

## **ASSESSING THE PRESENT AND FUTURE CAPABILITIES OF MILITARIES TO ACT AS FIRST RESPONDERS POST EARTHQUAKE**

Sandra Dennis

*Consultant to British Columbia Provincial Government*

*bensandy@shaw.ca*

### **ABSTRACT**

The author lives within the Pacific Ring of Fire on the west coast of Canada. The Ring of Fire is a nearly continuous 40,000 km of seismic activity where 90% of the earth's earthquakes occur and where 75% of the world's volcanoes are located. The social and economic devastation from natural disasters takes an enormous toll on countries, particularly on those in the developing world. The resources to rebuild and recover can take decades and consume much of the aid directed to these countries. While the paper does not directly look at the effects of climate change on the frequency and intensity of these events, the correlation with increasing temperature of the earth's atmosphere is acknowledged. The humanitarian principles of humanity, impartiality, neutrality and independence are discussed in light of military intervention in the face of natural disasters. The historical role of militaries, both domestic and foreign, in the aftermath of such disasters is explored.

Key Words: civil-military coordination, humanitarian response, leadership skills

### **INTRODUCTION TO LITERATURE REVIEW**

Earthquakes throughout history and around the world have caused misery to populations and destruction to property

and the environment. Reconstruction can take years, if not decades and utilize untold resources. Planners "expect the world's natural disasters to grow in scope and frequency, as expanding populations crowd vulnerable coastlines and quake and flood zones and climate change threatens more extreme weather events." (Hanley, 2010). In addition, "the most crowded cities in the world are located in high risk seismic areas" (Nedjati, Vizari, & Izbriak, 2016, p.2). The author resides within the Pacific Ring of Fire as a civilian humanitarian on the west coast of Canada. As preparatory to a larger work, this paper seeks to look at the work of militaries in dealing with the aftermath of earthquakes around the world. Research looking at major earthquakes going back to the 1964 event in Alaska, USA up to 2017 in Central Mexico was reviewed. Earthquakes looked at measured between 6.3 on the Richter scale near Managua, Nicaragua to 9.2 in Alaska, USA. The literature related to earthquakes around the world is extensive and has looked at a spectrum of factors from the impact of climate change on the frequency and intensity of earthquakes to the newer study of the psychological impact of disasters on both the effected populations and the responders. This review aims to look at specific literature related to the unique capabilities of militaries to work in disaster zones, the civil-military coordination which has taken place

during earthquakes and the future contributions which militaries may be poised to deliver for disaster relief.

### **Military Capabilities:**

Military assistance, both foreign and domestic, has been a key to successful humanitarian efforts post-earthquake for decades. "Time is the most important factor in humanitarian logistics." (Nedjati, Vizari, & Izbriak, 2016, p.3). In all countries, military have a presence in many regions making them the natural first responders. Militaries, of necessity, utilize excellent communications technology and so are often the first to report the status of the disaster zone to the authorities.

Once an earthquake occurs, the need for assistance is immediate and, depending on the population of the affected area, the needs may be overwhelming. "A disaster is expected to lead to a high degree of chaos in humanitarian logistics support." (Nedjati, Vizari, & Izbriak, 2016, p.2) The needs are great, ranging from search and rescue, security, to provision of medical aid, food and shelter. Fortunately, "(the military has) the infrastructure, equipment and training to come together and work in a chaotic environment" (Wilson, 2017). Militaries possess huge scale transport capabilities by land, air and sea. "Military equipment and facilities are designed for rapid deployment, which enables military forces to provide resources faster than other organizations." (10, Abolghasemi, Ptorheidari, Mehrabi, & Foroutan, 2005, p.2) These abilities are far beyond what any humanitarian organization can offer. "In addition to the logistical self-sufficiency of military forces, they can aid other organizations in transporting their resources." (Abolghasemi, Ptorheidari, Mehrabi, & Foroutan, 2005, p.2) Many countries, have highly trained military medical teams, which can be mobilized quickly. After the 2008

earthquake in Wenchuen, China "because of their mobility, the military medical teams moved into the hardest hit area to start medical rescue efforts immediately, despite poor weather and road conditions." (Zhang, Liu, Li, Liu, Liu, Lin, et al., 2012, p.4) Post disaster, humanitarian workers encounter difficult conditions in terms of their own security, food, shelter and medical needs. "The ability of military forces to work as a team in austere conditions results in effective casualty care operations in disaster situations." (Abolghasemi, Ptorheidari, Mehrabi, & Foroutan, 2005, p.2) Many first world countries deploy their military medical teams abroad as well as to disasters at home. "The US National Disaster Medical System regards the army as the primary force in international medical rescue efforts and an important force in domestic medical relief." (43 Zhang, Liu, Li, Liu, Liu, Lin, et al., 2012, p.4) Another exceptional core capability of militaries is their infrastructure support. The "engineering capabilities that militaries around the world bring, being able to move debris, construct bridges, take seaports and airports and get quickly operational to bring in humanitarian assistance and increase capacity of airports." (Polattry, 2017). Again, this aid can both apply within the country and internationally. "The international community responded by donating food, clothing, and blankets as well as by sending teams of doctors and engineers to help Peru recover." (Clarke, 2015, p.6)

