of people awaiting rescue and relief became emblematic of the response that was watched by millions all over the world.

With regard to post-disaster temporary and permanent housing (and the transitions between both), the main focus of this article, the main problems that arose (as indicated by scholarly research and post-Katrina congressional investigations and testimony) were as follows:

1) *Post-Disaster Housing Planning*: Prior to Katrina, FEMA attempted three times to develop strategic response plans for catastrophes and housing needs in 2002, 2004, and 2005 and these draft plans correctly predicted that FEMA's staffing, programs, and

procedures would not meet catastrophic housing needs. After Katrina hit, FEMA tried to hastily develop another plan that was not ultimately enacted; FEMA officials agreed afterwards that the lack of an operational catastrophe plan was a central reason for the failure to adequately provide for post-Katrina housing needs (U.S. S. Rept. 111-7 2009, p. 19-20). The Stafford Act itself was limited in its definitions of major disasters and the roles of FEMA and other agencies (Moss, Schellhamer and Berman 2009). Moreover, while FEMA has at least made concerted attempts to develop plans for catastrophe housing needs, local and state planning for post-disaster recovery—including housing issues—has been poor for the most part. Few state and local governments have developed disaster recovery plans (Smith and Wenger 2006) and deficiencies in state and local planning in Louisiana and Mississippi hampered post-disaster housing recovery. In Louisiana for instance, despite previous exercises, the state's emergency plan had not been updated and did not include plans for recovery or reconstruction (Colten, Kates, and Laska 2003, p. 35). In addition to these factors, planning for housing is hampered by the complex and messy nature of post-disaster housing that largely mirror the pre-disaster housing market (the wealthy get their McMansions, while poorer sections of society end up in dilapidated housing or homeless).

2) *Overreliance on Trailers and Siting Issues:* The lack of an operational housing plan and strategy and the difficulties of finding post-disaster housing solutions for the vast numbers of those who were dislocated and displaced led to an extensive reliance on costly manufactured housing, such as trailers, when FEMA ended its Section 403 shelter assistance (November 2005-March, 2006) to transition to temporary housing assistance. FEMA's conventional policy response of using trailers for these residents led to a number of major problems. The trailers were expensive, costing approximately $60,000 for eighteen months and were hurriedly purchased, leading to shortages initially and a glut later that could not be used in floodplain areas common to the Gulf coast regions (Colten, Kates, and Laska 2003; US OIG 2009b; U.S. S. Rept. 111-7 2009, p. 105-106). Inventory control was poor and the reliance on mobile homes and trailers also led to a hasty no-bid contracting process with deficient procurement and contract management practices, resulting in cost overruns and lack of staffing to adequately monitor contracts (U.S. S. Rept. 111-7 2009, p. 109-11). Media reports of health problems caused by formaldehydecontaminated trailers also surfaced, pressuring FEMA to find alternative housing (Eaton 2007; Palank 2007; U.S. S. Rept. 111-7 2009, p. 114-115). Regardless of the authenticity of these formaldehyde claims, the fallout of the alleged health problems led to negative publicity for FEMA. In addition to these issues, siting these manufactured homes was also difficult; while FEMA tried to situate these homes on residential properties, it was not possible to do this in a number of areas after Katrina. FEMA then tried to locate the manufactured homes in other host communities that were reluctant or outrightly hostile to the location of these parks in their neighborhoods (Aldrich and Crook 2008). Siting manufactured housing was difficult not only due to NIMBYism; it was also

complicated because it involved the waiving or relaxation of local zoning ordinances or building codes, which state and local governments are reluctant to do (U.S. OIG 2009b).

3) *Uncertainty, Difficulties in Transitions, and Lack of Affordable Housing:* The overall response to Katrina in terms of sheltering and housing was *ad hoc*, characterized by changing and often-confusing requirements and deadlines. In some cases, it ended in litigation with courts ordering reinstatement of previously denied benefits (U.S. S. Rept. 111-7 2009, p. 5). As is the case sometimes during the recovery period, errors in processing and denial of eligibility also occurred; according to one reported count, courtordered reviews of roughly 5,000 decisions showed that FEMA incorrectly denied assistance to over 20 percent of those applicants (U.S. S. Rept. 111-7 2009). Similar to past catastrophic hurricanes (Peacock, Morrow, and Gladwin 1997), lower-income and socially vulnerable populations were particularly hard-hit by numerous bureaucratic requirements. Moreover, the amount of assistance, even when received, was insufficient for a number of families and the uncertainty in duration made it hard for recipients to plan (Gosselin and Alonso-Zaldivar 2005; Sard and Rice 2005). FEMA also tried to end its Section 403 shelter programs in late 2005 and early 2006, but severe housing shortages and the lack of alternatives meant that there were repeated extensions and changes adding to the confusion for both the disaster-stricken population and for streetlevel staff dealing with these populations (Alpert 2009).

Along with the uncertainty, there was a lack of affordable housing, which was constrained as rents rose considerably. In the first year after Katrina, rents rose by approximately 36 percent and three years after the storm, rents were approximately 46 percent higher than before the storm, with wages not keeping pace (Brookings Institution 2008). These rising rents had their greatest impact on low-income renters, who spend a larger percentage of their income on housing (Crowley 2009). These factors rendered the transition from temporary to permanent housing even more difficult. Given the lack of affordable housing, arguments were made that an expedited rental repair program would have provided an additional, more cost-efficient, and longer-lasting option in comparison to manufactured housing, particularly given the extent of the damage and the acute housing shortages that followed (McCarthy 2009; GAO 2009). Pre-Katrina housing planning exercises had also called for the deployment of repair sweep teams to restore housing to habitability, convert large empty commercial buildings for residential use, and repair rental units (U.S. S. Rept. 111-7 2009, p. 60-67). However, according to the Stafford Act, the focus is primarily on providing disaster relief and repair for owners, a provision that was legally interpreted in the Katrina response as prohibiting the repair of permanent housing and the use of public funds for repairs of rental property. While other funding mechanisms were available for owners of rental properties, such as those through the Small Business Administration and Community Development Block Grant Program, these programs primarily benefitted homeowners. A post-Katrina analysis of these

funding mechanisms show that 62 percent of damaged homeowner units as compared to 18 percent of damaged rental units were assisted by these programs (GAO-10-17 2010).

4) *FEMA's Incorporation into DHS and Lack of Horizontal and Vertical Coordination:* FEMA's merger into the DHS in 2002 meant that homeland security concerns took over traditional goals of national hazard mitigation, weakened its leadership, increased the number of bureaucratic hurdles to achieve policy change, and was responsible for the abysmally poor response to Katrina (Birkland 2006; Birkland and Waterman 2008; Tierney 2005). Rather than mitigation, about 25 percent of federal funds provided by FEMA to local communities were used in terrorism-related activities, reducing available funds for natural disaster assistance (Moss, Schellhamer and Berman 2009)In terms of housing, the additional bureaucratic layer led to friction between FEMA and DHS officials regarding housing assistance and the transition from sheltering to housing programs. Turf battles also ensued between HUD and FEMA, with uncertainty on both sides about the role each was expected to play (U.S. S. Rept. 111-7 2009).

Hurricane Katrina: Lessons Learned?

