



NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

JOINT APPLIED PROJECT

ANALYSIS OF THE NAVY'S HUMANITARIAN ASSISTANCE AND DISASTER RELIEF PROGRAM PERFORMANCE

December 2014

By: Timothy J. Winn

**Advisors: E. Cory Yoder,
Deborah Gibbons**

Approved for public release; distribution is unlimited

THIS PAGE INTENTIONALLY LEFT BLANK

REPORT DOCUMENTATION PAGE			<i>Form Approved OMB No. 0704-0188</i>	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington DC 20503.				
1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE December 2014	3. REPORT TYPE AND DATES COVERED Joint Applied Project	
4. TITLE AND SUBTITLE ANALYSIS OF THE NAVY'S HUMANITARIAN ASSISTANCE AND DISASTER RELIEF PROGRAM PERFORMANCE			5. FUNDING NUMBERS	
6. AUTHOR(S) Timothy J. Winn				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Postgraduate School Monterey, CA 93943-5000			8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING /MONITORING AGENCY NAME(S) AND ADDRESS(ES) N/A			10. SPONSORING/MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government. IRB protocol number ____N/A____				
12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution is unlimited			12b. DISTRIBUTION CODE A	
13. ABSTRACT (maximum 200 words) This joint applied research project analyzed the performance of the United States Navy while operating in a Joint Task Force during recent humanitarian assistance and disaster relief missions. The performance of the USN during these missions was measured by comparing the regulations, procedures, and stated goals for these missions against interviews of firsthand accounts and a literature review documenting the Navy's role during recent HADR missions. This project was not intended to determine if the actions taken during recent HADR missions were the right actions to take or if the results could have been better given alternative actions. Rather, the assessment focused solely on determining if the actions on the ground differed from the published doctrine. The recommendations for this project focused on how leaders appointed to conduct HADR missions may better align their actions on the ground against the stated goals for the mission, and, recommendations for updating current instructions and procedures to better align the published doctrine with the best practices observed on the ground.				
14. SUBJECT TERMS HADR, humanitarian assistance and disaster relief, foreign disaster assistance, United States Navy			15. NUMBER OF PAGES 85	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT UU	

NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)
Prescribed by ANSI Std. Z39-18

THIS PAGE INTENTIONALLY LEFT BLANK

Approved for public release; distribution is unlimited

**ANALYSIS OF THE NAVY'S HUMANITARIAN ASSISTANCE AND DISASTER
RELIEF PROGRAM PERFORMANCE**

Timothy J. Winn, Lieutenant, United States Navy

Submitted in partial fulfillment of the requirements for the degree of

MASTER OF BUSINESS ADMINISTRATION

from the

**NAVAL POSTGRADUATE SCHOOL
December 2014**

Author: Timothy J. Winn

Approved by: E. Cory Yoder, Senior Lecturer

Deborah Gibbons, Associate Professor

William R. Gates, Dean
Graduate School of Business and Public Policy

THIS PAGE INTENTIONALLY LEFT BLANK

ANALYSIS OF THE NAVY’S HUMANITARIAN ASSISTANCE AND DISASTER RELIEF PROGRAM PERFORMANCE

ABSTRACT

This joint applied research project analyzed the performance of the United States Navy while operating in a Joint Task Force during recent humanitarian assistance and disaster relief missions. The performance of the USN during these missions was measured by comparing the regulations, procedures, and stated goals for these missions against interviews of firsthand accounts and a literature review documenting the Navy’s role during recent HADR missions. This project was not intended to determine if the actions taken during recent HADR missions were the right actions to take or if the results could have been better given alternative actions. Rather, the assessment focused solely on determining if the actions on the ground differed from the published doctrine. The recommendations for this project focused on how leaders appointed to conduct HADR missions may better align their actions on the ground against the stated goals for the mission, and, recommendations for updating current instructions and procedures to better align the published doctrine with the best practices observed on the ground.

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

I.	INTRODUCTION.....	1
A.	PROBLEM STATEMENT	1
B.	BACKGROUND	2
C.	SCOPE	4
D.	METHODOLOGY	5
1.	Literature Review	5
2.	Data Collection	5
3.	Delta Analysis.....	6
4.	Summary.....	6
II.	LITERATURE REVIEW	7
A.	OVERVIEW	7
B.	NATIONAL POLICY	8
1.	National Security Strategy	8
2.	Joint Publications.....	9
3.	Public Law	10
4.	International Agreements	11
C.	MILITARY POST-HADR ASSESSMENTS	11
1.	Recent HADR Missions	11
a.	<i>Haiti Earthquake 2010.....</i>	<i>12</i>
b.	<i>Kashmir, Pakistan Earthquake 2005</i>	<i>16</i>
D.	NON-MILITARY POST-HADR ASSESSMENT	18
1.	2010 Haiti Earthquake	18
2.	2005 Pakistan Earthquake	18
E.	SUMMARY	19
III.	DATA COLLECTION	21
A.	OVERVIEW	21
B.	NAVY PROCEDURES	21
1.	Background	21
2.	Interagency Operability	22
3.	Lessons Learned.....	23
a.	<i>Haiti Earthquake 2010.....</i>	<i>23</i>
b.	<i>2005 Pakistan Earthquake.....</i>	<i>26</i>
C.	INTERVIEWS.....	27
1.	United States Pacific Command J5 Operations Officer	28
2.	United States Southern Command J53 Contingency Planner	30
3.	United States Agency for International Aid, Office of Foreign Disaster Assistance, Civilian Military Coordination	32
4.	Senior Navy Representative to USAID, DCHA/CMC	33
5.	Regional Director of a Medical NGO in Haiti.....	35
6.	Member of an International Child Protection NGO in Haiti	36

D.	SUMMARY	37
IV.	DATA ANALYSIS	39
A.	OVERVIEW	39
B.	LESSONS LEARNED ANALYSIS	39
1.	Problem Identification	40
2.	Policy	40
3.	Grade	41
4.	Recommendation	41
a.	<i>Logistics</i>	41
b.	<i>Communications</i>	43
c.	<i>Command and Control</i>	45
d.	<i>Level of Knowledge</i>	46
e.	<i>Coordination (Internal)</i>	47
f.	<i>Coordination (External)</i>	49
g.	<i>Planning</i>	50
h.	<i>Operations</i>	51
V.	CONCLUSION AND RECOMMENDATIONS	53
A.	LIMITATIONS OF STUDY	53
B.	RECOMMENDATIONS	53
1.	Finding	53
2.	Recommendation	53
C.	RECOMMENDATIONS FOR FUTURE RESEARCH	54
APPENDIX A.	INTERVIEW QUESTIONS FOR HADR SUBJECT MATTER EXPERTS WITHIN THE COMBATANT COMMANDS	55
APPENDIX B.	INTERVIEW QUESTIONS FOR HADR SUBJECT MATTER EXPERTS FROM USAID	57
APPENDIX C.	INTERVIEW QUESTIONS FOR HADR SUBJECT MATTER EXPERTS FROM AN NGO	59
	LIST OF REFERENCES	61
	INITIAL DISTRIBUTION LIST	65

LIST OF FIGURES

Figure 1.	CJTF-Haiti Command Structure (from Ferguson, 2010).....	13
Figure 2.	CTF-41 Chain of Command (from Ferguson, 2010).....	14

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF TABLES

Table 1.	Naval forces used in Operation Unified Response (from Ferguson, 2010).....	15
Table 2.	Lessons Learned Grade Matrix	40
Table 3.	Logistics Lessons Learned Grade Matrix	41
Table 4.	Communication Lessons Learned Grade Matrix	43
Table 5.	Command and Control Lessons Learned Grade Matrix	45
Table 6.	Level of Knowledge Lessons Learned Grade Matrix	46
Table 7.	Coordination (Internal) Lessons Learned Grade Matrix.....	48
Table 8.	Coordination (External) Lessons Learned Grade Matrix.....	49
Table 9.	Planning Lessons Learned Grade Matrix.....	50
Table 10.	Operations Lessons Learned Grade Matrix	51
Table 11.	Future Research Recommendations.....	54

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF ACRONYMS AND ABBREVIATIONS

AOR	area of responsibility
APEX	adaptive planning and execution system
ARG	amphibious ready group
C2	command and control
CAPT	captain
CAW	carrier air wing
CCDR	combatant commander
CDR	commander
CG	guided missile cruisers
CJCS	Chairman of the Joint Chiefs of Staff
CJTF	Commander Joint task Force
CJTF-H	Commander Joint task Force—Haiti
CMC	civilian military coordination
CSG	carrier strike group
CTG	Commander Task Group
CTU	Commander Task Unit
CVN	nuclear aircraft carrier
DCHA	Bureau for Democracy, Conflict, and Humanitarian Assistance
DDG	guided missile destroyer
DOD	Department of Defense
DoN	Department of Navy
DoS	Department of State
FAA	Foreign Assistance Act of 1961
FFG	guided missile frigate
FSF	fast sea frame ship
FST	Fleet Survey Team
GCC	geographic combatant command
HADR	humanitarian assistance and disaster relief
IGO	international government organization

IT	information technology
JOPEs	joint operation planning and execution system
JPME	joint professional military education
Lt Col	lieutenant colonel
POTUS	President of the United States
Maj	major
MDSU	Mobil Diving and Salvage Unit
MEU	Marine Expeditionary Units
MOU	memorandum of understanding
MPH	miles per hour
MRE	meals-ready-to-eat
NC	Nurse Corps
NDS	National Defense Strategy
NGO	non-governmental organizations
NMCB	Navy Mobil Construction Battalion
NMS	National Military Strategy
NPS	Naval Postgraduate School
NSS	National Security Strategy
OFDA	Office of Foreign Disaster Assistance
PACOM	U.S. Pacific Command
SecDef	Secretary of Defense
SecState	Secretary of State
SOFA	Status of Forces Agreement
SOUTHCOM	U.S. Southern Command
SPRP	strategy, planning and resourcing process
UCT	Underwater Construction Team
U.S.	United States
USAID	United States Agency for International Development
USG	United States government
USN	United States Navy

USNS	United States Navy ship
USSOUTHCOM	United States Southern Command

THIS PAGE INTENTIONALLY LEFT BLANK

ACKNOWLEDGMENTS

First and foremost, I would like to thank my beloved wife, Samantha, for her invaluable support throughout our stay here in Monterey. Without her, this would have been a much harder ordeal. Thanks to our children, Audrey, Johanna, and Jacob for being my inspiration to be better each day.

I would like to thank my advisors, Dr. Deborah Gibbons and Mr. Cory Yoder, for the time, effort, and guidance they have provided throughout this project. I have learned so much from each of you and I owe you a great deal of gratitude.

THIS PAGE INTENTIONALLY LEFT BLANK

I. INTRODUCTION

A. PROBLEM STATEMENT

The intent of this joint applied research project is to analyze the performance of the United States Navy (USN) or joint command when operating using Navy assets in recent humanitarian assistance and disaster relief (HADR) missions against the stated goals for such missions. The stated goals are determined from instructions, regulations, statements and speeches made by top Navy and military leadership. The performance of the USN during these missions will be measured using comparison between regulations, procedures, and stated goals against interviews of firsthand accounts and a literature review documenting the Navy's role during recent HADR missions.

In 2010, President Barak Obama signed the latest *National Security Strategy* (NSS), which among other things called for a greater emphasis to be placed on HADR by the United States government (USG). Specifically, in the NSS the president states:

Together with the American people and the international community, we will continue to respond to humanitarian crises to ensure that those in need have the protection and assistance they need. ... The United States must be better prepared and resourced to exercise robust leadership to help meet critical humanitarian needs. (White House, 2010)

This increased NSS emphasis on HADR is in great contrast to previous NSSs released by former presidents. In the past, presidents have acknowledged the need for HADR as a soft power tool for national security but did not make it a priority for the USG as President Obama has. A result has been to rely heavily on the Department of Defense (DOD) to support the Department of State (DoS) and the U.S. Agency for International Development (USAID) in their role as lead agency for all foreign disaster responses by the USG (White House, 2010).

The role of the U.S. Navy in HADR has been extremely valuable to the USG in their strategic objective of delivering aid and assistance after a disaster. The Navy has the ability to project soft power through its unique and far reaching logistical capabilities. The Navy's role in HADR can range from a single flight of supplies to a full battle

group's deployment with an amphibious landing of Marines onto any littoral in the world. In keeping with the *National Security Strategy*, whatever capacity the U.S. Navy is called upon to support HADR efforts, it has now made the mission of HADR a priority.

The HADR mission set is a non-traditional mission for the military that has sometimes been seen by senior military leaders as simply a tool for the DoS (Maj. B. Rosario, U.S. Air Force [USAF], personal communication, September 24, 2014). During large scale HADR operations, the capabilities of commercial transportation and logistics services relied on by the DoS, are often overwhelmed and severely limited. Therefore, the DoS often requests assistance from the DOD for these services. In doing so, the DOD becomes an extension of the DoS for the purposes of the HADR mission (Department of Defense, 2011).

Within the past decade the quantity of natural disasters requiring the assistance of the DOD has increased, and it is projected to continue to increase into the near future (United Nations, 2009). Despite the increased reliance on the DOD, and more specifically the Department of Navy (DoN), for a mission set they are not traditionally designed to accomplish, the DoN and the DOD have been very successful according to military and civilian leaders (Roughead, 2010).

