ANALYSIS OF UNITED STATES MARINE CORPS OPERATIONS IN SUPPORT OF HUMANITARIAN ASSISTANCE AND DISASTER RELIEF

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ABSTRACT

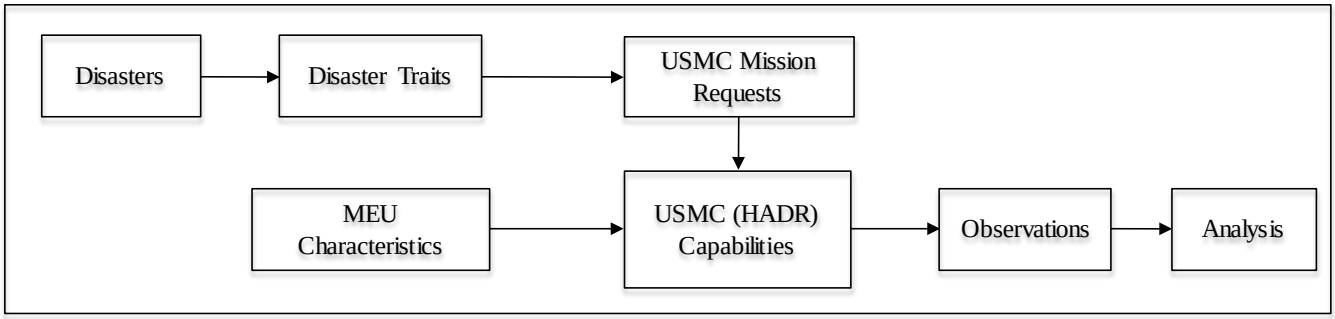
In order to improve the effectiveness of the United States Marine Corps (USMC) response to future international Humanitarian Assistance/Disaster Relief (HA/DR) missions, an analysis of the demands created by such demands as well as the capabilities of the USMC is necessary. This research focuses on the primary response organization within the USMC: the Marine Expeditionary Unit (MEU) and those resources available to the MEU to conduct HA/DR operations. Recent HA/DR events will be examined to determine how common demands were met by the USMC as well as any gaps that may exist that should be addressed to improve future effectiveness.

INTRODUCTION

As the United States (US) military exits Afghanistan, non-combat operations provide a means for combatant commanders to engage in theater shaping. The US Marine Corps (USMC) provides critical assets for shaping and deterrence missions through their Marine Expeditionary Units (MEUs) that are flexible and adaptable to be tailored to accomplish a wide range of operations including non-combat missions. Given the recent frequency of disasters around the world, it is probable that the occurrence of these events will continue, thus creating a demand for the relief capabilities inherent to the MEUs. By seeking to reduce redundancy and focus on capabilities that are unique or meet an unmet demand, the MEUs will provide more effective relief and reduce the effects of a disaster. Although the MEU response will undoubtedly provide levels of aid and relief, it is critical that the Marine Corps allocates its assets effectively to act at any given time.

In this research we explore the capabilities of the USMC MEU that satisfy demands arising from natural disasters. We follow the framework discussed by Apte et al. [3] and by Apte and Yoho [2] for studying the USMC capabilities to match the supply with the demand from certain past disasters. Compiling and analyzing data from multiple USMC publications, historical records of disasters, and the USMC response to those disasters we identify those capabilities provided by the USMC that are the most critical and unique with respect to the conduct of HA/DR missions. Figure 1 shows the overall process of our data collection and analysis. We have collected data for the 2007 cyclone on the southwest coast of Bangladesh, 2010 Haiti earthquake and 2011 Japan earthquake and tsunami. We selected these disasters due to their impact and the level of involvement of the USMC in relief operations.

Figure 1: Process of Data Collection and Analysis



There is a need for research that identifies specific USMC assets and capabilities and evaluates their utility for conducting disaster relief operations. Our present study makes a significant contribution to the academic literature in that it is the second attempt to analyze the capabilities of USMC on similar lines as first attempt by Apte et al. [2] analyzing USN. This research will serve to stimulate further work that explores capabilities and competencies of other services and organizations in the private as well as public sector to be utilized in HA/DR operations.

THE SUPPLY

A supply system is a major enabler to response and extends further than just what the responder is equipped with [3]. These necessary response deliverables include information and knowledge management, needs assessment, supply, deployment and distribution, health service support, and collaboration/governance [2]. An effective response to any level of disaster must provide several capabilities to meet wide range of demand for HA/DR relief. [3] describe the matching of capabilities of the US Navy to meet the demand brought on by the disaster traits of the 2004 tsunami in the Indian Ocean, 2005 Hurricane Katrina, and the 2010 earthquake in Haiti.