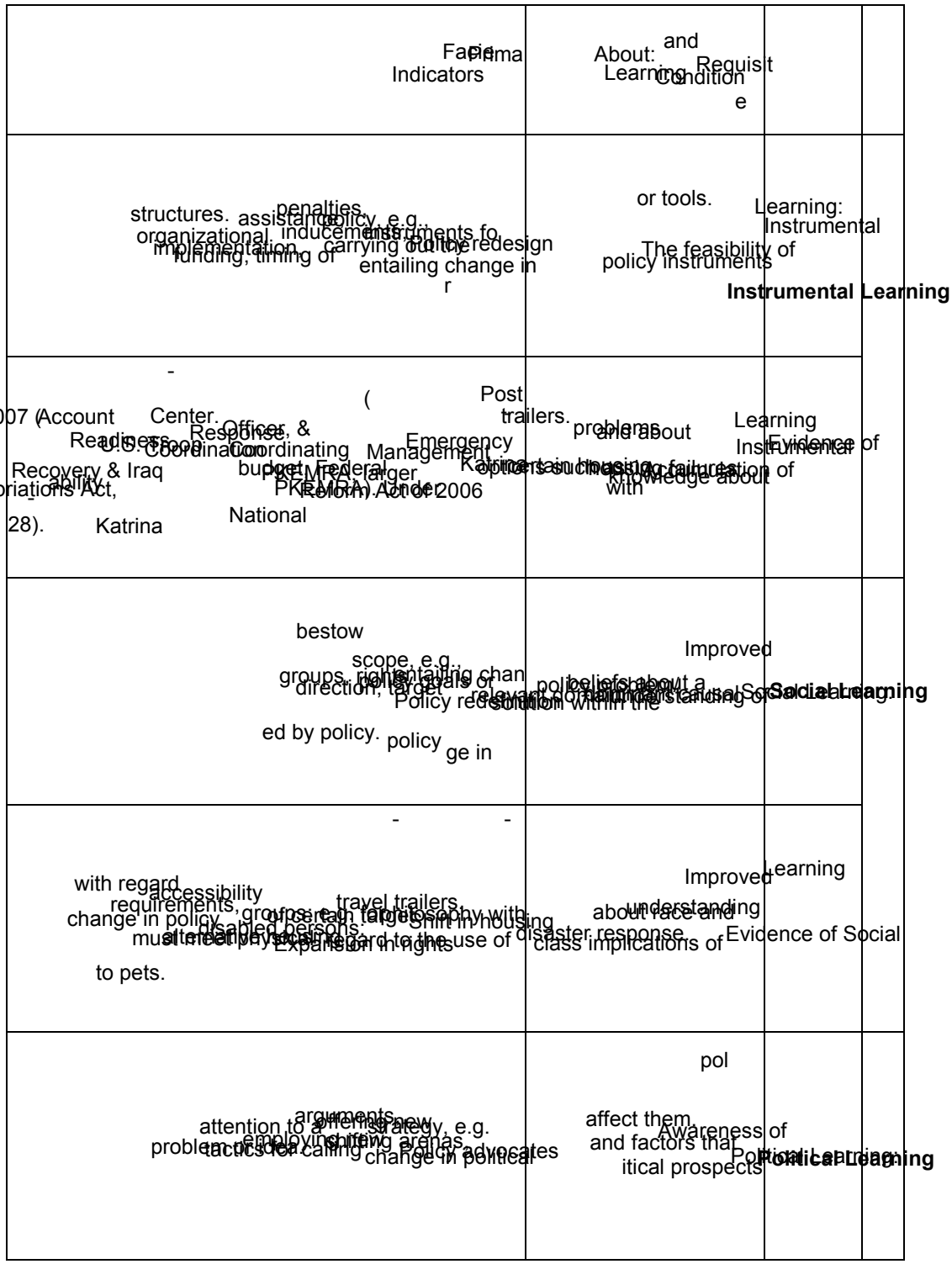
As an event triggering policy change, Katrina demonstrated that nature was not to be ignored (Tierney 2008) and as a focusing event, the Katrina catastrophe and resulting policy debacle did dramatically increase national attention on the nation's disaster housing dilemmas. After 9/11, FEMA had been turned a "pariah" within the DHS; its powers were hollowed out, agency morale was in shambles, and its abilities emasculated (Birkland 2006; Birkland and Waterman 2008; Tierney 2005). The response to Katrina elicited calls for FEMA's swift dismantling or replacement on the one hand, and on the other hand calls for restoring FEMA's lost powers within the DHS behemoth, including the restoration of the informal cabinet status it held under President Clinton. The result was somewhere in-between: FEMA was neither dismantled, nor was the FEMA administrator's status elevated to enjoy the direct access and confidence of the President as had been the case with James Lee Witt. However, FEMA was given a larger budget, changes were made with regard to its powers, and more direct lines of communication to the DHS Secretary were established (U. S. DHS 2009; U.S. S. Rpt. No. 111-7 2009). With regard to disaster housing, there is also evidence that policy learning, in all three forms as discussed by May (1992), i.e. instrumental, social, and political, did take place. These forms of learning and evidence for each form are presented in Table 1 and are discussed in the accompanying narrative.

Instrumental Policy Learning. As defined by May (1992), instrumental learning entails learning about the feasibility of policy instruments and tools and changes in instruments for carrying out the policy. As indicated in Table 1, prima facie indicators of legislative change took the form of the Post-Katrina Emergency Management Reform Act of 2006 (PKEMRA) (U.S. Pub. L. 109-295), which was the major legislative reform that

resulted from Hurricane Katrina. Among other things, the act provided new authorities to FEMA to offer improved disaster case management services (connecting disaster victims to a full array of disaster and other support services, including human, social, employment, legal, mental health, and medical services), established a disabilities coordinator position at FEMA, authorized a rental repair pilot program, and expanded the authority for permanent construction. The formaldehyde controversy and the creation of "trailer cities" (Gosselin and Alonso-Zaldivar 2005) were instrumental in other reforms. Congress passed and the President approved an Alternative Housing Pilot Program with $400 million appropriated to FEMA's Disaster Relief Fund to explore innovative alternatives. Under this program, FEMA and HUD evaluated proposals to award funding for up to 5,000 new housing units in the Gulf Coast States (U. S. GAO 2007). PKEMRA also required FEMA to develop a National Disaster Housing Strategy.

Instrumental learning, however, was slow. It took three years after Katrina, and a year past a Congressional deadline for FEMA to hastily draft an incomplete, yet rather ambitiously worded National Disaster Housing Strategy plan in July 2008 (Hsu 2008). The strategy was finally adopted on January 16, 2009, after a six month comment period and revisions (FEMA 2009a). Theoretically, this strategy addressed a number of important issues and has a number of provisions that could have helped ameliorate some of the housing problems that arose from Katrina. The delayed adoption of this strategy however, was too late for any policy changes to be made in time for the response to Hurricane Ike, as discussed later in this paper.

Social Learning. Social learning as defined by May (1992) entails learning about the policy problem and about the social construction of a policy or program. With regard to social learning, some argued that Katrina exposed race and class implications of disasters in ways that shattered popular conceptions of disasters as being non-discriminating, "equal opportunity calamities" (Strolovitch, Warren, and Frymer 2006). Problems similar to those following Katrina had resulted from Hurricane Andrew (Morrow 1999; Peacock, Morrow, and Gladwin 1997), but were less popularized through media coverage. To the extent that the failures of Katrina exposed these issues, one could argue that there has been a greater understanding about race and class implications of disaster responses. Using prima facie indicators as the PKEMRA legislation, there was a shift in housing philosophy with regard to the use of travel trailers (FEMA 2009a, p. 4). To some extent, there has been an expansion of target groups; for instance, alternative housing must meet physical accessibility requirements and policies towards pets were changed through the Pets Evacuation and Transportation Standards (PETS) Act of 2006 (U.S. Public Law 109308 2006). Some changes in attitude with regard to partnership needs between various governmental actors were also evident. In the NDHS, FEMA stated for the first time that it would give the lead to HUD for permanent housing; albeit the time frame or how the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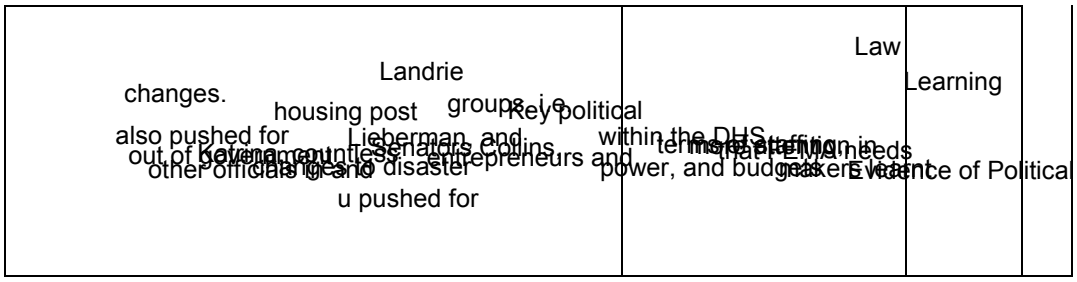

