

MORE THAN A DECADE LATER: ARATIONAL DECISION CYCLES IN POST-HURRICANE KATRINA DISASTER MANAGEMENT

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ABSTRACT

Approximately thirteen years ago, considerable analysis focused on the breakdown of rational decision making in the emergency preparedness efforts of local, state, and federal officials that had contributed to the Hurricane Katrina disaster in New Orleans. At the time, the collapse of the decision-making process was shaped by independent moderating forces, such as the expertise of the decision makers, resource constraints, and imperfect information. Additionally, arational mediators, including favored decision premises, political agendas, and personal opportunism impacted the decision-making process. This paper explores the extent that the same failures persist today, post-Katrina, in disaster decision-making processes—exploring propositions based on the premise of “out of sight, out of mind.” Meaning, the longer the interval between disasters, the more disaster planning and decision making will revert to the same dysfunctional and corrupt patterns witnessed pre-Katrina. Today, information has improved, in large part due to the advances in technology and use of social media. Leadership has also improved, as most recent administrations have appointed more competent directors to administrative agencies at the federal, state, and municipal levels. However, despite these improvements, arational mediators remain an issue in the crisis decision-making process. In response to the continued adverse consequences of arational mediators, we propose solutions that can potentially ameliorate their negative impact.

Keywords: Administrative Law, Corruption, Crisis Management, Decision Making, Disaster Recovery, Organizational Structure

INTRODUCTION TO DECISION-MAKING PARADIGMS

Decision making is the science of choosing the best alternative (DeYoung, 2002; Gigerenzer, 2015). DeYoung postulated that managers who make consistent, value-maximizing choices are utilizing what is called the rational model. This model is predicated on seven assumptions: (1) the problem is clear and unambiguous, (2) a single well-defined goal is to be achieved, (3) all alternatives and consequences are known, (4) preferences are clear, (5) preferences are constant and stable, (6) no time or cost constraints exist, and (7) the final choice will maximize economic payoff (Beach & Lipshitz, 2017; Gigerenzer, 2015). Thus, a decision maker who was perfectly rational would be fully objective and logical (Gigerenzer, 2015; Harrison, 1999; Page, Tootoonchi, & Rahman, 2006).

The above assumptions are at the core of the problem with classical normative decision-making models (Beach & Lipshitz, 2017; Gigerenzer, 2015). These assumptions are routinely violated in the context of most organizational decision making, due to a series of intractable constraints—a lack of time and resources, ability, and imperfect information. Also, competing priorities and self-interest

tend to undermine the scope of the search for alternatives, their evaluation, and selection (Abelson & Levi, 1985; Bazerman, 2005; Gigerenzer, 2015). Classical decision theory presumptively describes the choices of an abstract, omnipotent decision maker and has little relevance to real-world situations. It is reactionary in that it attempts “to rationalize observed decisions...by being couched in terms that are...used to describe the behavior of human decision makers” (Beach & Lipshitz, 2017, p. 85). This results in decision makers neglecting optimal decisions in favor of expediency—quickly accepting a satisfactory choice that is merely “good enough” (Simon, 1957).

Organizational crises are events characterized by high consequence, low probability, ambiguity, and decision-making time pressure (Hunter, 2017; Pearson & Clair, 1998; Rosenthal, 1998). Times of crisis and recovery situations usually violate most or all of the assumptions of the classical model. These violations can be seen in natural disasters, and are categorized by insurance companies as unforeseeable “acts of God,” with examples including hurricanes, tornados, forest fires, and tsunamis.

Some natural disasters are unforeseeable, and some do not cause significant damage; others are foreseeable in ranges from days, to weeks, to years, and can cause death and mass destruction. These more foreseeable and destructive natural disasters include hurricanes; flooding from persistent, heavy rains; forest fires; blizzards; and volcanic eruptions. When the stakes are high enough, many of the constraints (a lack of time and resources, ability, and imperfect information) should dissolve. The government resources that can be directed towards these types of crises are typically immense. There is usually a considerable window of foreseeability and predictability for planning. And, decision makers tend to give such events top priority due to the potential career-ending consequences of failure (Hunter, 2017; McCarthy, 2003).

A pre-disaster cost-benefit analysis is an effective way to bridge the gap between experts and municipal authorities, and it can lead to more informed decision making. The costs associated with poor decisions made in the past can be used to justify the cost of implementing pre-disaster planning going forward. Looking at the probability and severity of future disasters can be combined with analyzing these past poor decisions, and can assist in the production of an effective pre-disaster plan (Komarowski, Hincks, Sparks, & Aspinall, 2015). A pre-disaster plan should be crafted by engaging the common steps in the decision-making process, which include: identifying the problem, identifying decision criteria, allocating weight to each criteria, developing alternatives, analyzing alternatives, selecting alternatives, implementing alternatives, and evaluating each decision’s effectiveness (Gigerenzer, 2015; Harrison, 1999).

