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COMPARATIVE ANALYSIS OF NATIONAL EMERGENCY MANAGEMENT CHARTERS: A PILOT STUDY TOWARDS ACHIEVING A STANDARDIZED GLOBAL EMERGENCY MANAGEMENT FRAMEWORK

by

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A THESIS

Presented to the Faculty of
the University of Nebraska Graduate College
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for the Degree of Master of Science

Emergency Preparedness
Graduate Program

Under the Supervision of Assistant Professor Sharon Medcalf

University of Nebraska Medical Center
Omaha, Nebraska

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COMPARATIVE ANALYSIS OF NATIONAL EMERGENCY MANAGEMENT CHARTERS: A PILOT STUDY TOWARDS ACHIEVING A STANDARDIZED GLOBAL EMERGENCY MANAGEMENT FRAMEWORK

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University of Nebraska, 2020

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The world is facing increasing risks from a variety of threats, especially those related to extreme weather and natural disasters. The substantial and sustained impacts of major disasters are reinforcing the calls for global collaboration. Nevertheless, worldwide emergency assistance efforts are confronted with several challenges that negatively affect the disaster victims, stress international diplomatic relations, and threaten the social and national security of nations. These challenges arise from the unique nature of each national emergency management framework and the lack of global standardization and governing rules.

We conducted this qualitative study. Using a variety of qualitative analytical methods. we examined and compared the national emergency management charters of China, the US, the Maldives, Bangladesh, and Ethiopia. We used a variety of data sources, including national emergency management laws and strategiesas well as published studies.

The findings showed substantial differences between the five national emergency management charters. Among those findings are the government entity overseeing emergency management activities, the levels and categories of disasters, the structure, organization, and operations of the emergency management system, and the commitment to international directives and frameworks. One striking finding was the lack of any global emergency management ethics code.

The challenges of global response call for countries to work closely to standardize the types, levels, and categories of disasters. Additionally, they need to develop a process to facilitate and expedite the acceptance of international aid and assistance. Countries also need to commit to international regulations and frameworks and establish a code for global emergency ethics.

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CHAPTER 1: INTRODUCTION AND BACKGROUND

Earth's geophysical activities include a variety of geological, hydrological, and atmospheric events. These activities existed as far in history as the earth itself, and each of them varies considerably in magnitude, by region, and season. Most of these events are negligible with no or minor effects on the environment; however, occasionally, some are of a catastrophic scale and can significantly alter the environment in a variety of ways. Nevertheless, all are considered components of the earth's natural geophysical phenomena (Organization of American States, 1990; The Department of Geology & Geophysics, 2019).

Throughout history, human communities tended to settle and grow away from regions with apparent hazards and explicit threats to their safety (Mileti, 1999; Pannell,1999). Still, various reasons including fertile soil, water resources, unique commercial or military characteristics or religious bonds motivated some of the human communities and civilizations to settle, grow, and expand in regions with apparent (e.g., floods, volcanos) or obscured (e.g., earthquakes) natural activities, or in modern-day terms, hazard-prone areas. There are no precise records of all significant natural geophysical events that caused catastrophic human impact. However, some of the sources like the three Abrahamic religious books, the records from old Greece, and the Mesopotamian Texts document few, although unique, catastrophic events, including the flooding story from ancient Mesopotamia (Gaillard & Texier, 2010; Grandjean, Rendu, MacNamee & Scherer, 2008). Other historical sources record landmark catastrophic natural events including the destruction of the two towns of Herculaneum and Pompeii in Italy by Vesuvius volcano in AD 79 and the major BC earthquakes in Egypt, Syria, Iran, and China (US Geological Survey, n.d.).

As some authors describe, historically, ancient human communities' approaches to dealing with natural catastrophic events were dominantly submissive and inappropriate human behaviors in modern-day understandings. These inappropriate conducts were miss-conceptually driven by the belief that major and catastrophic natural events were divine punishments for sinful human

practices (Grandjean, Rendu, MacNamee, & Scherer, 2008). With the limited knowledge, science, and tools available at these times, it was difficult to predict, prepare, and alleviate the effects of major natural events. As a result, old human communities resorted to simple tactics to mitigate the effects of such events. These tactics were commonly limited to a single action addressing a specific natural risk or event. Such tactics mainly resorted to settling and building towns away from flood zones and other apparent sources of dangers or constructing simple walls or levees (Gaillard & Texier, 2010). Remarkably, some ancient human communities adopted more pragmatic and advanced approaches (relative to their times) to deal with natural events that represented frequent threats to their safety, achieving remarkable advances for their time in managing such events. For example, Amenemhet III (1817–1722 BC) of Egypt, engineered and constructed history's first river flood control system using over 200 water wheels to divert Nile floodwaters (Coppola, 2006; Quarantelli, 2000). Another example is the firefighting unit that was established in the Roman army (Corps of Vigiles) 2000 years ago when a destructive fire almost destroyed the city of Rome (Rainbird, 1986).

As human knowledge and science exponentially advanced with the industrial revolution starting in the 18th century, two opposing situations evolved. First, as science developed and industrialization, machinery, and technology exponentially grew, human societies started encountering new categories of industry and technology-related disasters. Second, and given the advancement in knowledge and science, more organized and scientific approaches began to replace the old submissive improvised preparations and responses to deal with the newly developed human-made disasters as well as the other naturally existing hazards (Quarantelli, 2000). These approaches included shifting from focusing efforts on immediate consequences of disasters to approaches, measures, and tools that help predict and prepare for different types of human-made and natural hazards. These approaches relied on new technologies such as fire alarm systems, automated electronic digital liquid level gauges, and global ensemble weather prediction systems to monitor river levels and provide early warning signs against floods (Permut, Permut, & Permut, 1979;

Pappenberger et al., 2008; Sabur, 2012). Similarly, coastal and doppler radars, air reconnaissance, and satellite imagery were used to identify and track hurricanes and tornados (Baynton, 1979). Yet, these advancements to predict disasters were unique hazard-specific approaches.

Modern-day emergency preparedness and planning, however, can trace its roots to the civil defense efforts during World War II, especially with the adoption of carpet bombing of European cities. The Cold War incited a new chapter in emergency planning and preparedness when more organized and sophisticated approaches were developed. Oddly enough, during that era such plans were considered national security issues and were never shared. After the Cold War, developed countries adopted a new paradigm in which efforts were directed to protecting people against a variety of natural, human-made, and industrial incidents embracing more collaborative and organized approaches in managing such events. Under this new paradigm, non-governmental organizations, civil society, and international collaboration played central and growing roles (Alexander, 2015).