Table 1: Evidence of Learning about Post

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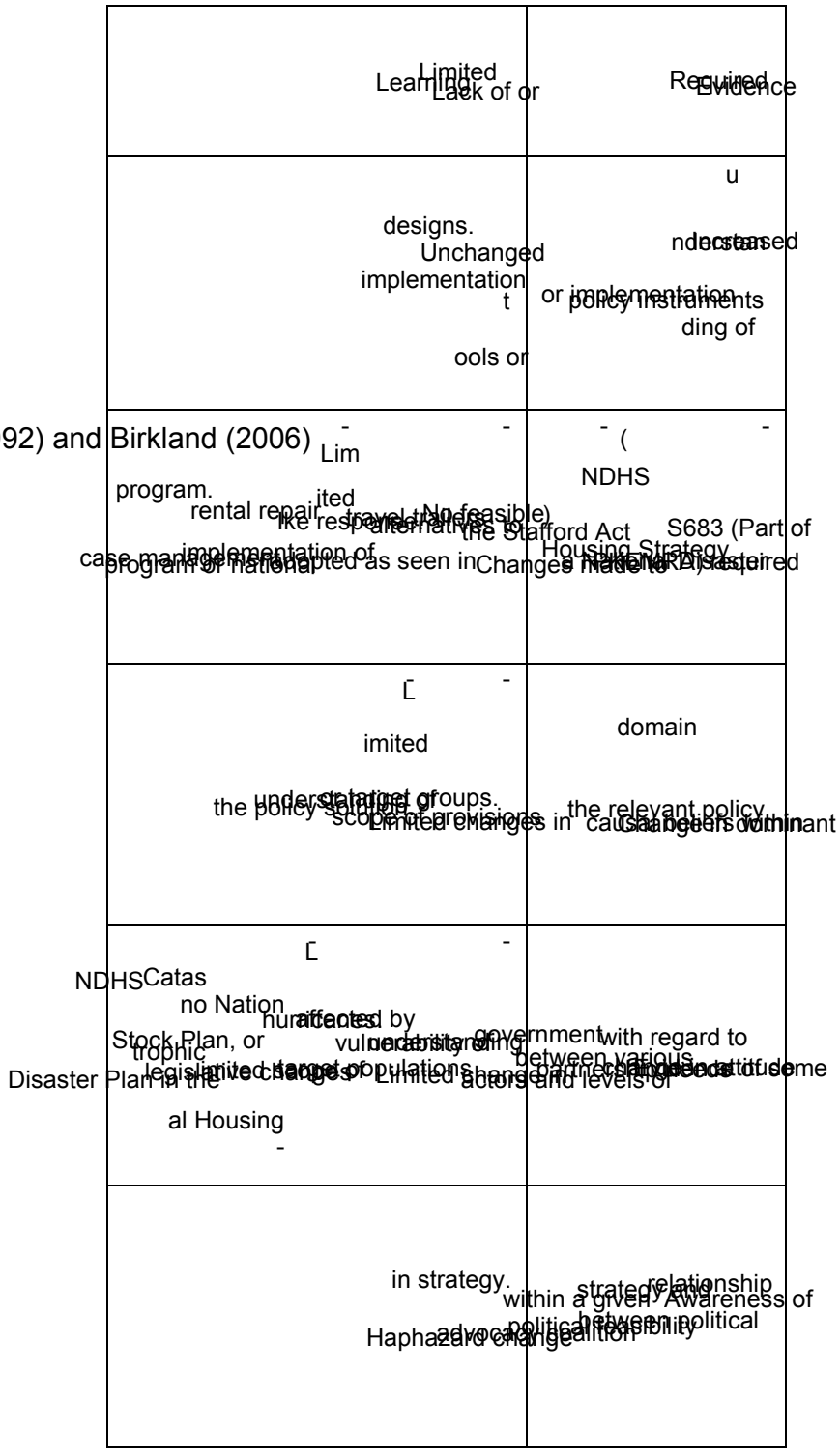
Source: Modified from May (1992) and Birkland (2006)



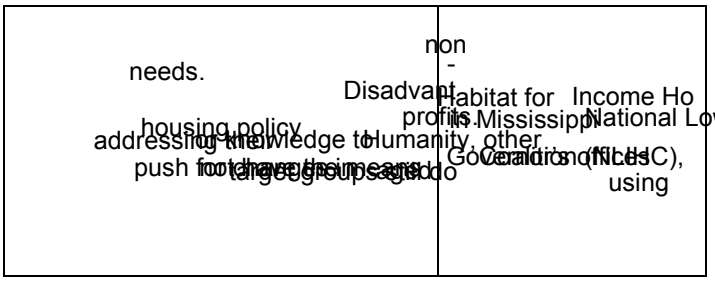


Table 1: Evidence of Learning about Post

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agency would determine when HUD took the lead was left open to "when such assistance was needed" (FEMA 2009a, p. 14)

Political Learning. Political learning involves strategies for advocating a given policy idea or problem (May 1992). With regard to Katrina, the most long-suffering victims have been members of "disadvantaged" groups in the policy process, in terms of their political power and socially constructed perceptions of their place in society. Advocates on their behalf as well as political actors with their own agendas, however, did find a voice and used the policy failure of Katrina to lobby for their interests (Crowley 2009). Key political entrepreneurs such as Senators Collins, Lieberman, and Landrieu, and countless others, such as planners, academics, and local officials, used this focusing event to push for changes to disaster housing post-Katrina. To some extent, lawmakers also learned that FEMA needed more attention in terms of staffing, power, and budgets within the DHS.

Although examples of all three forms of learning can be identified in post-disaster housing policy following Katrina, such learning was also limited in these areas or lacking in others. With regard to instrumental learning, changes were made under PKEMRA and some attempts were made to find alternative solutions to temporary housing. However, these legislative changes have arguably been limited in scope: there is still no National Housing Stock Plan or Catastrophic Disaster Plan. Social learning was limited in the understanding of policy solutions for vulnerable target populations. In terms of political learning, limitations were apparent in the rather haphazard strategies used by groups to push for policy change and disadvantaged target groups still do not have the means or knowledge to push for changes in housing policy addressing their needs. Moreover, while policy changes did get adopted, post-disaster housing issues and implementation continued to be messy and riddled with problematic solutions, as exemplified by some of the issues that arose after Hurricane Ike, which are discussed in the next section.

Hurricane Ike: Lessons Learned?

At 2:10 am early Saturday morning on September 13th, Hurricane Ike made landfall at Galveston, Texas with 110 mph (175km/h) sustained winds as a Category 2 hurricane (National Hurricane Center 2008), with storm winds from its center extending outward more than 120 miles (195km). Galveston City bore the brunt of the storm, which filled the historic district with seven feet of water at the storm's peak. Evacuation of Galveston Island had been ordered the previous day, yet approximately 40 percent or 21,000 of the city's 57,523 residents chose to ride out the storm in their homes (Elliot 2008; US OIG 2009a; Witt 2008). The Bolivar peninsula was the worst hit by the storm surge and dozens of homes and other buildings there simply disappeared after the hurricane (Drye 2008; Kunreuther and Michel-Kerjan 2009; Wilson 2009). At the end of 2008, Hurricane Ike was assessed to be the third costliest storm in U.S. history and the "costliest disaster

in Texas history" (FEMA 2009b, p. ii), causing an estimated $29.4 billion in damage to the state, and leaving behind an estimated 32 million cubic yards of hazardous debris (Office of the Governor of Texas 2009b; Witt 2008). In all, over 1 million people were evacuated and an estimated 37 died due to Ike in Texas (Witt 2008). In addition to Texas, coastal areas in Southwest Louisiana, while not directly hit by Ike, were inundated with a storm surge that crawled some 30 miles inland, flooding thousands of homes and rendering many roads impassable (Dorell 2008).