Despite the praise by military leaders as to the success of previous military HADR missions there have been several reports that point out areas for improvement. These reports have come from within the military as well as from other governmental agencies and from non-governmental organizations (NGO). However, to accurately determine if the previous HADR missions met their stated goals would require an analysis of the missions themselves and the regulations that govern the DOD and DoNs implementation of HADR missions and then analysis of the delta between them. This joint applied research project will address the analysis of the delta and provide recommendations for how to correct or approve upon the findings of the analysis.

B. BACKGROUND

The USGs HADR mission set has been mandated by public law since 1961 with the passing of the Foreign Assistance Act of 1961 (FAA). The FAA shaped the scope of

the mission for the DOD and the USN. The passing of the FAA called for the development of a new governmental agency to administer the foreign assistance provided by the USG. The agency created was the United States Agency for International Development (USAID). USAID is directed by FAA to take on the lead role in all foreign assistance from the USG and reports directly to the President and the Secretary of State on all matters relating to the USG response to HADR missions. The USAID works in concert with the DoS to conduct operations around the globe that the President has determined to require assistance from the USG. USAID can request support from other governmental agencies, such as Defense, State or FEMA as needed to accomplish their mission (U.S. Agency for International Development, 2005).

The needs of the effected people in an area following a natural disaster or other major trauma, such as war, often cannot be fully met with commercial means. Specifically, additional help is often needed in cases of, large scale logistical requirements, mass casualties in remote areas, or severely damaged or limited transportation infrastructure in the affected area. When USAID is unable to complete its mandated mission due to a lack of commercial support or the commercial sector being overwhelmed by the heavy demands, the agency would then call upon the DOD for assistance (U.S. Agency for International Development, 2005).

The DOD is uniquely capable to operate under conditions that severely limit traditional modes of transportation or logistics channels (Department of Defense, 2011). The DoN is specifically suited to operate in these conditions when they occur within range of the ocean. Within days of receiving orders from the Secretary of Defense (SecDef) the USN can have air capable ships off the coast of a country affected by natural disaster. Those aircraft can then immediately begin ferrying supplies such as water, food, or medical equipment to the displaced population. Within a week the DoN can have an entire battle group consisting of a carrier strike group (CSG) and an amphibious ready group (ARG) off the coast of an effected country (Department of Defense, 2011). These assets can provide any assistance the host nation needs and do so through self-sustainment and little or no outside assistance.

In a joint environment, when the DOD is conducting HADR missions, internal infrastructure such as roads and airports are often unusable. The Navy is capable of fully sustaining the operation from sea. Just as in combat operations once the Navy has made entry ashore, it is able to maintain open lines of communications from the sea through amphibious landings, port reconstruction and air capable ships. These modes of transportation into an effected country may be the only mode to bring in needed relief supplies (Department of Defense, 2011).

The ability to maintain open lines of communication from the sea provide the mission commander, and ultimately USAID, with the ability to resupply and sustain the force ashore. This is the critical element the Navy brings to bear and is the difference between the Navy and other governmental agencies and NGOs. Without the long-term sustainment efforts provided by the Navy, the relief efforts would be contingent upon the local infrastructure for logistics and support. In past HADR missions, both airports and seaports have been rendered inoperable. Without a logistics chain to sustain relief efforts, the human suffering could have been far greater.

C. SCOPE

The scope of this research project is limited to analysis of the actual performance of the USN or joint command when operating using Navy assets in recent HADR missions against the stated goals for such missions. The stated goals are determined from instructions, regulations, statements and speeches made by top Navy and military leadership. The performance of the USN during these missions will be measured using comparison between regulations, procedures, and stated goals against interviews of firsthand accounts and a literature review documenting the Navy's role during recent HADR missions.

This project is not intended to determine if the actions taken during recent HADR missions were the right actions to take or if the results could have been better given alternative actions. Rather, the assessment will focus solely on determining if differences between the written and stated goals and actions on the ground exist. The recommendations for this project focus on how leaders appointed to conduct HADR

missions may better align their actions on the ground against the stated goals for the mission, and, recommendations for updating current instructions and procedures to better align the written stated goals with the best practices observed on the ground during recent HADR missions.

D. METHODOLOGY

The methodology for this research project utilized a thorough literature review to determine the governing doctrine for USG conducting HADR missions. The literature review will serve as the bases for the stated goals for recent HADR missions which were then analyzed against the first-hand accounts through interviews with individuals in key HADR positions.

1. Literature Review

The primary question of this research project is what Navy policies and or procedures should change to better meet the stated Navy HADR goals? To answer this question, the researcher conducted a thorough review of current literature of HADR operations involving the USG and the requirements set forth in law governing this type of operation. The data collected from the literature review included federal law that specifically grants the USG the ability to perform assistance to foreign nations. Also included are the requirements for the interaction between governmental agencies charged with conducting HADR missions. Based on the broad requirements covering HADR the researcher determined each governmental agency's specific requirements and regulations for how they conduct HADR missions.

To answer the primary research question, two secondary questions must be addressed. 1. What are the stated goals of the Navy's Humanitarian Assistance and Disaster Relief (HADR) Program? 2. Were the Navy's goals met during the previous HADR missions?

2. Data Collection

Once a thorough review of the literature for HADR was completed, the researcher examined the after action reports and literature about previous HADR missions from both

the perspective of the USG and from non-governmental organizations who recently participated in HADR missions. The key to this review were the interviews with governmental and non-governmental organizations to gain specific details about the missions they recently conducted for comparison against stated goals.

3. Delta Analysis

The difference between the stated goals and requirements of the literature review and the actual events on the ground of recent HADR missions were then analyzed. Identifying this delta between the stated requirement and the actual outcome is the focus of this research paper. Based on the findings the researcher then provided recommendations for how to possibly reduce or eliminate this delta while retaining or increasing performance in areas where goals are currently being met.

4. Summary

This joint applied research project intends to analyze the performance of the USN or joint command when operating using U.S. Navy assets in recent HADR missions against the stated goals for such missions. The stated goals are determined from instructions, regulations, statements and speeches made by top Navy and military leadership. This research was conducted with a thorough literature review of recently documented HADR missions involving the U.S. Navy or Joint Command from several perspectives. The literature review was the basis for determining the stated goals for the HADR missions. This basis will then be compared and contrasted to firsthand accounts by individuals who participated in recent HADR missions. These firsthand accounts were collected through interviews with members of the Combatant Commands Planning staff, personnel working with USAID, a military liaison officer embedded with USAID and a not-for-profit non-governmental organization. The delta between the stated goals for HADR missions and the actual results was analyzed to determine areas where improvements can be made in policy and training. The review also demonstrated areas where great improvements have already been realized. This research project concludes with the researcher's recommendations for how to better meet stated HADR mission goals in the future.

II. LITERATURE REVIEW

A. OVERVIEW

The foundation of this joint applied project is the analysis of current literature in the field of HADR. The focus of this literature review is broken down into three parts. First, federal government and DOD instructions governing the planning and execution of HADR missions within the scope of the USN. This can include instructions, publications, directives, statements and speeches by DOD and civilian leadership. Second, the lessons learned and after action reports from a USN and DOD perspective following past HADR missions that utilized naval assets in the planning and execution of the mission. Third, the lessons learned and after action reports and various publications reporting on the non-military perspective following past HADR missions.

Throughout the literature there are several terms used referring to HADR missions. Even within the DOD there is little consistency with the term and even the definitions. Some examples of terms used are foreign assistance, foreign disaster, foreign disaster assistance, foreign disaster relief, Foreign humanitarian assistance, humanitarian and other assistance, foreign disaster relief operations and reconstruction and stabilization operations. For simplicity throughout this paper, I will use the term HADR to cover all terms identified. The definition I will use comes from a combination of definitions found in the Department of Defense Instruction 5100.46 (Department of Defense, 2012b) and Joint Publication 1-02 (Joint Chiefs of Staff, 2010);

Department of Defense activities, normally in support of the United States Agency for International Development or Department of State, conducted outside the United States, its territories, and possessions. This includes assistance that can be used immediately to alleviate the suffering of foreign disaster victims. Normally, it includes services and commodities as well as the rescue and evacuation of victims; the provision and transportation of food, water, clothing, medicines, beds, and bedding, temporary shelter, the furnishing of medical equipment, medical and technical personnel; and making repairs to essential services. (Joint Chiefs of Staff, 2010; Department of Defense, 2012b).

B. NATIONAL POLICY

The national policy, or national doctrine, is determined through a cascading of regulations originating with the president. The president sets his national priorities and overarching strategy for the country for which all governmental agencies are to follow.

1. National Security Strategy

All Navy instructions and regulations stem from the strategy, planning and resourcing process (SPRP). The SPRP derives the president's strategic plan for the nation through the *National Security Strategy* (NSS) (Joint Chiefs of Staff, 2011a). The NSS is the "ends" the president envisions for the national strategy and protection of the homeland. From this document the SecDef interprets the president's strategy and derives the "ways" in which the DOD will accomplish that strategy and lays out this vision in the *National Defense Strategy* (NDS). From that document the Chairman of the Joint Chiefs of Staff (CJCS) must then demonstrate the "means" for achieving the strategy by outlining the DOD's strategic direction in the *National Military Strategy* (NMS) (Joint Chiefs of Staff, 2011a). From this document the military departments develop doctrine which directly updates instructions, procedures and regulations for how the services operate (Joint Chiefs of Staff, 2011a).

The *National Defense Strategy* (NDS) signed by the SecDef is the DOD's plan for carrying out the requirements outlined in the president's NSS. In the "Ends, Ways, and Means construct," the NDS is the ways. In the NDS the DOD identifies military objectives to focus on which the SecDef feels will best meet the NSS requirements. These military objectives then feed into the *National Military Strategy* (Joint Chiefs of Staff, 2011a).

The *National Military Strategy* (NMS), signed by the Chairman of the Joint Chiefs of Staff (CJCS), is the plan for how the DOD will accomplish the military objectives called out in the NDS based on the NSS. In the "Ends, Ways, and Means construct," the NMS is the means. The NMS identifies the resources necessary to achieve the assigned military objectives and the forces needed to defeat future threats to national security (Joint Chiefs of Staff, 2011a).

From the NMS, the military is able to create or update their doctrine which governs all missions including HADR missions. Specifically, the Joint Publications have been updated with greater emphasis on HADR planning and execution. In addition there are new publications which solely address HADR (Joint Chiefs of Staff, 2011a).

2. Joint Publications

The Joint Publications are a series of six references created by the military and approved by the CJCS. They represent the current military doctrine for joint operations.

Joint doctrine presents fundamental principles that guide the employment of U.S. military forces in coordinated and integrated action toward a common objective. It promotes a common perspective from which to plan, train, and conduct military operations. It represents what is taught, believed, and advocated as what is right (i.e., what works best). It provides distilled insights and wisdom gained from employing the military instrument of national power in operations to achieve national objectives (Joint Chiefs of Staff, 2010).

The six Joint Publication volumes:

1. JP 1-0 Personnel Series
2. JP 2-0 Intelligence Series
3. JP 3-0 Operations Series
4. JP 4-0 Logistics Series
5. JP 5-0 Planning Series
6. JP 6-0 Communication Series

Each of these Joint Publications is further broken down into sub-parts containing the military doctrine on specific mission sets within the series header. For example under JP 3-0 the military doctrine for joint operations there is the operations doctrine for foreign humanitarian assistance in JP 3-29. The GCC planner and the operational commander use these Joint Publications for the planning, training and execution of all joint military operations.

3. Public Law

Under current law the DOD can only participate in HADR missions when one of three requirements are met: 1. When directed by the President of the United States, 2. With the concurrence of the Secretary of State, or 3. In emergency situations in order to save human lives, when there is not sufficient time to seek the prior initial concurrence of the Secretary of State, in which case the Secretary of Defense shall advise, and seek concurrence of, the Secretary of State as soon as practicable thereafter (Executive order 12966, 1995).

The Foreign Assistance Act of 1961 (Public Law 87-195) (FAA) was signed into law by President John F. Kennedy for the purpose of establishing guidance on how the USG will provide assistance to friendly foreign nations. The FAA provides for the establishment of a new government agency who's mandate is to direct all actions of the USG in the assistance of foreign nations. The new agency was the United States Agency for International Development (USAID). USAID falls under the Secretary of State and is responsible for the USG response to any HADR contingency directed by the President (Foreign Assistance Act, 1961).

When directed by the president or requested by the secretary of state, the DOD may conduct HADR missions under the direction of USAID. USAID is the lead agency in concert with the DoS when multiagency HADR missions are conducted. One exception would be when HADR missions are being conducted in concert with combat operations. In this situation the DOD retains the responsibility as the lead agency for the combat operation and security requirements. However, once combat operations are concluded and the theater security permits, SecDef and SecState will coordinate with each other to determine the lead agency moving forward with the HADR mission (White House, 2005).

The USN assumes a supporting role under USAID for HADR missions. This construct is far different from what the USN is used to in normal combat operations. The need to understand this supporting role and to seek guidance from an outside agency can often be difficult.