Given the above environment and a solid pre-disaster plan in place, decision making in recovery efforts should produce a more effective response. Under such conditions, and freed from normal decision constraints, both decision-making theory and some empirical research suggest that the decision-making processes should be more rational than normal (Gigerenzer, 2015; McCarthy, 2003; Rahman, Monahan & Page, 2006). However, as an analysis of each decision stage shows, this was not the case with New Orleans before Katrina (Page, Tootoonchi & Rahman, 2006; Rahman, Monahan & Page, 2006).

The Paradigms as Applied to Crisis Decision Making

Models of decision making under conditions of threat and uncertainty are primarily descriptive rather than normative—inductively constructing conceptual models from observations of decision

making in practice. While these models can be broken out into discrete steps, whether such steps and sequencing actually take place, or are more for cognitive convenience, remains controversial (Gigerenzer, 2015; Taylor, 1984). Table 1 synthesizes some of the major stage models that have been advanced:

Table 1: Models of Crisis Decision Making Stages

Federal Emergency Management Agency (2005)	Li (2008)	Page, Tootoonchi & Rahman (2006)
Identify the Problem	Identify the Problem	Conduct Needs Analysis
	Identify Criteria	Search for Alternatives
Explore Alternatives	Objectively Evaluate Alternatives	Evaluate Alternatives
Select an Alternative	Choose Alternative Likely to Achieve Goal	Authorize and Select
Implement the Solution	Implementation	Communicate decision and Implement
	Track Consequences	Explain and Justify
Evaluate the Situation	Repeat Process if Desired Results not Achieved	Retrospectively Evaluate

These models attempt to identify and implement the best alternatives available to deal with the problems at hand during a crisis. They also all include an evaluation component.

Recovery Decision-Making Process

Crisis recovery decision making immediately *post-crisis* tends to be more rational. McCarthy (2003) found that the experience of crisis gave rise to a more rational, planned approach to the recovery process. Preparation for the next crisis involves contingency planning followed by simulations, so as to work out any potential problems in the implementation of the plans (Quarantelli, 1988; Rogers & Pearce, 2016; Turner, 1978). Private and public-sector organizations can learn from a crisis experience by evaluating the effectiveness of the decisions made during the crisis. They can then refine the decisions that did not work, so that they will be more effective in the future.

Post-Katrina, there have been two notable reports that highlight the effectiveness of the government responses to Hurricane Katrina and offer recommendations for improvement. The first was by the Senate Committee on Homeland Security and Government Affairs (2006), and is entitled, “Hurricane Katrina: A Nation Still Unprepared.” The second report came from the Select Bipartisan Committee, meant to investigate the Preparation for and Response to Hurricane Katrina (2006), and is entitled, “A Failure of Initiative.” Beyond the obvious calls for better planning, communication, and collaboration, there were two particularly substantive proposals: (1) simplifying and streamlining decision-making processes for faster implementation and (2) turn over command of relief efforts to the Department of Defense in “extraordinary circumstances” (Marek, 2006a).

The testimony of expert witnesses provided more insightful evaluation. For example, below is a summary of the testimony given by Frank J. Cilluffo (2006), the Director of the Homeland Security Policy Institute at George Washington University:

- Managing systems of systems issues involving multiple goals and multiple constituencies gets bogged down, as a “jack of all trades and master of none.”
- DHS should be regionalized, and FEMA should be independent of DHS. Disaster relief can never be effectively managed from Washington.
- The national preparedness and response system must focus on state capabilities and outcomes to support state, local, and nongovernmental and private sector responders.
- Effective relief requires inter- and intra-agency coordination, instead of cooperation among all levels of government and the private sector. Therefore, form must follow function with a clear chain of command, unencumbered by bureaucratic obstacles and based upon timely and effective supply chains enabling the response effort.
- Effective state intervention reduces the need for federal intervention, except in extraordinary circumstances.
- Building a culture of preparedness starts with individuals and communities. Education and preparedness before disasters to prevent suffering is much more effective than relief efforts after the disasters to alleviate suffering.

Subsequently, a disaster management process was developed to address and remedy some of these problems. This paper explores whether such compelling recommendations were implemented, or if processes were diverted back to “business as usual.”