Post-Disaster Housing Issues. Barring some major problems with evacuation resulting from several residents initially refusing to evacuate and needing subsequent rescue, the initial governmental response at the local, state and federal level was fairly smooth (Cutter and Smith 2009). A positive outcome resulting from the lessons learned after Katrina, was the early partnership that was formed between HUD and FEMA. Unlike the confusion between these agencies following Katrina, FEMA was quick to turn to HUD after Ike, giving it the lead in long-term housing from November 2008, through an inter-agency agreement that had been signed on September 23, 2008, only 10 days after Hurricane Ike made landfall. This agreement was similar to the Disaster Housing Assistance Program (DHAP) that was created more than two years after Katrina and was termed DHAP-Ike (U.S. HUD 2008a). While FEMA determined applicant eligibility, HUD managed the program using local public housing authorities to deliver services. It was to provide full rental assistance initially until May 1, 2009, after which the subsidies were to be gradually reduced and ending March 2010 (U.S. HUD 2008b; U.S. HUD 2008c). This collaboration between FEMA and HUD, occurring sooner rather than later, to provide housing assistance was a positive development and one that partly resulted from the lessons learned after Katrina (Dymi 2006). While the scale of the problem in Ike was much smaller and while the initial response was well-organized and effective, problems emerged later, not surprisingly, once again in the area of housing, more specifically, with respect to temporary and permanent housing (US OIG 2009b). Some of the main issues that epitomized the difficulties of policy change in this area are discussed below.

1) *Lack of Adequate Planning*: Despite what happened after Katrina, there was insufficient planning, primarily at the local and state level, and there were significant procurement delays associated with the lack of a pre-established recovery planning framework for enough temporary housing. The mistakes made after Katrina should have resulted in a strong incentive for planners in other high-risk regions to avoid the same mistake (Welsh and Esnard 2009) and the policy changes should have resulted in improved recovery processes at all levels of government. However, plans for finding temporary housing initially moved slowly and faced with the slow-moving response, nonprofits, legal aid groups, and others began calling on the city of Galveston to step up their efforts to provide appropriate shelter and make long-term plans for public housing inhabitants whose housing had been damaged by the storm (McKinley 2008). The lack of prior state and local-level planning did finally prompt a somewhat belated state recovery plan. More than two months after Ike struck, the Governor appointed a Commission for

Disaster Recovery and Renewal to "create a plan to speed recovery and accelerate economic development" (Office of the Governor of Texas 2008). Their initial task was to mitigate the housing shortages for the thousands still having difficulty finding alternatives (Office of the Governor of Texas 2008a). At the federal level, while the formulation of the NDHS represented a significant step forward in addressing postdisaster housing planning after Katrina, it was adopted too late to make any changes prior to Hurricane Ike. Even if it had been adopted in time, there is, as pointed out in the NDHS itself, still not a national shelter communications system, nor sufficient national shelter planning, and nor is there a network of state and local shelter hosting agreements (FEMA 2009c).

2) *Trailer Redux and Conflicting Expectations:* Given the issues that arose with manufactured housing after Katrina, FEMA "learned its lesson" and wanted to avoid the deployment of trailers that could be unsafe for residents. Other lessons learnt after Katrina had been the local-level opposition to trailer sites—32 of 64 parishes in Louisiana banned new group trailer sites after Katrina, which were heavily stigmatized and considered by many to represent "blight" (Aldrich and Crook 2008). FEMA thus sought to avoid siting group trailer sites in neighborhoods which would actively voice rejection of these, conducting "windshield surveys" to determine the level of community NIMBYism (Aldrich and Crook 2008:3). In this instance however, state officials began demanding trailers and temporary mobile homes, in part due to the lack of other alternatives for temporary housing. By mid-October, around 122 FEMA mobile homes had been delivered to four counties, including Galveston, but a total of 9,000 had been requested, infuriating irate Texas housing officials. By early February 2009, construction was approved for a temporary trailer site outside of Galveston that would accommodate 50 of 180 families from the city waiting lists (Alpert 2009). Other temporary housing solutions such as a cruise ship offer for displaced residents immediately following Ike, were also stymied from the point of view of state officials by FEMA's slow and bureaucratic processes (Henneberger 2008). In their defense, FEMA argued that while they had an inventory of 1,800 mobile homes, identifying suitable sites and installing mobile homes took time. Once again, local zoning ordinances complicated siting in Galveston areas hit by Ike (Wilson 2009). FEMA also argued that since it could not repeat the Katrina mistake of using the controversial trailers, they needed to use park units or mobile homes that took more time to install. FEMA wanted to place mobile home units in pre-existing mobile home communities or build whole new mobile home communities such as those built after Katrina. This would avoid the difficulties in siting pre-fabricated housing on homeowner properties arising from both the suitability of the site and local ordinances. Illustrating to a large extent the problem with post-disaster housing, however, FEMA's policy solutions to the post-disaster housing problems identified after Katrina were not acceptable to state and local officials and hurricane survivors. They wanted mobile homes located on their destroyed home sites (rather than remote locations) and preferred them to the vouchers that could be used for apartments, which were not always available close to work, schools and other places. They also preferred mobile homes that would allow them to live onsite

while repairs were done to their homes and resume their normal lives faster than if relocated to remote travel trailer sites (Elliot 2008). Once again, FEMA was in a Catch-22 situation; after Katrina, FEMA was castigated for using trailers, but when it "learned its lessons" and tried to avoid using trailers after Ike, it was criticized for *not* bringing in trailers fast enough. Not unexpectedly also, a blame game arose after Ike; state and local officials all pointed fingers at FEMA, without taking any of the responsibility themselves for the lack of preplanning housing recovery. As often the case in post-disaster situations, the gap in expectations and understanding between survivors, state and local government officials on one side, and FEMA officials on the other, began to grow wider, rendering the disaster response and recovery process even more difficult (Schneider 1995).

3) *Knowledge Gaps and the Lack of Affordable Housing and Rentals:* Similar to what happened after Katrina, those who had stronger social networks and the financial wherewithal were able to find temporary shelter with friends, in hotels, motels, and other places (Cutter and Smith 2009). As is the case with most disasters (Peacock, Dash and Zhang 2007), the most vulnerable and needy sought public shelter space (Cutter and Smith 2009), and faced hurdles when making the transition from public shelters to temporary and more permanent housing. The problems with temporary and transitional housing persisted and uncertainty about official deadlines was high. FEMA once again had to repeatedly extend deadlines for individuals to file for housing or other assistance (Alpert 2009; FEMA 2008a; FEMA 2008b; KHOU News 2009b). The initial deadline for temporary housing was set to March 2009, which was then extended to May 2009, then again to October 2010. Repeatedly extending deadlines resulted in more assistance to those in need, but also resulted in uncertainty throughout the recovery process for those in need and those tasked to assist them. Many residents who were eligible for aid from FEMA did not know how to apply for FEMA benefits, or found the process too difficult to complete (Thomas 2009, p.5). Though public housing residents were eligible for federally funded hotel or motel accommodation, many lacked automobiles, other transportation, or cell phones, which reduced their access to FEMA assistance. They also lacked a legal address for FEMA and other aid organizations' paperwork requirements including: a social security number; pre-disaster and current mailing addresses; telephone number plus a back-up, for contact; insurance information including policy numbers; a description of storm-related losses; and a routing and bank account number for direct deposits (Stanton 2009). Many found this to be the first hurdle to receiving assistance if they had lost these documents in the storm. Further, despite having FEMA vouchers in hand, many motels and hotels required credit cards, which many on public assistance did not have.

Media reports following Ike indicate that affordable housing, particularly rentals, was also a problem. Those who did receive FEMA/HUD vouchers found it challenging to find landlords who had vacant and habitable properties and were willing to accept these vouchers. Vouchers were not a program that many landlords were familiar with, and the unfamiliar process was not one every landlord was eager to test. Like others had been

reluctant in other hard hit disaster areas, they preferred cash, checks, and other more "normal" means of payment (Thomas 2009). One of the changes made to the Stafford Act after Katrina was to provide assistance to renters (FEMA 2009c). However, renters were still marginalized after Ike; the rental repair pilot program established under PKEMRA was also put to only limited use (FEMA 2009a), leading to repair of only 32 apartment units in Galveston (Houston Hurricane Recovery.Org). Moreover, there were media reports that many landlords had increased rents substantially, with apartments that were $500 before Ike on the market for $1200-$1500 (Stanton 2009), a situation similar to what was also found over 16 years earlier following Hurricane Andrew (Yelvington 1997). Increased rental costs are common after major disasters as housing availability declines while demand does not (Comerio 1997; Peacock, et al. 2007).