4. International Agreements

When U.S. forces are operating in a host nation they are often under the jurisdiction of the US government not the host nation. This is possible through the use of a Status of Forces Agreement (SOFA) with the host nation. By establishing a SOFA with a host nation they agree upon the framework under which the armed forces will operate while in the host nation. When conducting HADR missions within a host nation the SOFA provides protections for the U.S. forces operating there. Without these protections the ability for the military to move freely and conduct their mission will be severely curtailed (Department of Defense, 2011).

In addition, a SOFA provides U.S. licensed medical personnel the ability to practice medicine in the host country and provide needed medical assistance during a HADR mission. If there is not a SOFA in place the USG must establish an agreement with the host nation prior to conducting operations (Department of Defense, 2011).

C. MILITARY POST-HADR ASSESSMENTS

The following section summarizes recent HADR missions from the perspective of the U.S. military. The data presented is derived from mission after action reports, lessons learned and various military publications.

1. Recent HADR Missions

Despite the frequency at which the USG conducts this type of operation the availability of data needed for this type of research is often lacking. Due to this constraint, the researcher focused on two major HADR events which gained worldwide attention, the Haiti earthquake in 2010 and the Kashmir, Pakistan Earthquake in 2005. As a result of the attention given to these HADR operations and the magnitude of the operations the availability of data was adequate to understanding the events which took place before, during and after the operation by the USG.

a. *Haiti Earthquake 2010*

On January 12, 2010, a 7.0 magnitude earthquake hit the small Caribbean island of Hispaniola from the Blind Thrust Fault. The island of Hispaniola is shared by two countries Haiti and the Dominican Republic. The epicenter of the earthquake hit near the capital city of Haiti, Port-au-Prince. The extent of the devastation left the island with up to 230,000 dead and all major infrastructure in ruin.

The internal relief efforts were initially delayed due to the entire communications infrastructure being destroyed and all air, sea and land transportation infrastructure disabled. The local government was severely hit when most of the municipal buildings were destroyed during the quake. This left the government incapable of leading the relief efforts during the days after the earthquake.

Calls for assistance came quickly from the government of Haiti to the international community. However, the international community had already been on the island before the quake. The group Doctors without Borders had been operating in the capital city Port-au-Prince for years. On the day of the earthquake, the hospital it had been working out of collapsed and killed many people inside. Other aid groups had also been operating in Haiti before the quake only to find all their buildings and equipment destroyed leaving them incapable to assist in the relief efforts. On the eastern side of the island the Dominican Republic quickly moved its troops to the border to prevent a mass migration of Haitians seeking refuge from the earthquake. The Dominican Republic allowed a limited number of injured Haitians access to their hospitals but insisted they could only stay a short time before being returned to Haiti.

(1) United States Government Response

On January 12, 2010, President Obama received a request for assistance from the Haitian government. President Obama immediately responded by stating,

...at this moment, we are moving forward with one of the largest relief efforts in our history—to save lives and to deliver relief that averts an even larger catastrophe. In these difficult hours, America stands united. We stand united with the people of Haiti, who have shown such incredible

resilience, and we will help them to recover and to rebuild. (The White House, Office of the Press Secretary, 2010)

From this the president directed the federal government to work with the international community and provide the needed assistance to Haiti.

In accordance with the FAA, USAID took the lead as the head agency for the USG and coordinating body for all actions for the HADR efforts in Haiti. Understanding the extremely large scale of operations USAID immediately turned to the DOD for assistance. The SecDef then appointed Commander United States Southern Command under General Fraser to head the HADR mission in Haiti titled Operation Unified Response. General Fraser established Commander Joint Task Force—Haiti (CJTF-H) to take command of the response. The USG command structure for the Haiti earthquake response is demonstrated in Figure 1.

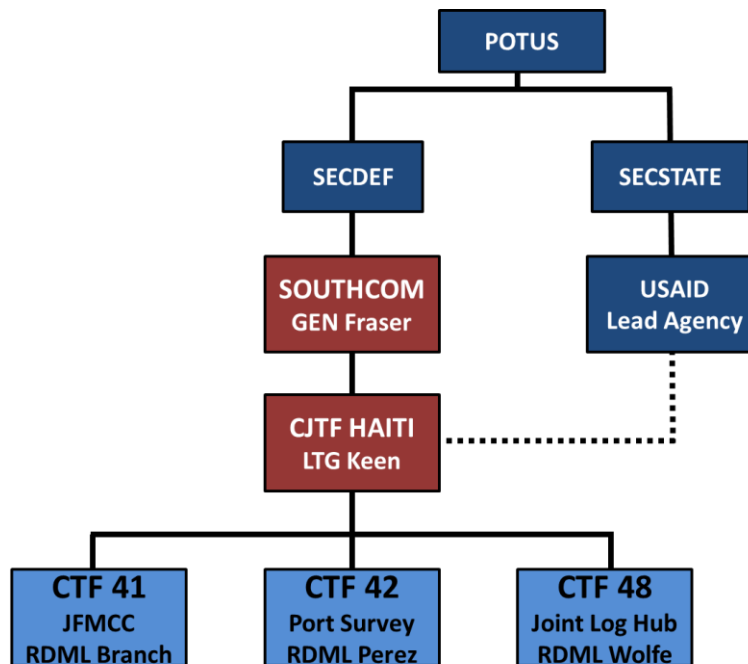


Figure 1. CJTF-Haiti Command Structure (from Ferguson, 2010)

The bulk of the HADR response fell upon CJTF-41 under RDML Branch. The command structure for JTF-41 is demonstrated in Figure 2.

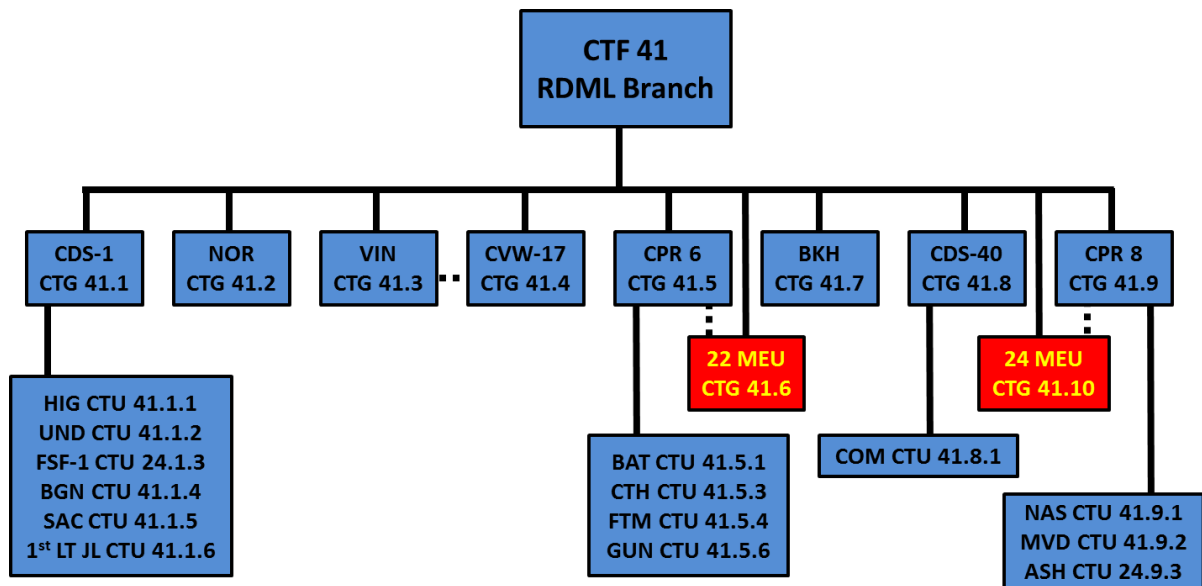


Figure 2. CTF-41 Chain of Command (from Ferguson, 2010)

The naval assets used in Operation Unified Response are listed in Table 1 by their unit name, unit designator and command hierarchy.

Table 1. Naval forces used in Operation Unified Response (from Ferguson, 2010)

United States Southern Command	General Fraser	CDRUSSOUTHCOM
Commander Joint Task Force – Haiti	Lieutenant General Keen	CJFT-H
Commander Task Force – 41	Rear Admiral Branch	CTF-41
Commander Destroyer Squadron – 1	CDS-1	CTG-41.1
USS HIGGINS	DDG-76	CTU-41.1.1
USS UNDERWOOD	FFG-36	CTU-41.1.2
USS SEA FIGHTER	FSF-1	CTU-41.1.3
USNS BIG HORN	T-AO-198	CTU-41.1.4
USNS SACAGAWEA	T-AKE-2	CTU-41.1.5
USNS 1st LT Jack Lummus	T-AK 3011	CTU-41.1.6
USS NORMANDY	CG-60	CTG-41.2
USS VINSON	CVN-70	CTG-41.3
Carrier Air Wing – 17	CAW-17	CTG-41.4
Commander Amphibious Squadron - 6	CPR-6	CTG-41.5
USS BATAAN	LHD-5	CTU-41.5.1
USS CARTER HALL	LSD-50	CTU-41.5.3
USS FORT MCHENRY	LSD-43	CTU-41.5.4
USS GUNSTON HALL	LSD-44	CTU-41.5.6
Twenty Second Marine Expeditionary Unit	MEU-22	CTG-41.6
USS BUNKER HILL	CG-52	CTG-41.7
Commander Destroyer Squadron – 40	CDS-40	CTG-41.8
USNS COMFORT	T-AH-20	CTU-41.8.1
Commander Amphibious Squadron - 8	CPR-8	CTG-41.9
USS NASSAU	LHA-4	CTU-41.9.1
USS MESA VERDE	LPD-19	CTU-41.9.2
USS ASHLAND	LSD-48	CTU-41.9.3
Twenty Fourth Marine Expeditionary Unit	MEU-24	CTG-41.10
Commander Task Force – 42	Rear Admiral Perez	CTF-42
Salvage Supervisor	Salvage Sup	CTG-42.1
USNS GRASP	T-ARS-51	CTU-42.1.1
USNS HENSON	T-AGS-63	CTU-42.1.3
Mobil Diving and Salvage Unit – 2	MDSU-2	CTU-42.1.4
Fleet Survey Team	FST	CTU-42.1.5
Underwater Construction Team – 1	UCT-1	CTU-42.1.6
Navy Mobil Construction Battalion – 7	NMCB-7	CTU-42.1.7
USNS 1st LT Jack Lummus	T-AK-3011	CTU-42.1.8
Commander Task Force – 48	Rear Admiral Wolfe	CTF-48

The DODs response to the earthquake relief efforts through Operation Unified Response included 22,268 U.S. military personnel from all branches and over 6,200 DOD civilians (United States Southern Command, 2010). This included 23 Navy ships, 10 Coast Guard ships, 264 fixed wing aircraft, 57 helicopters, 2.6 million liters of water, 2.9

million meals served, 17 million pounds of bulk food delivered, 2.7 million meals-ready-to-eat (MRE) delivered, 73,300 emergency radios distributed, 1.17 million people provided with emergency shelter, supported 16 World Food Program distribution points, 343 medical evacuations, 1,025 surgeries performed, 9,758 people patients treated and seaport and airport reconstruction and operations (United States Southern Command, 2010). These operations were conducted in concert with 147 other nations either directly or indirectly supporting the relief efforts (United States Southern Command, 2010).

Total Navy assets used in CJTF-H included the following:

- 1 nuclear aircraft carrier (CVN)
- 1 carrier air wing (CAW)
- 1 guided missile destroyer (DDG)
- 2 guided missile cruisers (CG)
- 1 guided missile frigate (FFG)
- 4 dock landing ships (LSD)
- 1 landing helicopter assault ship (LHA)
- 1 landing platform dock ship (LPD)
- 1 landing helicopter dock (LHD)
- 1 fast sea frame ship (FSF)
- 2 marine expeditionary units (MEU)
- 1 mobile diving and salvage unit (MDSU)
- 1 fleet survey team (FST)
- 1 underwater construction team (UCT)
- 1 Navy mobile construction battalion (NMCB)
- 6 MSC ships (USNS)

b. Kashmir, Pakistan Earthquake 2005

In the early morning of October 8, 2005, approximately 700 miles from the Arabian Sea, deep in the interior of Pakistan, a 7.6 magnitude earthquake struck. The end result of the earthquake left over 100,000 people dead, over 138,000 people seriously injured and approximately 3.5 million people displaced. Despite being in a region known for large earthquakes the Pakistan government failed to adequately enforce building

codes which directly led to the incredibly large number of dead and injured. The majority of deaths were the result of building collapses. The construction widely used in the region, which was vulnerable to earthquakes, was primarily made of mud brick with mortar and wood supports.

