STRATEGY RESEARCH PROJECT

TURNING THE TIDE ON DOMESTIC DISASTER RELIEF

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ABSTRACT

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An unintended consequence of current domestic disaster policy is the ever greater consumption of our national resources during times of severely constrained budgets. Our challenge is to responsibly reverse the trend in disaster resource consumption, while still accomplishing policy aims, so that scarce resources are available for competing foreign and domestic policy objectives.

Fiscal responsibility demands that U.S. domestic disaster relief strategy be firmly focused on the deliberate reduction of local, state and territorial governmental reliance on avoidable, yet oft repeated and costly federal disaster relief. Wise preventive steps today achieved through the deliberate targeting of scarce resources will yield a more disaster resistant America, lessening the reactive burdens posed by future natural disasters.

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PART I: INTRODUCTION

After a decade of some of the worst shaking (Loma Prieta 1989 and Northridge 1994, both in California), blowing (Hurricanes Hugo 1989, Andrew 1992 and Iniki 1992), and rising waters (Midwest floods '93, '95, and '97) in our nation's history, it is instructive to contemplate the current adequacy and future direction of natural disaster relief policy. Pick up any newspaper or switch on any news channel and it becomes painfully apparent that disasters worldwide must be growing in severity and/or frequency. As a minimum, we are experiencing a heightened sensitivity to them.

As a nation, current domestic disaster relief policy is costing us considerably. Year after year, domestic disasters pose tremendous costs in terms of human suffering, property damage, over expenditure of national budgets, and, on occasion, employment of the Armed Forces. Fortunately, past aggressive action, especially new advanced warning technologies, has helped reduce disaster fatalities; but, given the media coverage of disasters today, it would be pure conjecture to assume that human suffering is at all subsiding. While domestic disaster relief costs have skyrocketed annually by billions of dollars in the aftermath of the Cold War, other equally compelling programs have been curtailed.

The very real consequence to current domestic disaster policy is an ever greater consumption of our national resources

during times of severely constrained budgets. Our challenge is to responsibly reverse the trend in disaster resource consumption, while still accomplishing policy aims, so that scarce resources are available for competing foreign and domestic policy objectives.

PART II: THESIS AND METHODOLOGY

Historical precedence and a social predisposition toward compassion preclude Washington from ever disengaging from domestic disaster intervention. Fiscal responsibility, however, demands that U.S. domestic disaster relief strategy be firmly focused on the deliberate reduction of local, state and territorial governmental reliance on avoidable, yet oft repeated and costly federal disaster relief. Wise preventive steps today coupled with a commitment to target scarce resources will yield a more disaster resistant America, lessening the reactive burdens of future natural disasters.

The purpose of this paper is to recommend improvements to the execution of domestic disaster policy. Toward that aim, the background (policy, legislation, history, program trends) of current policy is explored followed by a simplistic strategic model and assessment of current disaster policy methods. Divergent strategic policy approaches are then introduced suggesting the present course encourages an escalating financial obligation of the federal government. Thereafter, a series of

programmatic issues (risk-based planning, generic disaster insurance, community disaster proofing, and research & development (R&D)) are discussed to offer specific areas to redirect current policy. Lastly, an overall funding mechanism is proposed to tie the proposals together into a coherent resource strategy. If adopted, this proposal would systematically reduce local and state governmental reliance on federal disaster relief and contribute positively to federal fiscal responsibility.

PART III: BACKGROUND

The strategic policy basis for disaster relief is found in The National Security Strategy for a New Century (NSS), where the safety and economic well-being of our people are specified as vital interests. The NSS states that costs and risks should be commensurate with interests at risk, and makes noble our collective efforts to avert humanitarian disasters. In addition, this document states that although typically not the best tool to address long term humanitarian concerns, the nation's military may provide appropriate and necessary humanitarian assistance (ergo DoD's inherent interest).[1] The National Military Strategy,[2] the Report of the Quadrennial Defense Review,[3] and the Annual Report of the Secretary of Defense to the President and the Congress[4] (the latter with amplifying reports from

Service Secretaries) are consistent in developing and reporting on these disaster relief themes.

