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Resources for the Future is an independent, nonpartisan think tank that, through its social science research, enables policymakers and stakeholders to make better, more informed decisions about energy, environmental, natural resource, and public health issues. Headquartered in Washington, DC, its research scope comprises programs in nations around the world.



Climate Adaptation and Federal Megadisaster Policy: Lessons from Katrina

Marc Landy¹

As defined by the Intergovernmental Panel on Climate Change, adaptation includes a set of actions to moderate harm or exploit beneficial opportunities in response to climate change. To date, little research has addressed public policy options to frame the nation's approach to adapt to a changing climate. In light of scientific evidence of extreme and unpredictable climate change, prudent policy requires consideration of what to do if markets and people fail to anticipate these changes, or are constrained in their ability to react. This issue brief is one in a series that results from the second phase of a domestic adaptation research project conducted by Resources for the Future. The briefs are primarily intended for use by decisionmakers in confronting the complex and difficult task of effectively adapting the United States to climate change impacts, but may also offer insight and value to scholars and the general public. This research was supported by a grant from the Smith-Richardson Foundation.

Policy Recommendations

Congress should provide the president with standby authority to appoint an officer in charge (OIC) to a megadisaster immediately after it occurs and unique to it. The OIC would have specific responsibilities and authority, to include the following:

- coordinating federal governments response efforts;
- convening deliberations among relevant federal, state, and local actors on recovery planning;
- seconding a staff from federal agencies;
- managing a budget of \$100 million; and

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- determining whether to propose a national recovery plan to the president and what it should contain if called for, as well as submitting such a plan to the president within six months of being appointed.

If the president decides to submit the OIC plan to Congress, Congress would subject the specific policy proposals contained in the report to a fast track procedure.

Introduction

Scientific scrutiny of the historical record of Atlantic storms has revealed that their intensity and duration has doubled over the last 30 years and links this development to climate change. Computer simulations corroborate this relationship between storm intensity and climate change and predict that this increase in intensity, as well as an increase in duration, will continue into the future (see Emanuel 2005; Dean et al. 2009). Because both population and commercial activity are increasing along hurricane-prone coasts, levels of property damage will increase at even a more rapid clip than storm severity levels because the storms will hit more densely populated and more property-rich areas.

From a victim's perspective, any storm is a megadisaster if it destroys that person's property or takes the life of a loved one. Nonetheless, the existing natural disaster regime of emergency response, private insurance, federal flood insurance, and federal government aid has a proven capacity to cope with natural disasters as long as they do not cross a certain threshold. That threshold was clearly breached by Hurricane Katrina. The federal government has spent more than \$130 billion to address the impact of Katrina, with some estimates ranging as high as \$150 billion (Congressional Budget Office 2007). Yet government failed to adequately address the response and recovery challenges the storm posed. It therefore makes sense to analytically and programmatically distinguish between severe storms that remain within the capacity of the existing response and recovery institutional and policy regime and those, like Katrina, that exceed that capacity. The gist of this analysis and the thrust of the recommendations are targeted at megadisaster. An effort to establish an empirical threshold for megadisaster appears later in this paper.

Katrina is to date the worst natural disaster in American history. The storm, which struck in the early morning of August 29, 2005, caused an estimated 1,500 deaths and approximately \$150 billion in property damage across a 150-mile swath from southeastern Louisiana across the entire Mississippi gulf coast to Mobile, Alabama. In comparison, Andrew, the previous worst hurricane, caused less than \$20 billion in damage when it struck in 1992 (Swiss Re 2006).² The costliest

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² Total damages are defined by the sigma study are all the financial losses directly attributable to a major event (damage to buildings, infrastructure, vehicles, and so on, regardless of whether insured. Includes business interruption directly due to building damage, but does



earthquake, which occurred in 1994 in Northridge, California, also incurred damages of roughly \$20 billion in 1994\$ (PEER 2005).

Katrina overwhelmed the capacity of government not only because of the immensity of the devastation, but also because it crossed political and bureaucratic jurisdictional lines. The damage affected several cities, many towns, seven counties, and two states. The larger the storm, the more likely that the havoc it wreaks will spill over conventional political boundaries. As explained, megadisasters are likely to become worse and more common both because climate change increases storm severity and duration and because the areas these more robust storms will strike are becoming ever more heavily populated and more intensively developed. The severity and damage level of Katrina is therefore very likely to be reached or exceeded sometime in the not so distant future.