The generation and dissemination of information is the first step in preparing an appropriate plan to provide relief in the wake of a disaster. This capability provides the responder with the critical information it needs to get the right support to the right place and the right people [1]. A needs assessment seeks to determine what demand exists for relief and aid. This can be achieved using a variety of metrics, which can be tailored to individual cases [2].

The responsiveness of the supply chain is also a critical factor in determining overall capability. This is generally referred to as lift or the ability to transport personnel, goods, and equipment from staging areas to the disaster area and then distribute to “retail” or final consumption locations [2]. Naval forces, including the Marine Corps, utilize the ocean as a maneuver area to establish sea basing capability on ships and then employ sealift and airlift platforms to deliver aid to the end user, with rotary-wing airlift assets providing the most flexibility and being in the least supply in other private and public organizations [2].

Virtually all disasters cause loss of life and casualties, as well as displaced persons. Accordingly, health services support must be provided to prevent further loss of life and relieve pain and suffering [2] [3]. Finally, collaboration and governance provide responders with a means to coordinate efforts and increase efficiency. HA/DR operations are likely to include numerous nations, agencies, NGOs as well as host nation governments. Additionally, these players are operating in a chaotic and constantly

changing environment. Without deliberate collaboration and coordination, relief efforts are unlikely to achieve the highest effectiveness possible [2].

THE DISASTERS

On November 15, 2007, the southwest coast of Bangladesh was ravaged by a tumultuous cyclone, which caused high winds and flooding. As a result, over 3,200 people were killed, and an estimated 40,000 were injured [6]. The day after the cyclone struck, U.S. Pacific Command (PACOM) released Tasking Order P-137, ultimately resulting in the assignment of the Kearsage Expeditionary Strike Group (ESG) and the 31st MEU [6].

On January 2, 2010, an earthquake struck 14 miles away from the capital city of Port-au-Prince, Haiti, registering a 7.0 on the Richter scale. It was estimated that 230,000 people were killed and 197,000 injured [8]. Upon verbal order from the Joint Forces Command (JFCOM), II MEF prepared the 22d and 24th MEU's for deployment to Haiti. The MEUs were assigned to two ARGs along with several other U.S. Navy units, as well as African Partnership Station 10 (APS-10).

On March 11, 2011, mainland Japan suffered an earthquake that registered 8.9 on the Richter scale and caused a tsunami, which struck the north Pacific coast of Japan and measured over 30 feet at its highest point [9]. The disaster killed 14,898 people, injured 5,270 more, and left almost 10,000 unaccounted for. In the early morning of March 12, the commanding general of U.S. Forces Japan authorized III MEF, including the 31st MEU, to deploy the first phase of responders to the disaster area [10]. Table 1 describes the details of these disasters.

Table 1: Effects of Bangladesh Cyclone, Haiti Earthquake, and Japan Earthquake

	2007 Bangladesh Cyclone	2010 Haiti Earthquake	2011 Japan Earthquake/Tsunami
Deaths	>3,200	92,000-220,000 estimated	>14,898
Injured	>40,000	>250,000	>5,270
Missing	>1,000	>20,000	>10,000
Displaced	>3,000,000	>1,100,000	>300,000
Damage	1.6 million acres of farmland destroyed, 350,000 head of livestock killed	Destruction of all five medical facilities around Port-au-Prince	Meltdown of Fukushima nuclear power plant
	Fresh water sources severly contaminated by salt water and debris	Destruction of Toussaint L'Ouverture International Airport	Sendai Airport, Uranohama and Kesenumma-Oshima Seaports overwhelemed with debris
	Loss of electricity and communication lines in affected districts	Considerable damage to communication infrastructure	Widescale power outages and destruction of hard line communications
	2.3 million households affected, including 1 million seriously affected	Major damage to roadways by debris	Majority of small structures, personal property and lines of transportation affected area destroyed
	8,000 km of roadways and 2,000 km of waterways devastated	Major damages to the Port-au-Prince seaport, rendering it unusable for immediate rescue operations	

USMC MEU CAPABILITIES

The MEU is a rapid response force whose mission is to provide a forward deployed, flexible, sea-based Marine Air Ground Task Force (MAGTF) capable of conducting Amphibious Operations, Crisis Response and limited contingency operations, to include enabling the introduction of follow on forces, and designated special operations, in order to support the theatre requirements of Geographic Combatant Commanders (GCC) [12]. The USMC has a minimum of three MEUs deployed throughout the world. The 31st MEU is stationary in Okinawa, Japan. The other two are sourced from three MEUs on the east and west coast of the continental United States. The 22d, 24th, and 26th MEUs are located in Camp Lejeune, NC, and the 11th, 13th and 15th MEUs are based out of Camp Pendleton, CA [13].