Domestic disaster relief policy has legislative foundation in the 1988 Stafford Disaster and Emergency Relief Act. The governor of an impacted state may request and, upon approval of the President, be provided federal assistance when three conditions are met. First, the disaster must be of such severity and magnitude that effective response is beyond state and local government capabilities. Second, the governor must take appropriate response action under state law. And third, the state must agree to the required cost-sharing to be eligible for the assistance requested. [5]

Historically, the federal government and the military have been involved in domestic disaster relief for more than a century. The federal government assumed an active role in the rebuilding of Charleston, SC (1886) and San Francisco, CA (1906) following two destructive earthquakes and provided similar assistance following many other natural disasters during the late 19th and current century. [6] However, a disaster relief turning point occurred with the launch of an extensive federal response following massive flooding of the lower Mississippi River in 1927, shaping today's federal flood control program. This event also demonstrated the political potential of major disasters by propelling Herbert Hoover (the Commerce Secretary who spearheaded the federal relief effort) into national prominence. [7] But,

prior to the enactment of the first general disaster relief legislation in 1950, relief was provided case-by-case based upon the initiative of the executive branch or subsequent to specific disaster relief legislation. [8]

More recently, Hurricane Andrew struck South Florida and Louisiana in 1992 resulting in the deployment of more than forty thousand troops and causing some $30 billion in damages. [9] Equally as devastating and as expensive, the Northridge earthquake struck in the vicinity of Los Angeles in 1994. [10]

A review of available literature reveals a clear trend of greater federal intervention in domestic disaster relief, with notable acceleration during the last several decades and a most remarkable spike during FY 96 as the table below illustrates: [11]

Disaster Declarations by Year (1977-1996)

Year	Presidential Disaster Declarations	Year	Presidential Disaster Declarations
77	*22*	87	*23*
78	*25*	88	*11*
79	*42*	89	*31*
80	*23*	90	*38*
81	*15*	91	*43*
82	*24*	92	*45*
83	*21*	93	*32*
84	*34*	94	*36*
85	*27*	95	*32*
86	*28*	96	*75*

Many federal agencies and all military departments play an active role in domestic disaster relief. By Presidential

Executive Order, the Director of the Federal Emergency Management Agency (FEMA) is designated as the lead federal agent for all domestic disaster relief.[12] As specified in the Federal Response Plan, the Defense Secretary is designated as lead agent for one emergency support function and supporting agent for eleven others.[13] By DoD Directive, the Secretary of the Army, acting through the Department's Director of Military Support (DOMS), is executive agent within DoD. [14] Agency responsibilities as specified within the Federal Response Plan are summarized in the appended table, The Federal Response Plan. [15]

By intent, the Federal Response Plan is more an overarching interagency plan than a plan of execution. The plan identifies principle responsibilities and relationships necessary to provide the support typically required within a disaster stricken area.[16]

FEMA, created by Jimmy Carter in the aftermath of the Three Mile Island debacle, [17] has the strategic lead for domestic disaster relief policy. FEMA's "Strategic Plan - A Partnership For a Safer Future" is consistent with the language of the National Security Strategy. FEMA's stated priorities are risk reduction and rapid and effective domestic disaster response. [18] Press releases and speeches by the Director of FEMA amplify these priorities. For more depth, see "Establishing Disaster Resistant Communities . . .", [19] ". . . Calls for Renewed Effort . . .", [20]

"Remarks . . . to . . . Business", [21] and "Remarks before . . . National Emergency Management Association". [22]

A look into the future can be numbing. If the ravages of Hurricane Andrew (category 5 storm, $30 billion damages) and the Northridge Earthquake (6.7, $20 billion) are not enough, damage expectations from an 8.2 magnitude earthquake near San Francisco could exceed $80 billion and a category 5 Hurricane closer to Miami would approach $55 billion.[23]

