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LARGE-SCALE MILITARY HUMANITARIAN ASSISTANCE

By A. Martin Lidy and James Kunder[1]

BACKGROUND

In the fall of 1998, two unusually severe hurricanes, Georges and Mitch, struck the Western Hemisphere within a month, causing extensive damage in nations within U.S. Southern Command's (SOUTHCOM's) area of responsibility (AOR). U.S. military forces mounted large-scale responses to these disasters, in conjunction with the affected countries, civilian relief agencies of the United States government, foreign governments, the UN, non-governmental organizations (NGOs), private businesses, and individuals. The Commander-in-Chief, U.S. Southern Command (USCINCSO) created two joint task forces (JTFs) for disaster response, reoriented the mission of a third JTF toward relief efforts, and employed more than 7,000 U.S. military personnel deployed to the region to assist with the response to the damage caused by these events. In total, the Department of Defense (DoD) expended more than $200 million for relief and rehabilitation following these storms.

Because U.S. military forces are likely to be called upon in the future to provide humanitarian assistance following foreign natural disasters, the Office of the Assistant Secretary of Defense for Special Operations and Low-Intensity Conflict, Office of Peacekeeping and Humanitarian Assistance (PK/HA), requested that the Institute for Defense Analyses (IDA) examine the U.S. military's capacity to respond to foreign natural disasters. Specifically, IDA was tasked with examining the DoD response to these two storms as case studies in order to:

- Assess the capacity of U.S. DoD to respond to large-scale natural disasters as part of a major international effort

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- Identify areas within DoD that need improvement
- Recommend specific measures to enhance U.S. Government (USG) response capabilities for future humanitarian assistance operations.

This research[2] focused on the response of DoD organizations and units to Hurricanes Georges and Mitch in fall and winter of 1998. Although the focus of the analysis was on DoD, the USG and international responses in which the DoD efforts were embedded were also considered. The study provided basic information on DoD's response, including a chronology of key events, phases of the operation, organizations engaged, military command and control arrangements, coordination with non-DoD agencies, assessment and requirements determination, deployment/redeployment, missions accomplished, impact on the local populace, and budgetary issues. However, this was not a detailed history of the specific SOUTHCOM operations. The study focused on lessons related to DoD's overall readiness to respond.

THE STORMS AND THE INTERNATIONAL HUMANITARIAN RESPONSE

The severe meteorological phenomena associated with Georges affected both foreign territories and U.S. territory (especially Puerto Rico) and resulted in a substantial number of deaths and injuries, and widespread property damage. According to the USG's National Oceanic and Atmospheric Administration (NOAA), the 602 deaths caused by Hurricane Georges made it the most deadly storm in the Atlantic Basin in the 20th Century. Property damage in the U.S. mainland and territories alone approached $6 billion.

Three weeks after Hurricane Georges dissipated, Hurricane Mitch began its destructive odyssey through the Caribbean Sea, mainland Central America, and the Gulf of Mexico. The winds and precipitation associated with Mitch created a major disaster for Central Americans. Some 9,000 victims lost their lives, and a similar number were missing and presumed dead. Estimates of damage ranged from a minimum of $5 billion to more than $7 billion.

RESPONSE TO GEORGES

Although the humanitarian response to Hurricane Georges paled in comparison to Mitch just a month later, the Georges relief response was substantial. A long list of donors nations, regional organizations, international organizations, NGOs, and private companies and individuals from within and outside the region provided money, materiel, skilled staff, or transport assets to the affected countries or territories. Foreign relief provided in the immediate aftermath of Hurricane Georges exceeded $45 million. The USG was the largest single contributor.

The USG federal disaster response to Hurricane Georges concentrated on the severe damage caused in Puerto Rico, a response managed by the Federal Emergency Management Agency (FEMA), largely outside the scope of this paper. Foreign relief contributions by the USG were made to the eastern Caribbean, the Dominican Republic, and Haiti. USG-sponsored emergency assistance consisted of assessment teams, food aid, shelter supplies, related emergency materiel (such as water containers and blankets), and funding for helicopters and

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2 See: IDA Paper P-3560 "Effectiveness of DoD Humanitarian Relief Efforts in Response to Hurricanes Georges and Mitch," March 2001.

other DoD support aircraft utilized for assessment, search and rescue (SAR), and relief delivery.

RESPONSE TO MITCH

The international relief effort following Hurricane Mitch was large and complex. Virtually the entire worldwide humanitarian community contributed to the response, including major UN agencies, more than 30 countries inside and outside the region, intergovernmental and international organizations such as the International Federation of the Red Cross, and hundreds of NGOs. The resources provided by this array of contributors were sizeable. The UN recorded contributions from all sources of $403 million by 1 December 1998. Of this amount, the largest percentage went to Honduras, the nation most severely affected, with Nicaragua, El Salvador, and Guatemala receiving substantial aid. As was the case after Hurricane Georges, the USG was the largest single donor to the relief effort. On 4 December 1998, the USG announced its emergency relief to Central America totaled $263 million.

The USG relief and rehabilitation efforts were large and multifaceted. In addition to DoD efforts, other USG programs included food assistance, blankets and shelter materials, water system repairs, and health and sanitation programs. The USG funded assessment teams, deployed Disaster Assistance Response Teams (DARTs) from the Office of U.S. Foreign Disaster Assistance (OFDA) to the region, provided airlift and sealift to Central America, funded U.S. military helicopter transport within affected areas, and financially supported many local relief efforts of host governments, regional organizations such as the Pan-American Health Organization (PAHO), and NGOs. USG interagency coordination was managed through several *ad hoc* mechanisms in Washington and among operational USG agencies in Central America. In Washington, core mechanisms included a task force sponsored by the National Security Council (NSC). Many participants did not find the *ad hoc* USG mechanisms sufficient for a disaster response operation as extensive as the relief activities for Hurricane Mitch.

THE DEPARTMENT OF DEFENSE HUMANITARIAN RESPONSE

U.S. military assistance focused on Puerto Rico, in support of FEMA, and in the Dominican Republic, in support of the USG's Office of Foreign Disaster Assistance. U.S. military personnel, stationed in Haiti as part of Support Group Haiti, provided limited assistance in that nation. In the eastern Caribbean islands, the U.S. military provided limited but important support.

The DoD asset in greatest demand following Hurricane Georges was air transport, both strategic lift into the area of operations and theater lift to distribute relief supplies. Another major asset employed was a Disaster Relief Joint Task Force, designated JTF Full Provider. JTF Full Provider conducted operations in support both of Puerto Rico domestic relief operations and foreign disaster assistance. In addition, U.S. military personnel provided management support to disaster operations, including assessment, communications, and logistics expertise, as well as logistics hubs. In Puerto Rico, Naval Station Roosevelt Roads became the logistics hub for FEMA relief operations. In the Dominican Republic, the Military Assistance Advisory Group at the U.S. Embassy provided essential support at Santo Domingo airport for the relief effort.

