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"Exploring Emergency Communication Experiences in Response to the 2010 Haiti Earthquake: Lessons Learned from International Donors and Local Government Agencies"

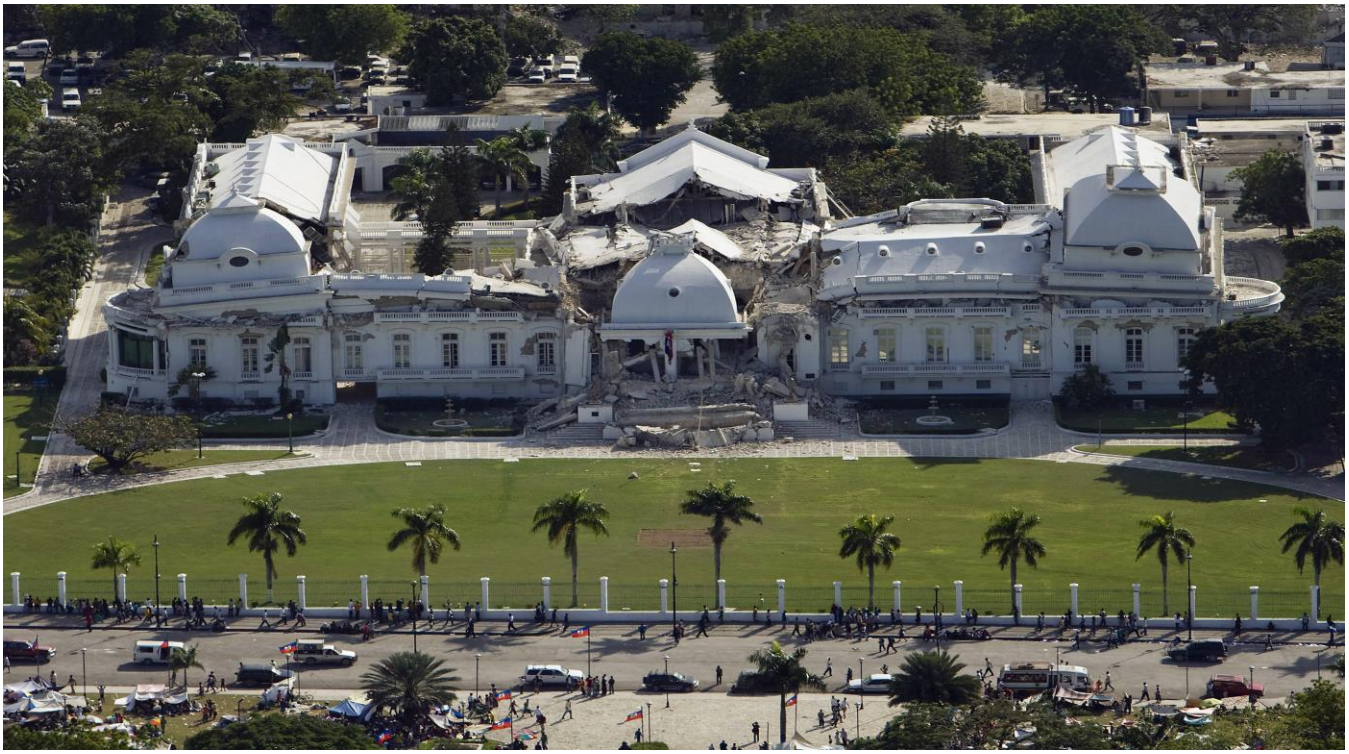
Presented by

Barbara Roussel

to the Faculty of The University of Nebraska Medical Center (UNMC)

for the Degree of Master of Science

in Emergency Preparedness



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These last two years of my Master program at the University of Nebraska Medical Center were a life changing experience. The support of the U.S. State department through the Fulbright program gave me the opportunity to strengthen my academic knowledge and to benefit from these rich and unforgettable cultural and professional opportunities that were offered to me.

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“Last but not least, in memory of those who lost their lives in the 2010 earthquake”

THANK YOU!

ABSTRACT

Background:

In almost every disaster situation, the use of standardized communication procedures among humanitarian relief agencies has been identified as one of the efficient practices to minimize the mismanagement of resources and thus to maximize the response effort among actors to reduce the incidence impact on the public and to increase their resilience capabilities.

Agencies have access to several guidelines to follow during domestic disasters, but there have been very few manuals developed to guide relief organizations on best practices during international large and complex natural disasters such as the 2010 Haiti earthquake. Haiti has experienced over its history several years of natural disasters, political, social-economic instability and recently has been devastated by one of the worst earthquakes that humanity has ever known.

Methods and Findings

After the 7.1 earthquakes on January 12, 2010, it was reported that over 10,000 relief agencies, nonprofit organizations had deployed their staff for a short or a long term period to support the response and recovery effort. In order to explore the communication experiences and patterns of local and international agencies, a qualitative research study was administered, consisting of conducting semi-structured phone interviews with seventeen (17) respondents who participated in the complex humanitarian response in Haiti six years ago, using an eight question interview between February 4th and March 6th, 2016. Data and information captured through the interview process were used to document the communication process systematically, the strengths and limitations, the lessons learned

and recommendations provided by the respondents. Snowball sampling was used to identify and recruit participants who have traveled as emergency medical specialists or whose responsibilities helped with the coordination of the response. Interviews were conducted in English or French and Haitian Creole depending on the participant's linguistic preference and country of citizenship. Interview transcripts, notes and codes were analyzed using key themes proposed as a framework for the study.

Conclusion:

Emergency response should not add more burden and responsibilities to government officials' countries significantly affected by natural disasters and should not cause distress to the affected communities. Rapid response is thus needed but should be efficiently coordinated to avoid wasted supplies, untrained staff and an influx of inexperienced international agencies in a complex and resource limited environment. The absence of a national response plan, the lack leadership and guidance from the Haitian government have been perceived as a sign of weakness by almost all local and international relief agencies and the negative aftermath of the disaster has been exacerbated by the thousands of small organizations that came looking for visibility and ultimately undermined the quality and timeliness of the response.

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LIST OF ACRONYMS AND ABBREVIATIONS

CARICOM: Caribbean Community and Common Market

CDC: Centers for Control Disease and Prevention

CERC: Crisis and Emergency Risk Communication

DHS: Department of Homeland Security

DPC: Direction de la Protection Civile

FBI: Federal Bureau of Investigation

FEMA: Federal Emergency Management Agency

GHESKIO : Groupe Haïtien d'Etude du Syndrome de Kaposi et des Infections Opportunistes

GNI: Gross National Income

HAA: Haiti Air Ambulance

IDB: Inter-American Development Bank

IHRC : Interim Haiti Recovery Commission

IHSI : Institut Haïtien de Statistique et d'Informatique

INS: Immigration and Naturalization Services

IRB: Institutional Review Board

MINUSTAH: United Nations Stabilization Mission in Haiti

NGO: Non-Governmental Organization

NIMS: National Incidence Management System

NMCC: National Military Command Center

NOC: National Operation Center

NRCC: National Response Coordination Center

NRF: National Response Framework

NRP: National Response Plan

NTCT : National Counterterrorism Center

OCHA: Office for the Coordination of Humanitarian Affairs

OFATMA : Office d'Assurance Accident du travail, Maladie et Maternité

PIH: Partner's in Health

SSN: Social Security Number

TPS: Temporary Protected Status

UNDP: United Nations Development Program

UNMC: University of Nebraska Medical Center

UN: United Nations

UM: University of Miami

UTSE: Unity Technic of Seismology and Energy

USAID: United States Agency for International Development

USGS: United States Geological Survey

WHO: World Health Organization

GLOSSARY

Agency: A division of government with a specific function offering a particular kind of assistance. In the Incident Command System, agencies are defined either as jurisdictional (having statutory responsibility for incident management) or as assisting or cooperating (providing resources or other assistance). Governmental organizations are most often in charge of an incident, though in certain circumstances private-sector organizations may be included. Additionally, nongovernmental organizations may be included to provide support.

Communication: the existence of a standardized and organized method of information sharing in a multi agencies disaster response setting.

Disaster: Any emergency event, including natural disasters (earthquakes, tornadoes, hurricanes), accidents (train wrecks, plane crashes, fires), terrorist attacks, pandemic, or other emergencies (school shooting, arson, community violence).

Emergency: Any incident, whether natural or manmade, that requires responsive action to protect life or property. Under the Robert T. Stafford Disaster Relief and Emergency Assistance Act, an emergency means any occasion or instance for which, in the determination of the President, Federal assistance is needed to supplement State and local efforts and capabilities to save lives and to protect property and public health and safety, or to lessen or avert the threat of a catastrophe in any part of the United States.

Hazard: Something that is potentially dangerous or harmful, often the root cause of an unwanted outcome.

Incident: An occurrence or event, natural or manmade, that requires a response to protect life or property. Incidents can, for example, include major disasters, emergencies, terrorist attacks, terrorist threats, civil unrest, wildland and urban fires, floods, hazardous materials spills, nuclear accidents, aircraft accidents, earthquakes, hurricanes, tornadoes, tropical storms, tsunamis, war-related disasters, public health and medical emergencies, and other occurrences requiring an emergency response.

Incident Command System (ICS): A standardized on-scene emergency management construct specifically designed to provide for the adoption of an integrated organizational structure that reflects the complexity and demands of single or multiple incidents, without being hindered by jurisdictional boundaries. ICS is a management system designed to enable effective incident management by integrating a combination of facilities, equipment, personnel, procedures, and communications operating within a common organizational structure, designed to aid in the management of resources during incidents.

Long-Term Recovery: A process of recovery that may continue for a number of months or years, depending on the severity and extent of the damage sustained. For example, long-term recovery may include the complete redevelopment of damaged areas

Non-governmental Organization (NGO): An entity with an association that is based on interests of its members, individuals, or institutions. It is not created by a government, but it may work cooperatively with government. Such organizations serve a public purpose, not a private benefit. Examples of NGOs include faith-based charity organizations and the American Red Cross. NGOs, including voluntary and faith-based groups, provide relief services to sustain life, reduce physical and emotional distress, and promote the recovery

of disaster victims. Often these groups provide specialized services that help individuals with disabilities. NGOs and voluntary organizations play a major role in assisting emergency managers before, during, and after an emergency.

Major Disaster: Any natural catastrophe including any hurricane, tornado, storm, high water, wind-driven water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, snowstorm, or drought or, regardless of cause, any fire, flood, or explosion that causes damage of sufficient severity and magnitude to warrant major disaster assistance, to require supplement efforts and resources of other countries, States, local governments, and disaster relief organizations in alleviating the damage, loss, hardship, or suffering caused thereby.

Preparedness: Actions that involve a combination of planning, resources, training, exercising, and organizing to build, sustain, and improve operational capabilities. Preparedness is the process of identifying the personnel, training, and equipment needed for a wide range of potential incidents, and developing jurisdiction-specific plans for delivering capabilities when needed for an incident.

Private Sector: Organizations and entities that are not part of any governmental structure. The private sector includes for-profit and not-for-profit organizations, formal and informal structures, commerce, and industry.

Protocol: A set of established guidelines for actions (which may be designated by individuals, teams, functions, or capabilities) under various specified conditions

Recovery: The development, coordination, and execution of service- and site-restoration plans; the reconstitution of government operations and services; individual, private-sector,

nongovernmental, and public-assistance programs to provide housing and to promote restoration; long-term care and treatment of affected persons; additional measures for social, political, environmental, and economic restoration; evaluation of the incident to identify lessons learned; post incident reporting; and development of initiatives to mitigate the effects of future incidents**.**

Response: Immediate actions to save lives, protect property and the environment, and meet basic human needs. Response also includes the execution of emergency plans and actions to support short-term recovery.

Strategy: The general plan or direction selected to accomplish incident objectives

Survivor: An individual of any age or gender, with different cultural, religious, or ethnic background who has been affected by a disaster, including disaster responders.

Volunteer: Any individual accepted to perform services by the lead agency (which has authority to accept volunteer services) when the individual performs services without promise, expectation, or receipt of compensation for services performed. See 16 U.S.C. 742f(c) and 29 CFR 553.101.

I. INTRODUCTION

A. Background

The island of Hispaniola, located in the Caribbean Sea, is the second largest island in the Caribbean and is known around the world for its great cultural diversity, for its rich historical experiences and its colonial heritage. The kindness, the resilience and the charm of the two nations that share the same Island, Haiti on the West and the Dominican Republic the East side, largely explain the attraction of other nations to visit and discover the story of the citizens, their battles and their spiritual beliefs, particularly in Haiti. The mixture of customs and manners found in Haiti is a result of the various ethnic groups, native Indian, French, Hispanic, English, and African, who previously occupied the territories of Haiti.

Figure 1: Map of Haiti

Source: Google Map Resources

The diverse and strong background of Haiti, as the first Black independent republic, serves as a model and fighting against several other nations to gain its freedom, partly explains the motivation, the determination and the continuous support that developed countries are expressing toward the needs of the Haitian people and in regards to the multiple socio-economic challenges that Haiti has experienced for several decades. It is clear that many of the countries involved expressed the same willingness to support a sustainable development for this nation. The tumultuous and volatile political atmosphere that has been recorded in the early stage of Haiti's independence generated social and political unrest that unfortunately delayed the creation of specialized infrastructures and contributed to the gradual decline of the country's resources.

The exponential growth of the population recorded in the last twenty years has since worsened the situation. The most recent estimate of Haiti's population in 2015 by the Haitian Institute of Statistics and Informatics (IHSI) was approximately 10,911,819 with 40% of the total population residing in the Capital Port-au-Prince (IHSI, 2015). Between 2000 and 2010, Haiti experienced a population increase of 17.6% (IHSI, 2015) escalating the population density to 384 (people per sq. km) for a surface area of 27, 750 sq.km in 2013 according to the World Bank (World Bank, 2015).

