

Running Head: DEVELOPING A GUANTANAMO BAY FD DAMAGE ASSESSMENT POLICY

Developing a Damage Assessment Guideline for the Guantanamo Bay Fire Department

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Certification Statement

I hereby certify that this paper constitutes my own product, that where the language of others is set forth, quotation marks so indicate, and that appropriate credit is given where I have used the language, ideas, expressions, or writings of another.

Abstract

It is imperative that emergency responders perform a structured and prearranged damage assessment following any catastrophe. The information collected during this initial assessment guides the response effort and prioritizes resource management. The problem was that the Guantanamo Bay Fire Dept (GTMO FD) does not have a policy addressing its company-level responsibilities while performing damage assessment (DA) in the aftermath of a disaster. The purpose of this research was to create a standardized DA operating procedure so that it can be utilized by the Guantanamo Bay Fire Dept following any large-scale event. Using action research, the following questions were addressed: Is there a need for an organizational damage assessment policy? What is the importance of conducting a structured damage assessment following a disaster? What type of disasters is Guantanamo Bay at risk to experience? What are the functional components of damage assessment?

Procedures for this study included a comprehensive literature review performed at both the Learning Resource Center at the National Fire Academy and the student library at the University of Florida. Information was also gathered from fire service trade manuals, Federal Emergency Management Agency (FEMA) and Department of the Navy (DoN) Emergency Management (EM) policies and procedures, fire service and emergency management professional publications, and internet database searches. A survey instrument was generated and distributed to gather data in order to evaluate how other emergency response organizations perform damage assessments and personal interviews were conducted with key figures in Emergency Management and Disaster Preparedness.

Based on this study, recommendations suggested that the GTMO FD utilize the damage assessment policy developed by this study and enlist specific DoN emergency response organizations as peer reviewers for evaluation.

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Introduction

In light of recent man-made and natural disasters across the United States such as the World Trade Center bombings, flooding across the Midwest, tornadoes in the communities of Joplin Missouri and Tuscaloosa Alabama, and numerous hurricanes throughout the gulf coast and along the east coast, emergency service providers are faced with increasing challenges. Like all emergency response organizations, the Guantanamo Bay Fire Department (GTMO Bay FD) is constantly looking for ways to improve its emergency response capabilities to meet the needs of its diverse community. Naval Station Guantanamo Bay Instruction 11320.1 (2011) is the written guidance that identifies the Fire Department as the designated agency in charge of all emergency incidents in Guantanamo Bay. The problem is that the GTMO Bay FD does not have a Standard Operating Guideline (SOG) addressing how to properly perform a structured and predetermined damage assessment following a disaster. Without having this guideline, the ability of this department to offer efficient and effective emergency response is severely impeded.

The purpose of this research is to identify what factors are important to a well-designed damage assessment program and then develop a plan for the GTMO Bay Fire Department that would allow for an organized prioritization of community needs and a structured deployment of emergency response vehicles and personnel. An action research approach was used for this project. The following questions were researched: Is there a need for an organizational damage assessment policy? What is the importance of conducting a structured damage assessment following a disaster? What type of disasters is Guantanamo Bay at risk to experience? What are the functional components of damage assessment?

Background and Significance

Guantanamo Bay Naval Station is located on 45 square miles of land and water at Guantanamo Bay, Cuba which the United States originally leased for use as a coaling (fueling) station following the Cuban-American Treaty of 1903. The base is located on the shores of Guantanamo Bay at the southeastern end of Cuba and approximately 160 nautical miles north of Jamaica. It is the oldest overseas U.S. Navy Base and the only military installation in a country with which the United States does not have diplomatic relations. The Naval Station serves multiple missions. The base is essential to maritime strategy and serves as a cornerstone of U.S. military operations in the U.S. 4th Fleet Area of Responsibility. It also aims to enhance the ability of vessels from the U.S. military and allied forces to operate in the Caribbean by providing fuel, supplies and vital logistical support for their operational commitments. The base participates in and directly supports the Department of Homeland Security in U.S. migrant operations in order to help care for displaced migrants from the surrounding area, effectively helping control the flow of illegal immigrants into the United States. For the past 30 years the base has been used to house Cuban and Haitian refugees intercepted on the high seas. The Migrant Operations Center on Guantanamo typically keeps fewer than 50 people interdicted at sea in the Caribbean region. Shortly after September 11, 2001, a small portion of the base has been used as a prison, detaining up to several hundred individuals involved with the War on Terror.

The Guantanamo Bay Fire Department is an all-hazards agency and serves a constant population of approximately 9500 persons from 4 separate response districts. Fully staffed, the department employs 90 career firefighters hired through the Ministry of Labour in Kingston, Jamaica. Organizational leadership is comprised of United States (U.S.) citizens employed by the

Department of Defense (DoD). Currently, eight U.S. personnel are assigned to GTMO Bay FD and they are responsible for the overall supervision and administration of the Fire Department. The GTMO Bay FD responds to a variety of occupancy classes to include residential, institutional, industrial and business. The installation is split into two halves. The Leeward side is geographically separated from the Windward side by Guantanamo Bay itself. Access to and from the Leeward side of the base is accomplished by a 30 minute ferry ride.