U.S. military operations responding to Hurricane Georges were managed primarily through the geographic combatant command, SOUTHCOM, in close coordination with other USG agencies. USCINCSO managed the relief operation consistent with the *Federal Response Plan* for domestic disaster response operations. Judging that additional assets were required, USCINCSO subsequently created JTF Full Provider to apply supplementary resources to Caribbean disaster relief operations, foreign and domestic. U.S. military forces were significantly engaged in Hurricane Georges relief activities for 5 weeks, from the time the SOUTHCOM Logistics Response Center (LRC) was activated on 19 September until the FEMA Federal Coordinating Officer formally released DoD from further duties on 27 October.

A substantial portion of DoD relief expenditures following Hurricane Georges was reimbursed by FEMA or OFDA, so that resource generation issues were not significant limiting factors in this operation. Moreover, for the international aspects of the relief operation, USG interagency coordination factors had minimal impact on the DoD response. The principal focus during the Hurricane Georges response was the *domestic* disaster response factor: the DoD command and control relationship between Commander, Joint Task Force (CJTF) Full Provider and the designated Defense Coordinating Officer in Puerto Rico.

The DoD response to Hurricane Mitch far surpassed the response to Hurricane Georges in scope, complexity, cost, and duration, as well as in the range of policy issues it generated. U.S. military personnel conducted significant relief operations in the four Central American countries primarily affected by Hurricane Mitch: Honduras and Nicaragua, the two most seriously affected nations, and Guatemala and El Salvador, which suffered moderate damage. In each of the affected countries, U.S. military units concentrated their activities in specified geographic regions, assigned through discussions with host governments to complement ongoing host nation and other responses, rather than operating country-wide. In addition, U.S. military transport assets based in the United States, air and sea, were employed to move large quantities of personnel and materiel to the area of operations.

The scope of the U.S. military disaster relief mission in Central America in response to Mitch was very large, ultimately costing $155 million, with a maximum deployment of more than 5,000 military personnel and 63 aircraft. U.S. forces provided services including search and rescue, damage assessments, airfield management, food delivery, immunizations against epidemic diseases, veterinary care, bridge and road reconstruction, water purification, liaison, and planning. During these efforts, DoD personnel interfaced with government officials, international and local NGOs, local and third country military forces, UN agencies, banana plantation owners, local religious and community leaders, and traumatized villagers. The overall operations consisted of three phases:

- Emergency Relief Phase commencing when the Mitch struck Central America and continuing through mid-December 1998
- Rehabilitation Phase commencing in mid-December 1998 and continuing until approximately 26 February 1999
- Reconstruction Phase (not addressed in IDA's analysis) commencing at the end of the Rehabilitation Phase and continuing into September 1999.

Following a request for deployment from USCINCSO and approval by the National Command Authorities, the Chairman, Joint Chiefs of Staff (CJCS) issued a deployment order on 4 November for Central America disaster response. From that point, USCINCSO

effectively managed the day-to-day DoD relief mission. Initially, USCINCSO utilized the existing JTF Bravo, located at *Soto Cano* Air Base in Honduras, as his command and control mechanism throughout Central America. By 7 November, USCINCSO had developed an operational concept that included a second JTF, JTF *Aguila*, for the management of relief operations in El Salvador, Guatemala, and Nicaragua. The creation of the second JTF, operating with subordinate task forces in each of the three countries in its area of responsibility, allowed the commander of JTF Bravo to focus on the massive devastation in Honduras.

From the time the first relief flights departed *Soto Cano* Air Base on 1 November 1998 until the SOUTHCOM Crisis Action Team terminated its operations on 26 February 1999, a period of nearly 4 months, U.S. military forces were continuously engaged in disaster relief efforts, albeit at varying levels of intensity. Although the immediate DoD response to save lives was timely, the overall DoD deployment was late relative to the overall relief needs of the stricken populace. Total U.S. military forces deployed across the four nations of Central America would not reach 2,500 until the last days of November, and would not reach their peak until 18 December, one and one-half months after Hurricane Mitch struck.

The U.S. General Accounting Office estimated total DoD costs at approximately $155 million during the Emergency Relief Phase and Rehabilitation Phase, the operations on which IDA's analysis was focused. In order to compile this level of resources, DoD was directed to draw upon a variety of authorities and accounts, including Drawdown Authority; Overseas Humanitarian, Disaster, and Civic Action Funds; CJCS Commander-in-Chief Initiative Funds; and OFDA funds. The DoD response to Hurricane Mitch highlighted a number of coordination factors as well. Within the USG, intense humanitarian and political interest in launching a sizable and high-profile relief effort was not matched by a comparable level of operational coordination among USG civilian and military agencies. Coordination problems occurred in gathering and validating damage assessment data, shaping the overall USG response, establishing relief priorities, managing public affairs (including publicly donated commodities), sourcing adequate funding, and transitioning from relief to reconstruction programs. Coordination problems stretched beyond the USG interagency system to relations with other nations and international relief agencies that responded to the Mitch disaster.

EVALUATION METHODOLOGY

A huge amount of information is available on DoD's response to the 1998 hurricanes, both from primary sources (message traffic, participant interviews) as well as secondary sources such as after-action reports or analysts' writings. Consequently, the study team was faced with serious methodological issues in evaluating the U.S. military response. In order to process information, develop substantiated findings, and make valid recommendations, IDA developed an inductive methodology, combining participant-observer and consensus techniques, which may be applicable in retrospective evaluation of other crisis responses. The evaluation methodology consisted of distilling Findings from primary and secondary sources, and using those Findings to drive concrete Recommendations for changes in doctrine or process. The system is shown in Figure 1.