The difficulties faced by a nation post-earthquake are multi-factorial and complicated by an array of variables from local weather to the degree to which the international community responds to the disaster and how quickly. "Providing urgent relief is a complex problem that requires efficient coordination between the organizations, and the departments involved, and the specific environments,

for supply of urgent materials, energy and information.” (Xu, Dai, Rao,

& Xie, 2016, p.1). Another strength of militaries is their ability to plan for a crisis and meet the need of their population with the resources available. Even as far back as the 1964 Alaska earthquake in Anchorage it was recognized that the military “did have command, control and communications structure and the needed resources. In addition it had the flexibility to respond to changing crisis inherent in military planning, operations and training” (Cloe, 2014). No other organizations have comparable planning capabilities.

In addition, militaries have all manner of services which can be provided to the population in times of crisis. Chief among these may be provision of potable water. “Testing water supplies, air samples and other items for radiological, biological and chemical contaminants” (Watson, 2013, p.2) took place during the Japan earthquake, tsunami and radiation crises of 2011. When DART, the Disaster Assistance Response Team from the Canadian military was deployed to the earthquake zone in Nepal in 2015 “their focus was on providing water purification, medical care and engineering support.” (Shulman, 2016) In Haiti, “U.S. warships generated up to 400,000 gallons of fresh water a day from seawater” (Thompson, 2010).

The military may be instrumental in “food safety during power outages / refrigeration failure information / support to government food facilities “(Watson, 2013, p.2). Even specialty services may be available through militaries such as in Japan when “Military Working Dog kennels...were contacted to determine physical status and address any animal injury / acre issues.” (Watson, 2013, p.2). In Haiti in 2010, a US “spy drone (snapped) 1,000 photographs a day to relay to those working on the ground.”

(Thompson, 2010). The US used their “surveillance capability to quickly assess additional Haitian airfields and seaports for use in rescue operations.” (Thompson, 2010).

The militaries of the world possess special capabilities which make them the preferred first responder in times of emergency. “Although military defence of the country should always be considered as the primary duty of military forces, providing assistance for natural disaster victims is one of the main duties of these Special Forces around the world.” (Abolghasemi, Ptorheidari, Mehrabi, & Foroutan, 2005, p.3) In fact, militaries are far more likely to engage in dealing with disasters, at home or abroad, then being actively engaged in war. The US military reports that between 1970 – 2000, they were diverted 366 times for humanitarian and disaster relief operations and only 22 times for combat operations. (Polatry, 2017). It holds then that training for these events become an important part of the military curriculum.

#### **Civil-Military Coordination:**

The four humanitarian principles of humanity, impartiality, neutrality and independence are rooted in International Humanitarian Law. The principle of impartiality is a difficult one for humanitarian organizations to straddle when they must, of necessity, work with militaries in any way as this may hurt the perception they are not taking sides. This is less of a concern with natural disasters than with armed conflict situations, but even so “investment is needed over time to establish a relationship (between humanitarian actors), to explore areas of common ground, establish boundaries and increase mutual awareness and understanding.” The leadership structures of military and civilian organizations differ sharply and communication is often lacking leading to difficulties. In Mexico, post -earthquake “reports of clashes between volunteer rescue workers and the

armed forces are also surfacing across the capital.” (Lakhani, 2017). This occurs just at the moment when collaboration is the ideal as presumably everyone is working toward a common goal. In 2010, Haiti was aided by “heavily armed soldiers, mainly from Latin America and Asia.” (Greenburg, 2013, p.2) The soldiers work was two pronged as their “highly militarized presence has incorporated development and humanitarian activities into its primary concern with security.” (Greenburg, 2013, p.2) This foray into the direct delivering of aid to beneficiaries has spawned the term military humanitarianism.