GTMO Bay FD is unique for a number of reasons. Because of the current political climate GTMO Bay FD has no mutual aid policy with its neighboring communities (outside the “fence line”). Simply put, whatever GTMO FD is presented with, they are expected to handle. Another unique aspect of this organization is its cultural diversity. 90% of the entire department were born and raised in Jamaica. This presents itself with a variety of factors to consider including educational backgrounds, personal beliefs, varying backgrounds, etc.

The Naval Station has an interesting demographic. The military population is primarily between the ages of 20 and 35. The governmental civilian workforce is an even mix of male and female with their ages falling between 30 and 55 years old (U.S. Navy Manpower Study, 2008). The Naval Station employs several large contracting companies for services. These companies are based out of the Philippines, Thailand and Pakistan and employ a large number of non-English speaking personnel.

Guantanamo Bay Naval Station has never been presented with any type of large scale, man-caused disaster in its lengthy history. However, it has seen its share of natural disasters such as Hurricanes Tomas and Paula in 2010, Hurricanes Paloma, Gustav and Ike in 2008 and Hurricanes Katrina, Dennis, Rita and Wilma in 2005. Guantanamo Bay’s location in the Caribbean region allows itself to be vulnerable to every type of weather related phenomenon.

Because of its dynamic situation, this research is vital to the GTMO Bay FD for two distinct reasons; first, it will provide a planned and approved plan that will enhance the ability of the organization to provide a structured assessment and mitigation effort to the community and second, it will allow command level personnel to receive valuable and timely information in which to make informed decisions from. Time is of the essence at this location as the next wave of emergency responders will be coming from the United States with a response time of at least 24 hours.

The research problem is linked to the Damage Assessment syllabus discussed in the Executive Analysis of Fire Service Operations in Emergency Management (EAFSOEM) course which states that “an immediate damage assessment report including the impact of life and property is critical to deployment of emergency resources” (NFA, 2009). Three of the United States Fire Administration’s (USFA) operational objectives are to “reduce risk at the local level through prevention and mitigation, improve local planning and preparedness and improve the fire and emergency services’ capability for response to and recovery from all hazards.” (USFA, 2011). A damage assessment standard operating guideline (SOG) for the Guantanamo Bay Fire Department would meet all three of these objectives.

Literature Review

The literature review for this research paper initially began at the Learning Resource Center (LRC) at the National Fire Academy in January 2011. Literature review efforts were also conducted at the University of Florida’s George A. Smathers Library between the months of February 2011 and June 2011. Further research and data collection was conducted by interviewing key figures in the Department of the Navy’s Emergency Management Division at the Commander, Naval Installation Command (CNIC) in Washington D.C. as well as by

conducting personal interviews with Emergency Management Program Directors located at several key naval installations throughout the United States. Supplementary literature reviews include an evaluation of federal, state and local emergency response plans and trade publications.

Additional information was gathered by utilizing several internet search engines as well as reference-mining. The information from the review assisted in providing answers to four research questions. These questions were: Is there a need for an organizational damage assessment policy? What is the importance of conducting a structured damage assessment following every disaster? What type of disasters is Guantanamo Bay at risk to experience? What are the functional components of damage assessment?

To completely understand the significance of what a damage assessment is, it is imperative to be fully aware of its definition. Mandt (2005) defines damage assessment as “a preliminary but fairly accurate onsite evaluation of damage or loss caused by an accident or natural event before filing a formal claim or disaster declaration.” Damage assessment records the extent of damage, what can be replaced, restored, or salvaged, and time required for their execution. FEMA (2010) describes a Preliminary Damage Assessment (PDA) as a joint assessment used to determine the magnitude and impact of an event's damage. Both definitions equally identify the significance of damage assessments. There are two types of damage assessments, preliminary and post. It is the intent of this research to focus on preliminary damage assessments.

The search for reference material began with obtaining information related to answering the first research question:

Is there a need for an organizational damage assessment policy?

In the Navy Fire organization, the significance of DA is recognized throughout the entire chain of command. At the local level, the Major Crisis Response Plan, NAVBASEGTMOINST 3440.4D (2010) recognizes the on-duty Assistant Fire Chief as the sole person responsible for determining the most appropriate use of fire department assets following a catastrophe. This Plan also identifies the activation of an Emergency Operation Center (EOC) prior to any anticipated disaster and allows for command posts to be set up in areas adversely affected by disaster. However, the Major Crisis Response Plan clearly does not outline a DA procedure for its emergency responders. Guantanamo Bay Fire Chief Eric Tucker (personal communication, April 2, 2011) stated, “The relationship between damage assessment and risk management is a symbiotic one. In order to have successful results in the area of risk management and mitigation, an organization needs to recognize the importance of a structured DA process. An accurate evaluation of damage following a disaster has a direct effect in regards to how our community recovers.”