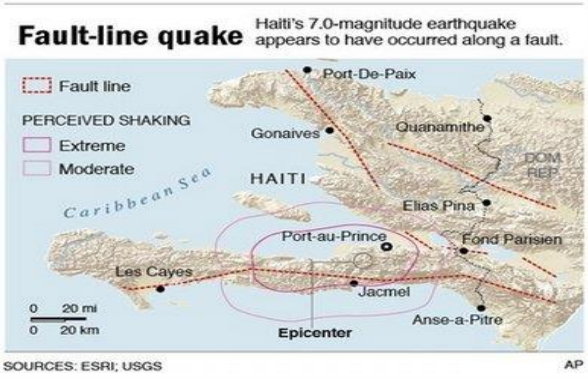
While the precariousness of life associated with low social-economic conditions and the fewer job opportunities of the vast majority of the population are a great concern, annual atmospheric changes weather deteriorations recorded over the past years, added to the serious El Nino effect in the Caribbean region, represent a major threat to the fragile environment of Haiti and further increase occurrence of disasters and public health emergencies every year (U.N. News Center, 2015). The United Nations through its food

security program has estimated that over three million people were at risk of food insecurity in 2015 (U.N. News Center, 2015). Protracted instability of the country and the relentless struggle for a prosperous economy left Haiti with several intellectual deficits, a weak health care system, and many low development indicators. It was estimated in 2013 that the literacy level of the entire population was 61.0%, the crude birth rate to be 25% in urban areas and 30% in rural regions of Haiti (IHSI, 2015), and the low life expectancy at birth to be 65 years for the whole country in 2013 (World Bank, 2015).

The high diversity in religious practices is considered a sacred legacy of Haiti's ancestors. The practices are predominantly represented by Catholicism with 55%, the Protestant groups (22%), Voodooist groups (20%) and others (3%) (IHSI, 2013).

The Gross National Income (GNI) per capita in Haiti was estimated to be $820 (Currency U.S.) in 2014 as compared to $6,030 in the Dominican Republic, the neighbor country, (World Bank, 2015). Only 54, 5% of the population ages 15 years and over were actively engaged in the economic growth of the country according to Haiti's 2010 census (IHSI, 2015).

Figure 2: Haiti's Fault-line Quake



Haiti's long-term history of natural disasters is directly linked to its geographic location. First, the Hispaniola Island is located on the trajectory of major hurricanes belt formed annually in the Atlantic Ocean, and second, based on the probabilistic seismic hazard maps proposed to study the Caribbean region, it is clear that the island is located in a complex seismic zone between

the North American and the Caribbean tectonic plates (Cox et al., 2011). Previous studies have identified three major fault lines in Haiti, including the Enriquillo, Septentrional, and Matheux Neiba lines that are continuously monitored to predict and calculate risk for the next major earthquake in the North American and Caribbean region (Cox et al., 2011).

From 1600 to date, several hundred earthquakes with variances in frequency and magnitude have been recorded on each side of the island; more frequent in the East but more destructive on the West side. Eight of them have been reported as the deadliest ones, destroying cities and causing elevated death tolls in Haiti (Cox et al., 2011). Haiti's soil and topography have been continuously studied. The U.S. Geological Survey in collaboration with the recently implemented Technical Unit of Seismology and Energy (UTSE) of Haiti are constantly monitoring seismologic movements and their magnitude on the island. The most recent 4.5 tremor was recorded on January 2, 2014 in Northern Haiti (Lambert, 2016). With the anticipated events recorded over time, a summary table of the major earthquakes in the Hispaniola Island and the destruction they have caused is proposed (Paravisini, 2010), (Prepetit, 2008).

Table 1: **List of Major earthquakes recorded in Haiti**

Dates	**Major destructions types and Cities**
1564 during Spanish colonization	Entire destruction of two cities : Concepción de la Vega and Santiago de los Caballeros.
November 9, 1701	The Tiburon Peninsula from Leogane to Petit Goave sink into sea
November 21 & 22, 1751	The recently built city of Port-au-Prince was completely destroyed by a 6.9 magnitude earthquake
June 3, 1770	Extended destruction of three communes Croix de Bouquets, Plain of the Cul-de-Sac to Port-au-Prince and along the north coast of the Tiburon Peninsula as far as Miragôane and Grand-Gôave was submerged by the elevated sea.
1783	Collapse of several edifices and destruction of major infrastructure in Santiago
May 7, 1842	Complete Destruction of Cap-Haitian in the North and half of the population died. Elevation of the sea to 60 meters in Port-de-Paix. Complete damage of the national Palace Sans-Souci and the monument la Citadelle Laferrière. Population was 10,000 thus 5,000 deaths.
August 4,1946	8.0 Earthquake in the Dominican Republic shook Haiti severely, killed 1,600 people and produced a tsunami
January 12, 2010	7.3 earthquake in Port-au-Prince, Haiti and surrounding town, killed more than 150,000 people, injured 300,000 individuals, leaving 1.5 million displaced residents and over $8.5 billion U.S. in damage.

Haiti's geographic proximity to the American countries, just 600 miles off the coast of Florida, has played an important factor in maintaining the diplomatic, economic and political stability in the region. The types of collaborations offered and support received have in fact largely contributed to several responses and recovery efforts in Haiti after all these disasters. It is also important to relate the fact that the population of Haiti more than tripled since the 1952 earthquake (3.2 million) preceding the 2010 one (9.8 million) (U.S. Census, 2015). With the impact of globalization generally observed in urban cities, people are more vulnerable and often exposed to major public health emergencies and disasters (Kapur & Smith, 2011). The two largest urban cities in Haiti, Cap-Haitien and Port-au-Prince, are considered as the most vulnerable regions in the country not only because of their population density but also because of their geographic proximity to two actives tectonic plates (Prepetit, 2015). The national seismologist, Prepetit, has warned the Haitian government of an imminent disaster in the North if a preparedness plan was not implemented as soon as possible to prevent a death toll similar to one registered in 2010 (Prepetit, 2011).

Since the establishment of democracy in Haiti in 1987, the bilateral relationship between Haiti and the United Stated has been reinforced to guaranty the safety of the region (prevention of drug transactions and gun control) and to strategically develop business opportunities for both countries. Additionally, the expansion of large Haitian communities over the past twenty-five (25) years in several U.S. states has significantly impacted Haiti socially and economically (Orozco, 2006). It was estimated in 2006, that over two million Haitians lived in the United Stated (Buss & Gardner, 2005). Haiti's collaboration with

partner countries has been officially acknowledged through signatures of conventions. Haiti is a recognized United Nations member, an active participant in the Caribbean Community and Common Market (CARICOM) in addition to numerous official treaties and other international alliances. Through these collaboration structures, Haiti received ongoing relief efforts and aid every year during and after hurricane seasons.

When the 2010 earthquake struck, President Obama immediately convened an urgent meeting with the heads of the U.S. Foreign agencies to coordinate a rapid response to this disaster. It was followed by a Senate hearing on January 28 to explicitly discuss the great needs of the country from the Rescue to Recovery and Reconstruction phase (Margesson & Taft-Morales, 2010). The international communities pledged a total of $13.34 billion in U.S. aid to Haiti for the response and recovery effort for ten years from 2010 to 2020 (CNN Library, 2015). As of September 2014, it was reported that $6.43 billion would have been disbursed for just the response phase through the channel of multilateral and bilateral agencies, another $3 billion from private donations for the technical assistance of NGOs and UN agencies and a sum of $3.1 billion of aid committed to Haiti by the U.S. Government (CNN Library, 2015).

Prior to 2010, several infrastructures in Haiti were already facing insufficient numbers of qualified professionals, suitable equipment, appropriate guidelines and rules, and enough financial and intellectual resources needed to perform the daily responsibilities for the whole country. For example, the vulnerability of the population's health status was a result of an unstructured health care system, lack of leadership and resources due to the political and economic instability that the country has endured for over two decades (Kemp & Rasbridge, 2004). The high morbidity and mortality rates observed during natural

disasters in Haiti are the results of insufficient primary health care services in the entire country, the recurrence of seasonal hurricanes worsening the infectious disease outbreaks, and the deficiency in specialized medical practices. Following the hurricanes of 2008, Haiti was classified "the most unstable of the Inter-American Development Bank (IDB) member countries" by Luis Moreno, IDP president, based on its high vulnerability to economic shocks and natural disasters (Margesson & Taft-Morales, 2010).

According to the Haiti government, the devastating earthquake severely damaged or destroyed approximately 30,000 buildings including government offices, the national palace, the parliament building, almost all the ministry offices, schools, hospitals and businesses (Renois, 2010). The year that preceded the earthquake, with the reinforcement of security, the development of the touristic industry and with the trade agreements initiated with other countries, people in Haiti were starting to feel hope in a better life and future in Haiti (Hornbeck, 2010). The day after the deadly tremor in 2010, although Haiti was still experiencing the aftershocks, there was a massive migration to North American territories, the Dominican Republic, the Caribbean Islands and even the European countries due to the uncertainties and hopeless conditions that survivors were experiencing. On the fifth year of the earthquake commemoration, the U.S. Government Immigration and Naturalization Services (INS) approved the applications of 58,000 Haitians who moved to the U.S. after January 10, for the Temporary Protected Status (TPS) program which is an immigration program for Haiti's humanitarian response (Young & Hubson, 2015). The exact number of Haitians who relocated in other countries is not known; but it possible that those who left had either a relative, an acquaintance abroad, held a US visitor visa or a permanent residency status which reduced their chance to being return to the country. The rate of

immigrants from Haiti to other developed countries mainly the United States remained significantly high until 1990 after the installation of the first democratic government in 1990 (Kemp & Rasbridge, 2004). But the migration movement re-emerged after 2010 when a substantial number of skilled adults and young adolescents who fled the country to care for their siblings or families had not only impacted the country socially, economically but Haiti's recovery was far more difficult without sufficient educated and competent Haitian professionals (Patrick, 2011).

Statement of the Problem:

The unpredictable nature of natural disasters, especially earthquakes, in addition to the massive destructions that are usually registered, have always been a challenging situation for country governments and populations in general (Kapur & Smith, 2011). Many disasters have marked the human life by the impacts they have made or the drastic changes they have provoked in the environment. The following definition of disaster – "A natural or man-made tragedy that adversely affects society or the environment" (Smith, 2011) is the simplest way to describe the incriminating roles of both human and nature in the course of disasters. In all aspects of disasters, it is important to understand that the resiliency capacity of the environment and the affected communities will play an important role in the survival mode, the quick recovery of social life and the return to normal life. The various disasters experienced in the 21st century confirmed the need for an additional effort of coordination and communication to improve the response outcomes, especially across multiagency interventions (Kapur & Smith, 2011). Communication is a basic function in all the levels of disaster preparedness, mitigation, response and recovery and is crucial in

public health emergency management (Kapur & Smith, 2011). It has been proven that effective communication management is a critical tool in the management of a disaster (Marlow & Wilson, 1997). Previous research has underlined the two major causes responsible for organizational failure during disaster relief effort, these include:

a) Significant misconduct and negligence of agencies' personnel to use safe and effective method of communication during their duties;

b) And the lack of total control over the information channels that often generate confusion, miscommunication, and distractions among them and other stakeholders (Abarquez & Murshed, 2004). Communication is therefore a powerful, dynamic and complex process that nurtures common goals and objectives practices, positive attitudes and leadership, empowerment and information sharing practices among first responders, decision makers and stakeholders during disasters (Skinner &Rampersad, 2014).

Significance of study

Because of its geographic location, Haiti is three times more at risk for natural disasters than any other country in the Caribbean. Besides, Haiti has suffered from massive deforestation practices since the end of the colonial time causing an aggressive erosion of the soil in the mountainous regions, recurrent flooding scenarios in the coastal cities and mudslides in several rural villages. It is estimated that 65% of the domestic energy production in private residences in Haiti comes from the use of wood charcoal aggravating the deforestation of Haiti's biggest eco-systems (McClintock, 2003). In addition, the construction industry largely relies on the use of woods which has drastically altered the

landscape and increased the vulnerability of the country to hurricanes (McClintock, 2003). When the hurricane season is announced from April through November, people in Haiti, particularly farmers and agricultural laborers, usually fear that their farms, plantations and gardens will be ruined by strong winds, heavy rains, and deluges often experienced in the past. The socio-economic situation of these groups of the population worsens day by day and are forced to migrate to urban cities to make a living (McClintock, 2003). Furthermore, the temporary relocation of several thousands of people from the coastal regions of Haiti due to meteorological conditions adds to migration phenomenon. In 2012, just two years after the earthquake, two super storms severely smashed Haiti. The tropical storm Isaac in August followed by the super storm Sandy in October both accounted for 54 deaths, the relocation of 19,000 families, 39,000 homeless and over 90, 000 hectares of crops destroyed; the losses were estimated at more than $25 million dollars (USAID, 2013).

Although the country's natural resources were depleted and the deterioration of the environment was more evident every year, local government agencies have not contributed sufficiently to disaster preparedness programs. Very few prevention plans exist to educate the communities about disasters. If a U.S. model of National Response Framework (NFR) existed in Haiti, it was not published or known by local stakeholders. Crisis communication plans, which constitute the foundation for situational awareness were not well disseminated or known by local agencies involved in disaster responses. The promotion of partnership and collaboration among local private organizations and public entities to design and implement preparedness programs have not been initiated. Five years after the commemoration of the 2010 earthquake, the efforts to develop emergency preparedness and response plans remained minimal in the country. There is slight indication that a more

robust communication channel exists now to share action plans and set goals among local agencies. To date, crisis communication plans and disaster awareness programs are still not well perceived by the vast majority of the populations residing in vulnerable regions of Haiti. In all the situations mentioned above, inappropriate prevention and mitigation programs, insufficient and ineffective communication strategies to inform communities of existing dangers in a timely fashion have been observed.

Literature Review

Through the developmental course of the emergency preparedness and response program in the U.S., several scholars have studied and published findings and recommendations on information sharing practices and need for strong collaboration and coordination among agencies when responding to disasters. Protocols and guidelines were published using the experiences and expertise of State and Federal agencies that have been involved in disaster responses in the past decades. The Department of Homeland Security (DHS), The Centers for Control Disease and Prevention (CDC), the Federal Emergency Management Agency (FEMA) and thousands of other faith-based, Humanitarian Organizations, Non-Governmental Organizations (NGOs) have largely contributed to the creation of a rich and diverse inventory of policies, tools, plans, guidelines, frameworks, that can be adapted and used in case of a disaster in the U.S. Based on the past disaster experiences, U.S. agencies understood the need to create Crisis and Emergency Risk Communication (CERC) models that would be standard, but could be adapted for the use in several circumstances, conditions, and at different levels of magnitude before, during and after the disaster would occur (Palttala et al., 2012). Among the biggest achievements in terms of disaster preparedness and response plans, it is important to highlight the

National Response Framework (NFR) which was created and implemented in 1992 after Hurricane Andrew devastated several cities in the South and the East coast of the U.S., and the National Response Plan (NRP) created in 2004 following the September 11 terrorist attacks (Kapur & Smith, 2011). These two reference documents are complimentary, although each presents a different set of goals. The role of the NRF during a disaster is to regulate the operations at the State, Federal and Local level and assure that interventions are well coordinated among agencies, and partners; only when resources at the local and State levels are disbursed and additional capacities are needed, the State of emergency will be declared by the president for the release of Federal funds and assistance (Kapur & Smith, 2011). The NRP provides directions and baselines to all State, Federal and local stakeholders for the use of mutual operation plans and strategies during the planning, response, recovery, and mitigation of disasters.