It is tempting to attribute government's failure in Katrina to special and unique circumstances—the flaws of this or that political leader or the political and administrative dysfunctions of the city of New Orleans. But such conclusions are not supported by the facts. As discussed in the following section, forces were at work that are not sui generis to Katrina. Therefore Katrina has much to teach about what government needs to do differently when megadisasters strike elsewhere. As megadisasters come to constitute a greater threat to life and property those lessons should prove all the more valuable.

Lessons of Katrina

RECOVERY WORSE THAN RESPONSE

Emergency response suffered because of the excessive red tape that FEMA imposed on local governments and their efforts to ensure that they would be reimbursed for debris removal and other response actions they deemed necessary. But the extreme response impediments and confusions that engulfed New Orleans were an aberration due in large measure to political circumstances unique to New Orleans. Elsewhere the emergency response was reasonably well executed. The National Guard Navy Seabees, Coast Guard, local police, and municipal and county officials performed splendidly and even heroically. The proposed recommendations are geared to improving the effectiveness of the federal aspect of the response effort but should not be taken as a substitute for the prime element in effective response—a skilled, motivated, and well-administered local response effort. The deepest flaws in federal policy involved recovery.

not include indirect financial detriments such as loss of earnings by downstream suppliers, shortfall in GDP, nor noneconomic losses. All figures are presented in 2005\$ (Ahlers et al. 2008).



NEW ORLEANS RECOVERY: INDECISION, UNCERTAINTY

Recovery in New Orleans proceeded very slowly and remains spotty. The state of Louisiana used the bulk of its federal recovery aid to assist homeowners in rebuilding their homes on the same sites with the same footprints. At the same time, the city did not provide those homeowners with credible assurances that they would receive adequate flood protection or adequate water, sewage, and other vital infrastructural services. Some owners chose to rebuild anyway. Others did not. The key missing ingredient has been certainty. Present occupants do not know whether their neighbors will return, levees will be adequately rebuilt, or the city will marshal the resources they need to sustain themselves. New Orleanians refer to the resulting haphazard pattern of rebuilding as the jack-o'-lantern effect. In neighborhoods throughout New Orleans, the darkness of abandoned houses and empty lots is broken by the occasional beams of light from restored houses. As of September 2008, one-third of New Orleans' residential addresses remained unoccupied (Plyer and Liu 2009, 12). Many schools, hospitals, police stations, and other public buildings have not been rebuilt. Use of public transportation remains well below pre-Katrina levels (14).

MISSISSIPPI RECOVERY: UNEVEN, INEGALITARIAN

Mississippi enjoyed better government and much stronger political leadership at both the state and local level than Louisiana did. For this reason, and because the storm wrought different damage to Mississippi, the states did not suffer the same problems that plagued its neighbor. Mississippi has rebuilt far more schools, hospitals, government buildings and other critical infrastructural elements. Its casino industry is booming. The population of the affected counties is now almost as great as it was before the storm.. But Mississippi's recovery remains incomplete and inegalitarian. The non-casino economy continues to lag. The crown jewels of the Gulf Coast were the beautiful mansions that lined Beach Boulevard (U.S. 90). For the most part, these and the other houses and businesses that lined the boulevard have not been rebuilt (see Gulgov Report, 9–10).

Positive aggregate population statistics mask the recovery's exclusionary nature. The U.S. Department of Housing and Urban Development gave \$281 million to the Mississippi Alternative Housing Program (MAHP) to build attractive modular housing, nicknamed Katrina cottages. These were intended to be scattered about in various neighborhoods along the Gulf Coast to provide quality housing for those too poor to rebuild. The question of whether these cottages were to be temporary or permanent remained ambiguous. The MAHP goal was to site 4,000 cottages. But by the end of the two-year program, only 2,500 had been sited. Rather than using the program as a pilot for a more ambitious affordable housing effort, Mississippi terminated it (Burton 2008). The inability to site the cottages was the result of suitable neighborhoods successfully pressuring local officials to keep the cottages out. These neighborhoods have thus become less economically



diverse than they were before the storm and many poor former residents have been forced to live elsewhere.