As a focusing event, Katrina brought not only national, but international attention to response and recovery and policy changes did occur as a result of this focusing event. Instrumental learning was present; prima facie evidence in form of post-Katrina legislative changes is indicative of the same. Policy changes were also made by FEMA, which collaborated early with HUD and tried to avoid the contentious use of trailers for temporary housing. On the other hand, policy learning in terms of developing satisfactory and affordable housing solutions, of pre-planning at the local and state-level, and of managing expectations through effective communication fell short, implementation was delayed, and political learning fell short of achieving major changes in the social construction of target groups. In summary, while a number of improvements were made to deal with post-disaster housing after Katrina, the solutions themselves were controversial, emblematic of the broader problems attached to policy change in this area, and illustrated the lack of readily available housing solutions acceptable to all.

Why hasn't policy learning in this area been adequate and lead to better outcomes? Why is policy learning and change in this area so difficult? We analyze this issue in the next section.

Policy Learning and Change in Post-Disaster Housing

Using theoretical arguments based in policy literature and given the main issues that surfaced after Katrina and Ike, we argue that there are three main reasons why policy learning has not resulted in more policy change in this domain.

1) *"Wicked" and "Messy" Policy Area:* Despite windows of opportunity being opened, post-disaster housing policy is still a problem in search of a solution (Kingdon 1984). To some extent, it is also a *wicked* policy problem that defies easy solutions and leads to more problems when solutions are adopted (Rittel and Weber 1973). For instance, there are no adequate solutions yet for temporary housing, which have always taken the form of manufactured housing. However, as Katrina, Ike and other disasters in the past

have revealed, such housing is limited in its use, cannot be placed in floodplain areas, is expensive and time-consuming to install, and faces community NIMBYism (Aldrich and Crook 2008). Moreover, it is vulnerable to wind and other hazards (Peacock, et al. 2007, p. 263), can disrupt communities and cause social problems (Enarson and Morrow 1997), and when used in large-scale disasters, may lead to other apparent problems such as those that emerged with alleged formaldehyde exposure. Other temporary innovative housing solutions such as the "Katrina Cottage" have been proposed and adopted, but are yet to prove their acceptance as alternative temporary housing solutions and face the same problems with siting. Similarly rental-repair programs have been advocated as a solution, but their administration and use of tax dollars are politically contentious. Though the rental pilot programs adopted after Katrina were found to be fairly successful (US OIG 2009b), they were not renewed. Post-disaster housing is also to some extent a messy policy problem. Jochim and May (2010, p. 305) argue that messy policy problems, such as pollution abatement, are those that cut across other policy areas and their attendant subsystems. Post-disaster housing is messy to the extent that this problem and its solutions are linked to and complicated by a number of other external policy issues and subsystems, such as local housing market conditions, the vacancy rate for rental units, current economic conditions, the availability of credit and affordable housing, and existing economic and social class disparities. Therefore, a housing strategy and recovery plan by itself may not be adequate and needs to account for many other conditions, rendering the implementation of policy changes in this area more difficult. Even cumulative experience and repeated events that have led to relatively acceptable policy solutions in other hazard domains (Birkland 2006) may not be sufficient to engender effective policy implementation and solutions in disaster housing due to the variability of these other contingent factors.

2) *Lack of an Advocacy Base:* The politics surrounding policy change depends to a large extent on the coalitions, groups, and policy entrepreneurs that are mobilized (Mintrom 1997; Puszkin-Chevlin and Esnard 2009; Sabatier 1999; Sabatier and JenkinsSmith 1993, 1997, 2007; Sapat 2004). Yet, as Birkland (2006) points out, certain hazard policy domains, such as hurricane policies, lack a coherent and organized advocacy coalition to press for change. Post-disaster housing has some advocacy coalitions (The National Low Income Housing Coalition and others), but these are relatively weak in political power and not positively socially constructed (Schneider and Ingram 1993). Minorities and low-income populations who are the most vulnerable strata and who lack strong advocates often do not get heard in the cacophony and conflict surrounding postdisaster recovery. The extent to which some instrumental learning and policy changes were adopted can be partially attributed to the widespread and heightened media coverage of Katrina, the "CNN effect" that increased the saliency of the problem and exposed apparent sheltering problems—providing a temporary voice (and images) to politically weaker populations. The adoption of those changes however has not been

enough; effective implementation requires additional work by these groups and greater mobilization to press for more change.

3) *Gap in Expectations:* Finally, an underlying problem in post-disaster recovery in general and housing recovery in particular is what Schneider (1992; 1995) terms the gap between bureaucratic and emergent norms. Schneider points out that public organizations develop standard operating procedures (SOPs), routine policies, and institutionalized processes that guide bureaucratic norms and provide the foundation for the governmental response system on the one hand. On the other hand, disasters can result in conditions that are complicated, stressful, and difficult, where emergent norms develop to provide guidance and meaning to the affected disaster-stricken population. The size of the gap between these bureaucratic and emergent norms can affect the variability in government performance in response and recovery (1995, p.6). She documents how the size of the gap played a significant role in the predominant policy implementation patterns and in explaining the successes and failures in the response to Hurricanes Andrew and Hugo and to the Loma Prieta earthquake. With regard to this study, Schneider's theoretical insight can also help explain why housing policy outcomes did not improve much despite policy changes made after Katrina. The gap between the emergent norms for evacuees and survivors and bureaucratic norms was large in the responses to both Katrina and Ike. In addition, a much weakened FEMA had to follow additional operating guidelines and SOPs as part of the DHS and with weakened leadership and morale, doggedly tried to be somewhat responsive to citizen needs while dogmatically following often archaic and confusing bureaucratic guidelines that were needed for accountability. On the other hand, the realities and disruptions for those affected by Katrina and Ike were completely different from institutionally prescribed recovery timelines (Mitchell, Esnard, and Sapat 2010). For instance, FEMA kept trying to end its Section 403 shelter assistance program due to cost and fraud concerns and DHS legal interpretations, but the acute housing shortages and lack of alternatives for vast numbers of evacuees meant that they were heavily dependent on the continuance of those programs and often fell through the cracks due to lack of eligibility and the uncertain transition to longer-term housing. This discrepancy between conflicting norms rendered the transition from temporary to permanent housing more difficult.

Conclusion: Where Do We Go From Here?

Katrina was a major focusing event and did lead to policy learning and policy change. At the federal level, PKEMRA was wide-ranging and the NDHS was a radical departure from past policies in the right direction after Katrina; the early partnership between HUD and FEMA as seen in the response to Hurricane Ike was also positive. However, problems in temporary and permanent housing persisted, along with supply-side problems of affordable housing, and the neatly prescribed timelines for the transition from the shelter phase to the housing phase have not been realistic. Post-disaster housing is a messy policy

area, exacerbated by unrealistic expectations and the lack of a strong supportive constituency. We offer the following as general suggestions for consideration of viable next steps.

First, more efforts need to be made at the local and state-level as policy change in this area cannot be abdicated to the federal level only. Local and state housing task forces need to be operational. To facilitate development of feasible post-disaster housing plans, there is need for better data tracking and inventory management and some pre-planning with respect to siting mobile homes (whether on-site or in remote locations). Data collection of the potential numbers of those who can be displaced and housing stock needs to be maintained on an on-going basis. Similarly, improved case management procedures are needed, and a broad community constituency (including renters and vulnerable segments of the population) has to be planned for.