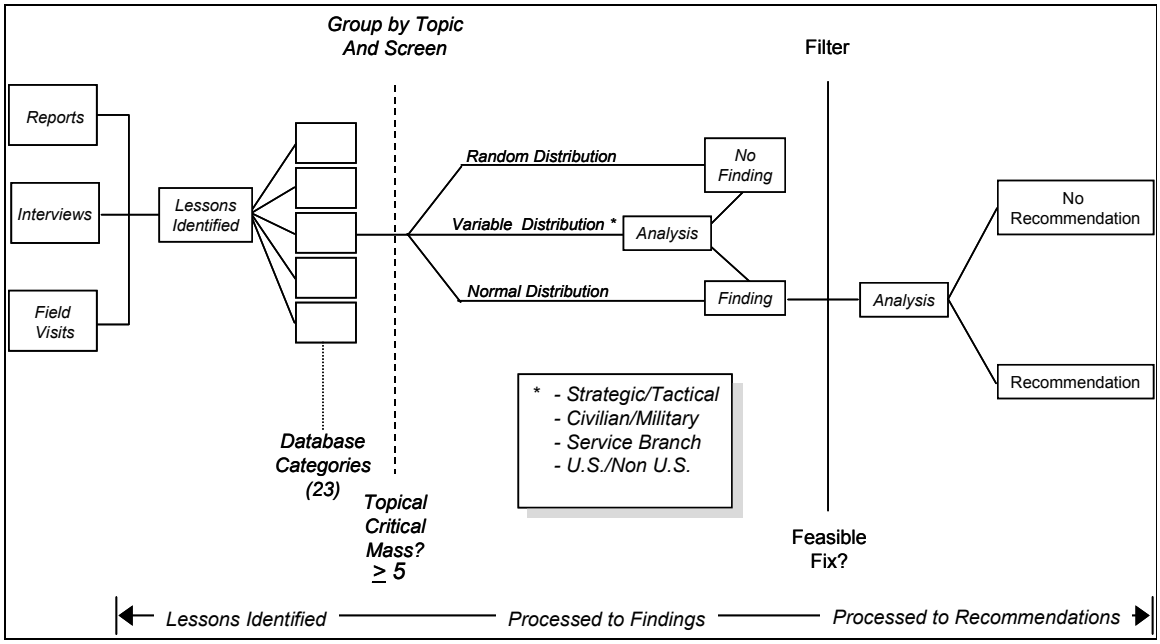

Figure 1. Analytical Framework

Data or observations derived from information sources were captured as "lessons identified" (LIs) quanta of information, identified in reports on or by participants in the hurricane relief operations, which were relevant to whether or not DoD relief operations were effectively conducted or whether improvements could be made. When data or observations were recorded repeatedly (generally, more than five times) as LIs on a particular topic, the set of LIs was examined to determine if reports and/or interviewees' comments (1) tended to agree as to the nature of the issue ("normal distribution"); (2) showed no discernable pattern as to the nature of the issue ("random distribution"); or, (3) provided conflicting views as to the nature of the issue ("variable distribution").

If all the reports or interviewee comments tended to agree as to the nature of a specific issue, then these results were characterized as a "Finding." On the other hand, when a set of reports or data showed no discernable pattern, for example, when five sources expressed five varying opinions on an issue, no Finding was established. In a third case, if comments and reports on an issue comprised two or more conflicting sets of observations – if half the sources felt that a program worked well, for example, and half felt it was weak – then IDA analysts examined the sources more closely to determine if a Finding could be established.

In those 69 cases where a Finding was established related to DoD's capacity to respond to large-scale natural disasters, these Findings were used to identify areas needing improvement and to generate one or more "Recommendations" or specific measures to enhance DoD response capabilities for future humanitarian operations. In order to assess DoD capacity and performance, a filter of seven questions was applied to each Finding. They are:

1. Was the DoD action based on a sound and accurate assessment of conditions at the disaster site?

2. Was the DoD action governed by visible, quantifiable measures of effectiveness (MOEs)?

3. Was the DoD action well coordinated with other USG agencies and international disaster responders, at headquarters and in the AOR?

4. Was the DoD action timely?

5. Was the DoD action effective, based on the needs of disaster victims?

6. Was the DoD action consistent with existing DoD or USG doctrine and procedures?

7 Was the DoD action cost-effective, both in terms of accomplishing the mission at the lowest feasible budget cost and in terms of deploying the assets best aligned with mission requirements?

Each Recommendation generated by this process met five criteria: (1) the Recommendation evolved from the observations of those personnel involved in the Hurricanes Georges and Mitch responses; (2) the Recommendation addressed a specific Finding identified in the research; (3) the Recommendation was intended to improve the appropriateness, timeliness, or effectiveness of DoD's response to natural disasters, based on interpretation of established practice in disaster response and DoD doctrine; (4) the Recommendation was addressed to a specific component of the U.S. Department of Defense for action; and, (5) the Recommendation consisted of a discrete, concrete, and feasible action item. In most cases, Recommendations for improvement pertained to internal DoD processes or systems. In cases where the problem identified or recommended improvement related to the larger USG interagency system or to the international disaster response system, the Recommendations encouraged DoD to propose reforms in these systems.

The study identified Findings in 23 categories relevant to DoD disaster response operations. These categories are listed in Table 1.

Table 1. Study Categories

Category	Code	Category	Code
Assessment Issues	AI	Helicopter Support	HS
Command and Control	CC	Information Support	IS
DoD Internal Coordination	CD	Legal Affairs	LA
Interface with Host Nations	CH	Logistics Support (less	LS
Interagency Operations (USG)	CI	transportation and movement	
Communications and Computers	CK	control)	
Interface with Non-USG	CN	Transportation and Movement	LT
Organizations and Governments		Control	
Doctrine and Procedures	DP	Medical Support	MS
Engineering Support	ES	Organization and Training	OT
Financial Operations	FO	Public Affairs, including	PA
Force Protection and Security	FP	Donations	
Humanitarian Operations (non-	HO	Personnel Support	PS
engineering; non-medical)		Reserve Forces	RF
		Special Operations Forces	SF

Findings were used to identify areas needing improvement and to generate one or more Recommendations to enhance DoD response capabilities for humanitarian operations. In

keeping with the purpose of IDA's research, the analysis of each Finding was conducted in order to assess DoD's overall capability to respond to foreign natural disasters globally, not to "grade" any element of the DoD performance in Hurricanes Georges and Mitch *per se*.

MEASURES OF EFFECTIVENESS DURING DISASTER OPERATIONS

While acknowledging there were deficiencies in planning, limitations in command and control, an excessive employment of personnel, and other aspects of disaster response that could be improved, the fact remains that joint U.S. military forces of up to 5,000 personnel played significant roles in alleviating human suffering and responding to the needs of sister nations of the Americas. Twelfth Air Force History of Hurricane Mitch

As the Twelfth Air Force quote suggests, neither in Hurricane Mitch nor in DoD's response to any natural disaster can relief operations be rated "effective" or "ineffective" across the board, according to a universally accepted scale. Because no universally accepted scale is employed by analysts, even rigorously quantified data on relief operations can be interpreted differently by different observers. For example, SOUTHCOM reported that U.S. military forces reconstructed 162 miles (262 km) of roads and 13 bridges in the affected countries following Hurricane Mitch, a substantial accomplishment considering the logistical challenges involved in deploying forces and equipment from CONUS into an austere, minimally accessible area of operations. On the other hand, critics have pointed out that these construction projects amounted to less than 2 percent of the highways damaged in Honduras and Nicaragua alone, and about 4 percent to 6 percent of the bridges damaged or destroyed in the four affected countries. By that calculation, critics asked whether the scale of the results justified the large-scale, expensive deployment of U.S. military engineering units to Central America.