At Commander Navy Region Southeast (CNRSE), the Disaster Response Plan (2009) dictates that each emergency response organization will perform an initial DA using all available resources as soon as possible following a catastrophe and report the findings back to the EOC (p.4). However, similar to the Major Crisis Response Plan used at the local level, the Navy’s Disaster Response Plan does not outline a DA procedure for its emergency responders in the field. The Department of the Navy recognizes the need for swift action and an accurate flow of information to correctly prioritize its resource management and community needs, but it leaves the procedural details up to the individual organizations to address. Correspondingly, Collins (2003) writes,

“...the scope and severity of hazards facing modern firefighters are far different from those that confronted our predecessors – and all of these dangers are not related to terrorism. The ever expanding concentration of the world’s population in regions prone to natural and manmade disasters ensures that rescue related emergencies and disasters will be ever-more frequent – especially when earthquakes, floods and other disasters occur” (p. 554).

What is the importance of conducting a structured damage assessment following every disaster?

The importance of initial damage assessment is discussed in numerous sources outside of government publications. According to the University of Florida’s Natural Disaster/Hurricane Emergency Plan (2011), the importance of an accurate assessment following a disaster cannot be overstated. This plan states “having a swift, accurate and credible assessment enables program directors to proceed expeditiously with program plans. Having an assessment that is incomplete, inaccurate, does not address major needs, or provides misleading information can lead to inappropriate relief efforts and costly delays” (p. 14).

Brown (2007) stated, “Of all the functions performed after a disaster, perhaps none are more important than damage assessment.” Understanding the severity of damage involved to residential and commercial property through assessment also enables emergency managers to collect the information required prior to federal recovery aid being received. Cope (2004) wrote, “Many emergency service providers have not considered how they would assess the damage in their jurisdictions and an effective needs assessment cannot be developed without a damage assessment.”

What type of disasters is Guantanamo Bay at risk to experience?

According to the National Oceanic and Atmospheric Administration (NOAA) Guantanamo Bay, Cuba is at potential risk for natural disasters such as earthquakes, hurricanes,

hailstorms, wind storms, and flooding. The Department of the Navy's Hazard and Vulnerability Analysis (HVA, 2009) addresses droughts, extreme temperatures, mass utility outages (desalinization plant compromise) and transportation mishaps as additional concerns.

A report from the NOAA Hurricane Data Center (2011) disclosed that there were 68 tropical storms or hurricanes within 50 nautical miles of Guantanamo Bay between the years of 2000 and 2010. This query included hurricanes and tropical storms specifically between the years of 2004 through 2010. These particular events are estimated to have cost over 22 billion dollars in recovery and rebuilding efforts for damages incurred along the storm path.

Guantanamo Bay is also extremely vulnerable to earthquakes as it is situated between both of the fault lines that run through Haiti. Guantanamo Bay is located approximately 300 miles to the west of Haiti and 160 miles north of Jamaica. According to the Earthquake Unit at the University of West Indies (UWI, 2008), Guantanamo Bay lies just north of the Walton Fault Zone and just south of the Oriente Fracture Zone and the Enriquillo-Plantain Garden fault system. Before January 12, 2010, the Enriquillo-Plantain Garden fault system had not produced a major earthquake in decades. However, the January 12, 2010, Haiti earthquake occurred in the boundary region separating the Caribbean plate and the North America plate, along the Enriquillo-Plantain Garden fault. According to Red Cross (2010) estimates, 222,570 people were killed, 300,000 injured, 1.3 million displaced, 97,294 houses destroyed and 188,383 structures were damaged in the Port-au-Prince area and in much of southern Haiti. Dependent upon the location and magnitude of an earthquake, Guantanamo Bay has the potential for receiving major damage (UWI, 2008).

The military community also receives an average of 65 severe weather warnings due to heat each summer and approximately 6 storm/hurricane warnings throughout each hurricane

season (Naval Weather Service Association, 2011). These events can result in personal property damage, personal injuries and even fatalities.

What are the functional components of damage assessment?

The EAFSOEM student guide (2009) identifies two separate types of damage assessment: initial (or rapid) and post incident (p. 6-3). The definition of an initial assessment is “the gathering of information related to the impact of an event or series of events, on life and property within a defined area.” Planitz (1999) defines rapid damage assessment as the act of determining immediate response requirements by conducting a survey immediately or in the early stages of an event that focuses on widespread patterns or trends. An initial damage assessment is made once resources arrive on the scene of an incident. Conversely, a post-incident assessment is performed hours, or sometimes days, after an event has taken place and is a detailed analysis of the complete damage at an incident site or event. Post incident assessments will often include using technical experts such as engineers, medical professionals, meteorologists, etc. to provide input. It is the intent of this research to focus on preliminary damage assessments.

The EAFSOEM student manual (2009) states that a rapid damage assessment should answer the following questions: Does a need for emergency services exist? What type of service is required and what amount of resources are necessary? Have unsafe conditions been created by the emergency and is there potential for injury or loss of life? Are there any fatalities?

The responses to these questions will assist in developing the strategic and tactical objectives in addition to identifying the needed resources to support the response effort.

The Emergency Management Institute (EMI, 1995) recommends that the components of a damage assessment plan include developing a community profile, sectoring the community,

perform a risk assessment by sector, determine staffing patterns and resource requirements, develop communication procedures, training, and evaluating the procedures. Because of the overall impact that a rapid assessment has on an incident, emergency response organizations should consider a team approach to mitigating the hazard. Police, Fire, Emergency Medical Services, Public Works, etc. all offer valuable skill sets needed when disaster strikes.