Contrary to small scale incidents that occur continuously across the globe and are commonly effectively handled and managed without considerable alteration in communities' daily routines and require minimal disposal of resources, major incidents usually necessitate the suspension of routine life and adopting exceptional emergency measures. Over the past three decades, when the world began experiencing more major natural disasters and the intentional and accidental human-made disasters took new forms and greater scales, emergency preparedness took a more comprehensive approach to disaster management. In addition to natural incidents, major disasters can result from disease outbreaks, industrial accidents (nuclear and chemical), wars or armed conflicts, and terrorist attacks. The targeting of civilians during the 1995 Tokyo subway sarin attack, the 1995 Oklahoma City bombing, the 2001 September attacks on multiple civilian and military targets, the 2003 Riyadh military compound bombings, the 2004 attacks on the trains in Madrid, the 2005 public transportation attacks in London, and the recent civil wars in Syria, Iraq, and Yemen demonstrated the profound impacts of such human-made malicious activities both

nationally and internationally. At the same time, major industrial incidents like the 1984 Bhopal poison gas leak, the 1986 Chernobyl nuclear reactors accident, and the 2011 Fukushima nuclear crisis demonstrated that every country should expand its readiness and adopt a more comprehensive all-hazards emergency management approach.

Over the last few decades, and mostly as a result of the climate changes, the world witnessed increasing numbers of major natural disasters, those categorized under "major incidents, disasters, and catastrophes." These major natural events, besides profoundly impacting communities directly exposed to them, had significant international effects. Major disasters do not recognize the geopolitical borders and, in many cases, expand beyond the local and national boundaries and could impact multiple countries. The population growth, along with lack of urban development and planning and increasing poverty in many parts of the world, led people to inhabit areas more prone to major natural disasters, mostly in countries with limited capabilities to handle such events such as in the case of populating the floodplains in Bangladesh, exposing more people to extreme natural hazards (Lein, 2000; Zaman,1991).

Major incidents can result in substantial long-term social, political, and economic effects and can erase years of economic and social development with significant long-term impacts on the affected populations. For example, in China, economic losses caused by different types of disasters can amount to 3-6% of the country's total GDP (Shi and Liu, 2007). In Bangladesh, a country adopting an ambitious economic development program, a large amount of its gross domestic product is lost each year due to the effects of natural disasters mainly because of climate stresses (Government of People's Republic of Bangladesh [GoPRB], 2017). With such substantial human and economic implications, preparedness for such events require comprehensive and sophisticated planning, communication, coordination, and training among a broad spectrum of stakeholders, nationally and internationally (Alexander, 2015; Futamura, Hobson, and Turner, 2011).

Countries established their emergency management systems at different times and for different reasons. These emergency management systems were founded to address certain priorities

and fulfill specific goals. Given the different national governance structures, political systems, types of hazards, and emergency response needs, the emergency management systems of countries differ substantially. These differences include the structure, organization, size, responsibilities, and scope of authority within the national emergency management framework. In response to the recent major natural and human-made disasters, there was increased attention directed to enhance the existing emergency management systems. These efforts were supported by international organizations and directed to improved international collaboration. However, the substantial differences between different emergency management systems and regulations have led to several challenges when other countries, international, and non-governmental organizations assist in the response and relief efforts in another disaster-affected country. These challenges affect the rescue and response efforts and include, among others, acceptance of international assistance, monetary funds, allowing equipment and supplies through customs, entry visas and security clearances for emergency teams, registration of foreign vehicles for humanitarian purposes, identification of the emergency response structure and authorities, and communication and reporting mechanisms (International Federation of Red Cross and Red Crescent, 2017; McNeill, Carafano, Mayer & Weitz, 2011). Besides negatively affecting the disaster victims, the delay in accepting or rejecting international assistance distress diplomatic relations between countries. Many countries including the US, China, Japan, Turkey, India, and Oman have historically refused different types of international assistance and aid during disasters, even in the situations where there was critical need for aid. Among the various reasons for rejecting or delaying accepting international aid and assistance is the lack of clear laws, regulations, and mechanisms that regulate how, when, why countries would accept such aid (Carnegie & Dolan, 2015; McNeill, Carafano, Mayer & Weitz, 2011).

If countries can standardize the terminology and categorization of disasters, and adopt a general framework of the emergency and response structures and plans and agree on certain regulations and processes, similar to the International Health Regulations (IHR) 2005, on handling

international relief funds, equipment, and supplies, international response efforts can be substantially enhanced. The first step is to compare and contrast the existing emergency management systems and their regulatory charters and plans and recommend a general framework that countries can follow.

CHAPTER 2: LITERATURE REVIEW

Major natural events that substantially disrupt normal human lives represent less than 10% of all disasters (Alexander, 2015). However, the world is encountering an increased frequency and scale of nature-related events. In a recent study by the World Economic Forum, the top five global risks were related to nature outranking historical risks such as terrorist attacks, cyber-attacks, wars, and government collapse (World Economic Forum, 2020).