FEDERAL FAILURE I: IGNORING HARD CHOICES

The federal government did not cause these problems. To a considerable degree, the problems represent the failure of state and local government to press citizens to accept unpleasant but necessary outcomes. Mayor Nagin of New Orleans commissioned a plan that called for reducing the size of the city's footprint, a necessary step for enabling a planned, orderly, and sustainable recovery. But as soon as those who had lived in areas not designated for full-fledged redevelopment protested, Nagin disavowed the plan. He made the untenable promise that the city would provide adequate levels of infrastructural, protective, and social services to enable all residents to return and rebuild. Likewise the inability or unwillingness of local governments in Mississippi to require neighborhoods to accept low-income housing cannot be placed at the federal doorstep. The money to proceed with recovery comes almost entirely from the federal government, however. It therefore has both the constitutional right and the fiduciary obligation to require state and local government to spend that money wisely and equitably.

For all the problems it encountered, the aims of emergency response were crystal clear—save lives, remove debris, and restore power, water, and electricity. From the federal government's standpoint, the goals to be accomplished by the recovery were far more complex and often seemingly irreconcilable. The responsibility to the victims is to enable them to rebuild their homes and communities. The responsibility to the federal taxpayers who will pay for this recovery and also for future ones involves making sure that all practicable steps are taken to reduce the damage caused by future floods. In addition, federal taxpayers do not expect to see current poor residents displaced, thereby shifting welfare and other social services burdens from the places they are assisting to communities that are not the beneficiaries of so much federal largesse.

At present levels of technology, storms are unstoppable. The only policy options available are limited to creating protective barriers to block their fury, imposing land use controls to restrict development in storm prone areas, or, if development is to be permitted, imposing elevation requirements and other building code requirements to improve the capacity of structures to withstand powerful storms and consequent flooding. The major obstacle to implementing these options is political. Under many circumstances, they are opposed by the victims themselves. Those displaced by a flood do not want to be told they cannot move back to their previous home. If they are allowed to return, they often do not want to incur the expenses connected with flood proofing. Nor do they want to cut themselves off from ordinary street life by elevating their homes, in some cases by as much as 18 feet. Moreover, they resent sharing the cost of expensive and unsightly floodgates, pumps, and other protective structures. In other words, their personal



risk benefit calculus may well produce far different results than that of government planners, whose duty it is to protect the federal taxpayer rather than to cater to victim preferences.

In many circumstances, the victims would rather gamble that they will not be hit by another storm in the short or medium run than to move away from their flood-prone home site; fully flood proof their homes or help pay for additional flood protection. This is especially true if they harbor the hope that, were they to be flooded again, the federal government would prove as generous the next time as did in the aftermath of Katrina.

FEDERAL FAILURE II: POLICY STOVEPIPES

In New Orleans, recovery planning proceeded without any meaningful attempt to integrate the future flood protection plans of the Army Corps of Engineers with the land use proposals made by the city of New Orleans and the homeowner compensation schemes devised by the state of Louisiana and funded by Congress. Instead, each of these entities proceeded to formulate policy in separate “stovepipes” as if a homeowner could make a sensible decision about whether to rebuild without knowing what level of flood protection would be provided and whether or not the city was committed to providing his neighborhood with adequate infrastructure.

The functional division of federal agencies as well as the division of congressional committees and subcommittees along functional lines implies that stove piping will always be the norm. Housing agencies and congressional subcommittees will address housing issues, transportation agencies and subcommittees will address road tunnel, bridge building, and the like. A any effort to synthesize policy—to integrate planning for housing, transportation, flood mitigation, and economic development is therefore always a deviation from the norm. Similarly, deliberations among the relevant parties leading to meaningful policy integration are unlikely to take place. They depend on the imposition of leadership both to convene the right parties and then to provoke meaningful discussion by asking strategically provocative questions.