DISASTER DECISION-MAKING BREAKDOWNS

Politics has a large impact on the decision-making process. Politics lie beyond the realm of reason, and they thrive on uncertainty and ambiguity. Descriptive theorists warn that complex problems, fast-moving markets, and unpredictability/uncertainty from social, political, and cognitive forces often significantly influence and constrain rational decision-making processes (Bazerman, 2005; Gigerenzer, 2015; Page, Tootoonchi, & Rahman, 2006). At some point the processes become unapplied, inapplicable, and irrelevant (Heracleous, 1994). When bureaucratic politics take over crisis response, central decision making is unlikely, and competing stakeholders will push their individual agendas, resulting in negligible to zero compromise (Boin, Stern, & Sundelius, 2016).

Organizational dynamics are another factor to consider. Decision makers are embedded in larger organizations, and they help frame decision premises. Effective response to a widespread disaster like Hurricane Katrina requires an inter-dependent, inter-organizational effort, since the scope of the disaster and the needs of its victims far exceed the coping capacity of any one organization or government agency (Cilluffo, 2006). The response to Hurricane Katrina lacked these qualities, in large part due to the organizational dynamics.

Interoperability and integrity between municipal stakeholders was never achieved during the Katrina crises, due to the lack of local, state, and federal collaboration (Bunker, Levine, & Woody, 2015). Management researchers have long documented the breakdown of collaboration—even when it is clearly in the best interests of everyone involved—when organizations have a well-established history of antagonistic interactions and predispositions towards adversarial relationships (Gigerenzer, 2015; Page, Tootoonchi, & Rahman, 2006; Quarantelli, 1988). Organizational collaboration toward a common goal will only be possible when multiple stakeholders negotiate their

interests effectively. The different levels of government and agencies involved in the Hurricane Katrina disaster failed to collaborate and negotiate their respective interests effectively.

Combining external constraints on crisis decision making with arational mediating factors yields the arational influencers, which contributed to the debacle of a response to Hurricane Katrina. This is summarized in Table 2:

Table 2: Decision Influencers
(Adapted from Page, Tootoonchi & Rahman, 2006)

<u>Arational Mediators</u>	<u>Rational Moderators</u>
Political patronage and agendas	Resource constraints
Decision premises	Information accessibility
Information screens/filters	Imperfect information (consistency, quality, etc.)
Resource allocation priorities	Quality of contingency plans
Personal opportunism	Quality of leadership expertise
Impression Management	Scope of feasibility forecasting

Examining how these factors have been addressed in the last decade, this paper will expand the “out of sight, out of mind” notion into our following suggested propositions:

Proposition 1: As the length of time between disasters increases, the tendency to allocate resources on the basis of political and economic ideological goals instead of science will also increase.

Proposition 2: As the length of time between disasters increases, the tendency to divert funds away from meaningful disaster preparation towards personal opportunism and political patronage will also increase.

Proposition 3: As the length of time between disasters increases, the tendency to filter information and prioritize impression management over accurate problem assessment and remediation will also increase

Proposition 4: As the length of time between disasters increases, the tendency to impose resource constraints on disaster preparedness will also increase.

Proposition 5: As the length of time between disasters increases, information accessibility, quality, and consistency will decrease.

Proposition 6: As the length of time between disasters increases, the quality of emergency planning will decrease.

Proposition 7: As the length of time between disasters increases, leadership expertise will decrease.

ARATIONAL MEDIATORS

It would first be prudent to define arationality in order to distinguish it from irrationality. When something or someone is arational the act is “[n]ot based on or governed by local reasoning” (Arational, 2018). Contrast this with irrational, which is defined as the state of being “[n]ot logical or reasonable” or “[n]ot endowed with the power of reason” (Irrational, 2018). Irrationality describes a state of mind, while arationality describes a situation that cannot be explained using logic or reason.

Political Ideologies and Decision Premises

The interests, ethics, and ideologies of decision makers help them sort through information to determine what is important and what can be safely marginalized or ignored (Simon, 1957). Political decision premises are often distorted by (a) previous commitments to past choices and tendencies to escalate that commitment, (b) avoidance of negative information and the defense of prior choices, (c) illusions of control over random and uncontrollable events, and (d) wishful thinking, where unpleasant contingencies are arbitrarily dismissed as improbable, while pleasant contingencies are embraced as being most likely, regardless of the empirical evidence to the contrary (Abelson & Levi, 1985; Bazerman, 2005; Conrado, Neville, Woodworth, & O’Riordan, 2016).

Political ideologies often constrain disaster forecasting and response. Senate and Congressional committees investigating the Hurricane Katrina disaster have concluded that this catastrophe was both predictable and predicted (Gelbspan, 2005; Marek, 2006a). However, informal social and political processes tend to focus on simplistic information and alternatives that are easy to understand, reflect what power holders and influence leaders want to hear, and are compatible with preferred political agendas (Bazerman, 2005; Conrado et al., 2016; Harrison, 1999).