(1) U.S. Government Response

Shortly after the earthquake the president of Pakistan, President Musharraf made a formal request for assistance to the U.S. Ambassador to Pakistan, Ambassador Crocker. The response from the USG was swift and massive. Within 24 hours there were two US helicopters, previously conducting combat operations in Afghanistan, delivering relief supplies within Pakistan. The SecDef directed Combined Joint Task Force—76 (CJTF 76) to lead the operations in Pakistan. CJTF-76 was already conducting combat and humanitarian operations in Afghanistan when the earthquake struck allowing them to respond very quickly. The Commander for CJTF-76 formed the Combined Disaster Assistance Center—Pakistan (CDAD-Pak) to coordinate relief efforts for the USG. In concert with USAID and the Ambassador the DOD conducted operations under the direction of the Pakistani military. With the Pakistani military as the lead agency the USG derived their goals from them. Specifically, the goals were to restore livelihoods, resumption of schooling for children, and the re-opening of roads. In helping to rehabilitate and reconstruct the affected areas, the international community would change the lives of the survivors. The USG goals for the operation, in addition to the above, were strengthening democracy and promoting peace between India and Pakistan (*Pakistan Earthquake*, 2005).

The USG pledged \$300 million in relief and reconstruction assistance, \$110 million in transportation and military support, and \$100 million in private sector donations (*Pakistan Earthquake*, 2005). The Naval assets involved in the HADR efforts were two amphibious ships the USS *Cleveland* (LPD-7) and the USS *Pearl Harbor* (LSD-52), a Naval Mobile Construction Battalion, an ARG and 24 MH-60 helicopters.

The USGs HADR response in Pakistan was much smaller than the USGs response to the Haiti earthquake. This is in part to the distance to the U.S. and due to the

continuing combat and humanitarian operations ongoing in Iraq and Afghanistan. However, the DOD HADR efforts far exceeded of the efforts of any other country.

D. NON-MILITARY POST-HADR ASSESSMENT

As events occur around the world the first organizations often to provide assistance are NGOs. In addition, after most foreign nations pull their military aid following a HADR mission it is the NGOs who remain behind to continue the work of long-term development. The following section is an account of the contributions provided by NGOs during the 2010 Haiti earthquake and the 2005 Pakistan earthquake.

1. 2010 Haiti Earthquake

After the 2010 earthquake in Haiti NGOs flocked to Haiti in an attempt to serve the injured and displaced population. As of the date of this project 49 NGOs had spent over \$4.5 billion on the relief efforts in Haiti (Holden, 2011; Interaction, 2014). The majority of services rendered by NGOs include medical equipment and services, construction equipment and services, food, water, and temporary shelter. The NGOs reported record fund raising immediately following the earthquake but held off spending until years later. The reason for this delay is in the NGOs stated purpose of long-term sustained support (Interaction, 2014). The bulk of funds raised by NGOs were earmarked for future construction efforts. This is in comparison to the U.S. military's plan of a quick reaction rescue mission with maximum up-front support based on a short-term in country time line.

2. 2005 Pakistan Earthquake

The 2005 earthquake in Pakistan proved to be a very difficult operation for many NGOs. The terrain and weather prevented most sources of relief efforts. Without the lift capabilities of the military the ability to reach the displaced population was impossible. Many of the NGOs in Pakistan partnered with various military to transport their people and supplies to the affected areas. At the peak of the HADR operations on Pakistan there were 13 international NGOs operating (Wilder, 2008).

E. SUMMARY

HADR missions around the globe and here at home require a vast array of resources to relieve the suffering of the effected populations. Whether is it from floods, earthquakes, hurricanes/typhoons, or from combat the USG has made this type of operation a primary mission for the DOD. As we have seen in recent events around the world the DOD and DoS stand ready to provide rapid assistance to countries in need when called upon. The need to operate in an environment inclusive of other agencies, NGOs and the local government is imperative. Each group brings with them an expertise which must be leveraged to ensure maximum effort is being made to alleviate human suffering.

The unique capabilities of the U.S. Navy lend itself well to the relief efforts of HADR missions. The ability to rapidly deploy forces around the world with short notice and to be self-sustaining for an extended period of time is invaluable to ensuring a successful HADR mission. The Navy's vast logistical capabilities are unmatched by any other governmental agency. When called on the Navy can bring ashore needed material and manpower without the traditional infrastructure needed by other agencies. This capability is the reason the Navy is often tasked to assist USAID in their relief efforts.

THIS PAGE INTENTIONALLY LEFT BLANK

III. DATA COLLECTION

A. OVERVIEW

The data collection for this research project focused on the published lessons learned from recent HADR missions. Specifically, the researcher reviewed the lessons learned from the Navy's response to the 2010 Haiti earthquake and the 2005 Pakistan earthquake.

B. NAVY PROCEDURES

The primary purpose of any USG led HADR mission is the elimination of human suffering (Department of State, 2013). The USG has several tools to aid in this effort to include everything from financial assistance to a large scale HADR operation using the full might and capabilities of the U.S. military (Department of Defense, 2011). When called upon the DOD works under the direction of the DoS through the Director of USAID. The SecDef appoints the commander of the geographic combatant command responsible for the affected country to be the lead military organization. Once appointed the commander may create or task an existing Joint Task Force (JTF) to plan and conduct the HADR mission. The JTF commander coordinates directly with the DoS and USAID personnel through the Office of U.S. Foreign Disaster Assistance (OFDA). The OFDA is the link between DoS and DOD during HADR missions. OFDA falls under the USAID's Bureau for Democracy, Conflict, and Humanitarian Assistance (DCHA) (Department of Defense, 2011). Beyond the primary goal of the elimination of human suffering the JTF commander may be tasked by USAID to accomplish specific goals. These goals can range from a single flight of supplies to a full battle groups deployment with an amphibious landing of Marines. Most commonly, the goals the JTF commander is tasked with carrying out involve large scale logistics.

1. Background

The purpose for the DOD to respond to DoS led HADR missions is due to the military's unique capabilities to respond to, plan for and conduct large scale logistical

operations in short notice anywhere in the world and be self-sustaining for an extended period of time. Therefore, when the civilian transportation and logistics networks break down or are overwhelmed by the magnitude of the event the DoS requests the assistance of the DOD (U.S. Agency for International Development, 2005). When tasked to assist the DOD is given specific goals to accomplish. The basic goals for a HADR mission are usually to alleviate suffering, save lives, conduct evacuations, and provide basic services such as food, water, shelter and medical services. As the mission becomes more complex so do the goals. Specific goals may include airport or seaport reconstruction and operation, police and security services, construction and repair of electric grids, power generation and sewer systems. The goals given to the DOD to carry out will determine the necessary response by the JTF commander. For small scale operations the DOD may be called upon to fly relief supplies into the effected country. This would include only a single aircraft making a single flight. In large scale operations the scale of goals might require hundreds of flights carrying tons of cargo and personnel. It might include an entire battle group landing ashore with a full combat ready MEU and support aircraft (Department of Defense, 2011).

2. Interagency Operability

The DOD divides the world into six separate geographic combatant commands (GCC) each with its own defined areas of responsibilities (AOR). The GCC commander has responsibility over the AOR as well as the troops within his or her AOR. It is also tasked with coordinating with other governmental agencies that operate in its AOR. This coordination is called interagency operability. This coordination has been an area identified as needing improvement through after action reports and lessons learned (Buchanan, 2009). Specifically during HADR missions the need for coordination is paramount. One reason for a breakdown in coordination between the GCC and DoS has been lack of synchronization with how the DoS divides the world. The DoS divides the world by regional bureaus. Unfortunately this division does not correspond with the GCC divisions by the DOD. Due to this lack of synchronization of land division the coordination of HADR missions has suffered. In addition to the different divisions and AORs the location of the GCC and regional bureaus are often not within proximity to

each other. This distance only serves to decrease the potential for interagency operability, further complicating coordination efforts.

3. Lessons Learned

The USN has created and recently updated an online system for use as a repository of after action reports and lessons learned from naval operations and missions. This website is designed to provide commanders and staff planners with a resource to learn from past missions prior to conducting future missions (Navy Warfare Development Command, 2013).

a. Haiti Earthquake 2010

As with any military operation success is contingent upon the following key aspects; planning, a clearly defined command and control structure, and coordination with other governmental agencies, NGOs and the local government. However, the primary areas needing improvement identified in the lessons learned during the Haiti earthquake response, Operation Unified Response, were precisely those areas (Ferguson, 2010).

The major findings in the lessons learned for the Haiti earthquake response included a lack of planning, a lack of visibility into the flow of material into the area and the ineffective information technology (IT) infrastructure. The absence of a disaster response plan was directly responsible for most of the problems with the operation. Specifically, the flow of material and personnel into the area was hampered and disjointed due to no central coordination or plan. One report stated that each command was independent as to what material and supplies they were to bring with them. This caused a bottleneck of unnecessary material which delayed needed lifesaving supplies and personnel. The biggest problem encountered was the lack of communication the military had with civilian agencies and NGOs (Ferguson, 2010). The equipment the military uses is a war time based classified network. This network prevented their ability to communicate with non-military. During the first few days of the operation cell phones and email were the primary means of communication for the non-military agencies.

However, the shipboard internet had severely limited bandwidth and prevented the use of commercial channels of communication such as email for the military relief providers.

Specific lessons learned during the Haiti earthquake:

Planning (Policy, Organization)

- Standing disaster response plans are needed to enable more responsive operations by addressing the flow of aid and personnel.
- Each combatant commander should maintain a baseline HA/DR CONPLAN.
- Fleet commanders should establish maritime HA/DR plans. Ensure that plans include logistical branches specific for major categories of likely disasters (hurricane, earthquake, tsunami) as well as considerations for desired JFMCC force composition (CSG vs. ARG).
- Establish scalable baseline contingency manning documents for major types of events, including HA/DR, and ensure assignment of qualified personnel with pertinent skill sets.
- USFF and CPF increase Numbered Fleet, CSG, and PHIBRON staff participation in annual JLOTS exercises.
- NWC increase exposure to JLOTS and MPSRON capabilities in JPME and MSOC curriculum.
- As required, Navy component commanders (NCCs) should assess forward logistics site early and augment as required with berthing facilities and support equipment.
- The SOUTHCOM AOR does not have a standing HA/DR plan. There was no discernable mission analysis or operations plan to vet, track, or prioritize flow of aid or personnel into Haiti.
- In the absence of an off-the-shelf plan, the slow rate of JTF establishment (due in part to APOD bottlenecks) contributed to problems with the TPFDD, the logistics flow, and aid distribution.

In-Transit Visibility (Policy, Leadership)

- The flow of Navy personnel, sustainment, equipment, and aid was directed by multiple chains of command without coordination of tracking, management, and distribution.
- OPNAV N4 examine methodologies for naval forces to maintain better in-transit visibility of logistics during HA/DR.
- Navy commanders (JFMCC, NCC) establish single entity/POC to coordinate, promulgate and prioritize Navy logistic requirements in support of military, USAID, and NGOs.

- FISCs should act as gatekeeper ensuring all shipments are prioritized, marked and/or include bills of lading that specifically indicate contents and intended destination.
- Doctrine reference proper authorities (such as World Health Organization) to provide key metrics for HA/DR assessment, such as per capita requirements for daily consumption of water.
- Fleet commanders ensure Navy liaison officers are provided to JTF commander during disaster response operations to coordinate the Navy plan in alignment with State Department / USAID intent and JTF guidance.
- Navy Commanders (JFMCC, NCC) emphasize to their staffs the requirements for detailed planning of logistics flows as soon as possible after a disaster response begins, and ensure these plans are promulgated to and coordinated with supporting forces.
- USAID worked closely with the JTF commander, but coordination between Navy tactical forces, USAID, and NGOs for aid distribution could have been better during the first weeks of the operation.
- Navy force providers had difficulty assessing Haitian population's needs, leading to unwanted and unnecessary supplies being pushed to Haiti and displacing or delaying other needed aid supplies.
- USAID responsible for establishing priorities for aid distribution. USAID and NGOs were not familiar with military processes or procedures. No single point of contact provided to work with disparate NGOs, making it difficult to assess population needs.

Navy IT Systems (Policy, Materiel)

- Navy infrastructure and IA policies are not adapted to operations in an environment involving media, NGOs, and other partners.
- DONCIO review and update IT systems and IA policies to facilitate collaboration with HA/DR community in non-classified environment (using sites such as: All Partners Access Network (apan.org), Relief Web (reliefweb.int), Google Mail (Gmail), and social networking sites like Twitter and Facebook).
- HA/DR operational effectiveness is hampered by “go to war” information technology (IT) systems. Navy infrastructure and IA policies are not adapted to operations in an environment involving media, NGOs, and other partners.
- SIPR-based warfighting infrastructure; HA/DR partners operate on non-classified Internet.

- Navy first responders relied on cell phones, Blackberrys, and Gmail, potentially putting mission execution at odds with established information assurance (IA) policies. In some locations, texting was more reliable than military comms.
- Afloat computer systems and firewalls hampered access to Internet resources, inhibiting development and dissemination of situational awareness.
- DONCIO review and update IT systems and IA policies to facilitate collaboration with HA/DR community in non-classified environment (using sites such as: All Partners Access Network (apan.org), Harmonieweb.org, Relief Web (reliefweb.int), Google Mail (Gmail), and social networking sites like Twitter and Facebook). (Ferguson, 2010)

b. 2005 Pakistan Earthquake

The major findings in the lessons learned for the 2005 Pakistan earthquake response were poor communication network and coordination with the host country military, coordination issues with NATO forces providing relief efforts, and minor contingency contracting issues related to financial management (Long, 2006; Phister Jr, 2005). The overall mission was considered a success by USG leadership and by DOD leadership. However, the lessons learned from the operation give some areas where improvement can be made.