Beyond such issues of quantifying and evaluating the scale of operations, IDA's analysis of the 1998 hurricanes suggests that attempts to measure effectiveness of natural disaster relief operations raise even more fundamental questions about the objectives of such missions. The formal guidance of the USG National Command Authorities and the geographic combatant commander to U.S. military forces engaged in disaster response operations emphasized the importance of reducing human suffering and promoting recovery from the storm. CINCSO's operations order defined the mission's purpose as follows: "to conduct disaster relief (DR) operations in support of United States relief efforts in the CENTAM [Central American] region in order to mitigate near-term human suffering and accelerate long-term regional recovery." However, interviews with numerous USG officials, civilian and military, who were engaged in the relief operations suggested that at least four other motivations guided U.S. policymakers formulating the Hurricane Mitch response. These included:

- The international political goal of supporting democratic nations in Central America, especially those fragile democracies emerging from decades of conflict
- The domestic political goal of displaying the region's importance to the large number of U.S. citizens of Central American ancestry or origin
- The domestic political goal of preventing dramatically higher levels of immigration into the United States by desperate disaster victims
- The goal of continuing SOUTHCOM's theater engagement objective of "cooperative opportunities…to create conditions that support the development of institutions which advance democracy and regional stability."

Recognizing that defining measures of effectiveness (MOEs) will be an issue in any foreign disaster assistance operation, IDA's research established seven criteria to measure effectiveness in such operations. Although no single, definitive MOE can be applied in all cases to determine whether a disaster relief operation was conducted effectively, these measures of effectiveness provided a useful set of standards against which to measure the response to the 1998 hurricanes, as well as future DoD operations. In tabular form, as illustrated in Table 2, the seven MOEs can be utilized as a tool, not only for post-event evaluation, but also to guide planners of future disaster relief operations.

Table 2. MOEs in Foreign Disaster Assistance Operations

Measure of Effectiveness	Scale
Were the disaster relief operations:	*Effective* ---------- *Ineffective*
Based on sound data and assessment?	*Yes* ---------- *No*
Defined by quantifiable MOEs?	*Yes* ---------- *No*
Well coordinated with other responders?	*Yes* ---------- *No*
Timely, based on needs of victims?	*Yes* ---------- *No*
Effective in meeting victims' priorities?	*Yes* ---------- *No*
Consistent with existing doctrine?	*Yes* ---------- *No*
At lowest cost, consistent with mission?	*Yes* ---------- *No*
Conducted with units tailored to mission?	*Yes* ---------- *No*

Quantifiable MOEs that relate mission effectiveness to attainment of a specific humanitarian end state, such as "potable water provided for 50,000 victims for two weeks," may have particular utility for military planners and commanders in future foreign disaster operations, based on this analysis of Hurricanes Georges and Mitch. The scale and breadth of those crises created a virtually endless list of potential humanitarian tasks, and considerable initial uncertainty over which agencies would be responsible for which relief missions. Moreover, as DoD planners quickly discovered, the overall rehabilitation and reconstruction of Central America following Hurricane Mitch was to be a process measured, not in months, but in years if not decades, and U.S. military forces tasked with the national defense could not reasonably be expected to stay on station for much of that recovery period. Similar conditions are likely to prevail in future large-scale, rapid-onset natural disasters. Under those conditions, more widespread use of quantifiable MOEs in planning and conducting operations may assist in defining mission success and in fixing the mission end state.

When U.S. military forces are engaged in large-scale foreign disaster assistance operations that are likely to be of long duration, definition by DoD planners of quantifiable MOEs for operations by U.S. forces might be appropriate. Standard MOEs for food, water, health, shelter, care of displaced persons, and similar categories of assistance are available through publications such as OFDA's *Field Operations Guide,* the Sphere standards developed by coalitions of NGOs, and through consultations with civilian organizations such as PAHO. Discussions with host nation ministries with technical expertise, such as ministries of health, public welfare, and public works, are another source of disaster response MOEs, especially those related to when conditions of normalcy have returned. A major recommendation to DoD growing out of the IDA research was: "Better use can be made of disaster relief 'measures of effectiveness' – especially quantifiable MOEs – for mission and redeployment planning."

MAJOR ISSUES AFFECTING DOD'S ABILITY TO RESPOND TO FOREIGN DISASTERS

IDA's analysis of the 1998 hurricanes suggested that senior policymakers at U.S. DoD must address certain overarching policy questions or structural issues that systemically constrain the U.S. military's disaster response performance. These structural issues may hamper the civilian-military management of future crises and, therefore, are highlighted in this paper. These higher order policy issues include:

The USG interagency response system for large-scale foreign disasters, within which DoD relief operations are embedded, is fundamentally flawed. The USG foreign disaster response system requires fundamental reform, for which the domestic *Federal Response Plan* provides a useful model.

If there is a single consensus finding supported by the many reports and interviews examined for the hurricane study, it is that the USG system for managing large-scale, rapid-onset foreign disasters is seriously inadequate. The current USG process is characterized by absence of formal doctrine, uncertain leadership or direction, lack of serious contingency planning, and unclear reporting relationships and funding arrangements. In short, virtually all the elements that should characterize an efficient emergency response system are missing.

Modest, well-designed investments in force management prior to a disaster declaration can substantially improve DoD readiness and rapidity of response.

IDA's Findings and Recommendations conclude that an integrated series of force management enhancements, many of which are in themselves relatively modest, can produce a significant improvement in DoD's capability to conduct foreign disaster relief operations. In their most distilled form, the Findings and Recommendations regarding force management argued that DoD can and should provide, at the disaster scene, commanders and staffs more familiar with disaster missions and units more capable in humanitarian operations, and that these outcomes are doable and affordable. For example, recognizing that JTFs will be widely used by the U.S. military in order to manage disaster relief operations, force management reforms are attainable in four categories related to JTFs:

- Pre-designating Humanitarian Assistance/Disaster Response (HA/DR) JTFs
- Pre-designating JTF commanders
- Pre-designating JTF headquarters
- Pre-designating task units for HA/DR missions.

IDA concluded that other force management improvements can be made in the areas of preparing forward-stationed forces, training, personnel support, and mobilization of Reserve Component forces.

DoD's coordination with multiple responding entities can and should be substantially improved, both in the U.S. military's overall approach to disaster response operations and, specifically, at the scene of a foreign disaster.

The Findings and Recommendations compiled for the study suggest that the sound principle of military coordination with civilian relief agencies, while not violated during Hurricane Georges and Mitch operations, was treated as an ancillary rather than central portion of the

disaster relief operations. Notably absent from the humanitarian relief architecture in the four most seriously affected nations following Hurricane Mitch was a Humanitarian Operations Center (HOC), maintained by the international community during the relief phase of operations. Nor was a Civil-Military Operations Center (CMOC) or other formal civil-military coordination center created during this phase of operations. An important issue emanating from the Hurricane Mitch experience is the essentiality of devoting focused, visible resources to civilian-military coordination efforts on the ground during rapid-onset natural disasters overseas where military forces support civil authorities.

Effective, timely response to large-scale, rapid-onset disasters demands more reliable funding mechanisms, within DoD and within the USG interagency system.

A critical requirement for launching an effective, timely USG response to disasters is the assurance that legislative authority and financial resources will be available to undergird the mission. As currently structured, the USG interagency system has sufficient overall resources to meet probable overseas relief needs, but insufficient contingency plans exist for how, and under what conditions, those resources will be made available for DoD or other USG disaster response operations. Interagency uncertainty during the early stages of the Mitch response over which agency would cover the costs of relief efforts likely contributed to delays in the USG response, and certainly bred a degree of confusion in the interagency planning process. The Findings and Recommendations of the study argue for more reliable funding mechanisms for overseas disaster response.