For example, the fact that oil industry practices had an impact on drainage in the coastal wetlands that worsened flooding damage is well established. Accordingly, some legislators attempted to hold environmental tortfeasors (lawbreakers) liable; however, those attempts were unsuccessful due to political intervention. In July of 2013, the Southeast Louisiana Flood Protection Authority-East (SLFPA-E) filed a lawsuit against approximately 100 oil and gas companies (Pickell, 2013). The suit alleged that these companies failed to abide by federal and state coastal use permits, which required them to maintain, protect, and restore the coastal wetlands damaged by their exploitation of energy resources over the last several decades (Pickell, 2013).

If it had been heard on its merits, the lawsuit filed by the SLFPA-E would have revealed whether the years of pumping, dredging pipeline channels, digging, and extracting on the coastal wetlands had a negative effect. Had the plaintiffs proven such culpability on the part of the oil and gas companies, they could have compelled the companies to restore the wetlands back to the condition they were in originally (Pickell, 2013). The plaintiffs hoped that their lawsuit would have encouraged a statewide settlement that could have helped fund Louisiana’s Master Plan (Pickell, 2013).

Despite evidence from years of scientific research, then-governor Bobby Jindal and his administration viewed the lawsuit as non-meritorious. Jindal’s campaign, which was alleged to have received financial contributions from the oil and gas industry, attempted to end the lawsuit by threatening to intervene in it by alleging the SLFPA-E did not take the proper procedural steps to seek permission from his administration prior to filing the suit (Pickell, 2013; Schleifstein, 2015).

Bobby Jindal also removed several board members who supported the suit, in what appears to have been an attempt to have a more administration-friendly board, that would potentially decide to drop the suit altogether (O’Donoghue, 2014; Pickell, 2013). In June of 2014, a bill designed to put retroactive limitations on which government agencies can file a suit for damage done by oil and gas companies was summarily passed by the Louisiana state legislature (Adelson & Ballard, 2014). Despite concerns expressed by legal experts as to the bill’s effect on other environmental lawsuits, such as the claims against BP, Bobby Jindal signed a bill that had the potential to retroactively end the levee board’s lawsuit (O’Donoghue, 2014).

Viewing the legislation as a victory, Bobby Jindal stated, “[t]his bill will help stop frivolous lawsuits and create a more equitable and predictable legal environment, and I am proud to sign it into law” (O’Donoghue, 2014, para. 2). Sen. Robert Adley, R-Benton, who sponsored the legislation that Bobby Jindal signed, also stated, “[t]his bill keeps a rogue agency from misrepresenting this State and trying to raise money through illegal actions” (O’Donoghue, 2014, para. 5).

The facts outlined in this section indicate support for our first, second, and fourth propositions. Based on the above actions associated with Bobby Jindal’s administration, there is evidence that with the passage of time since Hurricane Katrina, some politicians appear to be allocating resources based on personal agendas and ideologies, rather than on science. Further, personal political opportunism and political patronage is evidenced from the political choices discussed above. These decisions resulted in disaster relief resources being constrained, supporting our fourth proposition.

Political Patronage and Personal Opportunism

The political corruption surrounding Hurricane Katrina began well before the Hurricane and continues to the present day, sans any disaster. “Disasters, whether natural or human-made, and Katrina [was] both, are revelatory mirrors that expose a society’s subterranean fissures, . . . existing socioeconomic inequalities and political pathologies” (Belkhir & Charlemaine, 2015, p. 4). Disasters do not commence only with the naturally-occurring event, since the conditions precipitating a disaster often begin well before the natural event itself. Corruption is an insidious contributor to the process that triggers what has been misleadingly labeled as a “natural disaster” (Lewis, 2011).

Political patronage involves awarding lucrative jobs and contracts based on political agendas rather than merit. The coordination between government agencies remains deeply flawed and the decision-making process continues to be influenced by corruption (Boyd, 2017).

One of the key players in the recovery efforts of Hurricane Katrina arguably distorted the decision-making processes with some of the factors stated above—including greed, commitment to previous decisions, and wishful thinking. After a long history of engaging in corruption, “New Orleans Mayor Ray Nagin was sentenced to 10 years in prison for his role in post-Katrina corruption” further underscoring that “[i]n the wake of a natural disaster, with an influx of funds and pressure to rebuild quickly, opportunities for bribery and embezzlement abound.” (Sorensen 2015, paras. 1-2). “In 2014, . . . [Nagin] was convicted on 20 charges—including fraud, bribery, money laundering, and conspiracy—related to contractors seeking city work before and after Hurricane Katrina” (Pao, 2015, para. 8).