Second, the NDHS could be expanded to include a catastrophe scenario, provide more assistance to renters, and should include a National Housing Stock Plan. The timeliness of assistance and methods of program delivery that are linked to overall recovery need to be improved. Catastrophic scenarios need to address housing for longterm population displacement and related governance and funding dilemmas in both affected areas and for host communities that receive evacuees. Renters also need to be included in legislation and plans (Hooks and Miller 2006; McCarthy 2009; RodriguezDod and Duhart 2007; Sard and Rice 2005; GAO 2009). For instance, as pointed out in prior research, major coastal cities such as Miami, Los Angeles, and San Francisco have sizable percentages of renters that are vulnerable to future disasters, so vast housing shortages could result following a major event (Peacock, et al. 2007, p. 270-271).

Increasing population density along the coastlines will worsen the effects of natural hazards and these demographic changes, along with fiscal and economic problems, will exacerbate disaster sheltering and housing problems. Policy changes and planning as seen from the analysis in this paper will be critical to face this challenge.

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References

Aldrich, Daniel P. and Kevin Crook. 2008. “Strong Civil Society as a Double-Edged Sword: Siting Trailers in Post-Katrina New Orleans.” *Political Research Quarterly*, 61, 379-389.

Alpert, Bruce. 2009. “Obama Administration Extends Temporary Housing for Hurricane

Victims." The *Times-Picayune* (12 February). Retrieved from www.nola.com/news/index.ssf/2009/02/obama_administration_gives_tra.html

Basolo, Victoria. 1999. "Passing the Housing Policy Baton in the U.S.: Will Cities Take the Lead?" *Housing Studies* 14(4): 433-452.

Berke, Philip R., Jack Kartez. and Dennis E. Wenger. 1993. "Recovery after Disaster: Achieving Sustainable Development, Mitigation and Equity." *Disasters*, 17, 93-109.

Berry, William D. and Frances Stokes Berry. 1990. "State Lottery Adoptions as Policy Innovations: An Event History Analysis." *American Political Science Review* 6: 395415.

---. 1992. "Tax Innovation in the States: Capitalizing on Political Opportunity." *American Journal of Political Science*, 36: 715-742.

Birkland, Thomas. 1997. *After Disaster: Agenda Setting, Public Policy, and Focusing Events.* Washington, DC: Georgetown University Press.

---. 2006. *Lessons of Disaster: Policy Change after Catastrophic Events.* Washington, D.C.: Georgetown University Press.

Birkland, Thomas and Sarah Waterman. 2008. "Is Federalism the Reason for Policy Failure in Hurricane Katrina?" *Publius: The Journal of Federalism* 38(4): 692-714.

Bolin, Robert and Lois Stanford. 1991. "Shelter, Housing and Recovery: A Comparison of U.S. Disasters." *Disasters* 15(1): 24-34.

---. 1999. "Constructing Vulnerability in the First World: The Northridge Earthquake in Southern California." Pp. 89-112 in *The Angry Earth: Disaster in Anthropological Perspective*, edited by Anthony Oliver-Smith and Susanna Hoffman. New York: Routledge.

Brookings Institution and GNOCDC. 2008. "Anniversary Edition: Three years after Katrina. New Orleans: Greater New Orleans Community Data Center". Available at www.gnocdc.org.

Busenberg, George. 2001. "Learning in Organizations and Public Policy." *Journal of Public Policy* 21(2): 173-189.

Colten, C. E., R.W. Kates, and S. B. Laska. 2008. "Community Resilience: Lessons from New Orleans and Hurricane Katrina." Community and Regional Resilience Initiative (CARRI) Research Report 3. Retrieved from http://www.resilientUS.org

Comerio, Mary. 1997. " Housing Issues after Disasters." *Journal of Contingencies and Crisis Management* 5(3): 166-178.

---. 1998. *Disasters Hits Home: New Policy for Urban Housing Recovery*. Berkeley, CA: University of California Press.

Cooper, Christopher and Robert Block. 2006. *Disaster: Hurricane Katrina and the Failure of Homeland Security*. New York: Times Books.

Crowley, Sheila. 2009. Testimony of Sheila Crowley, MSW, Ph.D. President of the National Low Income Housing Coalition presented to the Ad Hoc Subcommittee on

Disaster Recovery of The Committee on Homeland Security and Government Affairs United States Senate. March 18, 2009. Retrieved from www.nlihc.org/doc/Testimony-of-Sheila-Crowley-March-18-2009.pdf.

Cutter, Susan and Mark Smith. 2009. "Fleeing from the Hurricane's Wrath: Evacuation and the Two Americas." *Environment* 51(2): 26-36.

Derthick, Martha. 2007. "Where Federalism Didn't Fail." *Public administration Review* 67 (s1):36-47.

Deutsch, Karl. 1966. *The Nerves of Government: Models of Political Communication and Control*. New York: Free Press.

Dolowitz, David P. 1997. "British Employment Policy in the 1980s: Learning from the American Experience." *Governance: An International Journal of Policy and Administration* 10(1): 23-42.

Dolowitz, David P. and David Marsh. 1996. "Who Learns What From Whom: A Review of the Policy Transfer Literature." *Political Studies* 44(2): 343-357.

---. 2000. "Learning from Abroad: The Role of Policy Transfer in Contemporary Policymaking. Governance." *International Journal of Policy and Administration* 13(1): 524.

Dorell, Oren. 2008. "Almost 2,000 Ike Survivors Rescued." *USA Today*. (15 September). Retrieved from www.usatoday.com/weather/hurricane/2008-09-14-ike-main_N.htm

Drye, Willie. 2008. September 26). "Why Hurricane Ike's "Certain Death" Warning Failed." *National Geographic News*. (26 September). Retrieved from news.nationalgeographic.com/news/2008/09/080926-hurricane-ike-evacuation.html

Dryzek, John. 1990. *Discursive Democracy: Politics, Policy Science, and Political Science*. Cambridge, MA: Cambridge University Press.

Dymi, Amilda. 2006. "HUD Revises Rental Assistance Programs for Hurricane Victims." National Mortgage News. Retrieved from www.nationalmortgagenews.com/ premium/archive/?id=151878.

Eaton, Leslie. 2007. "FEMA Sets Date for Closing Katrina Trailer Camps." *New York Times* (29 November) retrieved from: www.nytimes.com/2007/11/29/ us/29trailer.html?scp=1&sq=FEMA+sets+date+for+closing+Katrina+trailer+camps. + &st=nyt

Elliot, Janet. 2008. "FEMA 'Insensitive' Toward Ike Victims, Texas Officials Say." *Houston Chronicle* (27 October). Retrieved from www.chron.com/disp/ story.mpl/headline/metro/6080061.html

Enarson, Elaine. 1999. "Women and Housing Issues in Two U.S. Disasters." *International Journal of Mass Emergencies and Disasters* 17 (1): 39-63.

---. 2006. "Women and Girls Last? Averting the Second Post-Katrina Disaster." In *Understanding Katrina: Perspectives from the Social Sciences*, produced by the Social Science Research Council. Retrieved from understandingkatrina.ssrc.org/ Enarson/

Enarson, Elaine, Alice Fothergill, and Lorraine Peek. 2007. "Gender and Disaster: Foundations and Directions." Pp. 130-146 in *Handbook of Disaster Research*, edited by Havidan Rodriguez, Enrico L. Quarantelli & Russell R. Dynes. New York: Springer.

Enarson, Elaine, and Betty Morrow. 1997. "A Gendered Perspective: The Voices of Women." p. 116-137 in *Hurricane Andrew: Ethnicity, Gender, and the Sociology of Disaster*, edited by Walter Peacock, Betty Morrow and Hugh Gladwin. New York: Routledge Press.

Federal Emergency Management Agency (FEMA). U.S. Department of Homeland Security. 2008a. "Gustav and Ike Transitional Sheltering Assistance Program has been Extended for Eligible Applicants in Texas and Louisiana. Press Release: HQ-08242. (29 October). Washington, DC: FEMA. Retrieved from www.fema.gov/news/newsrelease.fema?id=46543

---. 2008b. "Deadline Extended through Winter for FEMA-paid Hotel Stays." Press Release: 1791-354. (December 30). Washington, DC: FEMA. Retrieved from www.fema.gov/news/newsrelease.fema?id=47194

---. 2009a. "2009 Disaster Housing Plan." Washington, DC: FEMA. Retrieved from www.fema.gov/emergency/disasterhousing/disaster_housing_plan.htm

---. 2009b. "Hurricane Ike Impact Report." Washington, DC: FEMA. Retrieved from www.fema.gov/pdf/hazard/hurricane/2008/ike/impact_report.pdf.