PART IV: A STRATEGIC MODEL (ENDS, WAYS, MEANS)

A review of the FEMA Strategic Plan can be summarized in a simple ends, ways and means strategic model. The disaster relief policy objectives (**ends**) are the reduction of human suffering and damages due to disasters. The methods (**ways**) to achieve these ends in terms of the NSS [18] include ***shaping*** (reducing vulnerability in disaster-prone areas to minimize loss in the event of future disasters), ***responding*** (rapidly and effectively delivering relief manpower, supplies, equipment, and money to stricken communities when disaster happens), and ***preparing*** (developing and fielding better warning systems, planning effectively, pursuing public education/relations campaign). The resources (**means**) to support this policy include budget dollars, manpower, and program management at all levels. [24]

On the surface, it would appear there must be a balance between **ends-ways-means** to successfully execute disaster relief policy. However, as the required means (resources) continue to spiral upward with no apparent offsets in established ends (objectives), the ways (methods) become a target of evaluation for both priority and effectiveness.

PART V: ASSESSING DISASTER RELIEF METHODS (WAYS)

Disaster relief methods can be described as proactive or reactive and as occurring pre-disaster, during disaster, or post-disaster. Disaster relief techniques can be categorized as either structural (e.g. flood walls, levees, structure elevation or retrofitting) or nonstructural (e.g. zoning restrictions, buffer zones, building codes, facility relocation). Disaster relief activities include disaster prevention/mitigation (to lessen a future event's impact), emergency response (crisis repair and rescue), and recovery (long-term rebuild).

Being proactive or reactive depends on both the situation and the perspective of the disaster relief provider. To illustrate from the vantage point of a state emergency management official, "In the early weeks (as flood waters were rising) . . . our efforts were directed at preventing property damage and protecting lives *(preventive response)*. Then our focus shifted to helping those . . . to be clothed, fed, and housed *(reactive*

response). Now (our emphasis is) . . . preventive measures *(shaping, preparing)* so the problems of 1993 never happen again."[25]

Short of relocating to a less disaster-prone area (which risk analysis may dictate), little can be practically done to fortify against the infrequent, but sometimes inevitable, high magnitude natural disaster (e.g. the 7.0+ earthquake, category 5 hurricane, or 100+ year flood). Nonetheless, those with seismic/wind/flood resistant facilities, are more likely to prevent a disaster from becoming a tragedy than those who fail to take such design or retrofit precautions. The more frequent disasters are lower magnitude events (e.g. the 5.0 or lower earthquake, the category 4 or lower hurricane, or the 50 year or higher probability flood). Those taking precautions predictably fare much better against these lesser magnitude events and may even avert damages altogether.

PART VI: FEDERAL VERSUS STATE OR LOCAL ROLE

Senator Chafee gives a view on national interest in disaster relief, "At what point does something become a national concern? If 3,000 houses are burned in California, that's a terrible disaster. If 6 houses are burned in a row in Providence, Rhode Island, each person affected is out just as desperately as each person in the California situation . . ." [26]

Victims of any calamity will look to neighbors in time of need. When neighbors are also impacted by disaster, assistance might be provided by the community (relief agency, church, or local government). When communities are overwhelmed, quest for aid typically follows a local-state-federal progression until the wherewithal and inclination are found to alleviate human suffering and to assist in disaster recovery.

But, who from a policy perspective should respond when best prevention efforts have not been good enough? Who should compensate those with property damage? And who should bear the costs of ongoing or future disaster prevention (to keep this calamity from happening again)? Is it the taxpayer's (federal, state, or local) responsibility to provide relief to those who choose to live in harms way? Senator Harken provides us a think piece, "Indeed we (the Federal Government) do have deep pockets . . . However, everybody knows . . . it's all borrowed . . . we're passing (the burden) on to our children to pay for." [27]

Past experience demonstrates a high probability that victims of disaster ultimately look toward the federal government for help. If we can expect Washington to respond more frequently, or if disasters become more costly, fiscal prudence suggests a disaster prevention & preparation strategy. Spin-off benefits include the reduction in reliance on the federal government for help, an increase in self sufficiency, and a renewed confidence in federal fiscal responsibility.