The USMC policy dictates that the MEU must possess five characteristics to ensure mission readiness. One of the significant characteristic is that the MEU must accomplish a sea-based forward presence. Regardless of the geographic location of the mission, the MEU must be able to operate within the designated area of responsibility (AOR) independent of support from other nations. This is accomplished through the MEU's use of naval platforms and naval amphibious ready group (ARG) to provide mobile basing for global operations [12].

After evaluating the overall response to the three disasters, it was discovered the MEU's information assets including aerial, human and ground intelligence are effective at developing an operational picture of the environment immediately following a disaster. When shared and validated via a non-classified network, this information can increase the situational awareness of all stakeholders and improve overall response. MEU aerial assets, especially rotary wing aircraft, as well as ground troops have proven effective at determining demand for relief. Although using push logistics on a macro scale, the MEU can use these assessments to tailor their actions to respond to the pull of demand on the ground. The supply of critical goods such as food and drinking water are always in high demand with the onset of the disaster. The MEU can meet these immediate needs but furthermore, the Marines are capable of establishing security and stability, conducting search and rescue operations, debris clearance and basic medical care. Like most military organizations, the MEU excels at deployment and distribution through the use of amphibious and especially rotary wing assets and manpower.

This provides the ability to lift and distribute assets within an austere environment when other organizations cannot. Accordingly, the MEU presents tremendous potential to multiplying the effectiveness of other responders. While conducting HA/DR operations, the MEU provides basic health services in the form of embedded Navy medical personnel, casualty evacuation as well as chemical, biological, radiological and nuclear (CBRN) disaster response. Notably, embedded Navy Corpsman are able to treat injuries in remote and isolated areas which are not covered by most responders. Finally, the clearly defined command structure of the MEU can successfully liaise with the host nations and other organizations to enhance overall relief operations by promoting collaboration and governance through communication and information dissemination.

OBSERVATIONS

2007 Bangladesh Cyclone

Humanitarian Assistance Survey Team (HAST) sourced from Marine Expeditionary Force (MEF) performed the critical task of identifying both the severity and scope of disaster of the Bangladesh cyclone in 2007 and requesting the appropriate response and capabilities (supply) to match the needs

identified (demand). A key to the success of the HAST was the use of commercial aircraft and diplomatic/tourist passports. This allowed the team to operate as non-intrusively as possible and avoid some of the administrative friction that is tied to the movement of military forces on the host nation's soil [6]. After-action analysis of the 2007 cyclone in Bangladesh concluded that measures of effectiveness need to be defined and established early as a means of setting clear and attainable goals to limit the scope and duration of operations and developing transition criteria. The MEU was criticized for not having enough manpower to distribute relief supplies. However, distribution presented a challenge for responders since lift capabilities were limited.

2010 Haiti Earthquake

the ARG and MEUs were able to deliver 950 gallons of fuel, 163,523 gallons of drinking water, 4.48 million lbs. of rations, 19,000 lbs. of medical supplies, 10,600 lbs. of non-food supplies and 8,001 immunizations while providing medical treatment to 2,789 patients [4]. The use of MV-22 aircrafts, 7-ton MTVR trucks with extended beds, and high-back HMMWV trucks emerged as a critical asset for distributing relief supplies and executing the logistics strategy. Several deficiencies in equipment were noted by the responding MEUs as well. Most importantly, concertina wire and engineer stakes were in high demand and out of supply [5].

2011 Japan Earthquake

The relief effort was very straightforward and attempted to match demand with excess resources held by the Government of Japan in other parts of the country. A real challenge became the distribution modeling and matching of needed resources while operating under the control of the Government of Japan and exerting significant effort in order to determine what the actual needs of the host nation were [11].

CONCLUSION

Some of the analysis of the USMC capabilities in HA/DR suggests that tactical sites should be established for distribution of relief supplies which should be conducted by local authorities and that MEUs work with USAID to provide daily family portioned meals for distribution [7]. Improving the effectiveness of the assessments and ultimately resulting in required relief being provided where it was needed depended on the recon teams carrying only essential gear, thereby conducting longer missions and achieving high levels of maneuverability [5]. Based on the major success of Operation Tomodachi the capability of air support operations was a critical resource.

Analyzing the overall response to the aforementioned disasters within the six categories of essential services and capabilities as described in the Humanitarian and Military Core Competencies model will provide a structured method for evaluating how the Marine Corps has responded to past disasters. This framework will identify key capabilities and seeks to match them with shortages in supplied relief immediately following a disaster. By increasing the scope of operations to relief efforts as a whole and break away from the traditional provision of food and water, the USMC response can be tailored to maximize the levels of relief to victims by employing strengths and competitive advantages.

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