Emergency Service Providers should consider their staffing plan, as it is a key component. By having a comprehensive community risk assessment identified prior to an event happening, staffing can be pre-determined so that effective damage assessments can be performed. The California Office of Emergency Services (OES, 2009) suggests using two man teams to perform DA. Each team has an assigned area, performs an evaluation of that area, completes the appropriate paperwork, and transmits the information to the proper personnel. During any large- scale event, numerous emergency response personnel will be utilized to conduct the damage assessment and to begin operational duties. The number of response personnel will be directly related to the size of the incident; and the size of the incident can dictate the complexity of the DA. Standardized forms should also be used to document assessment information will make the recording process simple and more accurate. The OES recommends “these forms be developed and trained with prior to needing them. The forms should be clear, concise, and comprehensive” (2010).

The Guantanamo Bay Fire Department is staffed with 70 Jamaican Foreign National (FN) firefighters and 8 supervisors from the United States. We are currently recruiting for 25 more firefighters and expect them to be on-board by August 2011. In extreme cases, we can supplement our staffing with Law Enforcement personnel, Navy corpsman, and Public Works personnel can be utilized to augment our response capabilities. However, to include these

personnel in our staffing plan requires that the Fire Chief make the appropriate request to the Base Commanding Officer (CO) and Hospital CO. GTMO FD has four platoons, each supervised by an Assistant Chief of Operations. The base is divided into two geographically separated regions. The Leeward side of the base is located to the west of the bay and is the Fire Departments District 3. The Windward side of the base sits on the east side of the bay and is divided into 3 individual fire districts. All operational personnel, with the exception of our pending new hires, are certified to the Firefighter II and HazMat Ops level. Supervisors are certified to at least the Officer III level, have NIMS I-300 and 400, and hold current HazMat Tech and EMT qualifications. The GTMO FD has a Training Division with 1 Assistant Chief assigned and a Prevention Division with an Assistant Chief and 3 inspectors assigned. Both Training and Prevention are fully certified to cover the Supervisory Operations positions.

This researcher developed a simple survey and sent it to both municipal and federal Emergency Service providers throughout the United States and Department of Defense Fire Officials in Japan, Spain and Italy. The survey asked the participants 10 questions in reference to disaster preparedness, emergency response and damage assessment training. Both the survey and the results can be viewed in Appendix B and C. This researcher used the results to support the development of an Initial Damage Assessment SOP for the Guantanamo Bay Fire Department.

Procedures

The objective of this research project was to develop a standard operating guideline that addressed the appropriate way to conduct a planned and organized initial damage assessment following a disaster. Action research was used to complete this project and four research questions were asked to support the development of the damage assessment SOG.

The initial step of the research was to conduct a literature review of information relating to four specific research questions at the National Fire Academy's (NFA) Learning Resource Center (LRC) in January and February of 2011. This research consisted of an extensive literature review which began by examining pertinent literature at the NFA's LRC. Secondary sources included using the internet and utilizing the University of Florida's George A. Smathers Library to collect pertinent research information between the months of February 2011 and June 2011. A review of established damage assessment policies and emergency management procedures from a variety of federal, state, and local emergency response organizations provided information that was used to answer the research questions.

Four research questions were asked. The first question addressed the need for a local damage assessment SOG. The second identified key factors as to why an organized, well-planned assessment is important to our community. The third described the potential for disaster at Guantanamo Bay and described the events that were most common to our community. Lastly, the fourth question reviewed the functional components of a damage assessment and assisted this researcher with the development of the SOG.

Participants were asked a series of questions about their experience with and preparedness for responding to disasters. Their responses assisted this researcher in the development of a DA policy for the Guantanamo Bay Fire Department. In March 2011, an preparatory letter (Appendix A) and accompanying survey (Appendix B) were distributed, via e-mail, to four municipal Fire Departments across the United States and six Department of Defense Fire Departments located within the United States and overseas. The municipal departments surveyed consisted of Clearwater Florida, San Marcos Texas, Clarkesville Tennessee, and Miramar Florida. The Department of Defense organizations consisted of Naval Support Activity Naples

Italy, Naval Station Rota Spain, Naval Station Sasebo Japan, Camp Butler Okinawa Japan, Camp Pendleton California, and Naval Air Station Jacksonville Florida. These organizations were chosen because of their geographic locations and history of experiencing some type of natural disaster on a recurring basis. The intention of this survey was to query these agencies about their DA programs, what components worked best for them and why, what components needed further evaluation, and what types of training was required to maintain effectiveness. The survey had a response rate of 60%. The survey (Appendix B) asked 10 questions aimed to gather data regarding the respondents' experience with disaster preparedness, emergency response and damage assessment training. A second copy of the survey, with the responses given is attached as Appendix C. Both the survey and the results were used to guide this researcher in the development of an organizational damage assessment SOG.

Limitations

Several factors proved to be limitations in conducting this research. By reviewing multiple documents related to the subject of DA, this researcher found that conducting a damage assessment varies dependent upon the specific geographic location of each agency. Agencies familiar with the DA process appeared to follow guidelines specific to the communities they protect. Likewise, agencies unfamiliar with the DA process had no DA guidelines in place. The majority of data found was given in broad and non-specific terms.