The greatest failure of federal Katrina policy was in not protecting the legitimate interests of the federal taxpayer. Neither the president nor Congress made any serious effort to weave disparate policies into a coherent whole capable of defending the federal interest in mitigation and equity, or to reduce the moral hazard problems associated with the failure to provide victims with incentives to take appropriate mitigation actions themselves. This failure was not absolute. Many useful and productive actions were taken, especially in Mississippi. Most important, FEMA did peg the purchase of flood insurance to the adoption of elevation guidelines issued for every portion of the Gulf Coast flood plain. Banks require mortgage applicants to provide proof of flood insurance purchase, and meeting elevation standards has become a prerequisite to building a new home, though not for renovating a damaged one. Also, Mississippi has spent a large amount of federal Community Development Block Grant (CDBG) money to install water sewer and electric lines



north of the coastal floodplain in an effort to steer development away from the coast while still enabling displaced persons to remain in or near their home communities. But as the evidence presented earlier in this paper suggests these important accomplishments have been insufficient to produce overall recovery success.

FEDERAL FAILURE III: THE WRONG POLICY VEHICLE

The vehicle Congress chose for providing the bulk of Katrina recovery funding was the Community Development Block Grant, for two reasons. First, it is the federal government's largest and most widely available source of financial assistance to support state and local government-directed neighborhood revitalization, housing rehabilitation, and economic development activities, precisely the set of activities that communities devastated by Katrina required to recover. The nature of the program accorded local and state officials a great deal of discretion in determining which combination of the 25 categories of eligible activities to undertake when developing their community development plans. Eligible CDBG activities include historic preservation; real property acquisition, demolition, site preparation, and disposition; economic development and job creation, including assistance to for-profit entities and establishment of revolving loan funds; housing assistance, including rehabilitation loans and grants; public service activities, including job counseling and employment training; and assistance to not-for-profit entities, including community development corporations and faith-based institutions.

Under normal circumstances, for an activity to be eligible for CDBG funding it had to principally benefit low and moderate income persons, aid in eliminating or preventing slums or blight, or meet particularly urgent community development needs because existing conditions pose a serious and immediate threat to the public. Helping storm ravaged communities recover clearly met the third objective. The program's authorizing statute requires each recipient community to allocate 70 percent of its CDBG funds to activities that primarily benefit low- and moderate-income persons. In response to previous disasters, HUD waived this provision to allow a community to address an urgent threat to the safety of residents.

From a federal authoritativeness standpoint, however, CDBG's virtues were also its most severe handicaps. To secure a CDBG grant, a state or locality had to negotiate numerous cumbersome and time-consuming procedural hurdles. One of these was compliance with the Davis Bacon Act, which requires contractors to pay prevailing wages. Another was to prove that there would be no duplication of benefits, that all forms of other assistance, including private insurance, would be deducted from the CDBG payout. This requirement was particularly onerous because of both the lack of adequate databases to enable checking on the various forms of federal expenditures and the unwillingness of harried insurance companies to redeploy staff from dealing with irate customers to gathering the requisite data. But, having complied with these requirements, states and localities were then free to spend the money more or less as they chose. Mississippi did make



some excellent strategic use of the discretion that CDBG provided. Louisiana, however, chose to spend the bulk of the CDBG funds it received to assist victims in relocating and rebuilding at their previous locations, making no effort to integrate these efforts with efforts to mitigate flood risk or ensure that adequate infrastructural, police, and social services would be provided to them when they returned.

KEY LESSONS

As the discussion of the federal government involvement with Katrina recovery shows, the key missing ingredients were policy integration and policy authoritativeness. *Integration* means weaving together disparate functionally defined policy threads into a coherent pattern of programs and activities capable of accomplishing the broad purposes that stimulated the call for policy action in the first place. *Authoritativeness* means steadfast adherence to central strategic goals. This often requires an insistence that resources be targeted and concentrated despite powerful political pressures to disperse them more widely. It may also require holding fast to prohibitions and constraints critical to the success of the overall policy design despite equally powerful political pressures to allow for exceptions, grandfather clauses, waivers or other methods of lessening the impact and hence the effectiveness of those prohibitions and constraints.

Policy Proposal: An Officer in Charge

Although much is to be gained by efforts to anticipate megadisaster impact and to maximize emergency response readiness, the unpredictability of the event limits government's ability to do so effectively. Indeed, planning efforts can be counterproductive if they instill complacency. As in war, no preconceived battle plan can substitute for bold, determined, flexible, and creative leadership in the field. Before Katrina, the federal government, with the participation of local and state agencies, engaged in ambitious and extensive planning efforts, including a full-fledged simulation of a Katrina-like storm hitting the Gulf. But the resulting planning documents did not enable government to mount an effective response to and recovery from the storm. Perhaps better planning would have helped. The Katrina response and recovery, however, suffered less from poor planning and more from the absence of generalship. No one had enough authority to mount a powerful and well-orchestrated campaign. I therefore recommend that Congress provide the president with standby authority to appoint an officer in charge to take command of federal response and recovery efforts immediately after the onset of a megadisaster.