The U.S. Ambassador to Pakistan and his staff were the lead USG agency on the ground in Pakistan immediately following the earthquake. Once USAID OFDA arrived in country they took over coordination of relief efforts for USG personnel. All HADR coordination efforts were ultimately controlled by the host nation military. The Pakistan government appointed an Army general to lead the Federal Relief Commission (FRC). The FRC was the lead on all relief efforts.

Specific lessons learned during the Pakistan earthquake:

- Information Accuracy: Throughout the recovery, the accuracy of the information collected continued to be a problem and was evaluated as low.
- Interoperability: One of the key aspects that worked throughout the recovery was interoperability, which was high.
- Information Distribution: Another key shortfall during the recovery dealt with information distribution. This improved to medium towards the end.

- Information Shareability: A shortfall here was another key aspect that affected the recovery effort. At best it could be rated as medium.
- Information Management: Staff working in informational roles in Pakistan recognized that information management was very poor within their agencies.
- Communications Infrastructure: Although agencies claimed to subscribe to the principle of “Communications first,” none of them successfully achieved this in Pakistan. The staff in Pakistan possessed the necessary skills to manage their IT, but not always to manage telecommunications.
- Lack of Timely Information: Initially there was a lack of information regarding the earthquake that caused confusion and what information that did get through was confused and contradictory.
- Strain of Logistics and Resources: The terrain and sheer scale of the disaster required unprecedented logistics and resources. Destruction of almost all land communications and lack of Satellite cell/mobile-phones contributed towards the initial lack of coordination.
- Disrupted Communications: Since the infrastructure was massively damaged, to provide communication capabilities non-organic assets were shared between locals and NGOs, creating signs of interdependence on technical assets. (Phister Jr, 2005)

C. INTERVIEWS

Interviews were conducted with both governmental and non-governmental agencies operating in the HADR field. The interviews included planners from the United States Southern and Pacific Commands, USAID Strategic Communication Outreach Office for Civilian and Military Cooperation, an American not-for-profit medical NGO and an international not-for-profit child protection NGO. The interviews consisted of questions asking for firsthand knowledge of recent HADR missions they were directly a part of. Specifically, they were asked to describe methods for planning and executing HADR missions, lessons learned from after action reports and best practices they observed during the HADR efforts.

The individuals interviewed were chosen for their level of expertise in the field of HADR and their recent involvement in several HADR missions around the world. These individuals represent vastly different perspectives on the performance of the USN during recent HADR missions. Their opinions are a direct result from their interaction with the

USN either during the planning phase or during the execution phase of the HADR mission. Their inputs in this discussion are relevant because it offers a perspective different from our own.

1. United States Pacific Command J5 Operations Officer

The first interview was conducted with the J5 Operations Officer for the U.S. Pacific Command (PACOM) Lieutenant Colonel Daniel T. Lang. Lieutenant Colonel (Lt Col) Lang has extensive experience working with HADR planning and execution in his position at PACOM. PACOM is headquartered in Hawaii and is responsible for the largest AOR of all six of the GCCs. The AOR includes the Pacific Ocean, Southeast Asia, Australia and the hundreds of islands contained within the Pacific Ocean.

The PACOM AOR is home to several types of natural disasters. The Pacific Ocean is rimmed with active volcanos and fault lines. The region is frequented by massive storms called typhoons which can clock wind speed in excess of 135 knots. When even small storms or small earthquakes hit these areas the local facilities can be easily overwhelmed or completely destroyed. Without basic lifesaving facilities or equipment these effected countries are completely dependent upon outside assistance.

According to Lt Col Lang,

PACOM has the largest contingent of military equipment and personnel of all the GCCs. This gives the PACOM commander the flexibility to respond appropriately to HADR missions throughout his AOR when called upon. Compared to other GCC which might need to request additional units in order to carry out their missions the PACOM commander is self-sufficient to conduct missions without requesting additional units. (Lt Col Lang, USAF, personal communication, September 25, 2014)

As the J5 Operations Officer for PACOM, Lt Col Lang has been a part of the planning and execution of several HADR missions. Specifically he was involved in operation Damayan. Operation Damayan was the DOD response to the super typhoon which hit the Philippine Islands in 2014. The typhoon had wind speeds in excess of 195 MPH with gusts in excess of 235 MPH (Lt Col Lang, USAF, personal communication,

September 25, 2014). The interview with Lt Col Lang was based upon his experiences with operation Damayan.

Upon receiving tasking from the SecDef to conduct relief efforts following the typhoon that struck the Philippines, Lt Col Lang utilized the Theater Campaign Plan (TCP) for the operation. According to Lt Col Lang, the TCP is a set of plans drawn up to provide the frame work for organizing and planning for contingency operations in the PACOM AOR. Once the planning began PACOM planners were contacted by USAID and began coordinating the requirements and goals for the operation.

Lt Col Lang stated that the lessons learned from the Haiti HADR operation led to improvements in the planning process and coordination between the DOD and USAID. He said, “Despite the improvements there were some areas that could have been better, according to Lt Col Lang.” He further stated:

The DOD is very good at quickly entering a country and establishing a very large foot print. This in itself is great when you need to move massive amounts of material into an area with little or no supporting infrastructure. However, this could also be a double-edged sword when the local population or the government sees your actions as an occupier or nation builder and not as humanitarian assistance. The model of coming in big and fast is how the DOD operates in war time. (Lt Col Lang, USAF, personal communication, September 25, 2014)

Lt Col Lang points out that this may not work for HADR. He explained:

The sight of amphibious landing craft coming ashore under the cover of helicopters with men in uniforms can be easily misunderstood. The DOD often does not understand the political and cultural implications of their actions and therefore should rely on more guidance from USAID. At times it may be necessary to go in big and fast, but more likely the prudent step should be to move gradually. (Lt Col Lang, USAF, personal communication, September 25, 2014)

Another point Lt Col Lang expressed is the need for a clear DOD end state. “The quality of life or living standards in some of the countries where we conduct HADR missions were not great before the natural disaster hit,” according to Lt Col Lang.” Lt Col Lang noticed it is often the desire of the DOD to alleviate all suffering once they arrive in one of these countries. “However, by doing this the DOD stops conducting HADR

operations and begins nation building. This is not the role of the DOD or of the HADR mission. There needs to be clear guidance from USAID as to when the DODs mission is complete and when they should completely pull out all troops.” Lt Col went on to say, “USAID and various NGOs are better suited to conduct long-term HADR missions whereas the DOD is best when there is a need for short-term, large scale logistical requirements.”

The final point Lt Col Lang made for lessons learned was the lack of good communication between the DOD and other governmental and non-governmental agencies:

This problem has plagued HADR operations for a long time. The communications equipment used by the military is a war based secure network utilizing line-of-sight and over-the-horizon radios and satellites. These military communication systems were designed to make them impenetrable by outside actors. The systems are very effective at ensuring secure communications between military units. However, they miss the mark when there is a need to include outside agencies or systems. (Lt Col Lang, USAF, personal communication, September 25, 2014)

The communication systems used by NGOs or other governmental agencies typically involve cell phones and internet based programs such as email, smart phone applications and websites. According to Lt Col Lang, these modern forms of communication have been slow to make their way onboard ships and are rarely used by the military. The main reason for this absence of technology on Navy ships is due to very low bandwidth and a lack of security (Lt Col Lang, USAF, personal communication, September 25, 2014).

2. United States Southern Command J53 Contingency Planner

The second interview was conducted with the J53 Contingency Planner for the U.S. Southern Command (SOUTHCOM) Major (Maj) Beth Rosario. Maj Rosario is responsible for the planning of all contingency operations carried out by SOUTHCOM. In her role as a planner she has gained valuable knowledge into the planning process utilizing past lessons learned and current military doctrine. Maj Rosario has been

involved with the planning of several small scale HADR operations in the SOUTHCOM AOR.

The SOUTHCOM AOR includes Central America, South America and the Caribbean. This region is often frequented by tropical storms, hurricanes, earthquakes and at times even civil unrest. The largest HADR operation in recent decades was in the SOUTHCOM AOR when the small nation of Haiti, in the Caribbean, was devastated by a massive earthquake in 2010. The SOUTHCOM commander was appointed by the SecDef to head the DOD relief efforts in Haiti.

According to Maj Rosario,

The majority of HADR operations in the SOUTHCOM AOR are for small scale relief efforts. However, the command is now prepared to handle all sizes of HADR missions. One of the lessons learned from the Haiti operation was the need to have operational plans established prior to natural disasters taking place. The Planning staffs at SOUTHCOM understand with potential events to plan for and therefore establish country specific scenario plans. This prior planning allows the staff to better coordinate the assets needed to conduct the HADR missions when called upon. In the past the contingency planner would begin the planning process only after the event took place. This was one of the major findings in the Operation Unified Response after action report.

One of the major lessons learned reported by Maj Rosario was the need for task force commanders to be more familiar with the policies and procedures for conducting HADR missions. According to Maj Rosario:

The majority of training these commanders receive is in the art of combat. They are taught how to move fast and secure lines of communication into a country. It is this model the commanders follow when carrying out HADR missions. However, the commanders often act as if they are the lead agency and rush ahead of the process without USAID concurrence or even funding in place for the operation.

Another point made by Maj Rosario is the need to improve coordination and communication with the NGOs, USAID, and the local population:

One of the issues that arise from this lack of coordination and communication is a duplication of efforts. During several HADR missions it has been found that the material being brought into the country by the Navy is often either not needed or already provided by another agency. As

with most HADR events several NGOs respond. Their response is usually coordinated with their agency team already in country and has assessed the needs of the effected populations. Therefore, any duplication of effort by the Navy can create an abundance of material that may not be needed. (Maj. B. Rosario, USAF, personal communication, September 24, 2014).

In addition, she states, “the movement of unneeded material can cause a bottle neck at the point of entry causing a delay of the material that is needed” (Maj. B. Rosario, USAF, personal communication, September 24, 2014).

According to the major,

During the Haiti relief efforts each Navy command that responded was tasked to bring relief supplies. There was no coordination with USAID or other NGOs as to which supplies to bring. A result was mountainous piles of unneeded material around the various ports of entry.

The DOD is often one of the first organizations on scene. Their supplies are the first supplies to reach the effected people. However, other agencies have previously identified needs and begun the transportation of those items only to arrive to the country to find they are no longer needed. According to Maj Rosario:

A duplication of effort has two effects. First, it wastes resources that could have been better utilized and second it is a disincentive to the NGO to purchase material and transport it to a country when the DOD may have already done so. (Personal communication, September 24, 2014).

3. United States Agency for International Aid, Office of Foreign Disaster Assistance, Civilian Military Coordination

The third interview was conducted with the head of the Civilian Military Coordination (CMC) within the Office of Foreign Disaster Assistance (OFDA), which is part of USAID's Bureau for Democracy, Conflict, and Humanitarian Assistance (DCHA) Mrs. Samantha Novick. Mrs. Novick's position within the CMC has the responsibility to:

[P]rovide international disaster and HA and coordinate the USG response to declared disasters in foreign countries. USAID/OFDA's mandate is to save lives, alleviate human suffering, and reduce the economic and social impact of disasters. OFDA formulates US foreign disaster assistance policy in coordination with other USG departments and agencies. It coordinates with USAID offices and others to provide relief supplies (e.g., blankets, plastic sheeting, sanitation, and hygiene kits), funds

implementing partners (e.g., UN agencies, NGOs, Red Cross) to provide direct support and HA, and develops and manages logistical, operational, and technical support for disaster responses. Besides its coordination activities within the USG, USAID/OFDA carries out these response options in coordination with the HN, donor countries, UN, NGOs, and IGOs. OFDA has assigned HA advisors/military to each geographic CCMD to coordinate responses involving DOD assistance, provide training, and advise planning. The CMC serves as USAID's primary point of contact with DOD for developmental matters and provides liaison to major military commands, trains USAID and US military personnel, and plans and coordinates assistance in support of all programs of interest to both USAID and the military. It addresses areas of common interests between defense and development, with a focus on improving civilian-military field readiness, programs, and coordination. CMC has assigned senior development officers to each GCC and has received [liaison officers] LNOs in return. (Department of Defense, 2014)

Mrs. Novick provided information on how past HADR lessons learned drove the military and USAID to partner together to improve coordination. She stated,

About a decade ago USAID and the DOD signed a memorandum of understanding (MOU) allowing for USAID staff to be embarked within each of the GCC and to have military officers located at USAID's headquarters in Washington DC. Currently, there are military liaison officers from the Navy and U.S. Army Corps of Engineers stationed in USAID's headquarters, as well as COCOM liaison officers from each of the geographic combatant commands (with the exception of NORTHCOM) and several from USSOCOM. USAID sends representatives to the COCOMs as well. Each GCC hosts a USAID senior development advisor, deputy development advisor and a humanitarian assistance advisor to help ensure transparency throughout the planning, policy, training and communications lines of effort. (Mrs. Samantha Novick, USAID OFDA/CMC, personal communication, October 17, 2014).