The process of translating humanitarian needs encountered during disasters into U.S. military forces and capabilities to meet those needs can be improved.

An especially critical is the question of how essentially civilian needs and priorities can be translated during crisis operations into the deployment of military units that are configured primarily for fighting wars. During the 1998 hurricane season, U.S. military planners at supported, supporting, and subordinate commands, including at the JTF level, expended a great deal of effort to determine accurately the humanitarian needs in the affected region, and to express those requirements in terms of military capabilities to be deployed. In the main, however, DoD planners faced a gap in doctrine and tools to assist their planning efforts, and had to rely primarily on individual experience and the application in the HA/DR environment of planning tools normally used for calculating combat needs, in order to arrive at military force requirements. Although U.S. military joint doctrine provides a great deal of guidance on planning processes, in general, and substantial guidance on planning factors for SSCs, the complex and, for military planners, somewhat arcane procedure for translating civilian humanitarian needs into military capabilities and, ultimately, units remains an understudied, little understood topic.

There are a number of useful initiatives, approaches, tools, and models that could assist U.S. military planners in translating disaster relief needs into military capabilities. In preparing for the Hurricane Mitch response, DoD planners would have benefited from (1) a consolidated USG needs assessment that specified requirements in terms of humanitarian "service modules" that could be translated into either civilian or military capabilities; (2) a consequence assessment tool permitting quantifiable estimates of civilian need; and (3) a planning tool to translate humanitarian requirements into specific capabilities of U.S. military units.

On the last point, for example, planning tools for military response to humanitarian crises could be structured akin to the current Joint Electronic Battlebook (JEB) available to U.S. military planners. The JEB, a planning tool maintained by U.S. Joint Forces Command, provides information for military planners on selected unit capabilities and non-unit supply or equipment assets available through DoD sources. Its purpose is to provide readily available information on unit capabilities, equipment, and supply assets to U.S. military planners – an important capability when planning for rapid-onset foreign disasters. Moreover, most military planners interviewed for this study were not familiar with the capability or operation of the JEB. This hurricane research suggests that the development of planning tools oriented toward crisis response could substantially streamline military deployments in support of civilian crisis response agencies.

CONDUCTING EFFECTIVE ASSESSMENTS OF CONDITIONS AND NEEDS

The first step in organizing a successful response to managing a crisis response is developing an accurate picture of conditions at the crisis site. IDA's research into Hurricanes Georges and Mitch found a series of issues related to civilian and military assessments processes following crises, and the reconciling of assessment data. Following Hurricane Mitch, some USG assessment teams were examining the level of damage from the storm, some were examining immediate life-saving relief needs, and others were studying the requirements for rebuilding infrastructure and other longer-term requirements. These different approaches, the timing of the reports, and varying methodologies used to develop them hindered effective planning for the USG's relief and rehabilitation efforts. Absence of shared baselines and standardized methodologies hampered the process of developing a shared picture of the crisis and bedeviled attempts to establish priorities. Although several assessment systems have been developed and promoted by individual USG agencies, no one system is accepted government-wide.

CONCLUSION

In summary, the U.S. military responses to the twin hurricane crisis in late 1998 provided a rich source of data and issues related to evaluation of response effectiveness, to assessment, and to crisis management. The techniques developed for this study may be translatable into evaluation systems for similar disaster response studies.

In addition, the analysis of the crisis responses in 1998 illustrated how measures of effectiveness can be applied, retrospectively and prospectively, to monitor and evaluate a disaster response. IDA's preliminary work on quantifiable MOEs in disaster response may also be applicable in other environments.

This study identified the development of techniques and tools for translating civilian requirements into military capabilities as a major, recurring gap in disaster response. The search for such techniques and tools – which require both military and civilian input – provides both a useful research agenda and a venue for civilian-military cooperation.

Finally, this study identified improved assessment methodology as a key issue in preparing an adequate crisis response. Research on Hurricanes Georges and Mitch suggests that a unified civilian-military vision of assessment objectives, and techniques for reconciling assessment findings, are critical to launching an effective crisis management system.

Large-Scale Military Humanitarian Assistance

NATO Studies, Analysis, and Simulation Panel Specialists' Meeting

7-9 October 2002
Winchester, Hampshire, United Kingdom

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The Task

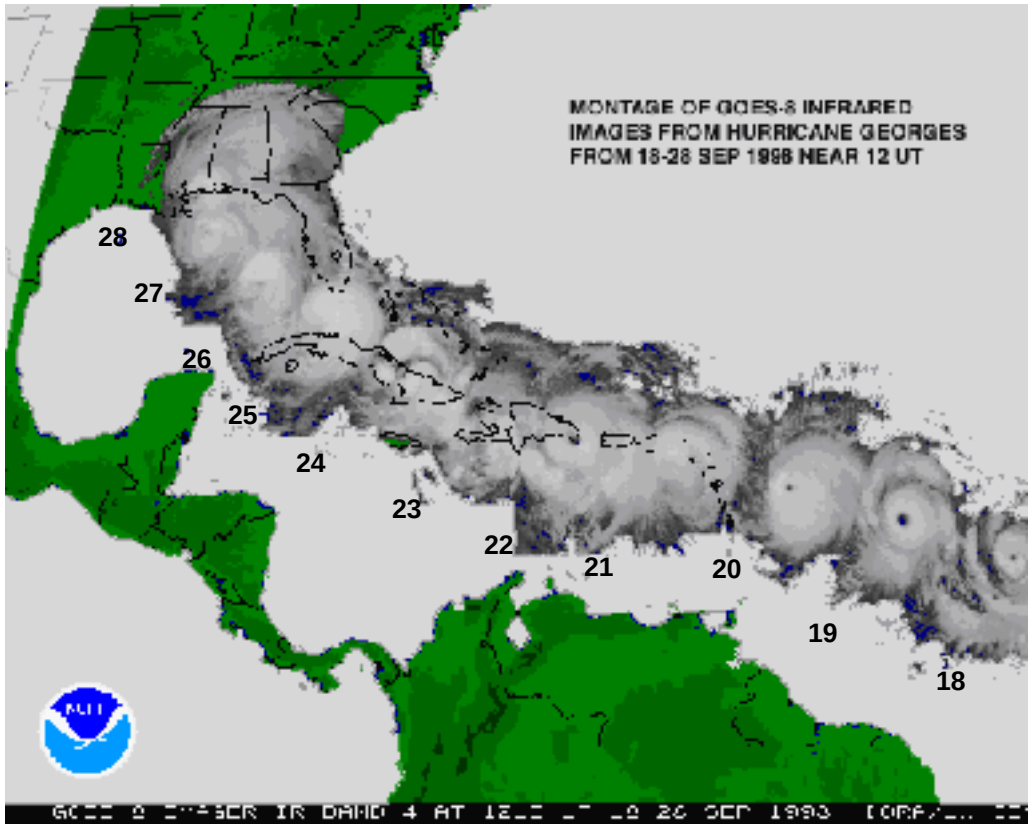
- **Sponsored by the Assistant Secretary of Defense for Special Operations and Low Intensity Conflict**