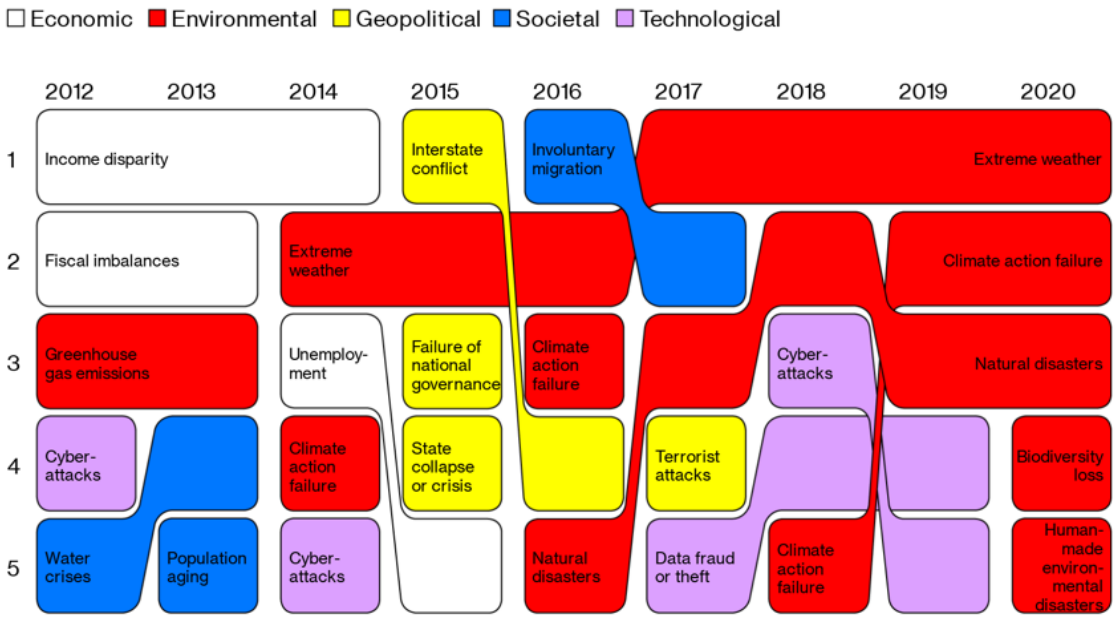


Figure 1: Top Five Global Risks for 2020. (World Economic Forum, 2020).

Various sources provide different estimates about the global burden of disasters. The Centre for Research on the Epidemiology of Disasters and the United Nations Office for Disaster Risk Reduction reported that over the period from 1998 to 2017, about 4.4 billion people were affected by natural disasters, including the 1.3 million killed. Because of these incidents, the world economy suffered about $2.9 trillion in fiscal losses. Over these 20 years, economic losses from extreme weather alone increased by about 150% (United Nations Office for Disaster Risk Reduction [UNISRD], 2018). The World Health Organization (WHO) reported that between 2001 and 2010 and based on an average annual number of about 700 global natural and human-made

incidents, about 270 million people were affected, and 130,000 died. Less economically developed countries with inadequate capacities to adequately prepare for and respond to such major emergencies were affected by about 25% of those incidents and suffered 44% of the total deaths (World Health Organization [WHO], 2013). While a recent account estimated that about 69,000 deaths were related to natural disasters since 2010 (Our World in Data, 2019), a World Bank (WB) report showed that over the same period the global economic impact of severe natural disasters alone forced about 26 million people into poverty and cost the global economy about $520 billion (The World Bank [WB], 2019).

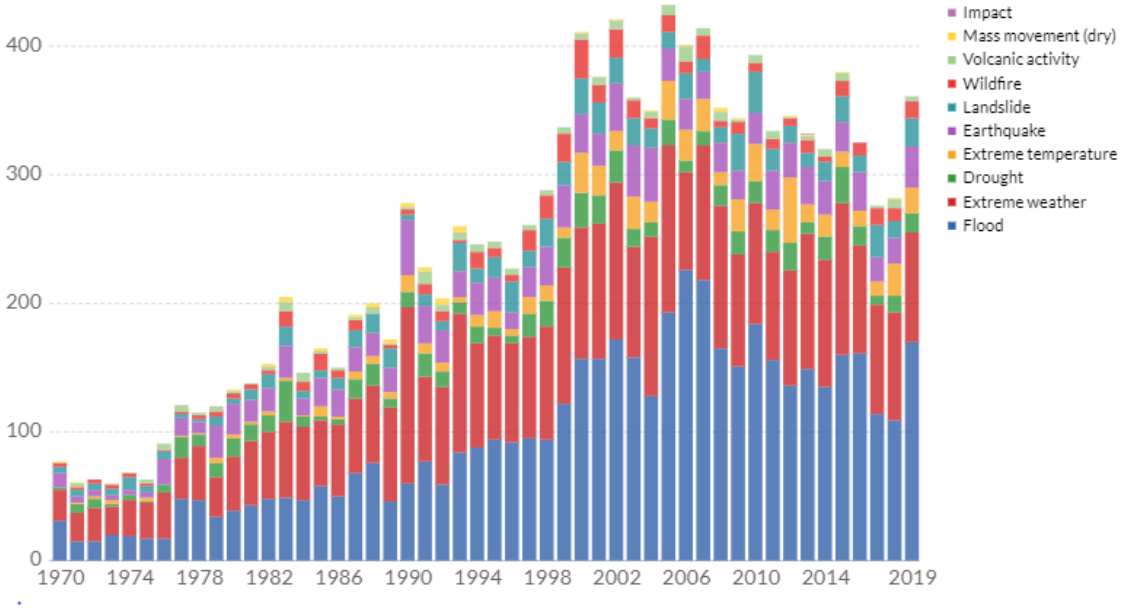


Figure 2: The changes in the annual reported number of natural weather and non-weather-related disasters (Our World in Data, 2020).

When the impacts of natural disasters were tracked over the past century, a study found that since the early 1900s, the highest number of global natural disasters occurred in 2005 with 432 events; however, the highest cost of damages from these disasters was in 2011with an estimated loss of more than $430 billion. The latest data show that even though 2018 saw a relatively lower number of global natural disasters (282), the damages from these natural disasters, including extreme weather (floods and droughts), landslides, wildfires, earthquakes, and volcanic activities

had a total economic cost of about $108 billion (Our World in Data, 2019). Among the many factors that contributed to the increasing impact of natural and human-made disasters and its human impact are climate change, lack of developmental planning, political instability, and mass displacements, on top of limited resources and shrinking financial support to the national emergency management systems (Alsnih & Stopher, 2004).

Major disasters, that are mostly natural (few human-made and industrial accidents can be classified as such), are rare sudden incidents that disrupt normal life conditions and social routines (Perry & Lindell, 2006). Although different disasters affect different regions and communities differently, nevertheless, they create common struggles to those affected by them. Besides their effect on human health, security, and well-being, major disasters cause notable property damage, high losses of human lives, and have significant long-lasting social and economic impacts both in developed and developing countries. Major natural incidents exert prolonged effects in many countries around the world. Even in countries like the US, China, and Japan with very strong economies and robust emergency management systems, such events can inflict sustained effects on them (Raddatz, 2007). With all its power, technology, and financial capabilities, the effects of the 2005 Hurricane Katrina are still seen in many areas and states in the US. Japan, despite its economic might and advanced experience in emergency management, is still suffering from the aftermath of the 2011 Fukushima Daiichi nuclear disaster. The impacts are exceptionally extensive in developing countries with poor infrastructure, limited resources, and inadequate capabilities to prepare for and recover from such events. Major disasters in a developing country, like the 2004 Indian Ocean tsunami, the 2010 earthquake in Haiti, and the 2015 earthquake in Nepal, caused sustained direct adverse economic and societal effects. The Indian Ocean and Southeast Asian countries that were affected by the 2004 Indian Ocean Tsunami incurred challenges to recover their pre-tsunami lives for years after this catastrophic event (Futamura, Hobson & Turner, 2011).