---. 2009c. "National Disaster Housing Strategy". Washington, DC: FEMA. Retrieved from www.fema.gov/pdf/media/2009/ndhs.pdf

---. 2009d. "FEMA's Hurricane Preparation and Response Efforts Fact Sheet" Washington, DC: FEMA. Retrieved from www.fema.gov/media/fact_sheets/prep_response.shtm.

---. 2005. "Select Grant Awards for Alternative Housing Pilot Project Fact Sheet Awards" October 2005 News Release. Retrieved September 1, 2008 from www.feama.gov/news/newsreleaase.fema?id=19620.

Feldman, Shelley, Charles Geisler, and Louise Silberling, 2003. "Moving Targets: Displacement, Impoverishment, and Development: An Introduction." *International Social Science Journal* 175: 7-13.

Fiorino, Daniel. 2001. "Environmental Policy as Learning: A New View of an Old Landscape*." Public Administration Review* 61(3): 322-334.

Gosselin, Peter G. and Ricardo Alonso-Zaldivar. 2005. "Limiting Government's Role: Bush Favors One-time Fixes over Boosting Existing Programs to Help Katrina Victims." *Los Angeles Times*. (23 September). Retrieved from articles.latimes.com/2005/sep/23/nation/na-policy23.

Gray, Virginia. 1973. "Innovation in the States: A Diffusion Study." *American Political Science Review* 67:1174-1185.

Heclo, Hugh. 1974. *Modern Social Politics in Britain and Sweden: From Relief to Income Maintenance.* New Haven, CT: Yale University Press.

Henneberger, John. 2008. "House Poor: Make Restoring Galveston 's Public Housing a Priority. Texas Housers. (11 November). Retrieved from: texashousers.net/ 2009/06/12/galveston-long-term-recovery-plan-should-focus-on-what-it-takes-toallow-survivors-to-return-home/.

Hsu, Spencer S. 2008. "Some Questions Unanswered in Disaster Housing Plan." *The Washington Post* (July 22): A2.

Joint Center for Housing Studies. 2008. *The State of the Nation's Housing.* Boston, MA: Harvard University.

Hooks, Jonathan P. and Trisha B. Miller. 2006. The continuing storm: How disaster recovery excludes those most in need. *California Western Law Review* 43:21-27

Jochim, Ashley E. and Peter J. May. 2010. "Beyond Subsystems: Policy Regimes and Governance." *Policy Studies Journal* 38 (2): 303-327.

Johnson, Cassidy. 2007. "Strategic Planning for Post-disaster Temporary Housing." *Disasters* 31(4): 435-458.

KHOU News. 2009. "Construction Approved for FEMA Trailer Sites. (4 February). Retrieved from www.khou.com/news/local/galveston/stories/khou090204_tnt_iketrailers.1b160652.html.

---. 2009b. "FEMA Hotel Funding Ending Leaving Hundreds Homeless in Galveston." (5 March). Retrieved from www.khou.com/ike/stories/khou090304_mp_galvestonhomeless.3011003.html

Kingdon, John. 1984. *Agendas, Alternatives and Public Policies*. Boston, MA: Brown.

Levine, Joyce, Ann-Margaret Esnard and Alka Sapat. 2007. "Population Displacement and Housing Dilemmas due to Catastrophic Hurricanes." *Journal of Planning Literature* 22(1): 3-15.

Majone, Giandomanico and Aaron Wildavsky. 1984. "Implementation as Evolution" Pp. 177-194, in *Implementation*, 3rd ed., edited by Jeffrey Pressman and Aaron Wildavsky. Berkeley, CA: University of California Press.

May, Peter. 1992. "Policy learning and failure." *Journal of Public Policy* 12(4):331-354.

McCarthy, Francis X. 2009. "FEMA disaster housing: From sheltering to permanent housing". Congressional Research Service. Retrieved from assets.opencrs.com/rpts/ R40810_20090916.pdf.

McKinley, James C. 2008. "Homeless in a Flash: Hundreds in Texas now Wait for Relief." *New York Times* (19 November): A18. retrieved from: www.nytimes.com/ 2008/11/19/us/19fema.html.

Mintrom, Michael. 1997. "Policy Entrepreneurs and the Diffusion of Innovation." *American Journal Political Science* 41(3):738-770.

Mitchell, Christine, Ann-Margaret Esnard and Alka Sapat. 2010. *Hurricane Events and the Displacement Process in the United States*. College for Design and Social Inquiry Working Paper. Boca Raton, FL: Florida Atlantic University. Unpublished.

Morrow, Betty. 1997. "Stretching the Bonds: The Families of Hurricane Andrew." Pp. 226-242 in *Hurricane Andrew: Ethnicity, Gender, and the Sociology of Disaster*, edited by Walter Peacock, Betty Morrow and Hugh Gladwin. New York: Routledge Press.

Morrow, Betty. 1999. "Identifying and Mapping Community Vulnerability. *Disasters,* 23(1), 1-18.

Moss, Mitchell, Charles Schellhamer, and David A. Berman. 2009. "The Stafford Act and Priorities for Reform." *Journal of Homeland Security and Emergency Management* 6(1): Article 13: i-xxi.

National Low Income Housing Coalition. 2009, March 20. *NLIHC President, State Partners Testify Before Senate Disaster Subcommittee.* Retrieved from www.nlihc.org /detail/article.cfm?article_id=5919&id=72.

Office of the Governor of Texas. 2008. "Governor Perry Announces Disaster Recovery and Renewal Commission" Press Release. (20 November). Retrieved from governor.state.tx.us/news/press-release/11565/

--- 2009a. "FEMA Individual Assistance Registration Deadline is Tomorrow." Press Release (19 February). Retrieved from governor.state.tx.us/news/press-release/11970/

--- 2009b. May 7). "Governor Perry: Washington Penalizes Texas for Protecting Communities from Ike" Press Release. (7 May). Retrieved from governor.state.tx.us/ news/press-release/12337/

Palank, Jacqueline. 2007. "FEMA Faulted on Response to Risks in Storm Trailers." *New York Times.*(20 July). Retrieved from www.nytimes.com/2007/07/20/washington/ 20fema.html?_r=1.

Peacock, Walter, Nicole Dash, and Yang Zhang. 2007. "Shelter and Housing Recovery Following Disaster." Pp. 258-274 in *Handbook of Disaster Research*, edited by Havidan Rodriguez, Enrico L. Quarantelli & Russell R. Dynes. New York: Springer.

Peacock, Walter and Chris Girard. 1997. "Ethnic and Racial Inequalities in Hurricane Damage and Insurance Settlements." Pp. 171-189 in *Hurricane Andrew: Ethnicity, Gender, and the Sociology of Disaster*, edited by Walter Peacock, Betty Morrow and Hugh Gladwin. New York: Routledge Press.

Peacock, Walter, Betty Morrow, and Hugh Gladwin. 1997. *Hurricane Andrew: Ethnicity, Gender, and the Sociology of Disasters*. New York: Routledge.

Peacock, Walter, Charles D. Killian, and Frederick Bates. 1987. "The Effects of Disaster Damage and Housing Aid on Household Recovery Following the 1976 Guatemalan Earthquake." *International Journal of Mass Emergencies and Disasters* 5(1): 68-88.

Philips, Brenda. 1993. "Cultural Diversity in Disaster: Shelter, Housing, and Long-Term Recovery." *International Journal of Mass Emergencies and Disasters,* 11 (1), 99-110.

Puszkin-Chevlin, Ana and Ann-Margaret Esnard. 2009. "Incremental Evolution and Devolution of Florida's Coastal High Hazard Area Policy." *Journal of Environmental Planning and Management* 52(3):1-17.