PART VII: STRATEGIC PROGRAM APPROACHES

Depending on the desired scope and method of involvement, the federal government has two broad approaches from which to select a strategy for domestic disaster relief. These options are best summarized in terms of priority placed in reactive or proactive disaster program areas.

The first strategic approach would emphasize the responsibility of the federal government to reinforce response and recovery efforts of state and local governments when their capabilities are surpassed. Funding priority would be on rapidity of federal response and adequacy of federal recovery programs. Prevention and mitigation efforts would be funded if and when federal resources permitted. Political risk is minimized because the federal government always has as deep pockets as necessary to ensure a helping hand is available when disaster strikes.

The second strategic approach would prioritize proactive programs with the goal of reducing the impact of future disasters. Such an approach would gradually reduce state, local, and territorial government reliance on federal assistance in response to and recovery from domestic disaster. This approach would prioritize disaster mitigation efforts and resource accordingly; accept political risk by minimizing disaster response and recovery expenditures; prevent escalation of total

disaster relief costs in the short term; and decrease total disaster expenditures over the long term.

These approaches summarize the divergent views in the ongoing debate over the proper domestic disaster relief role of the federal government. Although Washington is trying to achieve inroads toward a proactive disaster relief strategy (second strategic approach), program funding priority and runaway disaster relief budgets clearly indicate the present course is best summarized as reactive (first strategic approach).

PART VIII: TOWARD A BETTER FEDERAL ROLE

There are a number of disaster program areas on which the federal government could do better. First, the federal government should advocate (encourage or conduct; fund or cost-share) aggressive and comprehensive planning with the aim of reducing disaster and budgetary risk. Secondly, those lessons learned from years of federal subsidized flood insurance need to be applied to other types of disasters (e.g. wind and seismic disasters). Thirdly, disaster prone communities across America should be systematically disaster-proofed via structural and nonstructural methods. Lastly, the federal government should generously support research and development initiatives which show promise of reducing future suffering and damage due to disasters. Each of these proposals is discussed in detail in subsequent paragraphs.

Starting with comprehensive planning, Senator Chafee remarked during a hearing on flood relief, "I hope we will use this flood disaster and the other large disasters we have had in recent years to take a hard look at how we manage flood plains, coastal areas, earthquake faults, and locations likely to experience major natural disasters." [28] Senator Moseley-Braun reinforces Congressional predisposition to reaction by adding, ". . . this institution (Congress), like many, reacts better to crises than it does to planning." [29]

It is apparent we can not continue to manage disaster relief in a predominantly reactive mode. Policy reform requires leadership and perseverance from the strategic level as well as the collaborative development and execution of a comprehensive plan. Planning helps us to neutralize the natural predisposition toward complacency, "We found that public concern and interest dropped dramatically when the network's evening news anchors moved on to other things." [30]

A cornerstone of a proactive strategy must be thorough planning. Disaster relief planning requires a complete assessment of the physical, political, social and economic environment. Risk must be assessed accordingly and coordinated prevention and response strategies orchestrated. Although planning must occur at all levels of involvement, the federal government provides strategic direction.

Since flood waters will continue to threaten the livelihood of many, it serves as an illustration of the scope of comprehensive planning required. A positive outcome of the Midwest Flood of 1993 was the authorization and funding of comprehensive studies (similar to what was done following the 1927 floods of the lower Mississippi River basin) to determine the way ahead for the geographically large upper Mississippi and lower Missouri River basins. In hindsight, it should not take a disaster of this magnitude to spur that which should be done proactively. Are we really learning from disasters?

Comprehensive planning of flood plains help produce decisions about whether to rebuild, strengthen, raise, lower, or abandon levees.[31] Other provisions will include systematic assessment and strategies for the protection of vital public infrastructure along with through review of policies (e.g. building codes, zoning laws) which may impact future vulnerabilities (e.g. federal mitigation and flood insurance).[32] Comprehensive planning of this scope has significant potential for reducing risk.