4. Senior Navy Representative to USAID, DCHA/CMC

The fourth interview was with the senior Navy representative from the Civilian-Military Coordination Office within DCHA from USAID Captain (CAPT) Colleen Gallagher, Nurse Corps (NC), USN. This position was created over a decade ago with the MOU between the DOD and USAID. The purpose of this position is to facilitate information sharing and to coordinate interagency planning for contingency and HADR operations.

CAPT Gallagher has held this position at USAID for approximately three years. Prior to this assignment, CAPT Gallagher gained extensive operational experience onboard the hospital ship USNC Comfort. While on board she deployed to SOUTHCOM in support of Operation Unified Response in Haiti. With her background in the medical and her extensive tours working in the HADR field, CAPT Gallagher is regarded as an expert in HADR and interpretability.

During the interview, CAPT Gallagher provided what she determined to be the greatest weakness within the Navy when conducting HADR missions. She pointed out, “due to the infrequent requirements, the knowledge of processes is limited. Specifically, the baseline understanding is low if disaster response is not at the same level of that for war fighting.” She says there needs to be greater emphasis placed on exercises to train for HADR missions. The only way to become proficient is to conduct training exercises.” In addition, CAPT Gallagher explained:

There needs to be required training in the field of HADR. This can occur at the War Colleges, Naval Postgraduate School, or at leadership courses. There should also be opportunities made to allow for cross training. There are already courses offered by USAID, but there should be required training for all senior officers and planning staffs.

Another area CAPT Gallagher focused on during the interview was the criticism for how the Navy has responded to HADR missions in the past. Specifically, “one of the criticisms is that the Navy comes in too big, too fast and does not stay very long” (CAPT Gallagher, personal communication, October 22, 2014). To this point she elaborates:

However, there is a reason for it. The Navy is not operating independently but rather as a supporting agency. When given a task to perform this is what the Navy does. It accomplishes the task and does it quickly. We send in a large group of people to respond. When we send in medical personnel, we also have to send in security, cooks and engineers. (CAPT Colleen Gallagher, NC, USN, Civilian-Military Coordination Office within DCHA from USAID, personal communication, October 22, 2014)

The final topic CAPT Gallagher covered was the often cited issue with poor communications. She gave an example of how the hospital ship had very low bandwidth

making internet based communications with units ashore or intergovernmental organizations (IGOs) and NGOs very difficult. In addition she states,

When I went ashore and needed to contact the ship I found it hard to get through due to the ship only having a couple of phone lines. One solution the crew tried to correct for this was to use their personal cell phones. However, as the ship maneuvered off the coast [of Haiti] they would frequently lose cell service.

Finally, as another attempt to fix the communication issue they used satellite phones. However, she said they were only available to senior officers due to cost and availability of phones (CAPT Colleen Gallagher, NC, USN, Civilian-Military Coordination Office within DCHA from USAID, personal communication, October 22, 2014).

5. Regional Director of a Medical NGO in Haiti

The fifth interview was with a regional director of an American not-for-profit NGO which provides medical services to people in need around the world. The individual interviewed requested to remain anonymous but agreed to answer some questions. This individual will be referred to as “Medical Director.” Here is what he had to say,

I have been deployed around the world to some of the hardest hit areas. I’ve worked in Africa with the AIDS problem. I’ve worked with patients with malaria. I’ve been in areas as natural disasters occur and I’ve gone into areas after natural disasters hit. When I’m not traveling with [the organization] I’m working in a hospital in Boston. (Personal communication, October 10, 2014)

When asked about working with the military, Medical Director had this to say:

In all of the places I’ve gone to, I only worked with the military once. That was when I was in Haiti after the earthquake. There were other times when the military was operating in the same area but I did not have any interaction with them. I arrived in Haiti just after the military took over the airport. We were waiting on a flight of medical equipment to arrive when we learned that the military would not allow the plane to land. They had redirected it to some airport in the Dominican Republic. We had to truck our supplies in which took several days. I tried to ask the people in charge at the airport why and was told other flights had priority. The other flights were military flights with their own supplies. I needed the equipment.

People's lives depended on it. (Personal communication, October 10, 2014)

When asked what the military could do differently to help meet his organizations goals what would it be? He said,

Communication. The military comes in and just takes over. Tell me what you are doing. Tell me why you are doing it. Tell me what I can do to work together. We have the same goal, to save lives, but it seems like we are not there to them. But when they need us then all of a sudden were important. The military does a lot of good. But they need to find a way to work with us and not over us. (Medical Director, American Medical NGO, personal communication, October 10, 2014)

6. Member of an International Child Protection NGO in Haiti

The final interview was with a volunteer from an international not-for-profit NGO specializing in child protection, adoption and family care programs. The NGO has assisted children around the world receive the care they needed and assisted with the placement of orphaned children into families through adoption. The NGO volunteer requested to remain anonymous since he did not have authority to speak on behalf of his NGO. The individual will be referred to as "Volunteer."

When asked if he had any interaction with the U.S. military while in Haiti, Volunteer had this to say:

One of the projects we took on in Haiti was to provide shoes to hundreds of displaced kids. This is the project I worked on. There were thousands of kids whose homes were destroyed. So my boss reached out to our head office and requested shoes. After about a week they had purchased or received enough donated shoes to fill an entire shipping container. However, before the container arrived in Haiti the military showed up with truckloads of clothes and shoes. They gave the clothes and shoes to another group to distribute. So when our shoes arrived there was little need for them. We had nowhere to store them and the container had to be returned. So we unloaded them into a pile on the ground and left them there. Over time people would come and take some shoes but it was a huge waste of time and money. We could have focused on other projects if we knew the military was going to do that. (Volunteer, International Child Care NGO, personal communication, October 1, 2014)

When asked what the military could do differently to help meet his organizations goals what would it be? He said,

I guess the military could somehow post online a list of projects they are doing and also put up a list of projects they want groups to do. This way we don't duplicate to work. They can focus on what they do and we can focus on what we do. (Volunteer, International Child Care NGO, personal communication, October 1, 2014)

D. SUMMARY

The primary purpose of any USG led HADR mission is stated as the elimination of human suffering (Department of State, 2013). The USG has several tools to aid in this effort to include everything from financial assistance to a large scale HADR operation using the full might and capabilities of the U.S. military. When USAID requests assistance from the DOD they delegate specific goals for carrying out the relief efforts. These specific goals can range from a single flight of supplies to a full Battle Group deployment with an amphibious landing of Marines. The DODs participation in HADR missions is due to the military's unique capabilities to respond to, plan for and conduct large scale logistical operations in short notice anywhere in the world and be self-sustaining for an extended period of time. Therefore, when the civilian transportation and logistics networks break down or are overwhelmed by the magnitude of the event, the DoS requests the assistance of the DOD (U.S. Agency for International Development, 2005).

After each HADR mission the DOD collects lessons learned from the personnel and commands conducting the operations on the ground and in support of those operations. These lessons learned are a collection of areas identified as needing attention prior to future missions. The lessons learned for the HADR missions in Haiti and Pakistan showed that the U.S. Navy is a very capable force able to adapt to complicated challenges. In both instances the Navy was limited in their coordination with other agencies specifically USAID. These limitations were a result of inadequate communications equipment and technology on board ships and on the ground. Inadequate planning was another lesson learned shared by both missions. These lessons learned and

several others discussed in this chapter show the potential for improvement and the areas where the Navy was successful.

The following chapter analyzes the lessons learned and the interviews into a comprehensive grading matrix. The matrix is further broken down to provide recommendations for how the Navy can improve its processes.

IV. DATA ANALYSIS

A. OVERVIEW

The overarching goal of eliminating human suffering after a disaster is one of the main reasons why the USG chooses to participate in HADR missions. Throughout recent history the USG working with the U.S. Navy has been very successful at achieving this goal. With hundreds of missions conducted in the past few decades the U.S. Navy has been instrumental in supporting this goal and making it a reality. Under the direction of USAID and in concert with their sister services the Navy has saved countless lives, delivered many tons of food, water and necessary supplies to people in need around the globe. The Navy has largely achieved their stated goals.

As with any successful mission the analysis of lessons learned is a very important step to ensure continued success. This review has identified areas that need additional attention and focus to ensure future success. Based on the data from this project the researcher has compiled a list of the most frequently mentioned areas needing improvement. The areas are; communication, command and control (C2), level of knowledge, coordination (internal), coordination (external), logistics, planning and operations.

B. LESSONS LEARNED ANALYSIS

The methodology for the analysis of the lessons learned was conducted in four parts. The first step was to identify the most frequently reported problems that occurred during recent HADR missions. The second step was to assign a policy to the problem to determine if policy was adhered to or to determine if the problem was the result of a lack of training. The third step was to assign a grade to the problem for both the literature review and interview. The final step was to provide a recommendation for how the Navy can correct the problem or at least mitigate its effects on the mission. Table 2 is a matrix for the problems identified by the researcher through the lessons learned analysis.

Table 2. Lessons Learned Grade Matrix

Lesson Learned	Policy	Litrature Review	Interviews
Logistics	Joint Pub 4-0	Green	Green
Communications	Joint Pub 3-29	RED	RED
Command and Control (C2)	Joint Pub 3-29	Green	Yellow
Level of Knowledge	All Publications	Yellow	Yellow
Coordination Internal	Joint Pub 3-0	Yellow	Green
Coordination External (Interoperability)	Joint Pub 3-0	Yellow	Yellow
Planning	Joint Pub 5-0	yellow	yellow
Operations	Joint Pub 3-0	Green	Green

1. Problem Identification

The first step of the lessons learned analysis was to identify the most frequently reported problems from recent HADR missions. The researcher has narrowed the list down to eight problems which were reported in both the literature review and the interviews and were identified as being relevant to the current and future success of HADR missions. Each of the eight problems is listed below with a brief explanation.

2. Policy

All HADR missions are conducted through the GCC utilizing a joint task force. Therefore the policies the researcher focuses on for the lessons learned are the joint publications. The joint publications are the guiding references for planning and conducting joint operations. For each of the identified problems from the lessons learned the researcher has assigned one or more of the Joint Publications which best addresses the broad topic area of the identified problem.

3. Grade

The researcher subjectively analyzed the identified problem from the lessons learned and determined a color coded grade. The grading system uses a Red, Yellow and Green color code to demonstrate the severity of the problem to mission success. A grade of Green demonstrates that the problem identified is either very minor or in keeping with regulations. The severity of a grade of Green on future missions is very low and should only receive attention only after all other issues are addressed. A grade of Yellow is an area of concern and should be addressed to prevent future problems. This grade was assigned to a problem which has or could cause derogation to the mission. A grade of Red is an area which should be addressed immediately and proactively to prevent future mission failures. This grade is assigned due to an area being identified as directly affecting a key aspect of the mission.

4. Recommendation

The final step in the lessons learned analysis is the researcher's recommendation for how the Navy should address correcting the identified problems and the methods for ensuring they do not continue to prevent mission success. The recommendations are based upon a best case approach without a regard to cost or political considerations. Future research may be needed to fully vet multiple courses of action to better account for cost and political interests in the recommendations for correcting these identified problems.

a. Logistics

Logistics refers to the coordination and transportation of material and personnel in support of USG efforts for HADR missions. Table 3 is a matrix for the problem of logistics identified by the researcher through the lessons learned analysis.

Table 3. Logistics Lessons Learned Grade Matrix

Lesson Learned	Policy	Litrature Review	Interviews
Logistics	Joint Pub 4-0	Green	Green

(1) Problem Identification

The lessons learned reported after the Haiti earthquake showed a severe lack of coordination between the JTF and USAID in determining and organizing the material needed for the relief efforts. However, since the Haiti mission the Navy has dramatically improves their logistical coordination. They accomplished this in ways. The first was through the lessons learned website which provided all future commanders and staff planners with a set of lessons learned by which to prevent the same problems. The second was through the MOU with USAID where each organization embedded personnel within the other to improve interagency communication and coordination. These changes resulting from the Haiti mission have directly led to improvement in all HADR missions since.

(2) Policy

The policy which governs logistics is the *Joint Logistics* (Joint Publication 4-0) (Joint Chiefs of Staff, 2013). The procedures outlined in this publication specifically explain the role of the JTF as a supporting agency and their need to coordinate with USAID to determine the proper logistical load out for HADR missions.

(3) Grade

The researcher has assigned a grade of Green given the superior ability for the Navy to carryout massive logistical operations in support of HADR missions. Despite the problems encountered during the Haiti mission the Navy has taken steps to correct for this problem.

(4) Recommendation

The Navy should continue to support the MOU with USAID to ensure the communication and coordination successes are strengthened. In addition the Navy should update the joint publications to make reporting detailed lessons learned a requirement for all missions. This change to the regulations should allow for further the improvements found in the logistic area to all other areas.

b. Communications

Communications refers to the ability of the Navy to communicate with all stakeholders within the HADR community during a HADR mission. The current method of using high side email and military radios directly prevents non-military from being able to pass important information in a timely manner. Table 4 is a matrix for the problem of communications identified by the researcher through the lessons learned analysis.