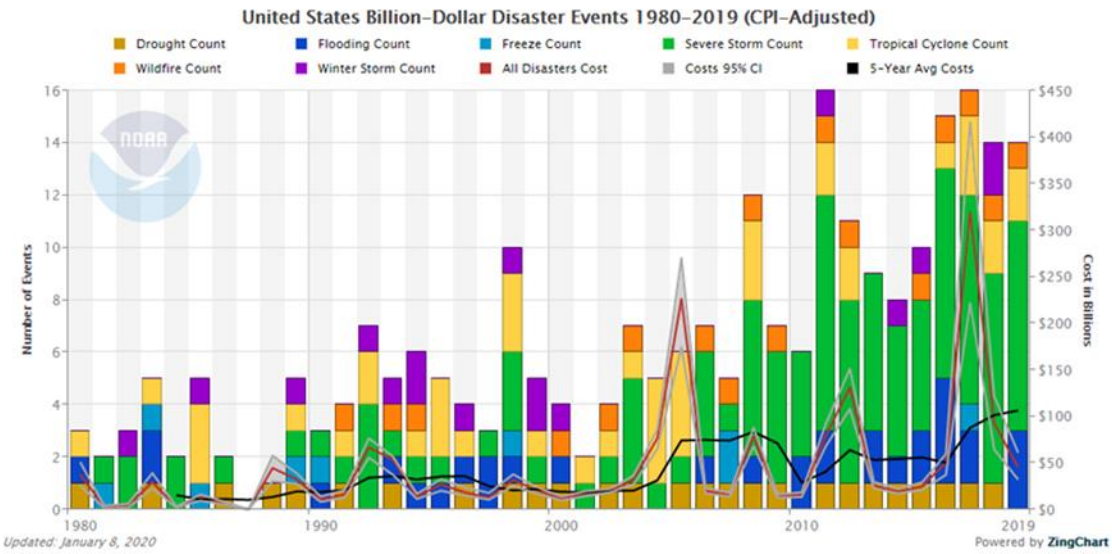


Figure 3: Estimates of Total Natural Disasters Economic Impact in the US 1980-2019. (National Centers for Environmental Information, 2020).

Due to the extensive and prolonged human and economic impacts and the effects on development, disaster mitigation and emergency preparedness are fundamental to economic sustainability, especially in developing countries (Halkos, Managi, & Tzeremes, 2015). Although the field of emergency preparedness is relatively new, the profound social, economic, and health impacts of disasters are drawing increased global attention to this field. With the increased global burden of major disasters, there have been many international collaborative initiatives towards enhancing emergency preparedness and management, many under the auspices of the WHO. These efforts include providing subject matter expertise, advice, and consultancy, drafting guidelines, designing and leading training, holding conferences, engaging in collaborative research, and providing financial aid, materials, and equipment (McNeill, Carafano, Mayer & Weitz, 2011). The WHO engagement in international emergencies is fulfilled through its lead role on four main domains including:

1- The United Nations Agency for Health

2- A member of the Inter-Agency Standing Committee (IASC)

3- The lead agency of the Global Health Cluster

4- The guardian of the International Health Regulations (IHR)

The International Health Regulations (IHR) is an abiding international law that gained global consensus after the 2002-2003 unprecedented outbreak of the severe acute respiratory syndrome (SARS). The revised IHR of 2005 aims to strengthen the collective global defenses against different public health risks (WHO, n.d.). The 2005 IHR clearly defined the obligations of the United Nations (UN) Member States in assessing, reporting, and responding to public health incidents including but not limited to infectious diseases (WHO, 2013). Although Member States were legally bound to achieve the requirements of the IHR by 2012, reports continue to show the delayed implementation of the IHR requirements. As of 2012, only 42 countries (21.7%) reported meeting the core IHR capacity requirements, and as of 2014, 64 countries (33%) reported meeting these requirements (Brencic et al., 2017; WHO, 2013). Studies have demonstrated the significant challenges that many countries face in meeting these requirements because of lack of knowledge, gaps in expertise, and limited funding (Gostin & Katz, 2016; Pan American Health Organization, n.d.; The, 2007).

Another approach through which the WHO assumes its leading global role is the establishment of the Global Emergency Management Team (GEMT). This team is tasked with ensuring the ideal utilization of the WHO's resources, management of the organization's internal and external communications, and monitoring the implementation of the relevant policies and procedures. The WHO, lacking the authority to enforce any national-level actions, focuses on supporting countries without interfering in the management of any events (Tappero et al. 2017; WHO, 2013).

Despite the multiple international collaborative efforts that are led by different organizations, there is agreement on the leading role of the national governments in developing and strengthening their national emergency capacities. The WHO and the World Bank distinctly recognizes national governments as the principal entities in developing their countries' national emergency management capacities (WB, 2019; WHO, 2013). The WHO in the recent report titled

A Strategic Framework for Emergency Preparedness, defined the emergency response framework as “the knowledge and capacities and organizational systems developed by governments, response and recovery organizations, communities and individuals to effectively anticipate, respond to, and recover from the impacts of likely, imminent, emerging, or current emergencies” (WHO, 2017). The purpose of this recently published document is to enforce two goals:

1- “Strengthen country and community emergency preparedness …”

2- Endorse the allocation of needed resources, including financial and human, to emergency preparedness efforts.

This document also emphasizes the leadership role of the Ministries of Health in different countries in emergency response activities (WHO, 2017).