Individuals prioritizing personal political agendas have caused disaster planning and relief decisions to be premised on those priorities and not on the grounds of science. This demonstrates support for our first proposition. Further, our second proposition appears to be supported, because as time continues to pass, money continues to be diverted—legally and illegally—from disaster relief toward personal opportunism. Lastly, one could make the argument that our fourth proposition is inherently supported here because as money is being misappropriated and siphoned from disaster relief, it logically follows that it is going to cause constraints on disaster preparedness. As such, the scope of feasibility forecasting will also decrease, because the funds will not be there to support the effort.

Impression Management and Information Filters

When considering uncertainty, the act of decision making becomes, in and of itself, a risky activity (Abelson & Levi, 1985; Harrison, 1999). As detailed in the facts below, this natural risk aversion and desire to deflect responsibility, coupled with inexperience and incompetence, created an atmosphere of indecision that fueled confusion in the Katrina recovery efforts. It appears that, the political, arational option was to shift attention from managing the disaster to making decisions that primarily managed personal image and diverted blame.

When evaluation focuses on issues of personal exposure and culpability for mistakes, a conservative bias towards risk-taking sets in. DHS Secretary, Michael Chertoff, seemed primarily concerned with media exposure as a means for relief effort success. Then-governor Kathleen Blanco’s slow decision making was likely resulting, in part, from a flurry of activity attempting to divert blame—for under-preparation and poor execution—away from the state and toward the federal and local levels (Brinkley, 2006; Singer, 2006). No one appeared to know who was in charge of what and who had authority to make decisions, allowing decision makers to make the dangerous, but convenient assumption that someone else was handling the problems at hand (Marek, 2006a). By buying into this assumption, these decision makers effectively avoided the risks associated with implementing a decision. Managing appearances in the media and in social networks seems to remain a priority to this day (Conrado et al., 2016).

The importance of public image and reputation at the city and state level remains of paramount importance in post-Katrina decision making. In 2009, FEMA released updated floodplain maps that had not been updated since the early 1980s (Dekom, 2016). The maps indicated that most of New Orleans was still highly vulnerable to flooding. Despite the relative accuracy of the floodplain maps, officials from New Orleans protested, and successfully won their appeals, asserting that FEMA did not take into account the post-Katrina levee system. In late September 2016, more than half of the city seemed to suddenly, move out of the high-risk flood zones (Dekom, 2016).

The change in zoning put businesses and individuals that were in areas ten to twelve feet underwater during Katrina in a new zone that no longer required them to purchase flood insurance. A possible reason for this rezoning is that high-risk areas equate to high insurance premiums and hampered development (Kailath, 2016). Lobbyist Jared Munster regarded the outcome as a “great victory” because of the perception that the federal government was “comfortable” with the level of protection around New Orleans (Kailath, 2016). Munster spent seven years lobbying for the new maps—ones that made New Orleans seem so dry that flood insurance was no longer required (Kailath, 2016). Ivan Maddox, an engineer at Intermap—a risk analysis firm—warned that “to suggest that New Orleans is anything except high... flood risk is... crazy” and Intermap found no difference between the FEMA map’s high and low-risk zones (Kailath, 2016, para. 19). According to Ivan Maddox, FEMA’s maps are a product of politics, redevelopment, and property values (Kailath, 2016). Risk management seems to be systematically replaced by risk maximization in pursuit of economic agendas.

For example, the Army Corps of Engineers has already rebuilt sections of the new levee system that sank six inches, and current projections place nearly three-quarters of the city of New Orleans below sea level by 2050 (Horowitz, 2016). With Katrina “safely” behind a rebuilt levee system and new floodplain maps, various political leaders saw an opportunity to exploit their constituents’ natural tendencies to favor short-term goals and benefits (Horowitz, 2016).

Our third proposition seems to be supported in this section, since the information being portrayed—the arguably inaccurate flood maps and the new levee system that is, in actuality, failing—appears to foster impression management rather than working to accurately assess and remediate potential risks and hazards present in New Orleans today.

RATIONAL MODERATORS

Quality of Contingency Plans, and Available Information

The quality of contingency plans has improved, in large part due to the resources that are now available to the different levels of government. Moreover, continuous innovations in information-gathering technologies, from drones to social media, have made improvements in what information is available and how rapidly information can become available.

In 2009, FEMA published Comprehensive Preparedness Guide 101 (Federal Emergency Management, 2010). In 2012, FEMA published Comprehensive Preparedness Guide 201 (Federal Emergency Management, 2013). FEMA has also published a guide that is intended to help local and state governments craft effective pre-disaster plans (Federal Emergency Management, 2017). Further, in 2009, President Barak Obama signed Presidential Policy Directive 8: National Preparedness (“PPD-8”) (Brown, 2011).