- **Examine the U.S. Department of Defense (DoD) responses to Hurricanes Georges and Mitch to**
  - Assess the capacity of DoD to respond to large-scale ***foreign*** natural disasters as part of a major international response
  - Identify areas within the DoD that need improvement
  - Recommend specific measures to enhance USG response capabilities for future foreign humanitarian assistance operations

Agenda

- **Description of Hurricane Georges and Mitch**
- **Response to the Hurricanes**
- **Evaluation Methodology**
- **Major Issues Identified**
- **Applicability to Other Smaller Scale Contingencies**

Hurricane Georges



- **Unusual seven landfalls**
- **Maximum wind speed of 175 mph (282 kph)**
- **NOAA: "*the most deadly storm in the Atlantic Basin in the 20th Century*"**

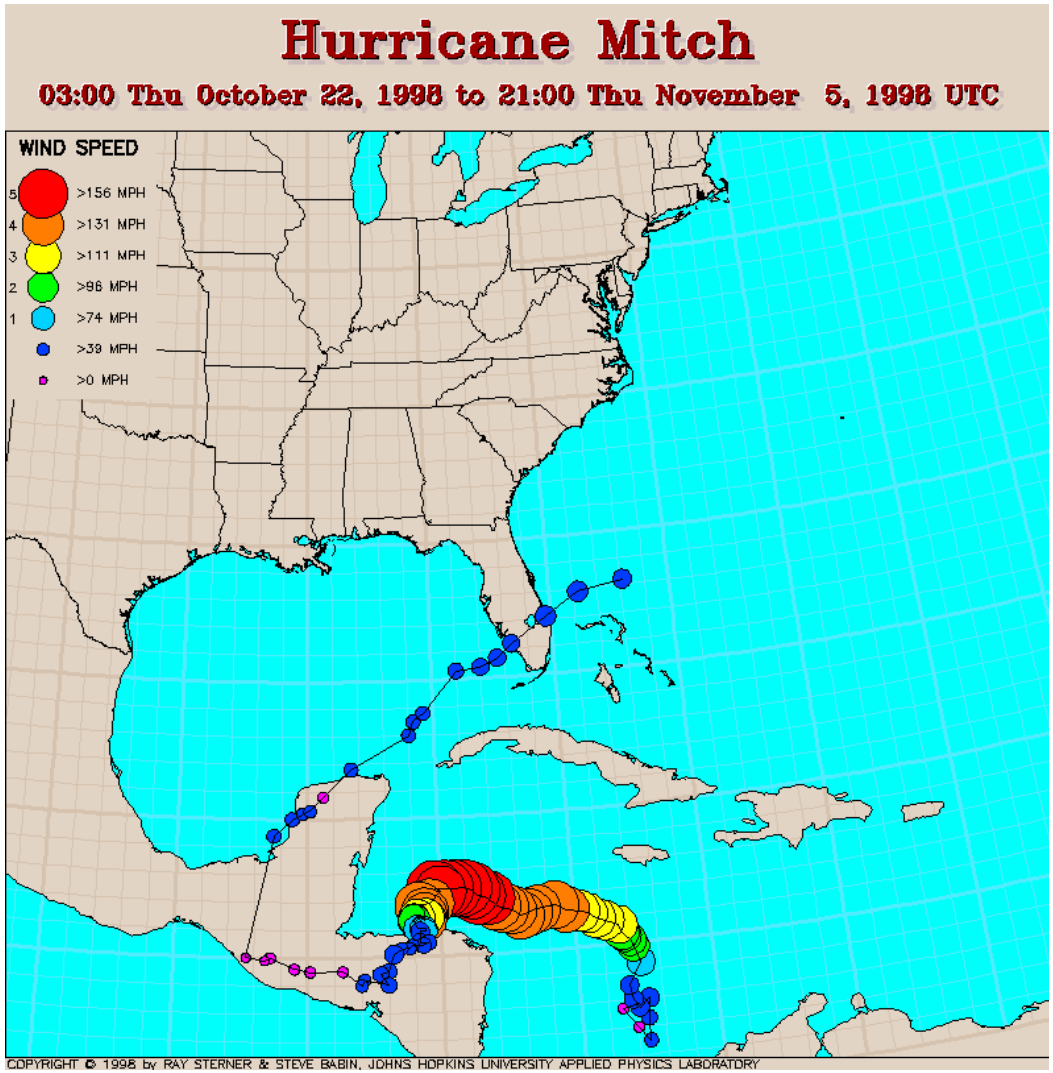
Impact of Hurricane Georges

LOCATION (in hurricane path sequence)	DEATHS	PROPERTY DAMAGE (U.S. $ Bn)	STORM EFFECTS
Antigua and Barbuda	2	Not available	Major infrastructure damage to port and buildings, including hospitals and schools; 2,000+ houses destroyed or damaged
St. Kitts and Nevis	4	0.4	3,000 homeless; 85% of all homes damaged; widespread infrastructure damage, including airport tower and terminal
U.S. Virgin Islands	0	0.1	Widespread agriculture damage; some housing damaged
Puerto Rico	0	3.5	33,000 homes destroyed; 50,000 more damaged; power and water loss to 80% of island; massive damage to agriculture
Dominican Republic	380*	>1.0	500 persons missing; 100,000+ homeless; 70% of bridges damaged or destroyed; 90% of commercial crops destroyed
Haiti	209*	>0.175*	60 persons missing; widespread flooding, including flash floods; extensive damage to housing; major damage to agricultural sector
Bahamas	1	Not available	Not available
Cuba	6	Not available	200,000 evacuated; 62,000 homes destroyed, damaged, or flooded; major crop damage
U.S. Mainland	1	2.31	Widespread power outages; severe flooding of homes and businesses; property damage from high winds; damage to housing

SOURCES: NOAA, NHC, and OFDA

* Best estimates received

Hurricane Mitch



- **Confirmed rainfall of 36 inches (77cm) across Honduras**
- **9,000 dead accounted for; at least 9,000 more missing**
- **USGS: "*The most destructive hurricane in the history of the Western Hemisphere*"**