The United Nations International Strategy for Disaster Reduction (ISDR) has twelve (12) goals that, among others, aim to increase countries' capabilities to manage disasters. These goals include encouraging states to conduct national risk assessment, identify and engage different stakeholders, develop and apply risk reduction strategies, increase resiliency of communities to effects of all types of hazards, and to advance risk management by integrating preventive strategies into ongoing development planning, especially in less developed countries. Although the ISDR stresses on the collaboration between local communities and members of the non-governmental organizations, it explicitly identifies governments as the primary entity responsible for protecting citizens from different threats and disasters. As with the IHR, there are different levels of adoption and fulfillment of those principals among different countries (United Nations International Strategy for Disaster Reduction [UNISDR], 2019).

Another role the international organizations play in assisting different countries in the field of emergency preparedness includes developing the guidelines and fulfilling the preparedness requirements like those of the Minimum Preparedness Actions and Minimum Preparedness Standards developed by the UNICEF (United Nations International Children’s Emergency Fund). These directives set the expectations and timelines that different countries should follow and

implement. The UNICEF directives include developing a country risk profile once a year with biannual risk monitoring, developing an annual "Preparedness Actions" based on a structured four-step planning process, and developing contingency plans (United Nations International Children's Emergency Fund, 2016).

Before these directives from the lead global organizations, the UN, the WHO and the WB, and the numerous international and global efforts to improve emergency preparedness worldwide, there were two initiatives by the General Assembly of the United Nations (UN). In 1989, the UN launched the International Decade for Natural Disaster Reduction. This was followed a decade later in 1999 by the International Strategy for Disaster Reduction. These initiatives aimed to promote a culture of disaster prevention and focused on encouraging countries to shift from the traditional approaches of disaster response to the proactive approaches of disaster and risk reduction. Still today, countries stand at different lengths from achieving reliable and comprehensive national emergency preparedness capabilities. Moreover, many countries still lack the infrastructure, human resources, planning, and logistical capacities both at the local and national levels to manage a disaster. The WHO, WB, and the numerous NGOs working in the humanitarian aid field are mandated to provide support to different countries; however, this role should supplement, but never to replace, the existing national preparedness systems (WHO, 2013).

One of the landmark examples of international collaboration in the field of emergency preparedness started in the 1970s. To overcome their national limitations and deficiencies, the Latin American and Caribbean Countries (LAC) initiated a major collaborative project. During that period, the LAC identified the need to strengthen their emergency and disaster response capacities. Lacking the qualified personnel, the knowledge, and the needed resources the thirty-five Ministries of Health (MOHs) of the LAC requested assistance from the Pan American Health Organization (PAHO), eventually launching the Emergency Preparedness and Disaster Relief Coordination program in 1976. The PAHO provided critical technical assistance and helped in establishing operational plans and dissemination of knowledge about disaster response which augmented

hazard awareness and health and disaster management in the LAC. Until 2015 only 15 of the 35 LAC countries (43%) had dedicated disaster management budget and staff, which reflects varying national and institutional capacities among the 35 LAC countries; nevertheless, 31 (89%) of the MOHs in the LAC had national risk management programs (Pan American Health Organization, n.d; Ugarte, Alcala & Mauvernay, 2018).

Emergency Planning

Preparedness activities generally fall under two main domains. The first is identifying and detecting the threat and alerting the community and response teams about the location, time, and extent of a potential incident. The second includes all the actions taken to reduce the damage and enhance response and recovery (Perry & Lindell, 2006).

In order to achieve the two paramount goals of disaster management activities which include, to the extent possible, reducing the scale and degree to which a community's condition is deteriorated and restoring it to its pre-event condition, many activities need to be executed. Broad collaboration and extensive planning must be completed by the emergency management organizations to prepare a country, a region, or a community to an anticipated hazard, to minimize potential damages, and eventually to recover from consequent losses. Ultimately, the recovery activities would eliminate all the effects of the disaster. Even in countries with advanced emergency systems and enough resources, these goals are usually hard to achieve or, at best, would take years to overcome the effects of major disasters. Recent events across the globe have shown the numerous short and long-term negative consequences that result from a lack of proper preparedness. Rapid urbanization, weak economies, limited financial resources, and inadequate expertise in many developing countries are aggravating the already vulnerable emergency preparedness systems (Henstra, 2010; Izadkhah & Hosseini, 2005). The benefits of emergency planning have been copiously established even in less disaster-prone regions. Countries must enhance their national emergency management systems to properly manage different disasters and reduce their potential

impacts (Canadian Center for Occupational Health and Safety [CCOHS], 2015; National Research Council [NRC] & Mapping Science Committee [MSC], 2007).

The types, scales, and numbers of disasters over the past two decades undoubtedly exposed the exceptional vulnerability of our modern complex and interdependent societies to natural, industrial, and human-made incidents (Alexander, 2015; NRC & MSC, 2007). As previously mentioned, hazards are of different types, scales, and complexities. Although advances in science have considerably improved our capabilities to predict and track some of them, it is almost impossible to know where the next major incident will happen, what form it will take, how severe it will be, and what impacts it will have. Even in developed countries, no matter how prepared a country is, the fundamental nature of disasters makes it impossible to achieve a 100% preparedness. Natural disasters have five common characteristics that make them always challenging to overcome:

1- There are always uncertainties about when and where major natural events will happen.
2- They are active incidents that continuously change course, magnitude, and scale.
3- They are rare and unique events.
4- Their effects and extents of impact are hard to estimate.
5- Major disasters are rapid and substantial events that will always overwhelm the resources of the affected areas (NRC & MSC, 2007).

Although relatively a new field, emergency preparedness is experiencing rapid evolvement driven by increasing natural and human-made emergencies, economic pressures, and technological innovations. Methodologic emergency planning began to spread in the 1970s primarily driven by technological advancements including modern computing, satellite imaging, the use of fiber optics, and the rising industrial and nuclear incidents. Driven by the scope and complexity of recent disasters, this field expanded to include all-natural disasters as their frequency and impact

increased, progressing into the all-hazards emergency preparedness approach (Alexander, 2015; NRC & MSC, 2007).