The comprehensive preparedness guides are meant to offer resources that can help all levels of government create disaster plans that are premised on empirical evidence, and on past failures and successes experienced by governments impacted by disaster. FEMA enlisted the aid of the different levels of government to create plans that are reliable and based on the wisdom of past experiences (Federal Emergency Management, 2010). These plans can be seen as tools that will allow governments across the country to create effective disaster management plans, which will lead to a mitigation in damage and better quality outcomes.

PPD-8 offers a holistic approach to disaster preparedness, and it is a Federal initiative that includes the involvement of entire communities and all layers of government, inclusive of interagency operational plans (Brown, 2011). Further, PPD-8 includes a national research and development initiative that is intended to craft out the best possible outline for a national disaster plan (Brown, 2011). PPD-8 also offers funding assistance and education resources to different levels of government (Brown, 2011).

Information dissemination and gathering has also become more efficient and is more readily available to different stakeholders. In 2017, FEMA partnered with Nextdoor.com, a social media platform that allows individuals in a neighborhood to communicate with one another. The partnership allows FEMA to be able to communicate with the Nextdoor.com members in regards to emergencies (AP News, 2017). In 2011, FEMA launched an app that provides disaster management and situational information (Moynihan, 2015). Further, FEMA is active on both Twitter and Facebook, where it is able to communicate with millions of its followers about impending emergencies and disaster relief, such as available resources and shelters (Rosenbloom, 2017).

FEMA has a grant program that provides funds for the purchase of drones for response and recovery efforts (Federal Emergency Management, 2017). FEMA and other stakeholders also are also using robots in disaster recovery and preparedness (Moynihan, 2015). These tools are a part of the Center

for Robot-Assisted Search and Rescue efforts, which is an organization that partners with governments when disaster strikes (Moynihan, 2015). The purpose of the partnership and these tools are to provide speedy disaster relief, search and rescue, damage visualizations, and assessment (Moynihan, 2015). Furthermore, particularly in Louisiana, there has been a significant investment in a centralized communication system that allows the Local, State and Federal authorities to communicate more effectively with one another during disasters (Moynihan, 2015). The inability to communicate amongst different stakeholders and first responders was an issue that caused huge problems during Katrina (Moynihan, 2015).

All of these new resources and changes in how governments are now able to prepare and respond to disaster have impacted the quality of contingency plans. This, coupled with more readily available information, is a formula for a high-quality disaster-preparedness plan. Based on the foregoing (available resources, advancements in information and communication technology, and the use of social media) our fifth and sixth propositions do not appear to be supported by the facts outlined above.

Quality of Leadership Expertise

In the Bush Era, many decision makers involved in the Katrina disaster were subsequently attacked for a lack of competence (Marek, 2006a). These competency gaps are not surprising, since most decision makers at that time lacked both education and training in disaster management. FEMA director Michael Brown had boasted to colleagues prior to his appointment that his political activities for the Republican Party put him in line for a lucrative government position (Stearns & Borenstein, 2005). In fact, the systematic under-qualification of political appointments has mushroomed into a huge image problem, escalating to the point where such positions are viewed as professional sell-outs and act as a stigma to one's career (Marek, 2006a).

This was not the case with the Obama administration (Moynihan, 2015), nor is it the case with the Trump administration, with the New York Magazine seeming to concede in an article entitled: "Trump's FEMA Director Doesn't Seem Incompetent" (Hart, 2017). In the wake of three major hurricanes, FEMA has responded well to coastal disasters. FEMA's focus and investment in leadership education and training programs seems to have paid off. Under President Obama, the FEMA Administrator, Craig Fugate, was the former Director of the Florida Emergency Management Division (Moynihan, 2015). Fugate had extensive experience in disaster management and this expertise can be viewed as a large contribution to the positive changes that have taken place within FEMA (Moynihan, 2015). In 2017, President Trump appointed William Long to the Administrator of FEMA. Long also has a wealth of experience, since he was previously the Alabama Emergency Management Agency Director as well as a FEMA regional manager under the Bush administration (Collins, 2017).

As is evidenced from the positive progressiveness of FEMA, the organization has benefited from having experienced leaders appointed during the last two administrations; thus, our seventh proposition is not necessarily supported.