Impact of Hurricane Mitch

LOCATION (in hurricane path sequence)	DEATHS	PROPERTY DAMAGE (U.S. $ Bn)	STORM EFFECTS
Jamaica	3	Not available	Minor damage
Honduras	5,700 - 6,500	2.0 - 4.0	8,000+ persons missing; 1.4 million homeless; massive infrastructure damage, including 92 bridges destroyed and one third of schools damaged; 90% of export banana crop lost
Nicaragua	2,900 to 3,800	1.3 - 1.5	868,000 citizens affected; 32,000 homes destroyed and 114,000 damaged; massive infrastructure damage, including 33 bridges and 11 health centers destroyed; much of national agricultural production lost; widespread epidemics
Belize	0	Not available	75,000 citizens evacuated; widespread flooding
Costa Rica	7	Not available	Coastal population evacuated; flooding and minor damage
Panama	3	Not available	Minor damage
El Salvador	239	1.0*	55,000 people displaced; substantial infrastructure damage; massive crop and livestock losses
Guatemala	256	1.0*	113,000 people displaced; substantial infrastructure damage, including 32 bridges severely damaged; massive agricultural losses, including 95% of export banana crop
Mexico	9	Not available	Wind and rain damage to property
United States	1	0.04	Wind and rain damage to houses, primarily from storm-related tornados; widespread power outages

Overview of Response to Both Hurricanes

- **Local response valiant, but overwhelmed**
- **Massive international responses to both events by**
  - United Nations agencies
  - Bilateral Donors
  - Inter-Governmental and International Organizations
  - Non-Governmental Organizations
  - Commercial Businesses
  - Private citizens
- **Intense media interest, driven by accessibility and public interest**
- **Profound coordination problems**
  - Scale of crisis
  - Regional impact

U.S. Military Response to Georges

- **Involved both domestic response (Puerto Rico) and foreign response**
  - Major focus was on the domestic response
    - » Directed by Federal Emergency Management Agency (FEMA)
    - » In accordance with the Federal Response Plan
  - Foreign response tasking was from the Office of Foreign Disaster Assistance (OF DA) and others on an *ad hoc* basis

- **Strategic and theater airlift were critical to both domestic and foreign response**

- **CINCSO established JTF Full Provider**
  - JTF was afloat and supported both domestic and foreign response
  - Arrangement created coordination issues

- **Substantial reliance on bases and assets located in the affected area**
  - Storm impacted local capacity

U.S. Military Response to Mitch

- **Absence of USG Interagency Strategy**
  - PDD-56 was not invoked
  - Default was U.S. Military developed Concept of Operations
- **CINCSO employed two JTFs**
  - JTF Bravo stationed at *Soto Cano* AB, Honduras
  - JTF *Aguila* deployed to El Salvador and operated Task Forces in that country as well as Guatemala and Nicaragua
- **Strategic and Theater lift (air and sea), and <u>Airfield Management</u> Critical**
- **As in Georges, substantial reliance on assets and bases already in area of operations**
- **Significant coordination issues among**
  - Four Host Nations
  - More than 50 separate international, national, and non-governmental civilian responders

U.S. Military Response to Mitch (Concluded)

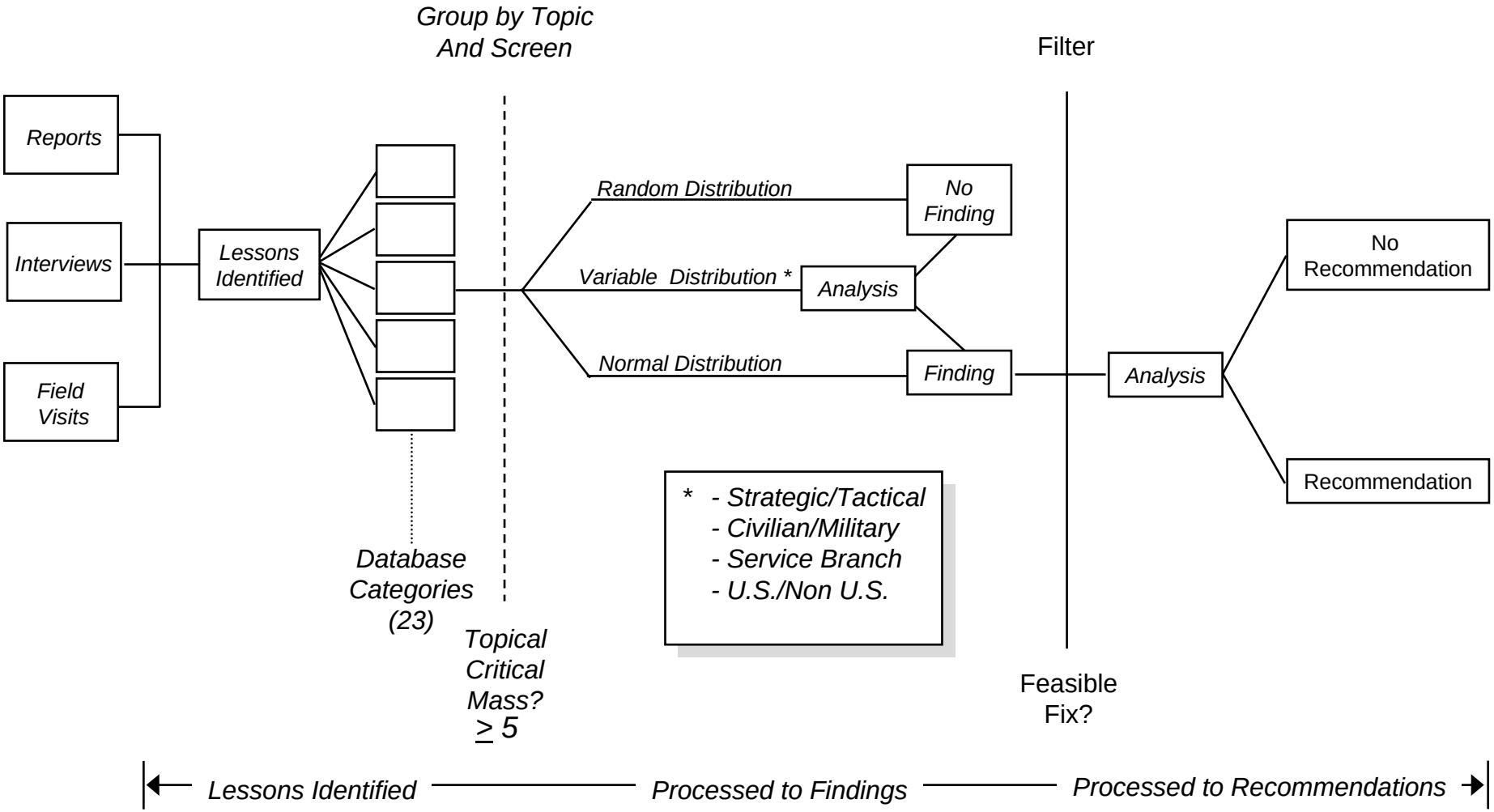
- **Timeliness is major issue during relief phase**
  - Save lives and property
  - Restore essential services (food, water, etc.)
- **Large deployment of engineering and medical assets during Rehabilitation Phase: Questions of appropriateness**
- **Resource issues, rather than clear-cut End State, determined End Date and Redeployment Plans**
- **Throughout operation, process-oriented interaction among JTFs and Supported and Supporting Commands, but**
  - Assessment issues are complex
  - Translation of civilian needs to military capabilities requires commanders' attention and further analytical refinement
- **Civilian USG process less well-defined and caused major problems**
  - Four ambassadors competing for assistance
  - High level Executive and Legislative interventions