Unfortunately, in regards to emergency management guidelines and regulations, fewer publications and documentation exist or have been published to help understand what resources have been created in developing countries. The Interim Haiti Recovery Commission (IHRC) was the only multi-agency cluster created three months after the earthquake to manage the reconstruction funds and implement strategic planning and coordination among bilateral, multilateral agencies, NGOs and the local businesses in Haiti (Haiti Live, 2010). This commission was mainly composed of international donors (13 members) and executive representatives of the government (8 members) (Haiti Live, 2010). While Haiti is a Creole and French speaking country, the meetings sessions were always held in English which represented a major barrier for the few non-governmental Haitian representatives (4 members). It is also true that communication is the number one problem

in all disaster relief, and it is compounded if language barriers are a factor. Therefore, the liability and transparency of the IHRC with the recovery funds have been questioned several times (Chery, 2014). There is little evidence that the IHRC emergency response and recovery plans have been transitioned to the government in place. As observed in disasters previously experienced around the world, one of the common challenges in the aftermath of incidents is the capacity of relief agencies to use effective communication strategies to mitigate threats to communities and themselves. The assumption is that communication issues would be of utmost importance when humanitarian agencies deploy their emergency managers and first responders in a developing country where resources, the first language and the information sharing practices are different.

In Haiti, for example, the Civil Protection Department (Direction de la Protection Civile, DPC) is under the central direction of the Ministry of Interior created in 1984, has as its primary responsibility to perform risk assessment and disaster management throughout the territory of Haiti (DPC, 2013). Prior to this date, the Haitian Red Cross was the only legal organization officially assigned to respond to disasters in Haiti from 1932 to 1984. The DCP is the governmental agency/entity empowered by the President to provide the following services: inform and coordinate preventive measures, train first responders, coordinate disaster management at the national and regional level, and provide responses to disasters, supervise the regional emergency response offices, request and manage the disaster resources (DCP, 2013). This office collaborates with the United Nations and U.S. agencies including United Nations Development Program (UNDP) and United States Agency for International Development (USAID) for the reinforcement of their structure and competencies (DCP, 2013). Although the lead agency for disaster management of Haiti

is very proactive and collaborates with international donors and relief agencies to prevent and mitigate for disasters in Haiti, the guidelines or protocols used in 2010 was not available on the official website of the Direction de la Protection Civile (DCP, 2015). That does not mean that these documents do not exist or are not distributed among other partners, but that they have not been identified.

As stated by Heather Meeds in the context of the Hurricane Katrina in 2006, "to truly understand the consequences of the lack of communications, it is important to understand the role of communications in complex equations" (Meeds, 2006). Hurricane Katrina and the attack on the World Trade Center have been listed among the most devastating disasters in the United States. In both events, it has been proven that communication issues were one of the major problems associated with the response.

Meeds also explains that communications involve "information transfer and includes the use of the technology associated with the representation, transfer, interpretation, and processing of data among persons, places, and machines. It includes transmission, emission, or reception of signs, signals, writing, images, and sounds or intelligence of any nature by wire, radio, optical, or other electromagnetic systems" (Meeds, 2006). This detailed definition of communication focuses on the use of electronics and technology as the adopted mean of communication during a crisis that when delayed or interrupted, can cause problems. Regardless of the preparedness level, failure to manage communication quickly and efficiently during a disaster, will undermine the mission of a first responder. Communication means more than having a technology system to support the transfer of messages; it does not only rely on social media to identify the medical needs or the need for assistance in a specific region. It also means being able to share effective information

using a standardized protocol and a simple language to communicate necessary and vital instructions to others, including emergency managers, planners, and responders; effective communication is the most important skill and tool to acquire and master in emergency management (FEMA, 2015).

The use of technology services and social networks is gradually becoming an acceptable and reliable method of communication to report needs and emergencies during an incident. The new trends now are first and foremost the use and reliance on digital networks to report information when a natural and manmade disaster is experienced. For example, the digital humanitarian response in Haiti was described as an unprecedented experience and was very well used to help with the relief effort in Haiti (Meier, 2015).

Although the reliability and confidentiality of messages shared by social media are often questionable, several strengths have been identified with the use of these new information platforms and sophisticated technology (Kapur & Smith, 2011). The last two major disasters, Hurricane Katrina in 2005 and Haiti's earthquake demonstrated that with the existed information systems, data sharing and humanitarian responses were facilitated by identifying and locating where the urgent assistance was needed (Kapur & Smith, 2011).

The need for a rapid transmission of information among first responders, and the great capacity to support emergency operations with the satellite support is effective when these telecommunication towers, source of energy and landlines are not disrupted (Kapur & Smith, 2011). Several platforms have been developed to assist specifically with regional disasters and humanitarian relief effort including: OpenStreetMap (OSM), Digital Humanitarian Network (DHN), Geo Clicker, MicroMappers, DigitalGlobe (DG), Ushahidi

and more (Meier, 2015). For example, in Haiti, several social media applications were used and were the only method of communication to locate victims, request support for shelter, food and medical assistance but there are several other components that were needed to trust a source of information and skilled translation personnel required at all times to decrypt and translate the text messages which caused delays to use of information shared (Meier, 2015). In summary, whatever the type or form of communication used or available, a strong coordination among partners and a control of communication networks is required to ensure reliability in the transmission and the use of the information shared.

The emergency communication process in general requires coordination not only at various levels of the hierarchy within the organization but also among the members of the larger response organization network (Palttala et al., 2012). Communication needs to be a regular part of crisis management procedures, and decision-making during a crisis calls for openness (Visuri, 2003). Previous studies have demonstrated that the absence of standard communication protocols and the lack of coordinated actions in a multi-agency response effort during a disaster will escalate the disastrous effects on both the country and also on the entire community (Dawes et al. 2004; Skinner & Rampersad, 2014; Helsloot, 2005). Several researches studied emergency relief agencies experiences during the Haiti's 2010 disaster response. Among them, an interesting case study that examined partnership between public agencies and non-profit relief organizations during the 2010 Haiti's earthquake provided evidence that "communication, trust, and experience are the most important partnership inputs; the most prevalent governance structure of public–nonprofit partnerships are a lead organization network" (Nolte & Boenigk, 2011). Specifically, in the complex situation of Haiti in 2010, with over forty-four Foreign Field Hospitals (FFH)

deployed in less than a month, initiating a collaboration and partnership approach was not an easy task (Gerdin et al., 2013). Compared to other major disastrous events experienced in other region, the number of FFH in Haiti were greater than other places but none of them complied to the WHO/PAHO requirements as requested (Gerdin et al., 2013). As related in a study on FFHs in Haiti in 2010, the positive impact of the medical emergency assistantship was difficult to determine due to insufficient data and lack of transparency of the relief agencies (Gerdin et al., 2013).

This study examined organizations communication practices, methods and protocols used among agencies and learn from the experiences of local and international first responders, emergency managers who participated in the 2010 Haiti disaster response and recovery.

The Purpose of this study: The purpose of this study was to examine communication experiences of disaster relief agencies personnel using standard methodologies during the Haiti 2010 Earthquake response phase. It aimed to collect crucial information from key informants during an interview process and to generate a body of essential set of information reflecting the challenges experienced and the lessons learned by relief agencies during the Haiti 2010 disaster.

Research questions: For this research paper, an examination of first responders' disasters' experiences will be performed in order to answer the following questions**:**

1) What were the communication experiences of local and international first responders during the Haiti's 2010 disaster response?

- How was the information shared between players on the ground?

- What communication protocols and procedures existed and were used?

2) How were the international agencies' disaster response structures adapted to the Haiti disaster?

3) What are the similarities and the differences identified in the communication protocols/channels used by the local government organization and the international agencies during and after the response phase?

These research questions have helped elucidate the communication methods used by relief organizations during the complex emergency response and confirm if they may have also contributed to the amplified misconducts of the local and international agencies during the post-earthquake crisis in Haiti.

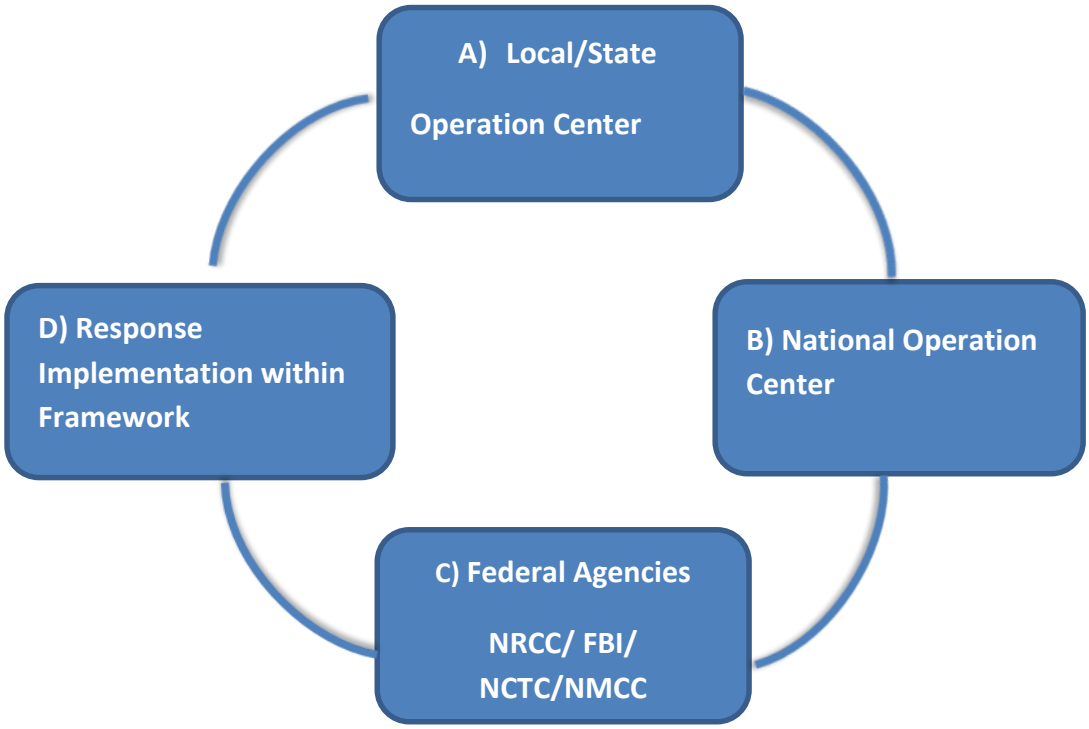
These questions highlighted communication experiences of first responders and understand what worked or did not work well in Haiti with a focus on the methods of communications, the use of standardized communication guidelines and protocols, and the role of local and international first responders in identifying communication hurdles during the response mission in Haiti. Through an interview process with selected local and international agency representatives who collaborated from far or traveled to work in Haiti, the following three areas were explored: 1) understand the communication protocols and strategies adopted to share information between international agencies and a) local communities, b) private or public organizations, c) Haiti governmental agencies; 2) identify if a standardized communication channel existed among international agencies to communicate their action plan; 3) finally to understand if a communication framework existed in Haiti during the disaster response for local government agencies to communicate with first responders, and how that framework was used and by whom. Examples of

information sharing methods and crisis communication strategies in Haiti were not found in the literature review.

The current study aimed to help further the research and the knowledge on the existing communication limitations in Haiti. Several information sharing models have been proposed by developed countries that had used their experiences, resources and evidence based strategies to develop a robust disaster preparedness, response and recovery plan.

A U.S. information sharing model is presented below to show the operation system and coordination mechanism needed for a strong response (Kapur & Smith, 2011).

Figure 3: U.S. Model of Information Sharing



Source: Federal Emergency Management Agency, 2010

This diagram explains the activation and deployment process based on the U.S. model. Each segment of the circle represents a level of leadership, operation and coordination. As described in the National Incidence Management System (NIMS), a common operation system is indicated and is essential in the general management of the response. Each level will progressively invest and use their resources, capacities and strategies before reaching out to a higher level (Kapur & Smith, 2011).

A) The local and State Operation Centers are first actives in the event of a disaster. Tribal and Local emergency agency responders will be first deployed and work in collaboration with the community based organizations. Resources at the State level will be used when local and tribal resources and capacities are not sufficient.

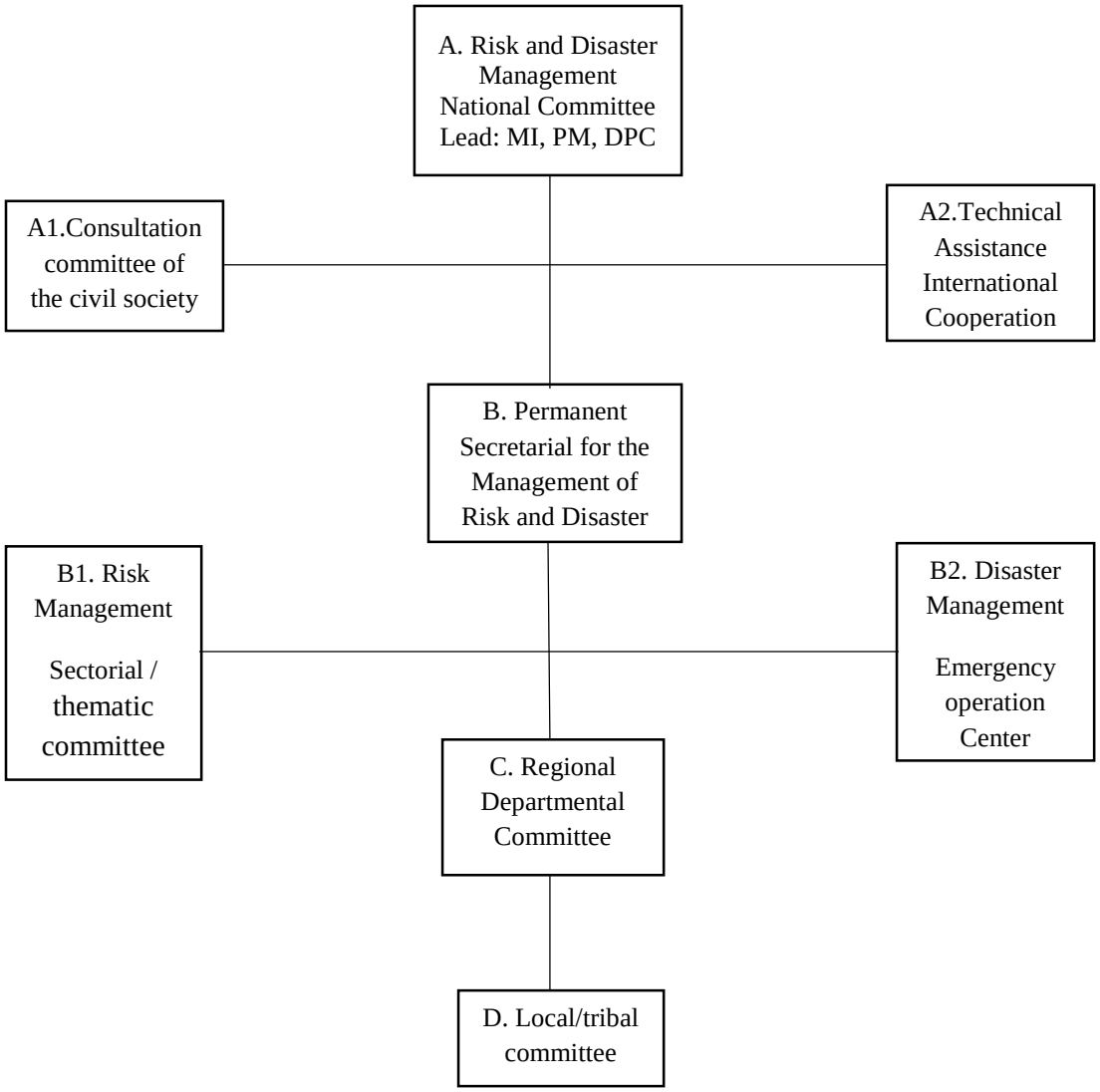
B) National Operation Center (NOC) acts as the reporting hub for and is responsible of the intelligence management of information for the State operation centers.