Inadequate Resources

Skimping on disaster preparedness programs continues to be a serious problem. FEMA continues to be underfunded and understaffed, which leads to chronic shortages of equipment, supplies, and

personnel (Bagley, 2014; Miller, 2017). Further, the single biggest cause of destruction and death during Hurricane Katrina was the failure of the levee system designed to prevent flooding. The levee system was never designed to withstand anything more than a relatively weaker hurricane (Category 3 or less). The Army Corps of Engineers demanded increased funding in the 1990s, but Congress refused until 2005, and then reallocated all but 10 million out of the 60 million allocated (Gelbspan, 2005). Of those funds, the levee district diverted tens of millions in funds for levee inspection to license a casino, run an airport, and renovate a Mardi Gras statue (Marek, 2006b). The problems with the levee system are persistent today (Schleifstein, 2015). As previously discussed, the Army Corps of Engineers has already rebuilt sections of the new levee system that sank six inches, and current projections place nearly three-quarters of the city of New Orleans below sea level by 2050 (Horowitz, 2016). It does not help that the federal government continues to cut funding for disaster prevention projects, like the levee system upgrade, in Louisiana, (Schleifstein, 2017), even though there is sufficient evidence proving that investing in these infrastructure project could have saved thousands of people during Hurricane Katrina and would do the same in future disasters (Hardy & Mitchell, 2016).

Similarly, a statewide Coastal Master Plan was put into place to guide the restoration of the Louisiana coastline (State of Louisiana, 2017), which is a natural hedge against inland flooding. It also provides the basis upon which activities in the coastal zone such as oil and gas development, ground water management, and transportation will be monitored and regulated to safeguard coastal populations and ecosystems (State of Louisiana, 2017). The Master Plan was budgeted for 50 million (State of Louisiana, 2017). However, a study from Tulane University estimated that the actual cost was closer to 100 billion (Schleifstein, 2015). Without appropriate funding, the coastline of Louisiana will not be corrected in a meaningful or sustainable way. Since public funds are inadequate and these problems persistently continue, Louisiana is considering the use of private funds to protect the wetlands (Rainey, 2016). One could reasonably say that, there appears to be an evident problem with the adequacy of resources available, and therefore one could conclude that our fourth proposition is supported here.

Scope of Feasibility Forecasting

In Louisiana, disaster forecasting continues to be short-range only, despite the fact that one of the root causes of catastrophes like Katrina is likely climate change. However, in 2006, the Bush administration decided to “ignore and deny,” arguably largely due to the previous commitments and favorable policies toward the energy industry; that trend continues today (Gelbspan, 2005). Industries have long refuted global warming because of the potential liability for adversely affecting it. While there is overwhelming scientific evidence supporting global warming, industries and governments still attempt to refute its reality. This is a fairly clear showing of the power of decision premises and its impact on decision making.

In 2015, FEMA proposed a new requirement in its State Mitigation Plan Review Guide. As of March 2016, FEMA requires states to acknowledge their risks and vulnerabilities to human-made global warming (Jergler, 2015). According to Jergler, states are now also required to outline their strategies for reducing the impact on global warming as part of their disaster mitigation plans. As such, if a state does not address how they will mitigate their impact on global warming, they will be ineligible to receive pre-disaster assistance from FEMA with post-disaster assistance eligibility remaining the same (Jergler, 2015).

Regardless of FEMA's efforts, there has not been significant change. Bobby Jindal expressed his dissent and was concerned that the new requirements would make it difficult for governors to obtain funds to help prepare for and recover from emergencies such as hurricanes and floods (Jergler, 2015). Since federal support can save lives, Jindal argued that the White House should attach no strings restricting the use of federal funds, because there should be no "political leverage to force acquiescence to their left-wing ideology" (Jergler, 2015, para. 13). Placing the priority of economic redevelopment over the "temptation to stray into climate change politics," and developing climate change resilience would not improve disaster preparedness according to Jindal (Alpert, 2015, para. 6). Coincidentally, Louisiana's "Master Plan" budget shortfall will likely only increase should climate change costal resilience efforts not be pursued (Schleifstein, 2015).

Despite opposition to even the mention of climate change, some improvements, while historically fragmented, have been made by local and state agencies.

RECOMMENDATIONS AND CONCLUSION

Post-Katrina Louisiana featured a flurry of disaster relief, contingency planning, and hurricane preparedness programs. However, Louisiana has not been hit by a seriously disastrous hurricane for over 8 years. As the memory of Katrina fades, and the frequency of these crises decreases, so will the focus on disaster relief—out of sight, out of mind.

Based on the foregoing analysis of the facts outlined above, we find that, in the aftermath of Hurricane Katrina, the following conclusions appear evident. With each disaster situation, a fact analysis would need to be conducted in order to conclude which of our propositions are either supported or not. Future research, using the hypotheses we posited in this paper, could be applied not only to large disasters involving governmental response, but to private organizations that have endured disaster, such as the financial and auto industry during the United States financial crisis and big bailout. With that data, we could draw conclusions that have a more general applicability in the business world.