The survey was another factor with limitations. It was presumed by this researcher that all of the respondents fully understood the intent of this research and the intention of the survey questions. A response rate of 60% proved to be an additional limiting factor. With a higher response rate, this research could have possibly been provided different conclusions/results.

Lastly, and most importantly, this research project was limited by the amount of current information accessible throughout the Literature Review. The preliminary review of data provided very little current information from publications related to DA procedures. Although multiple internet searches using sites such as “Google” and “Bing” provided numerous hits, very little usable data could be utilized.

Results

The results of the research project are provided as responses to the four individual research questions. A draft Standard Operating Guideline was developed and can be located in Appendix D.

Results of individual research questions are as follows:

Is there a need for an organizational damage assessment policy?

Actions taken during the early stages of disaster response are critical. Procedures designed to reduce fatalities, enhance property conservation, and request needed resources are vital if emergency service providers are to be effective. The United States Fire Administration (2011) states that these procedures are “crucial to the effectiveness and efficiency of response personnel.” A structured, well-organized initial damage assessment process must be completed to determine resource needs and incident planning (Navy Emergency Management, 2011). A damage assessment allows for a structured response effort, prioritizing resource needs, and provides for vital information to be collected and passed to the appropriate individuals/agencies for planning purpose.

What is the importance of conducting a structured damage assessment following every disaster?

In the aftermath of a disaster, planning is crucial. In order for effective planning and hazard mitigation to take place, accurate and concise information from the scene needs to be

gathered and processed. This information will be used to prioritize rescue efforts, resource needs, address financial considerations, and guide the overall effort to mitigate the incident. An accurate DA will assist decision makers in addressing the needs of their community and, in the case of Guantanamo Bay, identify the necessary assets and logistical support deployment that must be transported from the United States.

The EAFSOEM course at the National Fire Academy instructs students on the importance of conducting damage assessments by stating “an immediate damage assessment report including the impact of life and property is critical to deployment of emergency resources (NFA, 2009). Collins (2003) writes:

“...the scope and severity of hazards facing modern firefighters are far different from those that confronted our predecessors – and all of these dangers are not related to terrorism. The ever expanding concentration of the world’s population in regions prone to natural and manmade disasters ensures that rescue related emergencies and disasters will be ever-more frequent – especially when earthquakes, floods and other disasters occur.”

What type of disasters is Guantanamo Bay at risk to experience?

The results of this research show that weather-related events illustrate the highest probability for disaster at Guantanamo Bay (Naval Weather Service Association, 2011). The leading events are listed high winds and flooding caused by frequent tropical storms and numerous hurricanes (HVA, 2009). Because of its location to several seismic faults earthquakes are an additional concern to Emergency Response leadership. One of those faults, the Enriquillo-Plantain Garden fault, recently experienced a shift in its plates and the Haiti earthquake occurred (UWI, 2008). Estimates from the Red Cross (2010) records the destruction caused by this single event at 222,570 people killed, 300,000 injured, 1.3 million displaced, 97,294 houses destroyed

and 188,383 structures were damaged the surrounding areas. This event is significant to residents of Guantanamo Bay and Emergency response providers in that we are located less than 300 miles from the epicenter of this earthquake.

The Department of the Navy recognizes the issues set before this community and has recently taken the pro-active step of funding, recruiting, and filling the Emergency Management (EM) position at this installation. EM program manager, Mark Kennedy, is currently working with Command leadership and Emergency Response providers in addressing the issues states in the Department of the Navy's Hazard and Vulnerability Analysis (HVA, 2009). Kennedy says:

“GTMO has the potential to experience a multitude of issues. Working with key figures in the community we have prioritized the events that are likely to happen here and are addressing them with a practical and positive attitude. It is essential that we prepare for these events before they happen. Having a initial damage assessment procedure in place will provide valuable information to Command leadership and support the planning effort, thus making enhancing the recovery efforts from a disaster well-organized and ultimately successful” (personal interview, April 20, 2011).

What are the functional components of damage assessment?

This research identified very specific functional components of damage assessment. Those components identified in the literature review are to develop a community profile, divide the community into sectors, create a risk assessment by sector, develop an emergency communication plan and determine staffing requirements and resource needs, and the need for a training and evaluation process/plan. Collins (2003) noted that organizations spend vast amounts of time training for big events but eventually lose the information provided by training exercises. This could be resolved by developing procedures prior to an event occurring.

Another common component identified was the need to keep accurate documentation. Standardized forms should be used to document assessment information and will make the recording process simple and more accurate. The California Office of Emergency Services recommends that these forms be developed and trained with prior to needing them. The forms should be clear, concise, and comprehensive (2009). Once completed, these forms will be used to help form strategic and tactical decisions used to mitigate the hazards. FEMA (2011) has produced a resource guide in which seven major information categories are listed that needs to be included in an initial damage assessment. They are: Existing/potential need for emergency action, life safety threat, possible hazards to response personnel, existing/potential property damage, and obstructions to site, damage to roadways, and damage to municipal services.

These seven information categories assisted this researcher with the development of a DA Standard Operating Guideline (Appendix D) by providing important information necessary for a comprehensive policy.