C) Federal Agencies: Federal resources are used upon the declaration of State of emergency and take over relief activities once State level is no longer capable of responding to the disaster. These includes a coordination action among federal agencies (Federal Bureau of Investigation, National Military Command Center, National Counterterrorism Center, Federal Emergency Management Agency).

D) Response Implementation with Framework: The unified Command System plays a key role in assuring a common operation of actions and a common organization and management of activities. This circular pattern emergency management system promotes a continuous and dynamic linkage among actors involved in the response at various levels while allowing the self-sufficiency of each segment. A comparison of the Haitian national

information shared during activation process is shown below. This Haiti intervention system model was retrieved from the draft document of the official national risk and disaster management framework published in 2001:

Fig 4. Organigram of the National Intervention System



Note: MI: Minister of Interior; PM: Prime Minister; DPC: Direction de Protection Civile

Source : Système National de Gestion des Risques et des Désastres : Plan national d'intervention, République d'Haïti, 2001

The longitudinal pattern of the information sharing model in Haiti, compared to the circular information transfer process in the U.S. as presented above, could potentially explain the communication bottlenecks in regards to the disaster response in 2010. According to the Haitian national risk and disaster management, the following scheme provides a framework for structuring national actions to be taken in response to a disaster or an emergency. It describes the mechanisms and the organization of which the Haitian government will mobilize resources and will request for assistance following a disaster or emergency exceeding the capacity of local authorities.

The coordination of actions mostly relies on the following committees (units) to execute a response:

A. National Committee of Risk and Disaster Management (SNGRD);

A1. Advisory Committee of civil society;

A2. Support Group for International Cooperation (CAMI);

B. Permanent Secretariat of Risk and Disaster Management (SPGRD);

B1. Institutional / sectoral thematic committees (for risk management);

B2. Emergency Operations Center (for disaster management);

C. Departmental Committees;

D. Communal (District) and local committees.

In a case of disaster, the actions for the response are initiated under the guidance of the entities of the group A; A1 and A2 are used as financial leverage. The requests are then directed to B group committees for the execution of orders after evaluation of available

resources. Groups C and D assure the implementation of the response based on the allocated resources and guidance of B group.

II. REASERCH METHODOLOGY

Research Design and Questions

A phenomenology research designed was proposed for this study in order to examine the live experiences reported by first responders in the aftermath of the Haiti 2010 earthquake. The methodology consisted of a phone-based interview with first responders who participated in Haiti's disaster response. The interviews were conducted with a selected number of participants of Haitian local and international agencies who had participated in either the response or recovery phases of the disaster relief effort in Haiti six years ago. Eight open-ended questions were used to conduct the interview. A second validation interview was performed with a small number of participants to reduce recall bias (10%). A list of organizations was created. The selected participants were contacted via email and invited to participate in the research project. Prior their participation, all essential information was shared with participants including the research purpose, objectives and questions. A confidentiality section was proposed in the following section to address all concerns and questions pertaining security and confidentiality measures.

Individual interview was conducted through phone calls. The eight proposed questions were regrouped into five different themes and domains as shown below. Additional sub questions were also asked during interviews.

1) Theme 1: Disaster experience and Perception of Communication

- Can you explain what was your contribution in Haiti in 2010?
- How would you describe your communication experience as a first responder during the disaster response in Haiti?

2) Theme 2: Existence and use of communication protocols

- Can you elaborate on the preferred method of communication used by your organization during the 2010 disaster response in Haiti?

3) Theme 3: Collaboration among organizations

- Were you aware of communication procedure different than your agency that was adopted by another organization to share information while collaborating with stakeholders in Haiti?
- While collaborating on the disaster response in Haiti, what national communication plan was proposed by the Haitian government to share information with relief organizations?

4) Theme 4: Challenges and Lessons learned

- Can you briefly explain the strengths and limitations of your agency during the experienced in communicating decisions with others?
- What are your lessons learned from your communication experience during your humanitarian mission in Haiti?

5) Theme 5: Recommendations/ Perspective/ Next steps

- What would be your recommendations to improve the communication protocols and strategies for an effective information sharing in Haiti in case of another disaster?

In addition to the question list above, a guide is also proposed in the appendix section to help guide the interview process and to help monitor the time, the possibly probes and other pertinent information needed. "*Appendix B: Interview questions and guide*". Each phone interview will be recorded. A paid, secured and licensed application "Tape A Call Pro" will be used to record each interview. This application was tested and is upgraded for a better performance. A free version of the Tape a Call was previously tested and was very satisfying. This application is often used by other professionals for investigations, interviews and other related works.

Population

Up to twenty (20) people were invited to participate in the interview. A total of seventeen (17) interviewees participated in the study after being informed of the confidentiality measures and following the revision of the consent form. Two strategies were used to select participants to be interviewed: first, key relief agencies were selected based on their relief scope of work in Haiti and longtime collaboration with the Haitian agencies; and second, participants were referred by key informants who were aware of their contribution in this disaster response. The heterogeneity of the group was considered according to their citizenship, the type of institution they worked for, their position and level of responsibilities during the Haiti's response.

Setting

The interviews were conducted in the United States although several participants were located in Haiti, at the time of the interview. The selection of agency representatives varied by: personnel of non-governmental organizations, officials of the Haitian government,

Haitian non-profit governmental agencies, Haitian and U.S. hospitals and community based agencies that have collaborated on a long term or short term response or recovery phase of the Haiti's emergency and humanitarian relief effort in 2010.The selection of institutions was based on institution's mission, their previous disaster relief experiences and scope of work. As stated, several selected organizations and their personnel were located in Haiti and therefore interviews were conducted in their location of origin. Below the list of relief agencies selected for this study:

A) U.S. based organizations / institutions:

- **a.** The Centers for Disease Control and Prevention (CDC)
- **b.** The United Nations (UN) offices
- **c.** Massachusetts General Hospital/ DMAT team
- **d.** Haitian-American Coalition organization
- **e.** University of Miami (UM)
- **f.** The Project Medishare
- **g.** University of Nebraska Medical Center (UNMC)
- **h.** Urban Search & Rescue Task force 3 of the Federal Emergency Management Agency(FEMA)
- **i.** The United Stated Agency for International Development (USAID)

B) Haitian based organizations/ institutions:

- **a.** Haiti Ministry of Interior
- **b.** Partners in Health (PIH/ZL)
- **c.** Bureau of Protection Civil (DPC) / UNDP

d. Konbit Sante Organization

e. Haiti Red Cross Office

f. Haïti Air Ambulance (HAA)

The investigator clearly informed participants of their right to withdraw from the process at any time before, during or after the interview. The option to respondents to call or email for additional information on a particular question was also offered to participants.

Intervention

Eight open-ended questions and several probes were used for the interview process. To reduce the fear of collaboration in the study, the safeguard of participants was guaranteed before, during and after the interview process. The recruitment of participants was directly coordinated with the selected candidate. An invitation email was sent directly to each expected subject ("*Appendix A: Invitations letter*"); there was no third party involved to reduce breach of confidentiality nor a job-related stress. In addition, questions were created in such a way to avoid participants 'opinion on agencies' performance and to minimize disclosure of agencies' internal procedures. Participants were also offered the option not to respond to an answer if not appropriate for them to do so.

The open-ended questions provided richness and variety in responses by not being limited to one possible answer, produce differences in frequency distributions and ranking of the answers, produce of more invalid answers. Two Haitian public health personnel and two emergency preparedness classmates volunteered to help pre-test the questions for a week in order to support the reliability and face validity for the clarity of questions. Pre-test phase was timed to better estimate the time needed to conduct the interview. Upon

feedback obtained, revisions were made on the questionnaire. The respondents who participated in the interview received an email with the details of the interview including the date, time, and method of communication (phone number). All communication charges were handled by the investigator. The option to provide the questionnaire prior the interview was discussed with the respondent but the participants actually made the request. Interviews were conducted in French with the Haitian based organization and Creole and in English with the U.S. organizations and agencies. A French translated version of the questionnaire is attached in the appendix section "*Appendix C: French and Creole interview questionnaire*".

Ethical Considerations

An interview form was created to collect information from key informants during the interview and an audio record will be obtained. An invitation email was sent to request confirmation of participation. An information sheet and consent form was also emailed to each participant to inform on the objectives of interview, the interview process and all confidentiality measures to protect their information "*Appendix D: Information/ Consent form*". The exempt application for the International Review Board (IRB) of University of Nebraska Medical Center (UNMC) was submitted for clearance of data collection, use and the dissemination of results "*Appendix E: Approved Consent letter*". Each participant was free to decline or to consent in participating in the interview, a consent form was provided prior the interview is initiated. Sensitive information like agency's name, participants first and last name was coded to prevent any breach of confidentiality. A unique combination of letter and numbers was created for each participant. The code matched the audiotape recorded and the transcript as well.

Example of coded data:

Organization XXYY and Participant 1 was coded: XXYY1 followed by the month, date and year of interview (XXYY1010116). The first letter two letters (XX) replaced the two first letter of country if the participant is a Haitian local or a U.S. citizen followed by the organization's name coded as two last letters (YY), the interviewee's numbers (1) was attributed based on his/her order at the time of interview. First person was participant 1, last person was participant 17.

Information collected, transcripts of interviews, recorded tapes participant's information were stored in a safe place (encrypted hard drive). Security practices consisted of the use of a password to access all data and information gathered from this research by only one person for information verification and validation process.

Data analysis Process:

A deductive approach was used to regroup data collected and to look for similarities and differences among respondents' information. The data collection process mostly consisted of capturing qualitative information during the interviews although quantitative data was also collected aggregated for the demographic information. The following diagram explains the key nine steps taken throughout the data collection, management and analysis processes to produce comprehensive tables to present the study results.

1. A matrix of subjects' information was created to help manage the interviews process.

2. Each coded audio record and coded transcript was added to the pocket file built for each subject which includes the Invitation letter sent to the subject, the consent notification

letter, any following message (reminder), interview transcript, interview audio record, subject's information contact sheet.

3. After each phone interview, raw data was reviewed, translated and saved.

4. Primary level coding: This step implies a structural level coding of raw data within each transcript. Throughout the translation and revision process, notes were taking, memos were adding to paragraphs that were then labeled. A bulk of 20 coded labels were assigned using the interview guide as a reference document for the particular themes and domains that were listed. The standard codes include Knowledge of protocols, limitations, strengths, language barrier, experiences, national protocols, lessons learned, recommendations, improvement plans and efficiency, national plan, perspectives, duration, other procedures.

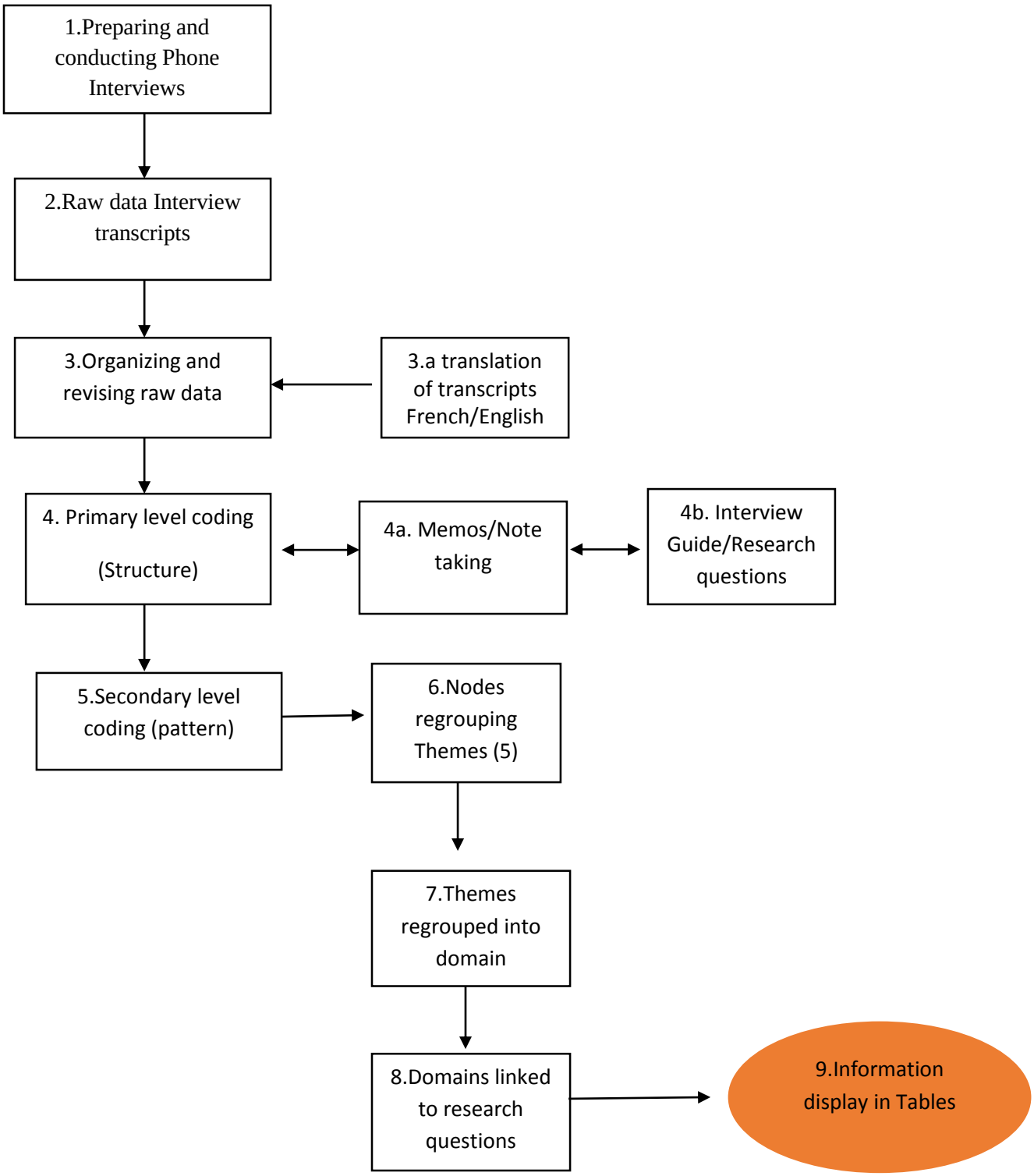
5. Secondary level coding: This step helped identify pattern detected during the revision of all codes previously created, facilitated the analysis relationship between transcripts and permitted the harmonization of codes into key themes such as "Subjects' experience in responding to disasters and their perception of the communication structure used in Haiti"; "Existing and use of local and international agencies' internal and external communication protocols"; "Strategies of communication and collaboration within and between agencies"; "Strengths (challenges) and limitations of local and international agencies"; "Recommendations and perspectives of agencies to improve their communication structures and protocols".