THE POSITION

The chief rationale for an officer in charge (OIC) is that such an individual would provide the leadership necessary to promote policy integration and policy inertia in the face of the inevitable bureaucratic and congressional obstacles. Each OIC would be appointed under a specific executive



order unique to the megadisaster at hand. This is necessary because the precise limits and extent of the OIC's authority need to be tailored to the specific physical, political, and economic circumstances involved.

THE NATURE OF THE APPOINTMENT

The officer in charge should have the stature, wisdom, and experience to energize the national government response and, if appropriate, recommend to the president and to the Congress a course of national recovery action. The OIC could be a cabinet member (past or present), a former senator or other prominent political leader, or some other individual with national and regional stature and proven leadership abilities. Despite the inefficiencies created by making *sui generis* appointments for this role, such negatives are outweighed by the need to ensure that the person chosen has the right mix of critical attributes to command both national and regional respect and deference at that precise moment.

Critical to the success of the OIC's mission is the manner in which the president describes the OIC's mandate and why he made the choice he did. Even though President Bush did in fact appoint a federal official, Donald Powell, to serve as coordinator of federal support for the recovery and rebuilding of the Gulf Coast region, Powell was not prominent enough nor enjoyed the status and prestige that goes with being the president's personal emissary. He reported to the secretary of Homeland Security, not to the president (President 2005). Powell performed many useful services in coordinating the activities of different federal agencies and mediating disputes between those agencies and state and local governments. But his lack of stature and authority undermined his ability to successfully press reluctant federal officials and state and local politicians to submerge their differences and follow his lead. He played no role in recovery planning or execution. Critics of the appointment suggested that Bush appointed the wrong Powell: he should have appointed Colin, not Donald (Alpert 2009).

The officer in charge must also be given ample staff and budgetary resources. Congress should authorize the OIC to recruit existing federal agency personnel for special assignments and to contract with outside organizations and experts as and if needed. To ease the understandable resentment that the OIC's presence is quite likely to inspire among many of the state, local, and federal officials whose collaboration the OIC requires, the Congress should also grant the OIC a fund of \$100 million to distribute among ongoing recovery efforts as the OIC sees fit.

THE TASKS

The OIC would perform three essential tasks: (1) work with officials from FEMA, Coast Guard, and other relevant federal agencies to coordinate the federal response effort and take the lead in resolving interagency disputes and conflicts with state and local emergency responders; (2) convene deliberations among the relevant federal, state and local actors regarding recovery



planning; (3) determine whether to propose a national recovery plan to the president and, if a plan is called for, what that plan should contain. The OIC would be required to submit such a plan within six months of the OIC's appointment.

THE PLAN

The objective of the OIC plan would be to overcome the two most debilitating aspects of megadisaster recovery, as demonstrated by the Katrina experience: lack of both policy integration and policy authoritativeness. The OIC would have the freedom to ensure that all relevant parties are brought to the table to consider policy option and policy design. The efforts to coordinate response will have sensitized the OIC to the debilitating effects of stovepiping and therefore make him or her especially sensitive to the need for policy integration. The OIC plan should integrate different policy tools, implementation practices, and agency personnel to maximize the likelihood that recovery efforts will build on rather than detract from one another. Because the OIC plan is not a negotiated product but rather the fruit of a single strategic vision with full control over policy design architecture, it can embody the resoluteness of purpose and the commitment to priority setting that a robust recovery requires.

Congressional Fast Track

If the OIC submits a plan and the president decides to submit it to Congress, Congress would subject the proposals in the report to a fast track procedure. This would resemble the one Congress has adopted for international trade agreements and be in the same spirit as its approach to the proposals of the various base closing commissions (for a comprehensive and incisive treatment of various congressional fast track options, see (Becker 2005). Congress would agree to bring the report to the floor within 45 days, conduct a floor vote within 10 days, ban all amendments, and ban any Senate filibuster. The congressional vote would be either to accept the proposal in its totality or reject it.