The time has come for the administration and the Congress to work together with state and local governments to authorize and fund collaborative comprehensive disaster prevention planning. Priority should be given first to those facing the greatest physical threat and second to those posing the greatest fiscal risk (i.e. drain on future budgets).

The time has also come for multi-hazard disaster insurance. In illustration, Senator Inouye offers us two choices, "Either (our) involvement is through this reinsurance program (subsidized disaster insurance) or through disaster relief. The insurance industry simply can't afford to go it alone." [33] I submit, Washington can't afford to go it alone either (i.e. continue to pay for disaster recovery).

There is no better example for privatization in disaster relief than in the issue of disaster insurance. National (subsidized) flood insurance has been around for years. And various bills have proposed adoption of a nation-wide multi-hazard insurance program. To date, we still have no such insurance program.

Flood insurance, although under subscribed, is successful where applied. "We (FEMA) have estimated that these ordinances (flood preventive in nature, required of communities to participate in the program) have resulted in an annual reduction in flood damages of approximately $516M." [34] At the local level, flooding in Louisiana in 1995 required no federal flood relief because residents had purchased flood insurance and were compensated for damages via the national flood insurance program.[35]

Flood insurance has been strengthened over the years. To improve subscriber rates, federally-backed financial institutions cannot issue a mortgage without proper flood insurance

coverage.[36] In addition, recent disaster experience coupled with active marketing efforts have yielded impressive improvements to subscription rates. The Midwest Flood of 1993 ($6 billion in emergency relief aid) produced a 13 percent increase (from 17% to 30%) in flood insurance subscription rates in time for the repeat flood of 1995.[37]

In an effort to preempt repeat disaster claims, individuals in flood hazard areas who received disaster assistance after 1994 must have flood insurance or face denial of any future disaster relief benefit.[38] In addition, any structure that is flood damaged, must be elevated or flood-proofed to at least the 100-year flood elevation, otherwise any future disaster benefit is forfeited.[39]

The absence of a national multi-hazard insurance program leaves FEMA fewer options in avoiding pay-outs in the event of wind or seismic disaster. Consequently, FEMA assists such victims, even those who do not have commercial insurance (whether or not private insurance is available).[40]

Although far from perfect, the national flood insurance program is better than no program; efforts to improve it over the years have made it a better program. Critics say the low rates (of up to $250,000 for property damage coverage for $250.00/year) are absurd, challenging such a generous subsidy for people stupid enough to live in the flood plain.[41] Its criticisms notwithstanding, it is clearly time for the lessons learned from

the flood insurance program to be adopted for a nationwide disaster-nonspecific insurance program.

In order to truly get out in front of disaster response and recovery spending, priority must be on disaster proofing American communities. A FEMA official states this quite well: "It is the Director's intention to look toward a comprehensive national mitigation program that reduces human suffering, that reduces economic disruption, and that reduces disaster assistance costs. We must look to applying mitigation measures on a proactive basis, independent of presidentially declared disasters." [42]

The prevailing perspective on mitigation is consistent, but we just don't do enough of it. Congressman Boehlert believes strongly, "Investing millions in mitigation will save us billions in natural disaster losses." [43] And FEMA points out, "While insurance shifts the costs (to the private sector), only mitigation will reduce the costs." [44] And finally, FEMA has initiated a long awaited pre-disaster mitigation program with $20M in FY 98 (and has budgeted for $50M in FY 99) albeit with meager budget levels in comparison to disaster response and recovery programs. [45]

In general, we provide mitigation against disaster by preparing and planning for what is all too often the inevitable. We accomplish mitigation via both structural and nonstructural techniques and in preparing for response.