6. Nodes were created using N-vivo 11 and helped with the management of themes and subthemes by linking to the five domains of the study.

7&8. Key themes are regrouped into domains and are linked to the study questions.

9. Tables were prepared to display key study findings.

Figure 5. Data Analysis Steps



Type and Management of data:

Information that were collected include demographic data: Sex, number of year of experience, number of disaster relief experiences, former or current position in institution he/she worked for at the time of relief mission and key responsibilities during response and visit in Haiti. A matrix of codes was created. Information collected from the interview were be coded and aggregated. The utilization of the software "N-Vivo 11" (QSR International) was used to facilitate the collection, the sorting of information needed for the analysis. This choice of this software was justified by the fact that offers an easy method to organize materials by nodes, to regroup the selected themes using the coding and sorting option to track and regroup relevant information found in transcripts. Interview transcripts, worksheet and audiotapes collected during interviews were saved and combined using attributes available in N-vivo 11 software to ease the management process.

Below the Table 2. The qualitative data coding system template.

Structural Coding list (Level 1)	Pattern Coding list (Level 2)	Themes (Domains)	Research Questions
Gender Number of trips Key responsibilities Experiences	Background Information of local and international relief agencies personnel and Previous experiences Key responsibilities of agencies and personnel during disaster response activities	Local and international agencies' personnel experiences and capabilities to respond to the Haiti earthquake (Disaster response experiences)	1.What was the communication experiences of local and international first responders during the Haiti's 2010 disaster response?
National plan Details Example of application	Knowledge and evidence of an existed national disaster response plan in Haiti Description of national response plan	Existence and use of a national response protocols proposed by the Haitian Government to lead and facilitate coordination among local and international relief agencies	1a.What national communication protocols and procedures existed and were used?
Communication Efficiences Internal communication External communication Other communication methods	Internal Communication Plan Efficiency of internal communication External method of communication	Collaboration within and between agencies	1b.How was the information shared between actors on the ground?

<table>
<tr>
<td>Perception

Observation

Agencies' Structure

Collaboration

New protocols /Adapted protocols

Same protocols</td>
<td>Description of agencies' structure on the ground

Collaboration with local and international agencies</td>
<td>Perception of Communication procedures reported by agencies' staff based on their collaboration with relief agencies staff</td>
<td>2.How international agencies disaster response structure was adapted to the Haiti disaster context?</td>
</tr>
<tr>
<td rowspan="2">Challenges

Lessons learned

Limitations

Strengths

Improvement

No improvement</td>
<td rowspan="2">Lessons Learned

Strengths

Limitations (challenges)

• Language Barrier</td>
<td>Reported strengths and limitations (challenges) of Local and international agencies</td>
<td rowspan="2">3.What are the similarities and the differences identified in the communication protocols/channels used by the local government agencies and the international responding agencies during and after the response phase?</td>
</tr>
<tr>
<td>Local and international agencies' Perspectives and communication improvement plans</td>
</tr>
</table>

III. RESULTS

Overview

The following result section describes the tables with the key findings as reported by the respondents. The result tables include:

- Characteristics of participants (Table 3)
- Structure of agencies and organizations (Table 4)
- Agencies' international and external communication protocols used by local and U.S. agencies in Haiti (Table 5)
- Challenges, limitations and strengths reported by local and U.S agencies (Table 6)
- Key lessons learned from the Haiti disaster reported by local and U.S. agencies (Table 7)
- List of recommendations (Table 8)

Table 3. Participant Characteristics:

Subject Code	Gender	Country of citizenship	Type of agency	Key responsibilities during response	Experience in disaster response (in years)	Prior humanitarian work experience	Length of stay
HAMI1	Male	HA	Haiti Government office	Coordination of the response with the international agencies at the governance level	6-10 yrs.	Yes, in Haiti	N/A
USCD2	Male	US	U.S. Federal Agency	Responsible for activation and coordination the EOC	11-15 yrs.	Yes, several	N/A
USKS3	Male	US	U.S. NGO based in Haiti	Coordination of emergency response at the departmental level	0	No	2 months
USPM4	Male	US	US University Hospital	Medical Services / first AID care to victims	1-5yrs.	Yes, domestically	1st time:8 days 2nd time: 10 days
USHA5	Male	US	US University Hospital	Medical care / Mental health support.	0	No	10 days

HAUS6	Male	HA	Federal Agency based in Haiti	Health Coordinator/ Activation and monitoring of Emergency operation	0	No	N/A
HAPI7	Male	HA	Haitian NGO with HQ in US	Deputy medical director	1-5 yrs.	Yes, locally	N/A
USCD8	Male	US	U.S Federal Agency	EOC / health system reconstruction	11-15yrs	Yes, domestically and internationally	2 weeks
USUN9	Female	US	U.S. University Hospital	Medical Services / first AID care to victims	0	No	6 days
HAPC10	Female	HA	Haiti Civil Protection Unit	National Emergency response coordinator/ Technical assistant for UN agency	21- 25yrs	Yes, domestically and internationally	N/A
USMA11	Female	US	US Hospital/ DHHS DMAT team	Deputy commander of DMAT	21-25 yrs.	Yes, domestically and internationally	1st time: 10 days 2nd time: 10 days
HACR12	Male	HA	Haitian Relief Agency	President of the Agency	6-10 yrs.	Yes, locally	N/A

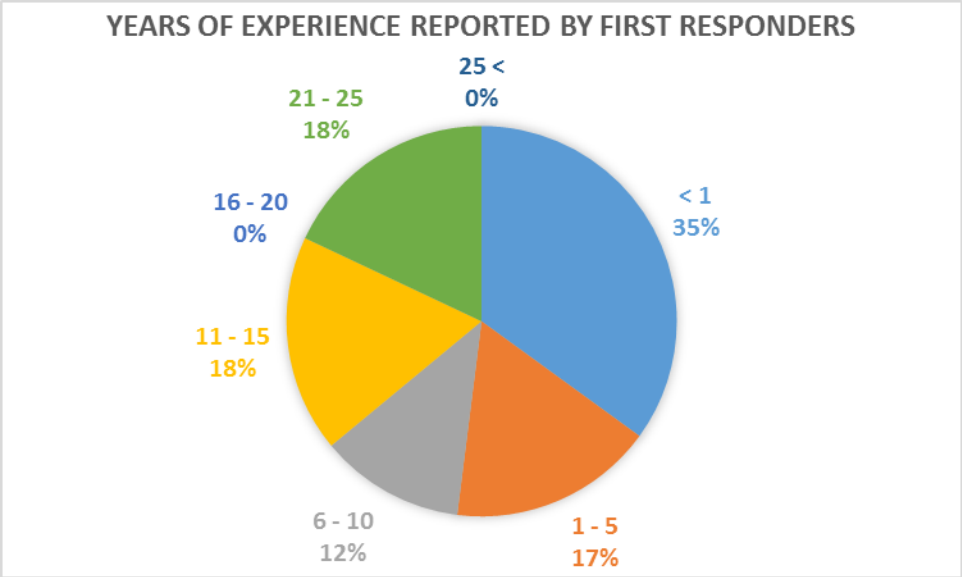
USFE13	Male	US	US Federal Agency	Urban Search& Rescue team	21-25 yrs.	Yes, domestically. 1st time internationally	10 days
USMA14	Male	US	US hospital/ emergency medical director	Remote coordination of medical emergency response team	11-15 yrs.	Yes, domestically	N/A
USHC15	Male	US	US NGO	Primary coordinator for the relief effort	0	No	15 days
HAHA16	Male	HA	Haitian Private Organization	Emergency Medical AID Surgery/ Transportation	1-5yrs	Yes, locally	N/A
USUN17	Male	US	US. University Hospital	Intensive care/ First AID care to victims	0	No	1st Time: 3 weeks 2nd Time: 3 weeks

Note: Length of stay was only asked from international agency's representatives. It defines by the number of days, weeks or months spent in Haiti. US citizens who helped with the coordination of the response remotely will be listed N/A. For Haitian subjects, the answer is classified as non-applicable (N/A). Experience in years is categorized by 0, 1-5, 6-10, 11- 15, 16-20, 21-25, 26+ with no half year considered. Position in Agency refers to the current of former position occupied by subject in 2010, the position in agency may be the same or different when deployed in Haiti. Note that Haitian subjects' position in their related agency may be the same change during and after disaster response phase.

A total of seventeen (17) participants were interviewed from February to March, 2016 in order to collect information on their disaster response and coordination experiences in 2010 in Haiti. The overall response rate (RR) of the questions was 85%. The majority of respondents were male (N=14) compared to female (N=3). Participants' key tasks and responsibilities varied according to their background and the agency they were working for at the time of the disaster response phase. Key responsibilities were categorized into three categories: Emergency operation management/ Disaster response coordination (N= 8), Medical care/ First Aid services/ Intensive care services (N=8) and Urban Search and Rescue (N=1).

Almost all U.S. citizens traveled to Haiti within a period of three (3) days to 4 months of the disaster date, with the length of deployment not exceeding 3 weeks; which corresponds to the disaster response phase as specified by the State of emergency declaration of the Haitian government. The particular situation of Haiti after the January 12, 2010 is that the response phase was prolonged for over ten (10) months because of the Cholera outbreak that required ongoing relief assistance from the local and international agencies.

Figure 4: Number of Years of experience reported by first responders.



As presented in the **Figure 4**. above, the majority of first responders who participated in the disaster response (35%) reported less than one year of experience in disaster response domestically and/ or internationally. Two groups, 11 - 15 and 21- 25 years represented 18% of the subjects followed by a group of 1 -5 years (17%). It was reported by interviewed subjects that inexperienced agencies and relief personnel were problematic to work with particularly in such complex emergency response setting and austere environment. Subjects USMA14 reflected the difficulties in communicating with inexperienced and self-deployed individuals "*It was reported that there were large number of different groups of relief agencies who were self-deployed and who were not trying to make contact with the Haitian Government and were providing care without any direction or coordination which made it very difficult for the Mass general hospital teams in Haiti*".

Table 4. Agency Classification:

Country	Agency profile	Level	Structure Type
Haiti	Governmental ministry and affiliated offices (2)	National	Public
	Non-Governmental Agency (2)	Departmental	Mix/Private
	Humanitarian Relief Agency (1)	National	Independent
USA	US Government Agency/ affiliated offices (2)	Central	Federal
	US Federal Agency (2)	Regional	Federal
	Non-Profit Organizations (2)	Local	Mix/Private
	U.S. Hospitals (2)	State	State
	U.S. Universities (1)	Local	State/ Private

Note: Mix agencies are U.S. Non-Profit Organizations that are officially registered in Haiti as local NGOs but affiliated with their U.S headquarters.

To facilitate the classification of the agencies involved in the response in Haiti, a classification of participants' organizations or institutions was developed in three different structure types:

1) The Haitian agencies include governmental ministries and their affiliated agencies (1);

2) The Local Non-Governmental and the humanitarian relief agencies (4);

3) The U.S. entities are regrouped into central, regional and local agencies that were either governmentally, federally and state wide or privately funded (9).

Local and international Relief agencies' internal and external communication plans

Relief Agencies' Internal Communication Plans

Sixty-four percent (64.7 %) of the respondents (N=11) were able to respond to this section of the interview and provided information on the internal communication plan used by their agency during the deployment time in Haiti. They also highlighted their thoughts on the efficiency of this plan based on the experiences in Haiti and provided feedback on revisions or improvements that were made to these plans based on the response experience in Haiti. As reported by most agencies' staff, an autonomous internal communication plan existed within agencies and was the preferred method of communication used to share information with their personnel. The internal communication plan was specific to each agency/ organization to either communicate with the headquarters in the U.S. and with their U.S. deployed staff on the ground or within their staff usually based in satellite office in Haiti if the agency had such existed physical structure. To list the findings related to this section of the interview, participants were asked to elaborate on the preferred method of communication used by their agency during the 2010 disaster response in Haiti; to state if it was a new developed communication procedure or a pre-existed one and finally to provide their opinion on the efficiency of the communication procedure that was used.

The summary table below presents the most relevant findings of agencies' internal communication plan and examples of respondents' answers based on questions asked and information collected through the interview process.