Discussion

Relationship

Emergency service providers around the world are responsible for 3 basic functions: saving lives, saving property and protecting the environment. With the current threat and regularity of disasters, both man-caused and natural, all emergency response agencies need to be able to effectively manage rescue and recovery efforts following these disasters. The results of this research confirm that there are many benefits to be gained by having a comprehensive DA policy in place prior to any large-scale event happening.

If the Guantanamo Bay community is to experience a disaster, the likely scenario will be that of a severe weather related event. Events with the highest probability of occurring are

earthquakes, flooding and hurricanes (Naval Weather Service Association, 2011). Severe weather related events due to excessive heat are also highly probable (HVA, 2009). This community has experienced many of these events in its long history and needs to remain alert as it is certain that they will experience them again in the future.

The significance of a well-planned damage assessment process has been unmistakably supported throughout this research. Cope (2004) wrote, “Many emergency service providers have not considered how they would assess the damage in their jurisdictions and an effective needs assessment cannot be developed without a damage assessment.” Similarly, Strickland (1998) acknowledged, “assessments are vital in managing post-disaster events.” In 2007 Brown stated, “Of all the functions performed after a disaster, perhaps none are more important than damage assessment.” Understanding the severity of damage involved to residential and commercial property through assessment also enables emergency managers to collect the information required prior to federal aid being received.

The EAFSOEM student guide (2009) identifies two separate types of damage assessment: initial (or rapid) and post incident. Information received during the initial phase will support strategic and tactical decision-making, resource needs and resource assignments, incident planning and financial considerations, etc. The initial assessment must also answer the following baseline questions: Is there a potential need for emergency action? What is the life safety threat?

What are the possible hazards to response personnel? What is the existing or potential property damage? Are there any obstructions to site? What is the damage to roadways or access points?

Is there damage to municipal services? Equally important as the questions asked is the forms that will be used in recording the information. Standardized forms should be used to

document assessment information and will make the recording process simple and more accurate. The California OES suggests that these forms be developed and trained with prior to needing them. The forms should be clear, concise, and comprehensive (2009).

A survey was developed the intention of gathering information regarding the respondents' experience with disaster preparedness, emergency response and damage assessment training. The Department of the Navy's Disaster Response Plan (2009) instructs each emergency response organization to perform an initial DA using all available resources as soon as possible following a catastrophe and report the findings back to the EOC (p.4). In spite of this guidance, the survey respondents associated with the Federal Fire Service showed varying levels of familiarity with the DA process and survey results gave the impression of lower training requirements in this area than that of the municipal departments. However, all of the respondents agreed that having a well-constructed DA policy would be beneficial to their organizations. The Navy's Disaster Response Plan (2009) does not outline a DA procedure for its emergency responders in the field. This gives the impression that although the Department of the Navy recognizes the need for swift action and an accurate flow of information to correctly prioritize its resource management and community needs; it leaves the procedural details up to the individual organizations to address. This research has shown that, amongst the Federal departments, a standardized DA policy would be advantageous.

Interpretations

The key reasons to have an organizational DA policy have been addressed throughout this research. Because actions taken during the early stages of disaster response are critical, procedures designed to reduce fatalities, enhance property conservation, and request needed resources are vital if emergency service providers are to be effective. The USFA (2011) states

that these procedures are “crucial to the effectiveness and efficiency of response personnel.” A structured, well-organized initial damage assessment process must be completed to determine resource needs and incident planning (Navy Emergency Management, 2011). A damage assessment allows for a structured response effort, prioritizing resource needs, and provides for vital information to be collected and passed to the appropriate individuals for further action.

The importance of conducting a structured damage assessment following every disaster is easily understood. Planning is crucial in the aftermath of a disaster. In order for effective planning and hazard mitigation to take place, accurate and concise information from the scene needs to be gathered and processed. This information will be used to prioritize rescue efforts, resource needs, address financial considerations, and guide the overall effort to mitigate the incident.

Recorded events show weather-related events as having the highest probability for disaster at Guantanamo Bay (Naval Weather Service Association, 2011). The leading events are listed high winds and flooding caused by frequent tropical storms and numerous hurricanes (HVA, 2009). Because of its location to several seismic faults earthquakes are an additional concern to Emergency Response leadership.

Implications

The development of a Damage Assessment Standard Operating Guideline by the Guantanamo Bay Fire Department would enhance its ability to provide its community a more efficient and effective service. Because of the relatively frequency of large scale weather related events in this area, this organization could utilize the procedures, training areas, and evaluation process to fine tune its program, the possibility exists that the Department of the Navy could use this program as a standardized agency wide program for all its installations world-wide.

Recommendations

The goal of this research was to create a standardized DA operating policy to be utilized by the Guantanamo Bay Fire Department following any large-scale event. Based on the findings of this research project, the following recommendations are presented with the intention of incorporating a damage assessment operating guideline within the Guantanamo Bay Fire Department.