Table 4. Communication Lessons Learned Grade Matrix

Lesson Learned	Policy	Litrature Review	Interviews
Communications	Joint Pub 3-29	RED	RED

(1) Problem Identification

The lessons learned identified numerous instances where poor or no communications on the Navy side played a key role in mission degradation. It has been acknowledged that naval vessels lack adequate low side, high speed and high bandwidth internet capability to properly access and communicate through unclassified civilian networks during HADR missions. The necessity to communicate online with other government agencies and NGOs during an HADR operation is paramount for mission success. In addition to a lack of internet access, cellular communication also caused problems during recent HADR missions. Most civilian agencies communicate primarily through cell phones. Apart from instances where the mobile network is damaged or destroyed cell phones make up the majority of communications with civilian agencies. This is often a problem for the Navy given its ships distance to the shore and the inability to receive a mobile signal. In addition, once ashore the Navy often lacks an adequate number of cell phones for its personnel making communications with other agencies difficult.

(2) Policy

The policy which best encompasses the need for effective communications is the *Foreign Humanitarian Assistance* (Joint Publication 3-29). Specifically, the policy states:

Effective communications systems are vital to planning, conducting, and sustaining successful FHA operations. Operations, logistic, and intelligence functions depend on responsive communications. Communications are the central system that not only ties together all aspects of joint operations, but also allows C2 of forces. Therefore, the FHA plan must include procedures to provide interoperable and compatible communications among participants. (Joint Chiefs of Staff, 2014)

(3) Grade

The need for effective communication with all participants during a HADR operation is vital to mission success. Therefore, given the repeated instances during several recent HADR missions where Navy communications was poor or non-existent the researcher has graded this problem as Red.

(4) Recommendation

There are two issues to address here. The first is the issue of inadequate internet access to civilian networks. To remedy this issue the Navy should invest in upgrading their shipboard low side broadband service. There needs to adequate access to civilian agency websites and commercial email for all personal onboard to ensure everyone is up to date on the current status of the relief effort.

The second issue is the access to cellular phone service. While at sea Navy ships often operate outside the range of mobile phone signals. One remedy to this problem could be to issue satellite phones to key personnel onboard. This would negate the cellular signal problem and at the same time negate any problems caused by damaged or destroyed cellular networks.

Finally, the joint publication should be updated to require all ships responding to HADR missions shall have adequate low side internet access. This internet should include access to all websites necessary to conduct HADR missions. In addition the

publications should mandate the ship have an adequate supply of satellite phones for key personnel both onboard and ashore.

c. Command and Control

Command and control refers to the ability for the JTF commander to understand their role as a supporting agency. The lead role for HADR missions fall to USAID and therefore the Navy must coordinate all actions with them prior to execution. Table 5 is a matrix for the problem of C2 identified by the researcher through the lessons learned analysis.

Table 5. Command and Control Lessons Learned Grade Matrix

Lesson Learned	Policy	Litrature Review	Interviews
Command and Control (C2)	Joint Pub 3-29	Green	Yellow

(1) Problem Identification

The lessons learned identified a couple instances where the Navy's command and control (C2) structure began to step out of the role as a supporting agency to the role of supported. This problem has been identified mainly by USAID in their role as the lead agency for HADR missions. Reports show that the Navy leadership has a tendency to enter a situation as the lead based on their training for combat operations where the military holds that role. However, the Navy has seen improvement in this area over the past few years. This improvement is attributed to training of senior leadership involved in HADR planning and execution.

(2) Policy

Several of the Joint Publications refer to USAID as the lead agency for HADR missions. However, *Foreign Humanitarian Assistance* (Joint Publication 3-29) specifically delineates the role of the DOD as the supporting agency which receives all directions from USAID.

(3) Grade

The grade assigned to this issue differs between the literature review and the interviews. In one of the interviews there were mentions of where the Navy was reported to have either stepped over the line in their role as supporting agency or completely took over the role as lead agency despite the presence of USAID. Therefore, the grade assigned is Yellow. The grade assigned to the literature review is Green due to only a brief mention of the potential of this occurring.

(4) Recommendation

The best method for ensuring compliance with this requirement is through training of the personnel in leadership positions who would be assigned to lead joint task forces in support of HADR missions. The publications are clear on this requirement and therefore do not need to be updated. One possible method for conducting this training would be to begin training for junior officers on the Navy's role in HADR missions during their initial joint professional military education (JPME) course work. This training can then be followed up throughout the officer's career by providing additional HADR training at the senior war college course and during various flag officer training courses.

d. Level of Knowledge

Level of knowledge refers to the degree to which the commander responsible for carrying out HADR missions and staff planners planning HADR missions conduct training exercises to be prepared to conduct future mission. Table 6 is a matrix for the problem of level of knowledge identified by the researcher through the lessons learned analysis.

Table 6. Level of Knowledge Lessons Learned Grade Matrix

Lesson Learned	Policy	Literature Review	Interviews
Level of Knowledge	All Publications	Yellow	Yellow

(1) Problem Identification

Both the literature review and the interviews identified level of knowledge as an issue needing attention. Specifically, they are referring to the senior level planners and commanders tasked with executing HADR missions. Currently the majority of the attention for training and conducting exercises focuses of warfighting skills. Little if any time is spent training these commanders and planners on the policies and procedures for conducting HADR missions.

(2) Policy

In order to fully understand the HADR mission set a commander must be familiar with all of the joint publications and how they relate to HADR missions. Specifically, *Foreign Humanitarian Assistance* (Joint Publication 3-29) (Joint Chiefs of Staff, 2014) pulls together all of the other joint regulations in a comprehensive overview and details the HADR process.

(3) Grade

For this lesson learned problem the researcher has assigned the grade of Yellow. This grade is assigned due to the potential for mission failure due to a lack of prior exercises.

(4) Recommendation

All Navy JTF commanders and staff planners should at a minimum be required to conduct war gaming on potential HADR missions. This war gaming exercise would give the planners and commanders a better understanding of HADR mission intricacies allowing for greater success in future missions. In addition to war gaming the Navy should require all GCCs conduct annual HADR exercises involving multiple ships to practice various aspects of a HADR mission. This annual exercise would increase the fleets readiness and ensure a more coordinated and efficient response to HADR missions.

e. Coordination (Internal)

Coordination (internal) refers to the ability of Navy units to coordinate their actions with other Navy units during HADR missions. Table 7 is a matrix for the problem

of coordination (internal) identified by the researcher through the lessons learned analysis.

Table 7. Coordination (Internal) Lessons Learned Grade Matrix

Lesson Learned	Policy	Litrature Review	Interviews
Coordination Internal	Joint Pub 3-0	Yellow	Green

(1) Problem Identification

During the relief efforts for the Haiti earthquake the Navy was tasked to deploy to SOUTHCOM with very short notice. As a result the ship commanders were not provided with specific items to deploy with but were rather allowed to determine on their own which items to bring. This lack of internal coordination led to a bottleneck of material entering the country and a waste in resources.

(2) Policy

According to *Joint Operations* (Joint Publication 3-0) (Joint Chiefs of Staff, 2008) the responsibility for coordinating the logistics of resources fall on the GCC. Specifically the joint publication states, “All CCDRs provide strategic direction; assign missions, tasks, forces, and resources...” (Joint Chiefs of Staff, 2008)

(3) Grade

The U.S. Navy is a very capable force extremely proficient in the planning for contingency. However, during Operation Unified Response one of the main lessons learned was the lack internal coordination. Therefore the researcher assigned the grade of Yellow for the literature review. The interviews conducted referenced minor issues with internal coordination but for the most part did not see it as a major issue. Therefore, the researcher assigned a grade of Green for the interviews.

(4) Recommendation

The coordination of resource management must be with the GCC. If this is held constant than each ship commander should seek guidance prior to deploying. The

individual ship commander does not have the visibility to understand the requirements for a mission, and therefore, should rely on the GCC for guidance. The solution to this problem could be solved during the ship's captains initial training prior to taking command.

f. Coordination (External)

Coordination (external) refers to the interoperability of the Navy. Specifically, it refers to the ability of the Navy to coordinate and work with NGOs, IGOs and other government agencies. Table 8 is a matrix for the problem of coordination (external) identified by the researcher through the lessons learned analysis.

Table 8. Coordination (External) Lessons Learned Grade Matrix

Lesson Learned	Policy	Litrature Review	Interviews
Coordination External (Interoperability)	Joint Pub 3-0	Yellow	Yellow

(1) Problem Identification

Coordination between the Navy and other agencies during recent HADR missions has been a common problem throughout most of the lessons learned. Specifically, the coordination between the Navy and USAID is the area of focus for most of the lessons learned. The reason for this lack of coordination stems mostly from the poor communications already discussed. However, culture has also played a part in preventing good coordination from happening.

(2) Policy

Foreign Humanitarian Assistance (Joint Publication 3-29) (Joint Chiefs of Staff, 2014) specifically gives detailed directions on interagency coordination by the DOD with other governmental agencies, NGOs and the host nation (Joint Chiefs of Staff, 2014).

(3) Grade

The researcher has assigned a grade of Yellow for the lack of coordination. However, there has been a dramatic improvement over the past decade.

(4) Recommendation

The Navy has already made great strides to correct for this deficiency. The use of senior officers as liaison officers embedded with USAID to provide direct information sharing and planning coordination will ensure future HADR mission are more successful. However, this does not improve interoperability with NGOs or IGOs. For this the Navy should create a HADR mission website where all stakeholders can interact and communicate freely. Understanding the reluctance of some NGOs to be seen working with the military so as to be seen as independent and separate from the military is very important. Therefore, by using an online medium for the exchange of ideas and coordination of effort will allow for greater communication without violating their perceived independence.

g. Planning

Planning refers to the military's adaptive planning and execution system (APEX) and the joint operation planning and execution system (JOPES). These systems are the process by which the GCC commander conducts planning for future operations. Table 9 is a matrix for the problem of planning identified by the researcher through the lessons learned analysis.

Table 9. Planning Lessons Learned Grade Matrix

Lesson Learned	Policy	Litrature Review	Interviews
Planning	Joint Pub 5-0	yellow	yellow

(1) Problem Identification

During Operation Unified Response the main cause of most lessons learned stemmed from a lack of having a JOPES plan in place. The GCC for the operation did not have an predetermined guide in place to deal with a contingency in Haiti. As a result of not having a plan to follow there was a disjointed approach to the operation.

(2) Policy

Joint Operation Planning (Joint Publication 5-0) is the policy that requires GCCs to prepare plans for potential future operations (Joint Chiefs of Staff, 2011a). Not having a response plan in place for a nation known to experience earthquakes and a government often weak and ineffectual is in direct violation of this policy.

(3) Grade

The researcher has assigned a grade of Yellow to this lesson learned due to the potential severity of mission failure.

(4) Recommendation

Planning for every potential event is beyond the ability of any agency. However, the GCCs should review the most likely scenarios to take place based on past experiences and probabilities. By doing so the GCCs can rank order the most likely events which have the greatest severity and prioritize them as needing fully established JOPES plans. Other less likely events can be required to have partial plans and the least likely events can be left up to the contingency planner once the event occurs.

h. Operations

Operations refer to the events carried out by the Navy during HADR missions. This includes the movement of naval assets into theater, the deployment of those assets once in theater and the conduct of the mission. Table 10 is a matrix for the problem of operations identified by the researcher through the lessons learned analysis.

Table 10. Operations Lessons Learned Grade Matrix

Lesson Learned	Policy	Litrature Review	Interviews
Operations	Joint Pub 3-0	Green	Green

(1) Problem Identification

The researcher has found that once the Navy is tasked to conduct an HADR mission they operate in a very capable and efficient manner. They are mission goal oriented and are able to find solutions to extremely difficult problems. The one area

identified by all the interviews was the superior quality of professionalism and mission accomplishment they saw in the Navy. Despite the numerous obstacles it faces, the Navy is effective at getting the job done.

(2) Policy

The main policy which governs operations is the *Joint Operations* (Joint Publication 3-0) (Joint Chiefs of Staff, 2008) however, the full scope of operations requires all joint publications be utilized.

(3) Grade

The researcher gave the grade of Green due to the Navy's ability to conduct operations anywhere in the world under any conditions.

(4) Recommendation

The Navy should foster the culture which has led to this mindset that allows it to overcome all obstacles in their efforts to accomplish the mission. In addition the Navy should harness this culture for mission success and focus it toward improving the areas identified as needing attention to increase HADR mission effectiveness and success.

V. CONCLUSION AND RECOMMENDATIONS

A. LIMITATIONS OF STUDY

The limitations of this project lie in the subjective grading factors that were applied to the lessons learned grade matrix. The subjective factors, which were applied to various characteristics of different problems, leave room for discrepancies. It is difficult to quantify how a color code grade is measured. Through the use of rigorous research, the author implemented a subjective weighting system to determine the potential result on future HADR missions. However, there is still ambiguity in the grade determinations.

B. RECOMMENDATIONS

The following are the findings and recommendations based on the conclusion of this research project. The findings and recommendations are based on the analysis of the interviews and lessons learned from recent HADR missions.

1. Finding

The USN has made vast improvements in its performance of HADR missions over the past decade. However, there is still room for additional improvements in the areas of communications, C2, level of knowledge, coordination and planning.

2. Recommendation

The analysis of the lessons learned from recent Navy HADR mission's shows vast improvements have been made in the areas of logistics and operations. However, the lessons learned also show there is still room for additional improvements in the areas of communications, command and control, level of knowledge, coordination and planning. The recommendation of this research project, in order to see improvements in these areas, is for the Navy to increase the level of training for naval officers on the doctrine for HADR. This additional training can be made available in three phases.