Table 5. Use of an Internal Communication Protocol

Internal Communication Procedures	Key Findings	Reported Participants Statements
Haitian government and local agencies N=4	• Limitation of the Haiti government to communicate with their Ministers; • No clear evidence if Haitian local organizations had a developed internal communication plan for their institutions in case of emergency; • International agencies communication plans were preferably adopted and used by Haitian local agencies; • Trained and experienced local relief agencies had little trouble using their pre-existing internal communication plan to activate their operations in Haiti and to request assistance from their headquarters.	"It was extremely difficult because all government buildings/ministries were damaged. Humanitarian agencies' primary concern was to execute their plan without seeking to identify people in command in Haiti". (**HAMI1**) "The most preferred methods of communication were mainly within agencies; each agency would be communicating with its own team and crew on the ground" (**HAHA16**). "Since we didn't have a plan, we had to follow the DoD communication procedures because they knew better what to do in a complex humanitarian response" (**HAUS6**) " Although our operation center was destroyed, we were able to activate the Operation Mechanism of Coordination to coordinate the response with the departmental offices but also to request assistance when we had overcome our local capacity to assist the victims" (**HACR16**)

U.S. Federal and international Agencies **N= 7**	• Experienced U.S. Federal Agencies' communication procedures were pretty standard to share information within their agencies • Adaptations were made to pre-existing communication procedures because of the context and the destroyed infrastructures in Haiti (Limited internet access, no satellite phones, Cellphone towers destroyed) • Small NGOs and Hospital Universities did not have a written communication plan but verbal instructions were given before landing in Haiti. • Communication procedures were quickly modified after relief agencies had reached Haiti because of the complexity of the disaster.	"We have used the same communication and coordination protocols that we have used in previous disasters; although medical protocols were adapted" (**USFE13**) "We created something that was more adapted to the disaster context instead of jumping on the first plane and go to Haiti" (**USHC15**) "I don't recall receiving anything, there were verbal instructions. Security and safety instructions were verbally provided but nothing in written" (**USUN9**) "There was a plan but I think it probably changed very quickly and frequently because of the scale and the complexity of the disaster, surgical teams were put in use immediately" (**USHA5**).

With the exception of the Haiti Red Cross office, other agencies' respondents admitted they didn't have a process, but could describe what internal communication processes should have existed. The Red Cross had a detailed internal communication mechanism and emergency operations activation process. The Haitian agencies' representative referred to this lack of internal communication procedures as a great concern and an urgent need for the government to address. It was highlighted that Haitian officials exclusively relied on the UN cluster system as an external communication platform to meet with the government ministers since almost all the government offices were destroyed. An experienced representative of the Haitian Government and technical assistant to the UN agencies in Haiti also expressed that the National Risk and Disaster Management Plan was not developed to assist with departmental disaster response but the DPC regional offices were not equipped or trained to support a disaster at a national level therefore communication plans were not prioritized for a complex emergency response situation "*On n'avait jamais pensé que le niveau central serait autant atteint. Nous avions toujours eu à faire des préparations pour les niveaux départementaux mais pas le niveau central*''(HAPC10).

Respondents were questioned on the efficiency of their agencies' internal communication procedures. One Haitian local agency and eight U.S agencies' staff responded to this question. Most U.S. relief agencies (72%; N=8) stated their satisfaction with the communication plan used and confirmed that it was efficiently used as opposed to the Haitian local agencies (16%). Among the nine responses collected for this section of the interview, five (5) agencies used a communication protocol that was previously established for their agency while four (4) agencies created a new procedure that would fit

this specific 2010 disaster context. During the interview, respondents were asked if they could share the National Response plan document; among those who agreed to share the plan, only one respondent shared two documents. The first is the conceptual operation plan for the risk and disaster management of the law enforcement system in Haiti entitled "***Compléments d'Informations Pour la Planification Opérationnelle dans la Gestion des Risques et des Désastres de la Police Nationale d'Haïti (PNH)"***; and the second one is the 2001 National Intervention Plan of the National risk and disaster management system "***Plan National d'Intervention du Systeme National de Gestion des Rsiques et Desastres***".

Relief agencies' external communication operations

All participants (100%; N=17) responded regarding their external communication procedures and experiences during their post-disaster response phase in Haiti. As reported, UN cluster meetings were mainly used as the platform for external communication between agencies. This section of the interview underlined the challenges experienced by most agencies' representatives and helped elicit the limitations related to the complex emergency response context, to the existed infrastructures in Haiti and the multi-agencies involvement in the humanitarian assistantship.

The information was captured by asking the participants to describe their communication experiences with other agencies during the disaster response in Haiti; to evaluate the communication ease or difficulties experienced with local or international

actors and finally if they were aware of communication procedure different than the one used by your agency while collaborating with stakeholders in Haiti.

The summary table below presents the reported external communication experiences of most agencies' involved in the disaster response phase in Haiti and examples of respondents' answers based on questions asked and information collected through the interview process.

Table 6. Reported External Communication Procedures

External Communication Procedures	Key Findings	Reported Participants Statements
Haitian Local Agencies **N= 6**	• Most respondents described the first 4 weeks as a real "**Chaos**" • Centralized Meetings were convened and coordinated by the UN agencies (WHO/PAHO, UNDP, UNICEF, MINUSTAH); • The numbers of coordination meetings were extremely difficult to attend and the UN log base where the coordination meetings were convened was described as a "**Babel Tour**"; • Reported Conflicts among international relief agencies; • Reported frustration for the Haitian local relief agencies to communicate with international agencies specifically at the medical facilities;	"It was clear that there was not an organized or planned communication structure. At first it was very difficult, it was a chaos. Only nine months after, we had been able to find a sort of coordination and communication mechanism between partners and yet it was very limited" (**HAPI7**) "The management of the emergency response on a broad perspective was not efficient. There was a lot of overlapping, competitions among agencies, a lot of "waste of time and resources" (**HAHA16**). "In addition to the centralized coordination meetings, there were so many other types of cluster reunions, coordination among the small agencies, health agencies, nutrition, water and sanitation, displaced population meetings" (**HAPC10**). "The U.S controlled the entry points in the country (Airport tour, national ports) prioritizing U.S. aircraft access to the country, which create conflicts with other countries" (**HAMI1**).

U.S. agencies **N= 11**	• Limited coordination even among U.S. agencies • Too many different emergency response protocols were used. • Urban Search and Rescue teams lacking of professionalism • Absence of ethical principles of many international relief personnel and lack of respect of international disaster regulations • Absence of the Haitian Government leadership and authority to guide international relief agencies' response plans.	"It was difficult, everybody kind of became very independent, so WHO, the Israelis, DOD, DHHS, FDA, CDC everybody was rushing down to try to help but there was no overall coordination of who was responsible for what geographical areas, who was doing what to make things happen with a collective effort" (**USCD8**) "There was no communication between US and French search and rescue teams**." (USHA5)** **"**There was also so many self-respond teams that were not coordinating with no body**" (USMA14)**

In addition to the key findings highlighted in the summary **Table 4**. above in regards to the external communication strategies used by local and international relief agencies in Haiti to coordinate the needed relief effort and to respond in the complex emergency setting**,** respondents provided their opinion on the possible language barrier experienced through the coordination meetings. They also commented on other communication procedures that were observed while deployed in Haiti. Seventy-six percent (76%) of the responses collected helped understand language barriers experienced by first responders. Only four (4) people reported difficulties communicating because of a different language used while five (5) did not recall any major problem and four (4) stated they experienced some limitations because of several languages used by several nations. Three specific conditions eased the communication process between international agencies and Haitian local actors. The first one was the presence of field office staff in Haiti. Several international agencies were more informed of the complexity of the disaster and the resources needed prior their trip because of the field office located in Haiti with Haitian staff on board handling the pre-assessment phase remotely. Respondent USCD2 stated "*One thing that helped a lot was the existence of the CDC Haiti office that was opened in 2002*".

The second was the presence of French or Creole speaking personnel among rescuers traveling to Haiti "*We were well prepared and had little language barrier because we had a group of Haitian helping with the cultural and language aspect*" (USHA5). The third was the ability to identify and hire translators once they reached the Haitian territory "*No, it was not a major challenge. That was one of the initial key. That is 100% what the local medical host group brought to us, they provided contact and information where to hire translator*" (USMA11).

All the respondents recalled that several other communication procedures were used on the ground because of the large diversity of nations from around the world collaborating on the disaster response.

Strengths and Limitations Reported by Agencies' staff

Nighty- four percent (94%; N=16) of the respondents provided answers to the strengths and limitations of the agencies during the complex emergency response experience in Haiti.

Table 7: Strengths and Limitations of U.S. and Haitian Local Agencies

Strengths	Key Findings
US Agencies **N = 11**	• Presence of an implemented field office implemented with local staff enabling communications with the local government officials and to facilitate logistic support during crisis; • Being able to change field offices' mission and local staff's from regular operations to relief centered operations; bringing the leadership and organizational skills; • Proximity to the disaster location: US relief agencies were able to deploy quickly than other nations; Sharing the same demographic characteristics, same language, same culture, knowledge of the environment (Statement from Florida first responders); • Establishment of pre-deployment connections with grassroots organizations, with the community to assess the needs of the population and locating where the resources were mostly needed; • Having a large international disaster specialized teams with medical specialty capabilities to operate in resource limited environment;
Haitian Agencies **N = 6**	• Motivation and determination of Haitian medical staff to work above and beyond their capabilities with little resources; • Strong commitments toward the public in general (specifically for well know NGOs) • Strong resilience capabilities;

Limitations	***Key Findings***
U.S. Agencies **N = 16**	• No transportation, no logistic supports for the Urban Search & Rescue teams • Different marking system used; total chaos and confusion among international agencies • Safety and security of the US relief personnel and their equipment
Haitian Agencies **N = 5**	• Weak Public Health Infrastructure in Haiti previously to the earthquake • Weak leadership of the Haitian Government even several months after the response phase • Political aspect of the humanitarian response in Haiti
Common to both Groups of agencies	***Key Findings***
Common Limitations	• UN headquarter office was destroyed with several deaths • Mass casualties, large death toll, management of remains; risk of epidemics as potential treats • US and Haitian responders located in Haiti had to provide for their families while working as first responders; • Prolonged response phase (18 months or so) • No clear recovery plan and long term care facilities for the injured patients • No clear communication and disaster response plan

Common Strengths	• Strong and several years of collaboration with the Haitian government and the Ministry of Health • Trusted and reliable connections and collaborations between local and international agencies working in Haiti; • Large Haitian American physicians traveling to help • Large donations from all countries

Haitian organizations and U.S Agencies' representatives provided important pieces of information relaying the identified strengths of their organizations during the response phase but also highlighted the limitations and challenges they faced during the deployment time in Haiti. According to the list of U.S. agencies' strengths, it is important to emphasize the geographic proximity of Haiti to the United States, which had been instrumental in providing all types of emergency response assistantships in a short time. The urban search and rescue team task force 3 based in Florida was only one hour and a half away, and they deployed to Haiti within 48 hours after the disaster. The other strength was the ability to easily identify English speaking people in Haiti who volunteered to work with the first U.S. responders.

In term of limitations, the most commonly reported ones are: the lack of transportations, the overlapping of services but in a disorganized fashion and the lack of leadership from the Haitian government. Agencies also presented common areas of strengths and limitations although almost all of them were related to the weak public health infrastructure that was predominant in Haiti prior the earthquake and the prolonged disaster relief timeline because of the subsequent cholera outbreak that was declared in Haiti just eight months after the earthquake.

Perception of existing and use national communication / response plan – protocol:

This section of the interview captured information related to the perception of an existing national emergency response plan proposed by the Haitian government. To the question "*were you aware of a national emergency response plan that was proposed by the Haitian government to share information and coordinate the response with the relief organizations?***",** 100% of the participating subjects (N=17) provided a response and one

U.S. agency representation do not answer this question. Based on the information reported by three respondents to this question, key findings related to the design, operation and organization process and government leadership capacity are listed below.

Tables 8. Existence and use of a National Emergency Response plan:

Perception of and use of a National Disaster Response Plan proposed by the Haitian Government	**National Risk and Disaster Management Plan "*Plan National de Gestion des Risques et Désastres*"(PNGRD)**
Yes (19%; N=3)	• Created in 1998, with the technical contribution of the UN agencies, the World Bank Organization and U.S. Federal Government (FEMA team consulting on the project). • It is called the National Risk and Disaster Management Plan • Partially used by the Division of the Civil Protection for small scale disasters at the regional level • Centralized activation mechanism • Implication of several local and international agencies for the operation • Bottom to top activation mechanism Vs Top to bottom process • Little implication of the Haitian government officials besides the Minister of Interior and the Minister of Health
No (82%; N=14)	

Only three (3) Haitian local agency representatives confirmed the existence of a national plan although they also noted that the national risk and disaster management system was not well implemented, the risk communication and response plan was not well

disseminated nor well known by the Haitian President. As stated by an interviewed government technical assistant "*Yes, there was a draft national response plan but the problem was mainly that until now the annexes (coordinating branches) have not been defined and identified. Therefore, the existing plan was not a functional one*". The respondent continues to add "*The president and the prime minister didn't prioritize this plan. After the 2010 earthquake, the president created a mix commission to develop a response plan while there was one already created and available to use" (***HAPC10**).

Almost all U.S. agencies' representatives were not aware of any directives from the Haitian government to use a national emergency or a centralized communication plan. "*I am not sure who had it, who knew about it, because it certainly didn't seem to me that a certain plan had been followed*" (**USCD2**). Other respondents clearly expressed the desire to receive guidance from the Haitian government to adapt their response plan **"***I participated in almost all the coordination meetings, I can't say there was a national response plan in the initial phase, even when there was some sort of coordination plan that started weeks after it was difficult to confirm if the plan was from the Haitian government or from the UN because it was clearly demonstrated that the UN through the health clusters was in charge"* **(USMA11).** And finally, another clearly stated that no plan had existed **"***No idea of the existence national response plan. At no moment during the various cluster meetings, a national response plan or communication coordination plan has been proposed, or even mentioned'' (***HAUS6***).* The overall response rate (RR) for this specific question was low (19%) when compared to the others questions for which the response rate is 65% or higher.

Lessons Learned and Recommendations of relief agencies

All seventeen respondents (100%; N=17) provided feedbacks and recommendations on best practices related to complex emergency responses in the following areas: on national changes needed to improve emergency preparedness and response in Haiti; on international procedures; and protocols to adopt in regards to international disaster settings. Recommendations were first analyzed and categorized by groups of Haitian local agencies and U.S. agencies and then a subsequent group called "Mix Recommendations" was also created based on general opinions and suggestions that were common to both groups. Below is a summary table of most reported recommendations provided by respondents through the interview process.

Table 9. Experience-based recommendations and perspectives of U.S. and Local Based relief agencies.