1. The Guantanamo Bay Fire Department should review and adopt the draft DA policy (Appendix D) and integrate it into the organization's annual training plan.
2. The Guantanamo Bay Fire Department should send the draft policy to other emergency response providers and emergency management personnel for peer review.
3. Once the peer review process is completed, this organization should evaluate the questions/comments provided by the reviewers, make the appropriate amendments, and develop a working policy.
4. Target hazards need to be pre-identified and mapped and department members trained on their significance.
5. The Guantanamo Bay Fire Department should direct training efforts to towards guiding departmental personnel to better understand the magnitude of conducting a proper damage assessment and to become familiar with the forms associated with conducting a damage assessment.
6. The Guantanamo Bay Fire Department should include other organizations in their training plan. Organizations such as Base Security, Base Operations, Emergency Management, and the Naval Hospital all have personnel who would benefit from this training opportunity and can be used as Fire Department assets during a disaster.

7. Base-wide drills should be considered and can be used as an important and necessary evaluation tool.

8. After action reports should be utilized and the information gathered should be considered when evaluating this policy.

9. With the support of higher levels, the Guantanamo Bay Fire Department should consider distributing this working policy to other emergency response organizations within the Department of the Navy.

Future researchers should be directed towards reviewing newer and more current practices for conducting damage assessments. Future research could also be beneficial in considering the possibility of standardizing damage assessment policies nationwide.

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Appendix A



**GUANTANAMO BAY FIRE DEPARTMENT
UNITED STATES NAVAL BASE
GUANTANAMO BAY, CUBA**

March 10, 2011

Chief _____,

I am currently attending my 3rd year in the Executive Fire Officer Program. In January 2011 I completed the classroom portion of Executive Analysis of Fire Service Operations in Emergency Management and set out to research the need for my organization to have a comprehensive damage assessment policy in place. Given our geographic location it seemed fitting. I anticipate this research will lead to the development of a policy that will enhance my department's operational capabilities in the aftermath of a disaster.

I am respectfully requesting that you take several minutes to complete the attached survey and return it to me, via email or FAX, by March 30, 2011. The responses provided will assist me in the development of Damage Assessment Policy for the Guantanamo Bay Fire Dept.

Thank you, in advance, for your time and consideration in this matter. I appreciate your assistance.

Respectfully,

Brynne A. Burrough
Assistant Fire Chief

FAX #: 011-5399-74162
Email: brynne.burrough@usnbgtno.navy.mil

Appendix B

Rapid Damage Assessment Survey

Agency: _____ Rank of Person completing survey _____

1. If your community was involved in some type of natural or man-made disaster, does your organization have a damage assessment policy in place? If so, please attach a copy.

Yes _____ No _____

2. If your organization currently has a damage assessment policy, how do your personnel conduct the assessment?

- a. On foot
- b. By vehicle
- c. Aerial
- d. Other _____

3. Are target hazards prioritized as part of your DA plan?

Yes _____ No _____

4. What are the top 5 target hazards in your community?

- a. _____
- b. _____
- c. _____
- d. _____
- e. _____

5. On a separate sheet of paper, would you explain your damage assessment training plan, what organizations are included in your training plan and the evaluation process to ensure that individuals being trained understand the material?

6. What additional organizations assist in the initial damage assessment process?

Police ___ EMS ___ Public Works ___ Other ___

7. Which components within your DA policy are most effective? _____

8. Which components within your DA policy need further evaluation? _____

9. Does your DA policy address those situations whereas a DA team in the field may suspend their assessment in order to provide assistance?

- a. Yes _____
- b. No _____

10. Does your organization utilize standardized reporting forms in the field?

- a. Yes _____
- b. No _____

Appendix C
Rapid Damage Assessment Survey Results

(10 surveys were sent out. Only 6 surveys were returned. The resulting responses of those 6 surveys are reflected in this appendix.)

Agency: _____ Rank of Person completing survey _____

1. If your community was involved in some type of natural or man-made disaster, does your organization have a damage assessment policy in place? If so, please attach a copy.
Yes 6 No 0
2. If your organization currently has a damage assessment policy, how do your personnel conduct the assessment?
 - e. On foot - 0
 - f. By vehicle - 5
 - g. Aerial - 1
 - h. Other _____
3. Are target hazards prioritized as part of your DA plan?
Yes 6 No 0
4. What are the top 5 target hazards in your community?
 - f. Hospitals - 6
 - g. Schools - 6
 - h. Nursing Homes - 4
 - i. Utility Plants - 3
 - j. Refineries - 2
5. On a separate sheet of paper, would you explain your damage assessment training plan, what organizations are included in your training plan and the evaluation process to ensure that individuals being trained understand the material?
6. What additional organizations assist in the initial damage assessment process?
Police 5 EMS 3 Public Works 2 Other 0
7. Which components within your DA policy are most effective? _____
Associated Forms - 6
8. Which components within your DA policy need further evaluation? _____
Training - 6
9. Does your DA policy address those situations whereas a DA team in the field may suspend their assessment in order to provide assistance?
 - c. Yes 1
 - d. No 5
10. Does your organization utilize standardized reporting forms in the field?
 - c. Yes 6
 - d. No 0

Appendix D Draft SOG

NAVAL BASE FIRE DEPARTMENT GUANTANAMO BAY, CUBA OPERATIONS POLICY <hr/> ERIC E. TUCKER, FIRE CHIEF	<u>TITLE:</u> DAMAGE ASSESSMENT PROCEDURES <u>SOP #:</u> O-XX <u>PAGE:</u> 1 <u>OF</u> 3 <u>DATE:</u> 07 JULY 2011
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1. **PURPOSE:** To establish a procedure for Fire Department personnel to properly conduct a damage assessment following a disaster.