Quarantelli, Enrico. 1982. "Social and Organizational Problems in a Major Emergency." *Emergency Planning Digest*, 9(1): 7-10.

---. 1995. "Patterns of Sheltering and Housing in U.S. Disasters." *Disaster Prevention and Management*, 4(3): 43-53.

Rice, Harvey. 2008. "Galveston Council Takes Stand on Housing." *Houston Chronicle* (11 December). Retrieved from www.chron.com/disp/story.mpl/metropolitan/6160722.html.

Rittel, Horst W.J. and Melvin M. Weber. 1973. "Dilemmas in a General Theory of Planning." *Policy Sciences* 4:155-169.

Rodriguez-Dod, Eloisa C. and Olympia Duhart. 2007. Evaluating Katrina: A Snapshot of Renters' Rights Following Disasters." *Nova Law Review* 31(3): 467-486

Rodríguez, Havidan, Enrico Quarantelli and Russell Dynes (eds.) 2006. *Handbook of Disaster Research*. New York: Springer.

Rose, Richard. 1993. *Lesson-drawing in Public Policy*. Chatham, NJ: Chatham House.

Sabatier, Paul and Hank Jenkins-Smith (eds.) 1993. *Policy Change and Learning: An Advocacy Coalition Approach.* Boulder, CO: Westview.

Sabatier, Paul (Ed.). 1999. *Theories of the Policy Process: Theoretical Lenses on Public Policy.* Boulder, CO: Westview.

Sapat, Alka. 2004. "Devolution and Innovation: The Adoption of State Environmental Policy Innovations by Administrative Agencies." *Public Administration Review*, 64(2): 141-151.

Sard, Barbara. & Rice, Douglas. 2005. *Changes Needed in Katrina Transitional Housing Plan to Meet Families' Needs.* Washington, DC: Center on Budget and Policy Priorities. Retrieved from www.cbpp.org/archiveSite/10-13-05hous.pdf .

Schneider, Anne and Helen Ingram. 1993. "Social Construction of Target Populations: Implications for Politics and Policy." *The American Political Science Review*, 87(2): 334-347.

Schneider, Saundra. 1992. "Governmental Response to Disasters: The Conflict Between Bureaucratic Procedures and Emergent Norms," *Public Administration Review*, 52(2): 135-145.

---. 1995. *Flirting with Disaster: Public Management in Crisis Situations*. Armonk, NY: M.E. Sharpe.

Stanton, Robert. 2009. "Galveston after Ike: Hurricane Ike Disaster Assistance Deadline is January 12." *Houston Chronicle.* (7 January). Retrieved from blogs.chron.com/galveston/ike_recovery/

Strolovitch, D., Warren, D. and Frymer, Paul. 2006. "Katrina's Political Roots and Divisions: Race, Class, and Federalism in American Politics." in Social Science

Research Council (Ed.) *Understanding Katrina: Perspectives from the social sciences*. Retrieved from understandingkatrina.ssrc.org/FrymerStrolovitchWarren/

Thomas, Lyda Ann, Mayor of Galveston. 2009. *Written Testimony presented by Mayor Lyda Ann Thomas, City of Galveston: To U. S. House Committee on Homeland Security Subcommittee on Emergency Communications, Preparedness and Response, Washington, DC, March 3. 2009.* Retrieved from homeland.house.gov/ SiteDocuments/20090303102053-20881.pdf

Tierney, Kathleen. 1989. "Improving Theory and Research on Hazard Mitigation: Political Economy and Organizational Perspectives." *International Journal of Mass Emergencies and Disasters*, 7, 367-396.

_____ 2005. "The Red Pill" in Social Science Research Council (Ed.), *Understanding Katrina: Perspectives from the Social sciences*. Retrieved from understandingkatrina.ssrc.org/Tierney/

_____. 2008. "Hurricane in New Orleans? Who Knew? Anticipating Katrina and its Devastation." *Sociological Inquiry* 78(2): 179-183.

Tierney, Kathleen, Michael Lindell, and Ronald Perry. 2001. *Facing the Unexpected: Disaster Preparedness and Response in the United States.* Washington DC: Joseph Henry Press.

Türel, Ali. 1999. "Review of the Book *Disaster Hits Home: New Policy for Urban Housing Recovery,* by M. Comerio". *Housing Studies*, 14(5): 718-721.

U. S. Department of Homeland Security [DHS]. 2009. *Direct Housing Assistance Extension Option Offered to Katrina and Rita States* Press Release. (12 February) Retrieved from www.dhs.gov/ynews/releases/pr_1234456773596.shtm

U. S. Department of Housing and Urban Development [HUD]. Office of Public and Indian Housing 2008a. *FEMA-HUD Interagency Agreement, Terms and Conditions* (IAA Number HSFEHQ-08—X-1760). (23 September). Washington, DC: Author.

---. 2008b. *Disaster Housing Assistance Program - Ike (DHAP-Ike) Operating Requirements* (Notice PIH 2008-38 [HA]). (14 October) Washington, DC: Author.

---. 2008c. *Disaster Rent Subsidy Contract: Disaster Housing Assistance Program DHAP*. Washington, DC: Author.

U. S. Government Accountability Office [GAO]. 2007. *Disaster Housing: Implementation of FEMA's Alternative Housing Pilot Program Provides Lessons for Improving Future Competitions*. GAO-07-1143R. (August). Washington, DC: Author.

U. S. Government Accountability Office [GAO]. 2009. *Disaster Housing: FEMA Needs More Detailed Guidance and Performance Measures to Help Ensure Effective Assistance after Major Disasters.* GAO-09-796. (August). Washington, DC: Author.

U.S. Office of the Inspector General [OIG], Department of Homeland Security. 2008. *FEMA's Preparedness for the Next Catastrophic Disaster.* OIG-08-34. (March). Washington, DC: Author.

U.S. Office of the Inspector General [OIG], Department of Homeland Security. 2009a. *FEMA's Response to Hurricane Ike.* OIG-09-78. (June). Washington, DC: Author.

U.S. Office of the Inspector General [OIG], Department of Homeland Security. 2009b. *FEMA's Housing Strategy for Future Disasters.* OIG-09-111. (September). Washington, DC: Author.

U.S. Public Law 109–295. 2006. *Title VI. Post-Katrina Emergency Management Reform Act of 2006* . Publication No. 295.109. (October). Washington, DC: Government Printing Office.

U.S. Public Law 109–308. 2006. *Pets Evacuation and Transportation Standards Act of 2006.* Publication No. 308.109. (October). Washington, DC: Government Printing Office.

U.S. Senate, Committee on Homeland Security and Governmental Affairs. 2006. *Hurricane Katrina: A Nation Still Unprepared.* S. Rept. 109-322. Washington, DC: Author.

---. 2009. *Far from Home: Deficiencies in Federal Housing Disaster Assistance after Hurricanes Katrina and Rita and Recommendations for Improvement.* S. Rept. 111-7. Washington, DC: Author.

Walker, Jack. 1969. "The Diffusion of Innovation Among the American States." *American Political Science Review* 63:880-899.

Welsh, Mark G. and Ann-Margaret Esnard. 2009. "Closing Gaps in Local Housing Recovery Planning for Disadvantaged Displaced Households." *Cityscape: A Journal of Policy Development and Research* 11(3): 87-104.

Witt, Howard. 2008. "Galveston Takes Direct Hit from Hurricane Ike." *Chicago Tribune.* (13 September). Retrieved from www.chicagotribune.com/news/nationworld/chihurricane-ike-bd-sep14sep14,0,5991689.story

---. 2009. "Galveston, Texas, Still Struggling to Recover, Rebuild after Hurricane." *Chicago Tribune.* (16 February) Retrieved from www.chicagotribune.com/news/nationworld/chi-galveston_wittfeb16,0,6649545.story

Yelvington, Kevin A. 1997. "Coping in a Temporary Way: The Tent Cities." Pp. 92-115 in Walter G. Peacock, Betty Hearn Morrow and Hugh Gladwin (Eds.) *Hurricane Andrew: Ethnicity, Gender, and the Sociology of Disasters*. New York, NY: Routledge.