It is a great deal to ask Congress to voluntarily limit its legislative discretion this way. But nine months would have already passed since the megadisaster and the need to commence actual recovery operations would be urgent. The slow process of subcommittee and committee hearings and mark ups that are the congressional norm would no longer be an option. The OIC's proposals might prove unclear and not integrative enough but that problem is unlikely to be resolved by piecemeal alteration and amendment.

The OIC's report will explain and defend its overall strategic rationale, enabling Congress to seriously debate the merits of the proposals. The report is intended to enable Congress to evaluate the overall goals of the recovery proposals, to decide whether it supports those goals and to assess whether the specific proposals are comprehensive, integrated, and practical enough



to accomplish those goals. If Congress disagrees with the goals of the report or doubts the efficacy of its proposals, it can and should vote the proposals down.

The fast track approach has the added virtue of disciplining the OIC. It deprives the OIC of the ability to defer the hardest choices to Congress and therefore improves the likelihood that the report's recommendations will prove tough-minded and comprehensive enough to warrant congressional approval.

Although stretching recovery deliberations over nine months presents obvious problems, it offers advantages as well. In the immediate aftermath of a megadisaster, it is difficult to engage in the dispassionate thinking and discussion needed to consider how best to reinvest. A period in which the immediate and most desperate needs of victims are attended to is needed before appropriate attention can be given to the facts of the situation and to the hard choices they impose for the future. If Congress approves the OIC's recommendations, an equally difficult stage—implementation—then begins. If the president determines that the particular expertise and that the OIC has acquired in the process of formulating the recovery plan would help to implement it, he should have the discretion to extend the OIC's term of service.

Defining Megadisaster

Unless standards for defining a megadisaster are stringent, the OIC approach risks becoming a new form of moral hazard. Governors and state congressional delegations will be tempted to pressure the president to declare their serious hurricane, fire, or blizzard to be a megadisaster, with the expectation that this designation will produce more federal aid than could possible through ordinary channels. This concern is not hypothetical. In the Clinton years, the criteria for obtaining federal disaster relief were loosened and, despite a relative lack of major incidents during the period, the number of disaster declarations and the amount of disaster relief spending rose significantly (Roberts 2006, 71).

We suggest that the benchmark be set at \$40 billion, twice the damage wrought by both the second worst hurricane and the worst earthquake on record, but only one-quarter of the Katrina damage. If a storm is assessed as inflicting more than \$40 billion, an OIC would be appointed by the president.³ An interagency damage assessment process should be established for hurricanes and earthquakes under the auspices of NHC and the U.S. Geological Survey. It would be activated in advance of an oncoming hurricane expected to reach category 3 level or higher, or of an earthquake of the order of the Northridge earthquake or greater.

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³ Because no one triggering metric is adequate under all circumstances, substitute measures of damage should be permitted. For example, if the dollar damages that a megadisaster causes in a low-income region do not reach or exceed \$40 billion because of pervasive low property values, alternative damage measures, such as number of homes destroyed or number of persons displaced, could be incorporated into the metric.



Conclusion

The U.S. Constitution establishes separation of powers and of power among the three branches of the federal government and creates ambiguous authority relationships between the national government and the states. These in turn create a bias against the sort of concerted and expeditious action that successful megadisaster recovery requires. In the realm of foreign policy, the need to protect the nation's security has been treated by courts and citizens alike as a rationale to allow the president to exert extraordinary powers free of congressional or judicial scrutiny and control. This paper suggests that domestic megadisasters also merit some deviation from ordinary policy routines, though to not as sharp and extreme an extent as an international emergency may demand. It does not restrict Congress's power to reject the OIC's recovery plan. Congress merely relinquishes, voluntarily, its power to amend or delay the plan. Likewise, states and localities retain their full panoply of constitutional powers, including the right to refuse federal aid if they consider the strings attached to be unduly onerous and invasive.

The OIC proposal does not challenge the Constitution, rather, it is an effort to adapt existing institutional arrangements to emergency exigencies. It provides an alternative both to aimless muddling through and executive dictatorship. Although recognizing that successful leadership cannot be legislated, it creates a leadership opportunity that, were it to be filled by someone with enough prestige and talent and were it receive presidential backing, could indeed spearhead the formulation of a megadisaster recovery plan worthy of the name.



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