2. **SCOPE:** All Fire Department personnel shall be governed by the policies and procedures established herein.

3. **RESPONSIBILITY:** It is the responsibility of all personnel to familiarize themselves with this operational procedure. It is the responsibility of all supervisors to ensure that all departmental personnel comply with each component of this procedure.

4. **PROCEDURE:**

OPERATIONS:

- 1.1 Once the Base has indicated that the community has been placed in Condition of Readiness 2 (COR2), the Fire Chief will report to the EOC and initiate a recall of all off-duty personnel.
- 1.2 Once the disaster has passed, and the EOC informs response personnel that the area is safe for an assessment to take place, FD assets will begin a rapid damage assessment of their respective districts
- 1.3 Target Hazards for each district are identified below:
District 1 – Industrial Area, Bulkeley Hall, Bachelors Enlisted Quarters, Fuel Farm, Desalinization Plant, Camp Justice, all shelter areas.
District 2 – USN Hospital, High School, WT Sampson Elementary and High School, Bachelors Officers Quarters, HazMat Storage Facility, all fueling stations, all shelter areas.
District 3 – Airfield area including terminal, Migrant Operations facility, all dorms, Fueling stations, Power Plant, all shelter areas.
District 4 – All prison facilities, Housing areas, all shelter areas.
- 1.4 FD units will complete this assessment as rapidly as possible. If FD assets encounter a situation that cannot be resolved expeditiously, they are to continue with their damage assessment.
- 1.5 All data will be recorded of the appropriate forms and communicated with the Incident Commander (IC).
- 1.6 When FD units encounter an unsafe condition or a blocked road, they will notate this on their forms and relay the information to the IC. If FD units come across a road that is not passable, they will utilize a secondary route.
- 1.7 If FD units need to perform their assessment on foot, they will do so in teams of two, with radio communications, and with the appropriate reporting forms in hand.

- 1.8 Once target Hazards are assessed, FD units will assess their own stations,
- 1.9 After Target Hazards and individual Fire Stations are assessed, FD units will assess all of the housing areas within their districts.
- 1.10 All pertinent information will be recorded on the damage assessment forms. Once DA is complete, FD units will return to the Incident Command Post (ICP) and forward their assessment forms to the appropriate individual. If no ICP has been established, then these forms will be turned in to the EOC.
- 1.11 Once assessments have been completed, then FD units will be given tactical assignments.

TRAINING:

- 5.1 The FD Training Division will develop a training plan that addresses the following:
 - 5.1.1 Familiarization with the DA reporting paperwork.
 - 5.1.2 Familiarization with the individual target hazards in each district.
 - 5.1.3 Familiarization with access routes and alternative access routes
 - 5.1.4 Familiarization with working with Security personnel, Hospital personnel, and Public Works personnel in the damage assessment process.
- 5.2 Damage assessment training will be focused between the months of January through May every year.
- 5.3 Two Base-wide drills will be scheduled in the first half of each year so that all responders will have the opportunity to become familiar with the damage assessment process, staffing EOC positions, etc.

Draft DA SOG Reporting Form



Guantanamo Bay Initial Damage Assessment

An initial damage assessment is the act of determining immediate response requirements by conducting a survey immediately following a disaster. Assessment teams will rapidly assess their districts and record the following information and communicate that information back to the IC (or EOC).

District: _____ FD Unit: _____

Date/Time: _____

Location _____

Incident Command Post Location: _____

Initial Damage Assessment Scoring System

0 - No Damage **1 – Minor** **2 – Moderate** **3 – Severe** **4 - Catastrophic**

Life Safety (# of victims) _____

Flooding (estimated depth) _____

Road Conditions _____

Debris _____

Infrastructure

Power Available _____

Water Available _____

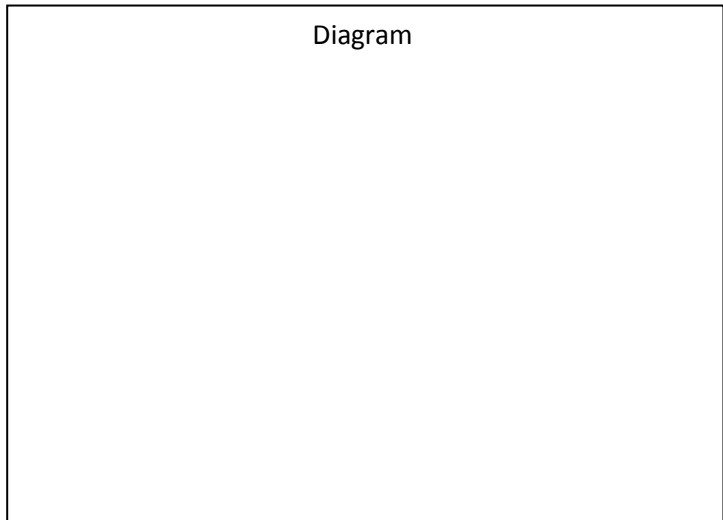
Sewer Condition _____

Communications

Cell Phone Service _____

Telephone Service _____

2 Way Radio _____



Notes: _____