The Humanitarian Policy Group working paper sites the main difficulties in civil-military coordination are:

Lack of coordination between military and humanitarian actors at the operational level and in pre-planning and after-action reviews / evaluations

Weak structures and processes to facilitate regular and appropriate interaction

Substantive gaps in existing guidance on specific issues (Metcalf, Haysom, and Gordon, 2012, p.16)

## ***FUTURE CONTRIBUTIONS***

It appears that emerging technologies will have an impact in the humanitarian sphere in the near future. Global medic states “cutting edge technology is increasingly a vital partner in saving lives, and is expanding its reach” (Ward, 2016). Canadian drones were utilized during earthquakes in the Philippines, Nepal and then in Ecuador in 2016. They were used for city mapping of disaster areas, making 3D images of electrical lines, water and oil tanks. While these applications were not done by the military, many militaries have this

technology and increasingly we will see them deploy this equipment.

Unmanned aerial vehicles (UAVs) have been used for equipment transportation by the US military. In the future, these undoubtedly will have an important role in humanitarian assistance. “Due to roads blockage and time limits in the disaster response phase, small UAV helicopters can be utilized as relief distributors.” (Nedjati, Vizari, Izbriak, 2016). This would allow supplies to be able to reach hard to access locations, in a timely manner. “UAV helicopters can be assumed as the next generation transport vehicles for commodity transportation.” (Nedjati, Vizari, Izbriak, 2016). This is only one example of cutting edge technologies which will improve outcomes for humanitarian beneficiaries.

The literature is clear that increased planning and training, both within the military as well as within civilian organizations will lead to better response times and better outcomes for the vulnerable populations involved in an earthquake. Kofi Anan, Secretary General of the United Nations, at the 2nd World Conference on Disaster Reduction emphasized that society has to change from a response culture to a prevention culture to better cope with natural disasters and he reinforced the key role of pre-disaster preparation in the reduction of casualties. (Zhang, et al., 2012, p.3)

Perhaps many nations can look to Japan as a model of preparedness. As they experience frequent earthquakes they have long been concerned with preparedness for the next inevitable disaster. “People in Japan have developed skills and habits through long term training to help them cope during and after an earthquake” (Zhang, et al., 2012, p.3) This thinking is inculcated in all areas of life with strict building codes. The military is always on alert. “Although no exercise can fully prepare any unit for such a disaster, extensive

planning was invaluable in reacting to and contending with the ceaseless demands for assistance and information.” (Watson, 2013, p.6) After the crisis in 2011, there was an extensive evaluation of events. “Key among the lessons learned....were the need for a robust operations cell with dedicated personnel and communications assets, implementation of which was an essential element in the success of the emergency reaction to such an unprecedented disaster event.” (Watson, 2013, p.6)

In British Columbia, Canada, where a high magnitude earthquake is predicted to hit, coastal communities stage the Great Shakeout Earthquake Drills once a year where educational, government and private institutions reinforce the steps to take in the event of a real disaster. School children learn the skills of Drop, Cover and Hold On so they can automatically respond should an earthquake hit. Citizens are encouraged to stock food, water, and medicine in personal earthquake preparedness kits. Military “plans for assistance run from medical care and clearing debris to using ships and aircraft to deliver emergency supplies to remote or cut off locations” (Wilson, 2017).

The role of planning and advanced coordination of organizations cannot be overemphasized. “In practice, although there are sufficient relief supplies, because of the lack of systemic thinking, relief activities are often chaotic leading to inefficiencies and even increases in the damage and loss of life.” (Xu, Dai, Rao, & Xie, 2016, p.1) Such was the case in Nicaragua following the earthquake in 1972. “Aid poured into Managua from all over the world” (Lee, 2015). Widespread looting occurred though “order was restored by declaration of martial law”. Valuable aid was misappropriated by the regime (p.668).The social, economic and ecological environment must all be taken

into account. “From the identified goals, a search subsystem, a treatment subsystem, a resettlement subsystem and an epidemic prevention subsystem were identified as essential to PERS (post-earthquake relief), (Xu, Dai, Rao, & Xie, 2016, p.435).

The HPG working paper states that “documenting operational experiences and best practices would make an important contribution to strengthen humanitarian civil-military coordination.” (Metcalf, Haysom, and Gordon, 2012, p.16). This is part of the aim of this paper which seeks to document the military experience of the 2016 earthquake.

## **CONCLUSION**

The role military forces have played in the response to natural disasters throughout modern history is well documented. However, there are times when the perspective of foreign military powers is heard much louder than the voice of the sovereign state and its developing neighbours. Such is the case with the 2010 earthquake in Haiti. The response is well articulated by the American military which took a leading role. However, there is little mention of other Latin American militaries who contributed. While smaller militaries from developing nations will undoubtedly have documented their involvement, they must be encouraged to share their experiences by publishing research papers so that others might benefit.

The research contains gaps from developing nations which requires further internal analysis of military involvement.

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