Structurally, communities must be systematically disaster-hardened, with special emphasis on public facilities and utilities to minimize interruption of service at times when needed most. Facilities can be hardened by bolstering construction standards (seismic, wind, water resistance measures), by building subterranean, by erecting protective berms, by elevating structures, and by relocating. Special attention should be given to all critical public infrastructure, especially highways, bridges, water and waste facilities, as well as electric, fuel, and telecommunications networks. [46]

Enforcing building codes can also pay significant dividends. Several studies have indicated that damages due to natural disasters would have been significantly less if building codes had been better enforced. One estimate for Hurricane Andrew is that in excess of 40 percent of all insured losses ($25.5 billion) in Florida, Louisiana, and Texas were directly attributable to violations of building codes. [47]

Disaster response should not be dismissed as a purely reactive measure. Federal flood fighting alone cost $25 million and consumed 31 million sandbags during the Midwest Flood of 1993. [48] Damages would have been much worse without this preventive response effort.

Nonstructural solutions are often more important than structural ones. Senator Durenburger remarked, ". . . it would seem that the cost of relocating and building once would pale in

comparison with the costs associated with the cycle of flood-and-rebuild, flood-and-rebuild." [49] After the 1993 Midwest Floods, swift federal action accommodated the buy-out/relocation of 10,000 structures in the flood plain considerably reducing damages in the subsequent floods of 1995. [50] Flooding damages in Missouri alone were reduced by $257 million in 1995 in comparison to 1993 even though the same areas were inundated; the difference was that residents weren't there in 1995 to be repeat flooded. [51] The town of Pattonsburg, Missouri, is illustrative in that the town repeated the flood and rebuild cycle 31 times before relocating in its entirety (after the 93 event), yielding an expected annual average disaster relief savings of $20 million.[52] The shame, of course, is that it took an event of monumental proportions and an untold amount of human suffering and property damage to prompt a long overdue nonstructural solution.

The most proactive nonstructural solutions do not require expensive buy-outs or relocation. An illustration of such a missed zoning restriction opportunity can be seen in the case of post-disaster induced development. Flooding damages from Hurricane Frederick (1979, Gulf Coast) prompted profit driven developers to replace destroyed single family home sites with multi-family condominiums, increasing the people at risk six-fold in the event of a subsequent storm. [53] Unfortunately, such rebuilding after disasters has been all too common; aggressive zoning can prevent such mistakes.

In terms of support for R&D, FEMA should be credited for the application of new technologies, especially information processing and linkages which have streamlined functions and saved costs.[54] However, much more can be done at the federal level to support hard science R&D (e.g. research grants) to encourage the development and fielding of new technologies and methods which might be applied to disaster prevention and mitigation (e.g. more advanced warning or prediction systems and more disaster resilient structures).

Historically, the U.S. has excelled in capitalizing on structural lessons learned following disaster experience. To illustrate, the death of 24 people in the 1994 earthquake (6.6) in southern California is dwarfed in comparison to a comparable quake (6.8) in Iran in 1993 which killed 55 thousand people.[55] The difference is widely attributable to the commitment to applying science/engineering findings to subsequent construction practices.

There is much that science and engineering can still do. An opportunity in point is wind resistance research and technology. Hurricane Andrew and Iniki together caused $30 billion in damages. If their wind damage lessons are not translated into an action plan, the next wind-related disaster bill could surpass $50 billion. The National Wind Science and Engineering Program recommends a $100 million research effort over 5 years.[56] This research proposal and others like it have good return on

investment potential and in many cases are without financial backing.