Lessons Identified Data Base

- **Purposes:**
  - To organize systematically the numerous, diverse sources of data on Hurricanes Georges and Mitch
  - To capture systematically the multiple lessons identified, for comparison and analysis

- **5,000+ lessons identified captured in twenty-three categories, including:**
  - Assessment Issues
  - Command and Control
  - DoD Internal Coordination
  - Interface with Host Nations
  - Interagency Operations
  - Communications and Computers
  - Interface with Non-USG Organizations/Allied Governments
  - Public Affairs, including Donations
  - Doctrine and Procedures
  - Engineering Support
  - Financial Operations
  - Force Protection and Security
  - Humanitarian Operations (non-engineering; non-medical)
  - Helicopter Support
  - Information Support
  - Legal Affairs
  - Logistics Support
  - Transportation and Movement Control
  - Medical Support
  - Organization and Training
  - Personnel Support
  - Reserve Forces
  - Special Operations Forces

Analytical Framework



Findings Result in Specific Recommendations

- **Finding:** *"Additional interagency coordination is required to define more clearly the goals and objectives of USG assessment teams,and to standardize reporting formats."*

- **Discussion**:(Elaborates finding and options)

- **Recommendation 1**: Office of Peacekeeping and Humanitarian Assistance (PKHA) should initiate discussions within DoD and with OFDA and other relevant federal agencies to develop USG interagency standards for post-disaster assessments, emphasizing shared formats, clear distinctions among the various types of assessments undertaken, the appropriate sequence of assessments, and a system for integrating and validating assessment data. Reporting formats should be developed that permit tracking of assessment data over time, as well as measurement of the effectiveness of relief efforts.

- **Recommendation 2**: DoD, OFDA and other relevant federal agencies should develop interagency reporting formats that present assessment data in formats that are useful to military and civilian response planners. Assessment formats should facilitate the translation of victims' needs into civilian and military capabilities through the use of service modules specifying capabilities required during a USG response to a disaster.

Findings Result in Specific Recommendations (Concluded)

- **Finding:** *"Forward-stationed U.S. military units, elements, and facilities made critical contributions to the timeliness and effectiveness of the DoD responses to Hurricanes Georges and Mitch."*

- **Discussion**: Elaborates finding and options

- **Recommendation 1**: The Office of Peacekeeping and Humanitarian Assistance, in coordination with the Joint Staff Director for Operational Plans and Interoperability, should develop HA/DR training programs for personnel assigned to U.S. embassies (e.g. MILGPs, Security Assistance Offices, and DATTs). These programs should ensure that personnel assigned to these positions arrive at forward locations with necessary technical skills and knowledge of the various USG and other organizations that are likely to be involved with foreign disasters, so that effective coordination can be effected when required. These personnel should also be required to participate in joint HA/DR exercises conducted by the geographic combatant commands.

Major Issues Identified

- **The USG interagency response system for large-scale foreign disasters is fundamentally flawed**
- **Modest, well-designed investments in Force Management prior to a Disaster Declaration can substantially improve DoD readiness and rapidity of response**
- **DoD's coordination with multiple responding elements can and should be substantially improved at the strategic, operational, and tactical echelons**
- **Effective, timely response to large-scale, rapid-onset disasters demands more reliable funding mechanisms, within both DoD and the USG interagency system**

Other Issues – Specific Improvements to DoD's Analytical Capabilities

- **Translating humanitarian needs during disasters into U.S. military force capabilities can be improved**
- **Needs assessments should specify required capabilities in terms of "Service Modules" like those used by the United Nations**
- **The Consequence Assessment Tool Set (CATS)**
  - Was of limited utility in these foreign disaster situations and needs improvement for flood prediction
  - Should calculate Service Module requirements
- **JFCOM's Joint Electronic Battlebook should**
  - Link to CATS requirements calculations
  - Translate Service Module capabilities to military force structure elements

Other Issues – Stated and Implied Requirements

- **CINCSO's Mission Statement:**

  "Conduct disaster relief operations in support of U.S. relief efforts…in order to mitigate near-term human suffering and accelerate long-term regional recovery."

- **Other CINCSO priorities:**
  - Support fragile democracies
  - Importance of response to Americans of CENTAM ancestry
  - Prevent dramatic increase in immigration
  - Support SOUTHCOM's theater engagement goals

- **Difficult to develop concise Measures of Effectiveness (MOEs) for all requirements**

Proposed Measures of Effectiveness

Measure of Effectiveness	Scale
Were the disaster relief operations:	***Effective ---------- Ineffective***
Based on sound data and assessment?	Yes ---------- No
Defined by quantifiable MOEs?	Yes ---------- No
Well coordinated with other responders?	Yes ---------- No
Timely, based on needs of victims?	Yes ---------- No
Effective in meeting victims' priorities?	Yes ---------- No
Consistent with existing doctrine?	Yes ---------- No
At lowest cost, consistent with mission?	Yes ---------- No
Conducted with units tailored to mission?	Yes ---------- No

Measures of Effectiveness During Georges and Mitch Response

- **Quantifiable MOEs were under utilized during these hurricane responses**

- **Examples that could have been used**
  - Drop in mortality rate
  - Increase in water available per capita
  - Decreases in persons residing in temporary shelters

- **Quantification and specificity are important: "All potable water provided for 50,000 victims in location A for two weeks"**
  - Who, what, when, and where
  - Requirements and providers will change

- **MOEs**
  - Require civilian and military coordination and specification
  - Help military forces define their End State and Redeployment

Other Issues – Assessments Are Critical

- **Within the USG, various assessment methodologies, approaches, timing, and reporting systems are not coordinated**
- **Different types of assessments fulfill different purposes**
  - Damage assessments
  - Immediate relief assessments
  - Reconstruction assessments
- **Military not adequately trained in disaster assessments**
- **Civilian assessment systems are difficult to translate into military requirements**
- **Result is**
  - An unclear identification of requirements
  - Inefficient and potentially ineffective response
- **Require standard formats, improved training, authoritative consolidation and validation, and better sharing across institutional boundaries**

Applicability of Study Results

- **Methods developed for improving foreign Humanitarian Assistance and Disaster Response (HADR) should be transferable to other smaller scale contingency crisis responses**
  - Assessment data consolidation for monitoring and evaluating crises
  - MOEs for determining progress
- **Research should extend existing tools to smaller scale contingencies**
  - Achieve understanding of complex contingency requirements
  - Translate smaller scale contingency requirements into military forces
  - Identify substitutability of capabilities between civilian and military partners
- **Assessments are critical**
  - Require closer coordination between civilian and military partners
  - Timely sharing of results
- ***Study Postscript***
  - ***Draft Federal Foreign Disaster Response Plan for USAID***
  - ***Draft USAID procedures to implement the plan***