The emergency planning process is a continuous activity that is "never complete," essentially because the threat environments continuously change. The planning process is a continuous, complex, collaborative, multisectoral process that should incorporate new science and knowledge, new technology, new tools, innovations, and research findings as well as best practices and lessons learned that can enhance risk identification and reduce the consequences of disasters. These efforts should continuously update (and develop) the living document known as the emergency plan. Additionally, the continuous planning process should recognize gaps, either from training, practice, or advancement of science, and the evolving needs due to climate change, urban development, population growth, and new human-made threats. The all-hazards emergency management planning requires diverse groups of experts in hazard and risk vulnerability analysis, communications, logistics, public relations, geography, weather, and many others depending on the specific threats and needs of a country, a region, or a community. These groups can vary depending on the different categories of events or emergencies (Perry & Lindell, 2006). Nevertheless, none of the desired plan objectives would be achieved unless the plans and their actions and needs are supported with the meticulously identified and opportunely available and deployable resources, either from local, national, or international sources. Although at its core emergency planning is organized good human judgment and actions, nevertheless, the growing intricacies of recent disasters require substantially complex and organized planning processes (Alexander, 2015).

Responding to an incident always expands the experience and knowledge of emergency management teams and allows for the correction of plans and procedures based on the identified gaps, deficiencies, and lessons learned during emergency management efforts. These experiences and knowledge could be well documented in countries (regions and organizations) that have a defined and structured process to identify these gaps and modify, update, and consequently train

on the new strategies, plans, and standard operating procedures (Mendonca & Wallace, 2007). In countries with weak emergency systems and limited resources, these gaps persist, adding to the impacts of subsequent events. Although in countries with advanced emergency preparedness systems, modern response efforts are well designed and based on meticulously written procedures and extensively exercised plans, yet, given the uniqueness of each incident, every response effort includes an element of improvisation. Improvisation during response efforts can intensify the effects of the disaster and can have catastrophic consequences. Ultimately, improvisation should be based on calculated decisions of the well-trained emergency management teams and should be minimalized through continuous planning and training and limiting it to a "necessary minimum" (Alexander, 2015; Mendonca & Wallace, 2007; WHO African Region, 2014). In countries with limited capabilities and poor systems, improvisation in responding to emergencies usually proceeds and dominates the response efforts. Additionally, for the same reasons, lessons learned are typically not documented and limited updates and training follow the response to such events (Mendonca & Wallace, 2007).

In contrast to developing countries, in developed countries, even though gaps still exist, emergency planning follows a more systematic and informed approach supported by trained teams, structured reporting, robust infrastructure, and dedicated funding. In developing countries with limited resources emergency planning is usually characterized by:

1- Done centrally with limited or no consideration of the specific needs of each region and the available human capacity and resources.
2- Plans are usually developed towards unique previous events and usually fall short of planning for other hazards.
3- No periodic, systematic, or proper updates to existing plans.
4- Limited or no structured systematic hazard vulnerability assessment.
5- Research usually does not exist.
6- Minimal operational budgets with no funding dedicated to training or exercises.

7- Most experience is transferred informally across different generations of emergency teams, and relations between different preparedness and response agencies are informally established.
8- Some components (if not all) of the emergency plans might be unwritten, or at best written with challenges accessing it.
9- Tasks are usually broadly and superficially outlined with rarely existing guidelines and procedures.

Lack of and deficiencies in these critical elements limit emergency management capabilities in such countries (Global Facility for Disaster Reduction and Recovery, 2019; Izadkhah & Hosseini, 2005; Perry & Lindell, 2003).

There are wide international variations in the process of emergency planning and management and the liberty given to local governments and authorities in developing their plans and executing their response efforts. Even though it is widely accepted that local governments and authorities (cities, counties, and states in the US model) play a crucial role in emergency planning and response, adopting the principle of all responses are initiated locally (Henstra, 2010). Nevertheless, the federal or central government assumes a leading role in developing the necessary (national) plans and coordinating local or independent governments and authorities' efforts across the different response and preparedness activities. The central government role is derived by the complexity of emergency planning and the substantial infrastructure and resources needed for these efforts (Perry & Lindell, 2006). Many countries (e.g., Egypt, Ethiopia, Bangladesh) adopt a different model where planning is solely done centrally on the ministerial levels (in the national capital) and strategies are based on the capabilities of the central or federal government (Global Facility for Disaster Reduction and Recovery [GFDRR], 2019; The Federal Democratic Republic of Ethiopia [FDRE], 2013; Government of the People's Republic of Bangladesh [GoPRB], 2017). The Chinese disaster management framework follows a system that is primarily managed by the central government with secondary dependence on the mutual collaboration between the central

and local governments. The highest emergency management authority in China, State Council of the People's Republic of China and it's Emergency Management Office, is responsible for the daily national emergency management work where it collects real-time information about different public security incidents, responds to it, and coordinates the efforts with the related departments (Shi & Liu, 2007).

Building a robust national emergency and disaster preparedness system requires a continuous emergency planning process that incorporates substantial coordination and cooperation on multiple levels and between numerous entities and authorities, including the governmental, non-governmental, and private stakeholders as well as the broad community. One of the primary objectives of any national emergency planning is to fulfill the urgent, numerous, and complex needs to respond to and recover from a disaster with the available local and national resources. These needs include human assets, equipment, supplies, shelters, financial aids, and many more. This is achieved through the sophisticated processes and intricate planning of emergency management efforts. To achieve these levels of readiness and coordination, one of the prime characteristics of emergency planning is to predict future events, based on a variety of parameters and indicators, and accordingly developing different appropriate response scenarios and their needs (Alexander, 2015). Many events have shown that limited and poor emergency planning leads to detrimental consequences, including, among others, unnecessary loss of life, extensive loss of property, and significant economic losses (CCOHS, 2015). In response to the increased frequency and scale of natural disasters, the comprehensive emergency management approach was developed. It is a broad approach used to manage each stage of any major disaster and is a result of the collaboration between the government, non-governmental organizations (NGOs), private sector, and international organizations (including the WHO, WB, IFRC) (Perry & Lindell, 2006).