Agency's Category	Lessons from 01/12/10	Example of statements
U.S. Agencies **N=11**	• Be prepared for long disaster response phase mentally and physically • International First Responders must work with local agencies for logistic supports and guidance prior the departure; • Limited Air Control delays the response and the distribution of supplies (First responders arrived before medical cache) • Not enough specialized response team (pediatric, Disabilities) • Safety of the first response personnel, the danger is not what you think it could be (Epidemics/ Infectious disease)	"The experience in Haiti, gave us an experience on how to provide sustained emergency response support in complex emergency**" (USCD8)** "The huge take away message is to have someone 24/7 at the airport that is registering foreign medical teams and would share inform about where is need" (**USMA11**) "It seems that other international responders were less aggressive because they were scared on body fluid and the false perception of infectious disease transmission" (**USFE13**)
Haitian Agencies	• Haiti Government should be more careful for what you ask for and how you request assistance	"The federation has learned from this disaster experience that multiple representatives at the same time in a destroyed country without adequate logistic support and without a functional operation center is very challenging" (**HACR12**)

N=6	• Learning to say "NO" to small Non-profit organizations and put restrictions if needed • Learning to mitigate and to prepare as opposed to develop only response capacities • Long term medical assistance for disabled groups after response phase	"I already knew that most of the new organizations would fight for more visibility so I was not surprised" (**HAPC10**) "In Haiti, for the past 20 years of experience, we do 90% response and only 10% prevention/ reduction of risk" (**HAPC10**)

Reported lessons learned from the 2010 Haiti earthquake experiences were presented by Haitian Local and U.S. agencies categories and were combined by most frequently reported lessons from all seventeen respondents to facilitate the comprehension of the findings. In addition to the lessons listed above, several U.S. first responders have recounted the following facts:

1) The Haiti disaster was a good wakeup call and a strong demonstration of the problems with international disaster response not being sufficiently professional;

2) The Haiti experienced helped many agencies with the disaster response in Nepal on April 2015;

3) Also, the Haiti disaster served as a model for the Nepal government after the 2014 earthquake to request the specific assistance needed in the early phase of the response;

4) The UN cluster system was tested during Haiti's earthquake for the first time, therefore it helped identify areas for improvement;

5) The 2010 earthquake in Haiti has opened doors for the social media as a potential avenue to reinforce ways of identification for assistance needs and humanitarian effort. Several people were located because they had access to a type of social media platform (Facebook, Twitter, Google Messenger, Skype)

Recommendations from Disaster Response Relief Agencies.

Recommendations were also collected during the interview and provided important information on what Haitian actors and U.S. first responders believed would be helpful in the near future in order to minimize the potential treats that Haiti is currently facing or will experience in the future if not well prepared; and also to better prepare for the future disasters that might impact the Caribbean region, more particularly the Hispaniola Island.

As presented below, the recommendation section is divided into recommendations made:

1) At the national/ government level
2) At the operational/ execution level
3) At the community/ public level

Table 10. Recommendations provided by Haitian local and U.S. agencies

Level of Recommendations	Key Findings
National/Governmental	• Haiti should comply to the International Health Regulations (IHR) as proposed by the Global Health Security Agenda in 2003 (US) • Education for the government officials, the policy makers on disaster preparedness and response and create legislation for a legal organic structure to release relief funds and to activate operation mechanism (HA)

	• The government should limit the number of relief agencies coming to the country in the first phase of response. 1) Urban Search & Rescue Teams / EMS/ Shelter 2) Food and Sanitation (clean water) / Disease Surveillance 3) Rubble removal / Engineering / Continuity services (HA)
Operations/ Execution	• The UN mission for security and protection should change to become a humanitarian and rescue mission (US) • Regulation and control of the country's airports and ports by government and closest partners involved in response (US) • Consolidation of all emergency response plan used in Haiti to create a one standardized model (HA) • Ensuring that safe air traffic is happening. Educate and include UN and WHO clusters in the national disaster medical response (US)
Community/ **Population based**	• Developing risk communication capabilities among communities (US/HA) • Decentralized emergency response plan and more leadership at the local level (US/HA); • Include protocols safety for women, children, disabled groups, shelters and immunization (US)

IV. DISCUSSION

This study explored the Haiti disaster relief effort from a different angle by offering the opportunity to investigate and analyze the experiences of two groups of agencies' simultaneously which offers a more comprehensive approach to investigate the communication strengths and challenges experienced during and in the aftermath of the 2010 earthquake in Haiti. Although other articles provided significant findings on Haiti's earthquake humanitarian assistance and relief effort, their strategies were pretty distinct and less broad than this study (Babcock et al., 2012; Weisenfeld, 2011; Kreiss et al., 2010).

The findings of this study are very much concordant with the results of other published articles, which have contemplated the chaotic state that prevailed in Haiti was due to an overly large presence of foreign agencies. Haiti, was described as the republic of NGOs because of the high number of nongovernmental organizations working in Port-au-Prince the days following the 01/12 earthquake (Klarreich & Polman, 2012). This number was estimated to be over 10,000 (World Bank, 2009). The former UN special envoy after January 12, "Haiti has the second higher number of NGOs per capita in the world" (Bill Clinton, 2011). Similarly, to other findings, the perceived level of disorganization and miscommunication at the operational and leadership level identified in this study's results had quickly overwhelmed the capacities and resources of most relief agencies leading to a little or almost no transition from an emergency response state handled by international organizations to an inefficient recovery phase managed by the local agencies (Leaning & Guha-Sapir, 2013). Auerbach et al. ,2010, had also identified many communication challenges in his investigations which can be compared to the findings of this study although his reported communication problems were addressed on a difference angle and

viewed on a different perspective by the author. In conclusion, the take home message is that "precise and reliable form of communication between relief agencies at the ground level could reduce chances of disagreement between aid workers and should be the lessons to apply to future disaster-response situations" (Auerbach et al., 2010).

According the UN published assessment reports, in the aftermath of the 2010 earthquake, Port-au-Prince had the largest presence of emergency response experts, working for the most experienced and equipped agencies in the field of disaster response (OCHA, 2012). Over 420 relief agencies were collaborating on the same ground for this common cause and brought the evidence of what the most urgent needs are in case of a disaster and helped identify existing limitations related to international disasters (Karunakara, 2010). The presence of multi-disciplinary teams at once on the ground identified in this investigations were also reported as communication and coordination challenges.

The following considerations should be entertained based on the responders describing the external communication between agencies:

The particularity of the earthquake in 2010, besides the high number of deaths that it caused, mainly resides in the annihilation of the government structure itself which has been problematic in assuring the coordination of the disaster response plan (Karunakara, 2010). Referring to the U.S. communication sharing model or the national response system in Haiti, local leadership required to initiate coordination was lacking in a context of uncertainty but especially when considering the massive influx of relief actors operating in Haiti.

Therefore, the existence of a communication plan or its execution not prioritized when determining the minor role played by local actors that were quickly overwhelmed by the scale of the disaster and by not being involved in the inception phase of the response effort. A detailed analysis of the structural determinants of decision-making at the top level of governance during a crisis would have been interesting and would probably revealed additional elements in regards to the challenges in coordinating multitude stakeholders using different communication plans. The current study's aimed to explore the experiences of first responders' but didn't emphasize on governance capabilities nor analyzed factors that could alter or delay the decision-making process.

At the United Nations conference in New York in March 2010, it was proposed by the Prime Minister of Haiti that the first lesson of the 2010 EQ was to create a multinational alliance among local and international actors, based on the capacity of the United Nations cluster system, which could in the situation of complex emergencies assume a leadership role in the establishment of coordination mechanisms between the actors in the very first days.

On the other hand, still within the context of the national response system, it is urgent to empower the decision making capacity at all level of the disaster response system including the local community level. That said the study did not look at how the Haitian resourcefulness allowed for concrete actions for the survival of people in the immediate post-earthquake. However, it is certain that core values of the Haitian people have greatly contributed to a self-coordination within communities mitigating the communication deficits experienced at the upper level which affected the effectiveness of emergency response. For example, Haitian communities were able develop resilience capabilities

within the very first weeks of the earthquake by restoring their daily operations and activities around the several IDP settlements implemented in Port-au-Prince. In this sense, it would also be recommended to look into more details at the communication means used for bidirectional communication between the central and the local level.

The earthquake recently experienced in Nepal in 2015 is the first demonstration that lessons from Haiti's complex humanitarian response can actually bring several recommendations to the world. Several recommendations deserve to be retained, ones more important than others; such as first, granting personal safety on the ground, securing efficient air and ground transportation methods, harmonizing central and regional coordination mechanisms and lastly, adopting standard global health initiatives that countries should adopt and adapt based on their specific environments and constraints. The former recommendations are specifically applicable to Haiti and U.S. agencies, but the latter is a more general recommendation that can be offered universally.

Tragedies such as the 2010 Haiti earthquake, and the 7.8 earthquake in Nepal in 2015 should direct the world to be more cautious and concerned about the ways emergency response resources are used during international relief efforts and should give the opportunity to develop stronger and more sustainable programs in these countries. Haiti's disaster was a learning opportunity for all local and international relief agencies. Based on respondents' experiences, the least experienced agencies' staff had gained significant knowledge and skills while the better established and well-known agencies found the opportunity to test and improve their capacities. No matter the angle considered in a disaster, there will always be valuable lessons to retain or to be learn.

Recommendations:

Based on the study findings, the follow recommendations would help address communication in a major disaster setting and subsequently enhance coordination efforts. All of afore mentioned would lead to a better impact in terms of response for the benefits of the affected populations. In more details, Haitian local agencies' representatives provided recommendations that are more policy and governmental oriented while U.S relief agencies' recommendations were more oriented toward technical, approach of operations and International health regulations and standards of care. It is unknown if all these recommendations have been shared with the Haitian Government or if an improvement has been initiated for the harmonization of all the government entities around the risks that Haiti faces everyday but it is almost certain that the Haitian communities are more aware of the treats and more enthusiastic to learn and to apply risk management and preparedness concepts that are recurrently disseminated by NGOs.

Limitations of the Study:

1) **Geographic:** The results of this study are not representative of the entire country. Over 500 000 people were displaced in other departments of Haiti. Several local and international relief agencies' representatives who worked in other regions (department) of Haiti besides Port-au-Prince were not interviewed therefore their experienced challenges and strength could not be underlined in this report. It would be difficult to compare disaster response experiences between agencies working in the capital and those working in the other departments.

2) **Sample:** The challenges and strengths identified through the interviews are only the reflection of US and Haiti first responders and do not include the perceptions of other international relief agencies (Canadian, French, Russian, Israelis, Dominican Republic, Cuban and Caribbean organizations, etc.)
3) **Time:** Qualitative research study can be time-consuming. Given the time constraints within which we conducted this qualitative study, it is safe to assume that it will benefit from additional quantitative investigative methods. Although we had quick response and approval by the IRB, the scheduling and conducting the interviews took longer than expected, particularly for the reasons articulated further below. To interview UN agency representatives, several approvals were needed which took a long time.
4) **Intervention:** Phone interviews are often considered less suitable for qualitative studies since they are a less attractive method and can undermine the quality of information than the in person interview (Novick, 2008). It was more difficult to recruit Haitian Government authorities and the UN agencies when phone interview was proposed as the method of communication. In addition, phone numbers shared for communication were not always accurate because many agencies' representatives have been promoted to new positions or have left the institution for which they had worked in 2010. Therefore, it was difficult to communicate with them since their emails and phone number have changed.
5) **Communication and Technology:** Communication with Haiti was not easy; Although the "Tape a Call" system was tested prior to the interviews; it was not efficient to record conversations on prepaid card. Very few people in Haiti uses

Skype for conference calls and when they do, their internet system is to slow to permit a 30 min telephone conversation, forcing the interview to alternate between different calling systems.

Possible Bias of the study method:

1) **Temporal Effect:** Time of this study, six years after the earthquake, several subjects reported not remembering all the details. Recall bias is commonly identified in studies that require participants to use their memories to answer questions, especially if the event happened a long time ago.
2) **Reliability:** Not having a second person to assist with the validation process (single reviewer bias). A qualitative research requires a second pair of eyes to examine the process and the findings.

Strengths of the study:

1) **Language:** Being able to conduct interviews in both languages English and French facilitated the conversation with the Haitian representatives who were more comfortable to be interviewed in French, sometimes Creole.
2) **Topic:** Communication is a crucial component of any emergency management or disaster response plan, and it was identified as being an important issue in the disaster response in Haiti in 2010.
3) **Response Rate:** The targeted study population was 20 subjects, with a minimum of 12 subjects needed to justify the results; 17 subjects were interviewed (RR=85%). A diverse group of agencies was selected: U.S. federal agencies,

Haitian government agencies, Non-Governmental organizations, Community-based organizations, University hospitals.

4) **Research Questions:** The results helped answer the research questions and guide future recommendations and strong perspective for the development of a national response plan in Haiti.
5) **Cultural Competency:** Knowing the context, the culture and because the researcher is a Haiti native leaving in Haiti at the time of the disaster, she was well equipped to lead the interviews and was able to quickly understand and facilitate the conversation flow. But the fact that she also experienced the disaster personally, her knowledge could also potentially be viewed as a bias.

Dissemination of Information:

The findings will be reported in aggregate format and then disseminated through summary reports, abstracts and educational materials to the national, regional and local agencies in Haiti, including governmental entities, private local and international NGOs, various institutions, community leaders and civil society representatives. The reported findings will highlight positive communication experiences and challenges that can be addressed in the short term, mid-term and long term. The expectations are that the study results might be used to educate relevant agencies on communication factors that might have impacted the disaster response in 2010, help them strengthen their crisis communication protocols and reinforce their partnership strategies during disaster response and recovery situations.

V. CONCLUSION

If the analysis by some authors demonstrated enlightening facts on humanitarian assistance strategies that were implemented by international agencies in Haiti after the earthquake, the results of this study not only outline the mishaps by world experts at the planning level. A certain discomfort among the international agencies, between local and international agencies has also been identified in this study. The weaknesses in governmental institutions dedicated to design and implement the risk and disaster management plan have also been outline.

Indeed, results obtained from interviews confirmed that the challenges were experienced at several levels and during various phases of the response.

This study provides a more in-depth understanding of the disaster response context by comparing the similarities and differences between the communication approaches. The results show that local and international relief agencies had used different communication plans and structures within and among agencies. In regards to the national response plan research and according to the data gathered, it is apparent that if this plan had existed it was not well disseminated. Based on the respondents' interview, the findings of this study also suggest that the Haitian government did not have the ability to absorb the resources that were quickly deployed in the country in a very limited time.