The first phase should be a part of the course work during the Naval War College JPME-1 class for junior officers. This training should be broadly focused on national and

strategic level decision making and more focused on operational and tactical HADR education. The emphasis for this phase should be placed on giving the officers a better understanding of the roles in HADR missions. The second phase should be during the Naval War College JPME-2 course work for senior officers. This training should cover specific national and strategic objectives of HADR and the doctrine which it guides. The emphasis here should be placed on preparing the officers for leadership roles in HADR missions. The final phase of training should be the Naval War College's third professional military education course, Joint Force Maritime Component Commander and Combined Force Maritime Component Commander courses. These courses are held for the flag level officers and should cover the full spectrum HADR missions.

C. RECOMMENDATIONS FOR FUTURE RESEARCH

Limits to this research and its applicability indicate a number of areas in which further research is recommended, summarized in Table 11.

Table 11. Future Research Recommendations

Conduct a more in-depth analysis of the benefits of the Navy's lessons learned website and how the improvements made to the logistics processes due to the lessons learned from the Haiti mission can be used on other problems.
Conduct research into the training programs of JTF commanders to determine areas for improvement to ensure future HADR mission success.
Conduct research into the communication issues preventing the Navy from being able to coordinate with other agencies.
Conduct research into the JOPES planning process at the GCC to determine improvement in the HADR planning process.

APPENDIX A. INTERVIEW QUESTIONS FOR HADR SUBJECT MATTER EXPERTS WITHIN THE COMBATANT COMMANDS

7. List the Navy HADR instructions, policies and or procedures used during recent HADR missions.
8. List the Navy HADR instructions, policies and or procedures NOT used during recent HADR missions.
9. Describe actual procedures used during recent HADR missions.
10. Did the combatant command conduct an after action report at the conclusion of the recent HADR event?
11. Describe the lessons learned by the combatant command during the recent HADR event.
12. Have the lessons learned and the results of the after action report been incorporated into instructions or training at the combatant command?
13. What elements of a recent HADR mission proved to be successful or unsuccessful?
14. Were the stated goals for the HADR mission met?

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX B. INTERVIEW QUESTIONS FOR HADR SUBJECT MATTER EXPERTS FROM USAID

1. During a recent HADR event did USAID have any communication with the U.S. Navy?
2. Did USAID seek out the support of the U.S. Navy during a recent HADR event?
3. Did the U.S. Navy seek out USAID support during a recent HADR event?
4. During a recent HADR event did USAID collaborate with the U.S. Navy?
5. Did the collaboration with the Navy help advance your organization's stated HADR goals?
6. Did the Navy provide the agreed upon support?
7. Did any problems arise with the collaboration?
8. Were the U.S. Navy personnel properly trained to handle the HADR event?
9. Given USAID stated goals for HADR events, describe ways the U.S Navy's participation in a recent HADR event help to advance USAID goals?
10. Describe ways the U.S. Navy could help advance USAID stated goals during future HADR events.

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX C. INTERVIEW QUESTIONS FOR HADR SUBJECT MATTER EXPERTS FROM AN NGO

1. During a recent HADR event did (NGO name here) have any communication with the U.S. Navy?
2. Did (NGO name here) seek out the support of the U.S. Navy during a recent HADR event?
3. Did the U.S. Navy seek out (NGO name here) support during a recent HADR event?
4. During a recent HADR event did (NGO name here) collaborate with the U.S. Navy?
5. Did the collaboration with the Navy help advance (NGO name here) stated HADR goals?
6. Did the Navy provide the agreed upon support?
7. Did any problems arise with the collaboration?
8. Were the U.S. Navy personnel properly trained to handle the HADR event?
9. Given (NGO name here) stated goals for HADR events, describe ways the U.S Navy's participation in a recent HADR event help to advance (NGO name here) goals?
10. Describe ways the U.S. Navy could help advance (NGO name here) stated goals during future HADR events.

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF REFERENCES

- Bhavnani, R., Banerjee, A., Burtonboy, C., Hamad, O., Rivas, A. L., & Safaie, S. (2014). *Natural disasters in the Middle East and north Africa: A regional overview*. Retrieved from http://www.rand.org/pubs/research_reports/RR146.html
- Buchanan, J., Davis, M. Y., & Wight, L. T. (2011, March). Death of the combatant command? Toward a joint interagency approach. Newsletter 11-22. Retrieved from http://usacac.army.mil/cac2/call/docs/11-22/ch_3.asp
- Collins, A. (2010). *Humanitarian assistance/ disaster relief and climate change in USSOUTHCOM*. Retrieved from <http://www.jhuapl.edu/ClimateAndEnergy/Book/Author/Collins,%20Al.pdf>
- Department of Defense. (2005). *The national defense strategy of the United States of America*. Retrieved from <http://www.defense.gov/news/mar2005/d20050318nds1.pdf>
- Department of Defense. (2011). *Department of Defense support to foreign disaster relief: Handbook for JTF commanders and below*. Retrieved from <http://fas.org/irp/doddir/dod/disaster.pdf>.
- Department of Defense. (2012a). Most geographic combatant commands effectively planned and executed disaster relief operations, but improvements could be made (Report No. DODIG-2012-119). Retrieved from <http://www.dodig.mil/audit/reports/fy12/dodig-2012-119.pdf>
- Department of Defense. (2012b). Foreign disaster relief (FDR) Retrieved from <http://www.dtic.mil/whs/directives/corres/pdf/510046p.pdf>
- Department of the Navy. (2010a). *Humanitarian assistance/disaster relief (HA/DR) operations planning*. Retrieved from http://www.au.af.mil/au/awc/awcgate/navy/tm_3-07-6-05_navy_ha&dr_ops_plng.pdf.
- Department of the Navy. (2010b). *Naval operations concept 2010 implementing the maritime strategy*. Retrieved from <http://www.navy.mil/maritime/noc/NOC2010.pdf>
- Department of State (2013, March 03) *U.S. Department of State foreign affairs manual Vol. 2*. Retrieved from <http://www.state.gov/documents/organization/84372.pdf>
- Executive order 12966. Retrieved from <http://www.presidency.ucsb.edu/ws/index.php?pid=51625>

- Ferguson, R. (2010, Nov 19). Operation unified response, active collection for COMUSNAVSO/C4F. Retrieved from <https://www.jllis.mil/apps/?do=cops.view&copid=877>
- Foreign Assistance Act of 1961, Pub. L. No. 87-195, as amended through P.L. 113-76. (1991). Retrieved from <http://legcounsel.house.gov/Comps/Foreign%20Assistance%20Act%20Of%201961.pdf>
- Greenfield, C., & Ingram, C. (2011). *An analysis of U.S. Navy humanitarian assistance and disaster relief operations* (master's thesis). Retrieved from Calhoun http://calhoun.nps.edu/bitstream/handle/10945/10769/11Jun_Greenfield_MBA.pdf?sequence=1
- Haseeb, M., Xinhailu, Bibi, A., Khan, J., Ahmad, I., & Malik, R. (2001). Construction of earthquake resistant buildings and infrastructure implementing seismic design and building code in northern Pakistan 2005 earthquake affected area. *International Journal of Business and Social Science*, 2(4), 168–176. Retrieved from http://ijbssnet.com/journals/Vol._2_No._4;_March_2011/20.pdf
- Holden, K. (2011, January 10). How much money has been given and spent for Haiti earthquake relief? Putting the numbers in perspective. [web log comment] Retrieved from <http://blog.givewell.org/2011/01/10/how-much-money-has-been-given-for-haiti-earthquake-relief-putting-the-numbers-in-perspective/>
- Interaction (2014). NGO aid map. Retrieved from <http://haiti.ngoaidmap.org/>
- Joint Chiefs of Staff. (2008). *Joint operations*. (Joint Publication 3-0). Washington, DC: Joint Chiefs of Staff.
- Joint Chiefs of Staff. (2010). *Dictionary of military and associated terms* (Joint Publication 1-02). Washington, DC: Joint Chiefs of Staff.
- Joint Chiefs of Staff. (2011a). *Joint operation planning* (Joint Publication 5-0). Washington, DC: Joint Chiefs of Staff.
- Joint Chiefs of Staff. (2011b). *Joint personnel support* (Joint Publication 1-0). Washington, DC: Joint Chiefs of Staff.
- Joint Chiefs of Staff. (2013). *Joint Logistics* (Joint Publication 4-0). Retrieved from http://dtic.mil/doctrine/new_pubs/jp4_0.pdf
- Joint Chiefs of Staff. (2014). *Foreign humanitarian assistance* (Joint Publication 3-29). Retrieved from http://www.dtic.mil/doctrine/new_pubs/jp3_29.pdf.
- Lidy, A., & Kunder, J. (2005). *Large-scale military humanitarian assistance*. Ft. Belvoir: Defense Technical Information Center.

- Long, B. (30 Nov 2006). *Combined disaster assistance center Pakistan '05* [PowerPoint presentation]. Retrieved from <https://cle.nps.edu/xsl-portal/site/fa84e1b9-1f46-45c7-963e-1c7d1d243ce6/page/b730a805-de89-42eb-8382-70af72c51a82>
- Moroney, J., Pezard, S., Miller, L., Engstrom, J., & Doll, A. (2013). *Lessons from Department of Defense disaster relief efforts in the Asia-Pacific Region*. Santa Monica, CA: Rand. Retrieved from http://www.rand.org/content/dam/rand/pubs/research_reports/RR100/RR146/RAND_RR146.pdf
- Navy Warfare Development Command. (2013). *Navy lessons learned information system upgraded*. Retrieved from http://www.navy.mil/submit/display.asp?story_id=76611
- O'Connor, C. (2012). Foreign humanitarian assistance and disaster-relief operations lessons learned and best practices. Retrieved from <https://www.usnwc.edu/getattachment/ef3c248c-3c41-4213-ae2a-61ba95a4dfc9/Foreign-Humanitarian-Assistance-and-Disaster-Relief.aspx>
- Pakistan earthquake: International response and impact on U.S. foreign policies and programs: Staff trip report to the Committee on Foreign Relations, United States Senate*, 119th Congress,. (2005) (testimony of Lisa Curtis).
- Parish, J. A. (2014, April–June). Communicating in an HADR environment, lessons learned from an N6/assistant Chief of Staff for C4I. *CHIPS*. Retrieved from <http://www.doncio.navy.mil/CHIPS/ArticleDetails.aspx?ID=5047>
- Perry, C., & Travayiakis, M. (2008). *The U.S. foreign disaster response process, how it works and how it could work better*. Retrieved from <http://www.ifpa.org/pdf/DisasterRelief.pdf>
- Phister Jr., P. W. (2005). *Pakistan earthquake case study*. Retrieved from http://www.dodccrp.org/files/case_studies/Pakistan_EQ_case_study.pdf
- Roughead, G. (2010, January). Remarks as delivered at the Surface Navy Association Symposium Banquet, Crystal City, VA.
- Siegel, A. B. (1990). A sampling of U.S. naval humanitarian operations. Retrieved from <http://www.history.navy.mil/library/online/humanitarian.htm>
- Siegel, A. B. (1994). *A chronology of U.S. Marine Corps humanitarian assistance and peace operations*. Retrieved from <https://cna.org/sites/default/files/research/9503340000.pdf>
- Smith, J. (2010). Observations and recommendation synopsis for HAITI HA/DR relevant lessons. Retrieved from <https://www.jllis.mil/index.cfm?disp=cdview.cfm&doit=view&cdrid=74068>

- United Nations. (2009). *Humanitarian and disaster relief assistance*. Retrieved from <http://www.un.org/en/globalissues/humanitarian/>
- United States Southern Command. (2010). Retrieved from <http://www.southcom.mil/newsroom/Pages/Operation-Unified-Response-Support-to-Haiti-Earthquake-Relief-2010.aspx>
- U.S. Agency for International Development. (2005). *Field operations guide for disaster assessment and response*. Retrieved from http://pdf.usaid.gov/pdf_docs/pnade100.pdf
- White House. (2002). *National security strategy*. Retrieved from http://www.whitehouse.gov/sites/default/files/rss_viewer/national_security_strategy.pdf
- White House. (2005). *National security presidential directive-44*. Washington, DC: The White House.
- White House. (2006). *National security strategy*. Retrieved from http://www.whitehouse.gov/sites/default/files/rss_viewer/national_security_strategy.pdf
- White House. (2010). *National security strategy*. Retrieved from http://www.whitehouse.gov/sites/default/files/rss_viewer/national_security_strategy.pdf
- The White House, Office of the Press Secretary. (2010, January 20). U.S. government Haiti earthquake disaster response update. Press release. Retrieved from <http://www.whitehouse.gov/the-press-office/us-government-haiti-earthquake-disaster-response-update-0>
- Wilder, A. (2008). *Perceptions of the Pakistan earthquake response*. Retrieved from <http://fic.tufts.edu/assets/HA2015-Pakistan-Earthquake-Response.pdf>

INITIAL DISTRIBUTION LIST

1. Defense Technical Information Center
Ft. Belvoir, Virginia
2. Dudley Knox Library
Naval Postgraduate School
Monterey, California