Emergency Plans and Procedures

There are core differences between emergency plans and procedures. Emergency plans are generally realistic and practical strategic documents that assimilate and integrate the multitude of

processes that will be used in different emergencies, clearly delineating the roles and responsibilities of all members of the emergency management teams ensuring highly coordinated actions. Plans generally cover the different phases of responding to disasters, business continuity, and recovery. An emergency plan is commonly a comprehensively inscribed document that defines the who, how, where, and when. It should be readily available to all agencies and parties, governmental and non-governmental, that are mandated and expected to participate in the different phases of emergency management efforts (Alexander, 2015). A national plan must include plans for each specific sector like healthcare, energy, communication, food, transportation, and others. Although the general structure of national emergency plans expands from the local level through the regional, then national, then international levels, however, the political system of a country, its size, and geography can play varying roles in the structure of its national plan and response structure. For an emergency plan to effectively assist a country in preparing for, respond to, and recover from a disaster, the plan has to be continuously updated and modified in response to the shifting demographics, hazard vulnerability assessments, technology advancements (or lack of), and scientific discoveries. Additionally, the emergency plan must guide the development of the different protocols, procedures, and clearly identifies the roles and responsibilities of various entities in emergency response. Standard Operating Procedures (SOPs), on the other hand, are compulsory written documents that describes the step by step detailed and synchronized activities that members of the emergency management teams should follow in order to achieve the objectives and goals set in advance for each operation ensuring that the activities are performed consistently and correctly (Alexander, 2015; Food and Agriculture Organization, n.d.; WHO African Region, 2014).

Under the widely practiced scalable approach to emergency management, different levels of responses are implemented depending on the scale of the incident. In predictable, frequent, and limited events standard operating procedures are usually used by fire departments, emergency medical services, and public services. Standard operating procedures may be adequate to handle

major incidents, but depending on the outcomes, emergency plans could be activated, and bigger response teams could be deployed. To effectively manage disasters, disaster or emergency plans are typically activated. In catastrophic events and although disaster or emergency plans are always activated, the scale and impacts of the event may overwhelm any preparedness planning, similar to the 2004 hurricane Katrina in the U.S., the 2004 Indian Ocean tsunami, and the 2011 Japan tsunami (Alexander, 2015; Mendonca & Wallace, 2007).

Statement of the Problem

The world is continuously challenged by the increasing number and scale of natural disasters at the same time when human-made threats are taking new forms and adopting more lethal methods. The international impacts of some of the major natural disasters, as well as the outbreaks of the infectious disease over the past two decades, have simply demonstrated the global nature of such events and how rapid they can affect and spread across the geopolitical borders and extend to every corner of the globe. The current coronavirus outbreak is a live testimony to this fact. Since no country is independently fully capable of facing such events, the need for international collaboration in emergency preparedness, response, and humanitarian relief efforts is growing and becoming a global norm (Bui, Cho, Sankaran, Sovereign, 2000). However, different countries enact substantially different emergency management laws and regulations, adopt different emergency management policies, structures, and strategies and implement different emergency management plans and procedures. Additionally, the large number of organizations that can engage in such response and relief efforts, which could include the host government, law enforcement, military, national and international relief agencies, private sector, and nonprofit organizations, creates many logistical challenges to the response and relief efforts (McNeill, Carafano, Mayer & Weitz, 2011). The differences in emergency management systems and the multitude of agencies engaged in emergency responses have resulted in different types of challenges when countries and international organizations provide aid to other countries, eventually hindering and delaying the response and rescue efforts resulting in increased human and economic losses. Rey mentioned that

“coordination has continued to be the fundamental weaknesses of the humanitarian action” (Rey, 2001)

Significance of the study

To facilitate international collaboration, improve the logistics of response efforts and enhance the response outcomes, the global community led by the international organizations and sovereign nations should adopt a unified structure for their emergency management frameworks. Since this would be almost impossible, given the unique political, economic, governing, and geographic nature of every country, a simple alternative would be adopting similar core areas or domains that are integral to any emergency management framework similar to the requirements of the IHR. The first step towards the achievement of that goal is to identify the main similar and different areas and characteristics between the national emergency management charters. Achieving standardization of national plans would substantially facilitate the process of international collaboration, assistance, and aid in different crises and would save considerable time, money, and lives.

This work aims to identify core domains and components of a number of national emergency management frameworks, systems, and plans. Our goal is to identify areas of similarity and areas of differences.

CHAPTER 3: METHODS

Study Design

This qualitative study used a combination of content analysis, keywords-in-context, componential analysis, theme analysis, and qualitative comparative analysis to compare the collection of documents that form and guide the national emergency management frameworks from five countries (Dane, 2011; Onwuegbuzie, Leech, & Collins, 2012). These types of qualitative analyses allow researchers, through the use of tables and matrices, to identify keywords and the adjoining writings to understand the core meaning across different sources, locate and analyze the similarities and differences among the sub constituents of domains between different sources which allows recognizing relationships and connections among them (Onwuegbuzie, Leech, & Collins, 2012; The University of Manchester, n.d.).

We examined and compared the national emergency/disaster management/response charters from countries known to have major and frequent natural and human-made incidents. We included countries from three continents, Asia, Africa, and North America. To identify the effect of availability of resources on the emergency management efforts, we selected countries with strong economies and those with weak or developing economies. To better address the role of governance and political structure on the emergency management system we included countries with advanced democratic systems, those with authoritarian regimes, and those with unstable governance and political systems. We also included countries with different geographic characteristics like those which are bordered by sea or ocean and those which are landlocked. Our comparison plan focused on the following points:

1- Type and name/title of the highest governing Charter for emergency management in the country.

2- Year issued or enacted.

3- Last update of the governing charter.

4- Operational emergency management documents.

5- Last update of operational emergency management documents.

6- Highest national authority responsible for emergency management.

7- Governmental authorities involved in emergency management.

8- The impetus for developing or enacting the law or national plan.

9- Size and complexity of the national emergency response documents.

10- Purpose and mission of the national emergency law or/and plan.

11- Objectives and goals of the emergency management law or/and plan.

12- Structure of the emergency management plan and/or system.

13- Categories of emergencies within each national charter.

14- Classification of the incident within the national emergency charter.

15- International cooperation and drivers within each national emergency management charter.

16- Total area, total population and Gross Domestic Product (GDP) of each country.

Study Sample

The selection of different countries for this study was driven by several factors. First, we wanted to include countries from different continents and regions in the world that are affected by different types of hazards. Second, we wanted to select countries with different economic growth and performance, including developed and developing countries. Third, we selected countries with different governing systems. Lastly, we included countries with different total areas and different geographies. Accordingly, we selected the People's Republic of China, the United States of America, the Republic of Maldives, the People’s Republic of Bangladesh, and the Federal Democratic Republic of Ethiopia. China and the US were selected since they represent the two most powerful economies and have the 3rd and 4th largest total areas. Additionally, those two countries have two completely different governing systems, are prone to a variety of natural and human-made disasters, and interestingly enough, they are the two most affected countries by natural

disasters (CIA, n.d.; Shi & Liu, 2007). Bangladesh was selected because it's a small-sized, highly populated country with a rapidly growing economy and known for its wide range of severe natural events (Government of Bangladesh [GoB], 2019). Ethiopia, an Eastern Africa country was included since it is the second-highest affected country by natural events in the East African Region (Lukamba, 2010). The Maldives was included in the study since it has a very special situation. This nation island could disappear due to climate changes and rising sea levels. Some studies predict that this group of 22 geographical atolls and their 1200 islands will disappear under the sea level by 2050 (Ministry of Fisheries and Agriculture, n.d., Singh, 2016).