Several elements identified at local and international level may have contributed to weakening the general response:

First, At the local level, as reported by several assessment reports published prior to the 2010 earthquake, the stormy past of the country, the weak public health infrastructure, the lack of local capacity and expertise and the weak government leadership,

the absence of prevention and mitigation of risks and disasters programs, lack of decentralization of responsibilities, are just among a few challenges related to the precarious situation of Haiti (USAID, 2011).

Second, at the international level, based on the findings of this study, the lack of experience in emergency response, the eagerness to invest with directive, competition among agencies for visibility, lack of professionalism of certain groups of first responders, the presence of innumerable small organizations with non-essential programs and activities in Haiti, waste of resources, inadequate delivery of equipment and supplies, lack of cultural competences and linguistic capabilities can also explain the chaos reported by several respondents among others. These models of study show that there is significant room for improvement both at local and international level to better plan for future disasters. Long-term investments should be designed based on evidence-based communication models and implemented according to local needs.

The findings of the study give rise to subsequent questions that could lead to additional investigations such as; how many international organizations based in Haiti had an internal communication plan? Do agencies' have a risk communication plan for their employees given that the country has been and is consistently at risk for an earthquake? How many local agencies in the civil society or how many governmental institutions made a plea for a national budget specifically allocated for disaster prevention? How many trainings has been conducted in schools, hospitals, public health offices to anticipate an earthquake occurrence?

The limitations in communication that were reported and experienced are and remain a major part of the challenge confronting disasters in Haiti. Significant efforts

remain to be accomplished before Haiti reaches the desired level in terms of development and implementation of communication plans, and efficient coordination for the country. The disaster of 2010 by taking away the lives of more than 250,000 Haitian and changing the lives of hundreds of thousands of others, should not remain a mere historical tragedy in the history of mankind but should become an opportunity to draw lessons and create models for other countries to better prepared and cope with future disasters. The magnitude of this earthquake could probably cause as much distress even in a developed country with more resources and trained personnel.

The results of this study provide sufficient evidence to confirm certain communication challenges even at the highest levels of the governance chain. Also, the longitudinal risk and disaster management model that exists in Haiti is a less flexible and autonomous system to respond to a complex disaster as compared the U.S. circular model that provided more leadership and authority to the regional and local level. Distinct and clear roles and responsibilities of the Haitian government and local NGO representatives should be clearly established and tested in preparation of a disaster and last but not least, the involvement of communities is imperative to promote resilience capabilities at the community level.

Further recommended studies:

For future research on this topic, and to reinforce the findings of this study, it would be recommended to include subjects and participants from additional countries besides the United States, as international agencies involved in the emergency response effort in Haiti in 2010 came from over 40 different countries (Margesson & Taft-Morales, 2010). In

addition, the results of a qualitative research design coupled with a quantitative methodology with additional variables to a larger population would greatly reinforce the findings and would provide a well-rounded collection of information needed for subsequent analyses. Also, a mixed method would support subsequent analyses and the case for a more in-depth investigation. Exploration of other regions of Haiti would also help understand how disaster relief efforts were deployed and experienced as almost 500 000 people fled the capital to relocate in other cities specifically the Artibonite/Central Plateau region and in the North in the aftermath of the earthquake for which humanitarian assistance and resettlement infrastructures were also needed (Margesson & Taft-Morales, 2010)

Finally, coding and themes formulation can be burdensome for the researcher therefore having additional capacity to review the coding process would help reduce bias and validate the quality and effectiveness of interview transcripts and interpretations.

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APPENDIX SECTION:

Appendix A: Invitation Letter to Participate in Interview

Dear Sir/ Madame,

International and local government and non-governmental agencies have played a tremendous role in working with the Haitian community in response to 2010 disaster in Haiti. We are contacting you because we believe that your expertise and knowledge about the role played by several agencies in response to the 2010 disaster response can continue to support the recovery phase that is on-going in Haiti. In a continued effort to understand the communication challenges your agency had experienced during the response phase and to further reinforced communication protocols and strategies among agencies in the future, we will need your help to complete a short interview. Your expert opinions and perceptions are the only elements required to answer the interview. It should not take longer than 30 minutes to complete. Potential benefits of this interview are to highlight government agencies and NGO's contributions with regard to emergency response in Haiti and to understand what could have been done to enhance the communication methods during disasters in Haiti or in other regions. The goals of this study are to identify communication experiences of first responders while deployed in a developing country and to provide to the Haiti government and stakeholders with a list of recommendations and tools that will help them improve multiagency coordination response effort in the future. Information provided during the interview will remain confidential, no individual identifiers will be kept or used for data presentation. We are also happy to provide more information via email or phone as needed. Thanks in advance for your consideration and response. For any question please contact me: Barbara.roussel@unmc.edu. Best Regards,

Appendix B: Interview Questions and Guide

The interview guide includes five domains and five sections, eight questions and eight probes. It will take approximately 30 minutes to complete an interview.

Domaine	Themes	Questions	Probes	Time
Introduction	Disaster experience and Perception of Communication	Can you explain how important was your contribution in Haiti in 2010 as a first responder? How would you describe your communication experience as a first responder during the disaster response in Haiti?	How different or similar was your experience in the Haitian context as compared to your previous experience? How easy of difficult was it for you to communicate with Haitian local actors? with other international actors?	5 min
Knowledge of communication	Existence and use of communication protocols	While collaborating on the disaster response in Haiti, what national communication plan was proposed by the Haitian government to share information with relief organizations?	if yes, can you briefly describe this plan?	5 min

Approach /Strategies	Collaboration among organizations	Can you elaborate on the preferred method of communication used by your relief organization during the 2010 disaster response in Haiti? Were you aware of communication procedure different than your agency that was adopted by other local or international organizations to share information while collaborating with stakeholders in Haiti?	Was the communication procedure and method you describe a newly developed one? or was it already used elsewhere, please elaborate? how would you consider your organization's communication procedure an effective one? If yes, how effective do you think these procedures were effective?	7 min
Limitations	Challenges/positive experiences	Can you briefly explain the level of difficulty or facility your agency experienced to communication decisions with Haitian counterparts?	Would you consider the language a barrier?	5 min

Recommendations/ perspective		What are your lessons learned from your communication experience during your humanitarian mission in Haiti? What would be your recommendations to improve the communication protocols and strategies for an effective information sharing in Haiti in case of another disaster?	How do you think your agency will use their communication experiences in Haiti to reinforce their communication strategies /protocols in the future ?	7 min

Ideas		Can you please specify other factors, if existed, that you feel were obstacles to your organization in achieving its objectives during the disaster response in Haiti? What would you do differently in term of communication if you had to go back and work in this context again?		5 min

Appendix C: Translated English/French Questionnaire

E: Can you explain how important was your contribution in Haiti in 2010 as a first responder?

F : Pouvez-vous expliquer l'importance de votre contribution en Haïti en 2010 comme agent humanitaire ?

E: How would you describe your communication experience as a first responder during the disaster response in Haiti?

F : Comme pourriez-vous décrire votre expérience de communication comme agent humanitaire pendant la réponse post-séisme en Haïti ?

E: While collaborating on the disaster response in Haiti, what national communication plan was proposed by the Haitian government to share information with relief organizations?

F : Durand votre collaboration en Haïti pour la période post-séisme, quel plan de communication national que le gouvernement Haïtien avait proposé pour partager avec les agences humanitaires ?

E: Can you elaborate on the preferred method of communication used by your relief organization to share information with other agencies during the 2010 post-disaster response in Haiti?

F: Pouvez-vous élaborer sur la méthode de communication optée et préférée par votre organisation pour partager des information avec d'autres agences pendant la réponse post-séisme en Haïti ?

E: Were you aware of communication procedure different than your agency that was adopted by other local or international organizations to share information while collaborating with stakeholders in Haiti?

F: Etiez-vous au courant de procédures de communication autres que celles utilisées par votre organisation que d'autres agences nationales ou internationales utilisaient pour partager des informations avec les concernes en Haïti ?

E: Can you briefly explain the level of difficulty or facility your agency experienced to communicate decisions with Haitian counterparts?

F: Pouvez-vous brièvement expliquer le niveau de difficulté ou de facilite que votre organisation a expérimenté pour communiquer les décisions avec les partenaires Haïtiens ?

E: What are your lessons learned from your communication experience during your humanitarian mission in Haiti?

F: Quelles sont les leçons apprises de votre expérience en communication pendant votre mission humanitaire en Haïti ?

E: What would be your recommendations to improve the communication protocols and strategies for an effective information sharing in Haiti in case of another disaster?

F : Quelles seraient vos recommandations pour renforcer les protocoles et stratégies de communication pour une transmission d'information effective en Haïti dans le cas imminent de désastre ?

E: Can you please specify other factors, if existed, that you feel were obstacles to your organization in achieving its objectives during the disaster response in Haiti?

F: Pouvez-vous s'il vous plait spécifier d'autres facteurs, si existant, que vous estimez a causer obstacle à votre organisation dans l'aboutissement des objectifs fixes pendant la réponse post-séisme en Haïti ?

E: What would you do differently in term of communication if you had to go back and work in this context again?

F : Qu'est-ce que vous auriez fait différemment du point de vue communication si vous avez la possibilité de retourner pour travailler dans ce même contexte ?

Appendix D: Information /Consent Form

IRB PROTOCOL # 053-16-EX

Title of Research Study:

Exploring Emergency Communication Experiences in Response to the 2010 Haiti Earthquake: Lessons Learned from International Donors and Local Government Agencies

You are invited to take part in this research study. The information in this form is meant to help you decide whether or not to take part. If you have any questions, please ask.

You were selected as a potential participant in this study because you have been involved in the 2010 earthquake response and recovery stages in Haiti, therefore we would appreciate your assistance to conduct a phone interview in order to share your communication experiences during the disaster response in the 2010 Haiti earthquake.

International, local government and non-governmental agencies have played a tremendous role in working with the Haitian community in response to 2010 disaster in Haiti. In any disaster setting, strong communication and coordination plans among humanitarian agencies are critical to guaranty the success of the response.

In a continued effort to reinforce the multi-agency disaster response approach, this study aims to identify communication experiences of local and international first responders who worked in Haiti to assist with the post-earthquake response, and to provide to the Haitian's government and other stakeholders with a list of recommendations and tools that will help improve the multiagency coordination response effort in the future.

This research will help collect the relevant information needed to understand what were the communications strengths and challenges identified by first responders and emergency managers in Haiti and to understand how their experiences may have impacted the recovery work in Haiti and how we may work to improve the communication protocols in the future.

Upon your agreement to collaborate in this research project, you will be invited to participate in a phone interview to respond to eight open-ended questions. The call should not take more than 30 min. The call will be recorded for verification purposes and to help validate the information that you will be providing

There are no known risks to you from being in this research study.

You are not expected to get any benefit from being in this research study.

The Benefits of this study are several:

1) Recommendations may be made based on study results and will be shared with Haitian governmental agencies and U.S. based organizations to help them either strengthen their communication protocols and strategies in case of a disaster;

2) Educational materials may be proposed based on finding to help improve crisis communication plans in Haiti,

3) Publication of results may be made with other Haitian and U.S. researchers in order to contribute by further researches in risk communication, disaster communication and communication protocols among relief agencies,

4) Recommendations may be made to use study findings to revamp National Response Plan in Haiti.

If you do not wish to participate, you can simply decline the invitation to participate in the interview via email. Instead of being in this research study you can choose not to participate.

There is no cost to you to be in this research study and you will not be paid to be in this research study.

Your welfare is the major concern of every member of the research team. If you have a problem as a direct result of being in this study, you should immediately contact one of the people listed at the end of this consent form.

Reasonable steps will be taken to protect your privacy and the confidentiality of your study data.

The only persons who will have access to your research records are the study personnel, the Institutional Review Board (IRB), and any other person or agency required by law. The information from this study may be published in scientific journals or presented at scientific meetings but your identity will be kept strictly confidential.

You have rights as a research subject. These rights have been explained in this consent form and in The Rights of Research Subjects that you have been given. If you have any questions concerning your rights or complaints about the research, talk to the investigator or contact the Institutional Review Board (IRB) by:

Telephone (402) 559-6463.
Email: IRBORA@unmc.edu
Mail: UNMC Institutional Review Board, 987830 Nebraska Medical Center, Omaha, NE 68198-7830

You can decide not to be in this research study, or you can stop being in this research study ("withdraw") at any time before, during, or after the research begins.

Deciding not to be in this research study or deciding to withdraw will not affect your relationship with the investigator, or with the University of Nebraska Medical Center.

If the research team gets any new information during this research study that may affect whether you would want to continue being in the study you will be informed promptly.

You are freely making a decision whether to be in this research study. Signing this form means that (1) you have read and understood this consent form, (2) you have had the consent form explained to you, (3) you have had your questions answered and (4) you have decided to be in the research study.

If you have any questions during the study, you should talk to one of the investigators listed below. You will be given a copy of this consent form to keep.

Name of Subject: Date: Time:

My signature certifies that all the elements of informed consent described on this consent form have been explained fully to the subject. In my judgment, the participant possesses the legal capacity to give informed consent to participate in this research and is voluntarily and knowingly giving informed consent to participate.

Signature of Person Obtaining Consent: Date:

Authorized Study Personnel:

Principal Investigator : Barbara Roussel / Barbara.roussel@unm.edu

Faculty Advisor : Dr. Sharon Medcalf / smedcalf@unmc.edu

Appendix E: IRB approved letter

University of Nebraska Medical Center

Barbara Roussel, MsC

COPH Hlth Pr, Soc & Behv Health

UNMC - 4320

IRB # 053-16-EX

TITLE OF PROPOSAL: Exploring emergency communication experiences in response to the 2010 Haiti earthquake: Lessons learned from international donors and local government agencies

The Office of Regulatory Affairs (ORA) has reviewed your application for Exempt Educational, Behavioral, and Social Science Research on the above-titled research project. According to the information provided, this project is exempt under 45 CFR 46:101b, category 2. You are therefore authorized to begin the research.

It is understood this project will be conducted in full accordance with all applicable HRPP Policies. It is also understood that the ORA will be immediately notified of any proposed changes for your research project.

Please be advised that this research has a maximum approval period of 5 years from the original date of approval and release. If this study continues beyond the five year approval period, the project must be resubmitted in order to maintain an active approval status.

Sincerely,

Signed on: 2016-02-22 13:09:00.000

Gail Kotulak, BS, CIP

IRB Administrator III

Office of Regulatory Affairs