The following propositions we presented, were supported:

Proposition 1: As the length of time between disasters increases, the tendency to allocate resources on the basis of political and economic ideological goals instead of science will also increase.

Proposition 2: As the length of time between disasters increases, the tendency to divert funds away from meaningful disaster preparation towards personal opportunism and political patronage will also increase.

Proposition 3: As the length of time between disasters increases, the tendency to filter information and prioritize impression management over accurate problem assessment and remediation will also increase

Proposition 4: As the length of time between disasters increases, the tendency to impose resource constraints on disaster preparedness will also increase.

The following propositions we presented, were not supported:

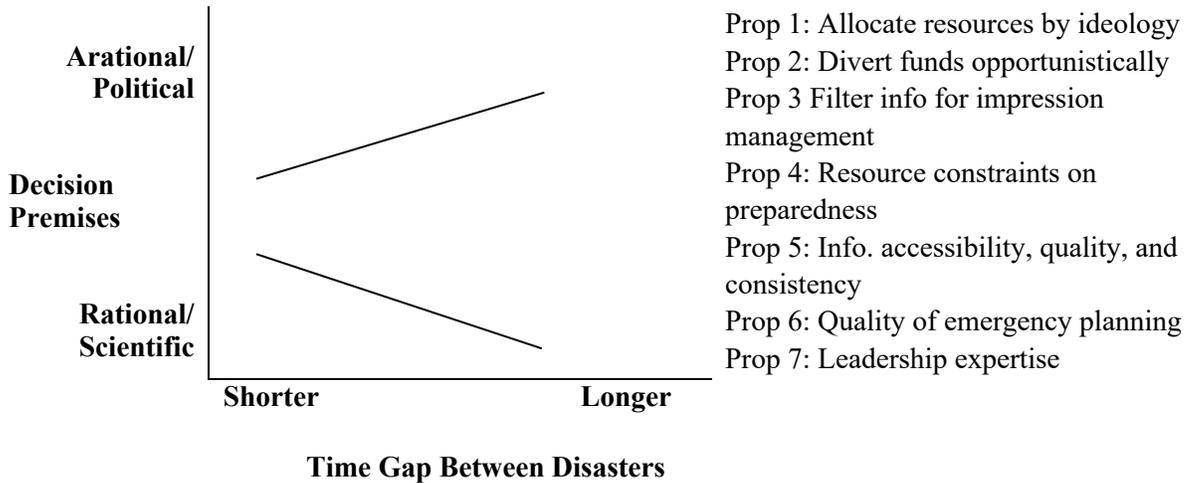
Proposition 5: As the length of time between disasters increases, information accessibility, quality, and consistency will decrease.

Proposition 6: As the length of time between disasters increases, the quality of emergency planning will decrease.

Proposition 7: As the length of time between disasters increases, leadership expertise will decrease.

These relationships are modelled in Figure 1:

FIGURE 1: A Decade of Disaster Mitigation Trajectories



There is evidence that arational mediators are to blame here, as discussed above. Thus, in order to have a truly effective disaster management plan, it is also imperative that the impact of arational mediators—like political agendas and misappropriations of funds—be controlled in a meaningful way. It is easy to forget the devastation and amount of resources it actually takes to address a crisis of the magnitude of Hurricane Katrina as the years pass without a disaster taking place. As time goes on, more and more money that is allotted for disaster relief is used for other purposes, partly because the oversight of the money is also reduced as time passes. This is a huge contribution to inadequate infrastructure and resource constraints—namely money, equipment, and supplies—which frequently causes disaster plans to fail, as can be seen with Katrina.

Private sector organizations can learn from and even model an appropriate response during a crisis. In fact, a popular, private-sector retailer was among the first to provide necessary supplies to victims and emergency personnel immediately after Hurricane Katrina (Scott, 2015).

Imposing a penalty for diverting disaster relief funds (for example, towards furthering other political and governmental interests) could help curb this type of gross mismanagement. Penalties could take the form of a claw back from the initial funder (i.e. the Federal Government), or a percentage tax that would be imposed when money was not preserved for its earmarked purpose. Imposing steep monetary or even criminal charges, with the potential for imprisonment, to the misappropriation of disaster relief funds can also have a chilling effect on this type of behavior.

Louisiana is exceptionally prone to hurricanes and extremely vulnerable to flooding. It is not a question of whether there will be another disaster in New Orleans, but rather a question of when and how severe. With climate change adversely affecting weather patterns, one can only presume that the severity will likely increase, especially since climate change continues to worsen as a result of political ignorance to its existence and power.

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