PART IX: IMPROVING UPON THE STAFFORD ACT

Unfortunately, the best of federal intentions might just have the exact opposite of desired effects. One author notes: "Increase in (federal disaster) expenditure can be attributed to several factors, including persistent development in high-risk areas, slipshod construction practices and reluctance to comply with more stringent building codes, and . . . the increasing willingness of the Congress to pay for disaster related damages."[57]

Like many programs, one program success begets another. The response and recovery efforts of the federal government have been so successful that there is no apparent end to the demands placed on the federal budget. Policy reform is not going to happen without linkage to the growing impact on the federal budget. Despite 14% of the federal budget being earmarked for service to the national debt, the annual federal disaster relief budget has grown to more than $13 billion from $3 billion in just 5 years.[58]

To support the wider commitment to reduce the federal debt and provide maximum resources for competing requirements, domestic disaster relief policy should be modified so that total federal outlays are capped (let's say at budget year funding levels) over the near term and deliberately reduced over the long

term to pre-runaway funding levels (let's say FY 1990). To achieve the long term end, funding priority should be gradually redirected toward disaster mitigation with corresponding reductions to federal disaster response and recovery activities. A balanced strategic level program would be achieved only when 75 percent or more of total federal disaster expenditures is predictably in disaster mitigation/prevention program areas.

A ready first step in reducing disaster response and recovery expenditures would be elimination of presidential waivers of the nonfederal cost-sharing as permitted by the Stafford Act. Budget deficits during the 1990's could have been trimmed by more than $1.5 billion had the norm of 75 percent maximum federal cost-share been applied for public assistance projects following Hurricanes Hugo, Andrew, and Iniki (all funded at 100%); Typhoon Omar (funded at 95%); and the Midwest Floods of 1993, Tropical Storm Alberto, and the Northridge Earthquake (all funded at 90%). [59] To put these expenditures into taxpayer perspective, the relief bill for each American taxpayer was $93.00 (on the average) for Hurricane Andrew alone. [60] And to illustrate this was money we didn't have, "the bailout cost . . . (went) directly into the deficit . . . without considering whether spending should be cut elsewhere to keep the red ink from rising." [61]

A more deliberate second step, would be to improve language in the Stafford Act by authorizing pre-disaster mitigation at the

75 percent federal cost sharing level (vice current 50%) which compares favorably to other federal interest programs [62] and matches the authorized mitigation legislation following the Midwest Floods of 1993.

Third, the Stafford Act should be amended over the long term to gradually reduce reactive disaster program expenditures (disaster recovery) to a maximum cost sharing of 50-50/federal-nonfederal. To ease the shock effect, this reduction might be phased in over a 10 to 15 year transition period. And lastly, federal funding should be provided to counter natural disaster vulnerabilities with continuous aggressive and comprehensive planning, to make available affordable government-supported hazard nonspecific natural disaster insurance, and to invest in promising research and development.

PART X: CONCLUSIONS

Whenever possible, every cost effective effort must be made to prevent disaster. When and where best prevention efforts fall short, response to disaster should be sufficiently rapid and thorough to prevent human suffering, to minimize consequential property damage, and to help victims quickly get back on their feet.

The time has come to deliver on disaster policy reform. "It is absolutely essential . . . that we reduce the substantial costs to taxpayers . . ." [63] "The opportunity is at hand to

reduce . . . risk . . . To do this the Administration and the Congress must lead the way." [64]

With the national debt at $5.4 trillion and approaching the budget year with the first prospect for a surplus in three decades, [65] every federal program must carry a share of the burden to ensure the health of the nation's economy. Consequently, a more proactive policy is essential in coping with natural disasters with the clear goal of reducing social risk and budget impact. The effectiveness of federal disaster relief policy would be enhanced considerably if the resources provided were synchronized with the intended ends.

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Federal Response Plan

Emergency Support Function (ESF)	*Primary Federal Agent*	*DoD Supporting Agent*
1. Transportation	DOT	CINCTRANS
2. Communications	NCS	OASD (C3I)
3. Public Works & Engineering	DoD	USACE
4. Fire-fighting	USDA	FORSCOM
5. Information & Planning	FEMA	DOMS
6. Mass Care	Red Cross	DLA
7. Resource Support	GSA	DLA
8. Health & Medical Services	DHHS	FORSCOM
9. Urban Search & Rescue	FEMA	DOMS
10. Hazardous Materials	EPA	NAVY/SUPSALV
11. Food	USDA	DLA
12. Energy	DOE	USACE

ENDNOTES

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