Data Sources

In this study, we examined the national emergency management charters of five countries: China, the US, Maldives, Bangladesh, and Ethiopia. These documents included the official governmental emergency (disaster) management laws or acts, the national emergency or disaster plans, and any other supporting documents such as organograms Standing Orders, or National Response Framework. We also used the published studies and papers that were directly related to the national emergency management laws or plans in any of these five countries. All documents were acquired through the internet and all are publicly available.

CHAPTER 4: FINDINGS

This qualitative study compared the national emergency management charters in five countries with substantially different demographic characteristics, governing structures, political systems, location, geographic features, economies, and types of hazards. The main findings for each country are detailed as discussed below.

Bangladesh is a relatively small country with a total area of 56,990 square miles located in South Asia on the Bay of Bengal. With its 162 million population, Bangladesh has a very high population density of about 2,890 per square mile. Bangladesh is known for its frequent natural events; in less than 30 years (1980-2018), it was affected by 219 natural disasters. Due to its unique geography, Bangladesh is specifically vulnerable to cyclones, storm surges, floods, riverbank erosions, earthquakes, and tsunamis. Between 1970 and 2009, cyclones killed more than 500,000 people (Asian Disaster Reduction Center, n.d.). This developing parliamentary republic has aggressive economic development plans aiming to be a middle-income country by 2021 and a developed country by 2041. Despite its ambitious economic plans, many areas of the country lack urban planning, which led to the population of the highly hazard prone floodplains.

Ethiopia is a landlocked country with a total area of 426,400 square miles and a total population of about 109 million people. Ethiopia has been at war with its neighboring Eritrea for decades, which has eroded and limited its economic development. This federal parliamentary republic recently adopted an ambitious economic development strategy. Ethiopia is located in the East Africa Region, which is the most affected region in Africa by natural disasters. Disasters in this region accounted for about 41% of total natural disasters in Africa from 1974 to 2003 and for about 58% of total economic losses in the continent over the same period. Drought is the most common and serious threat to East African countries, including Eritrea, Djibouti, Somalia, Kenya, and Ethiopia. Over the past 20 years, Ethiopia has been affected every year by several other natural disasters (Lukamba, 2010).

The Maldives is an island nation formed of 22 geographical atolls and their 1200 islands with a total area of just 115 square miles. This presidential republic has an estimated total population of about 392 thousand people. This nation faces a unique natural threat since it may disappear under the rising sea levels by 2050. Due to its unique geography and vulnerability to natural threats, the Maldives has been developing and strengthening its emergency management system for decades, collaborating with and adopting different international frameworks and recommendations.

China is a communist party-led state with the biggest GDP in the world of about $25.36 trillion. China has the largest world population of approximately 1,427,647,786 and is the third-largest country in the world with a total area of 3,705,407 square miles. China is an eastern Asian country, and due to its massive total area and diverse geographic features, China, along with the US, is one of the most affected countries in the world by natural disasters. China was severely affected by the SARS outbreak in 2003. The impacts of this outbreak and the identified lack of preparedness were the key drivers to enact the country's emergency management law.

The USA is a federal constitutional republic in North America. With its 3,796,742 square miles total area, the US has a unique geography. The US is uniquely characterized by having some of its land areas scattered in Alaska, the Caribbean, and the Pacific Ocean. Due to its unique geography, the US, is affected by a wide varietyof natural disasters. Besides that, and due to its dominant global political role, the US is continuously under terrorist threats. The US has a special governance model that is reflected in its emergency management framework.

The following table shows the latest information about each field examined within the emergency management charters of each of the five countries included in this study. Since the emergency management frameworks substantially differ, some domains do not exist in different national charters.

Criteria	**People's Republic of China**	**The United States of America**	**Republic of Maldives**	**The People's Republic of Bangladesh**	**The Federal Democratic Republic of Ethiopia**
Total Area (sq. mi) (Central Intelligence Agency [CIA], n.d.)	3,705,407	3,796,742	115	56,990	426,400
Total Population (2018 estimate) (CIA, n.d.)	1,427,647,786	327,167,434	392,473	161,376,708	109,224,414
Gross Domestic Product (CIA, n.d.)	$27.331 trillion (2019 est.)	$20.580 trillion	$6.901 billion (2017 est.)	$831.750 billion (2019 est.) (International Monetary Fund, 2019)	$240.705 billion (2019 est.)
Highest Governing Charter	Emergency Response Law of the People's Republic of China	Homeland Security Act (Public Law 107-296)	Maldives Disaster Management Act	Disaster Management Act (No. 34)	National Policy and Strategy on Disaster Risk Management
Year Enacted/Issued	Law adopted on August 30, 2007, and went into effect on November 1, 2007 (Ministry of Ecology and Environment [MoEE], 2017)	2002	2006	2012	2013
Last Update	No identified updates to the Law	No identified updates to the Law	Disaster Management Act rectified on 6th September 2015	No identified updates to the Law	No identified updates to the Policy
Highest Authority Responsible	State Council of the People's Republic of China (Emergency Management Office (established in 2006)) and chaired by the Chinese Premier (Prime Minister) (Shi & Liu, 2007)	Department of Homeland Security	National Disaster Management Council (NDMC) which is chaired by the President of the Maldives (Republic of Maldives [RoM], 2007)	National Disaster Management Council (headed by the Prime Minister) has two arms: - Inter-Ministerial Disaster Management Coordination Committee (IMDCC) - National Disaster Management Advisory Council (NDMAC) (IFRC, 2017)	Federal Disaster Risk Management Council which is chaired by the Prime Minister (FDRE,2013)

Managing Authority	Ministry of Emergency Management, established March 2018	Federal Emergency Management Agency (FEMA)	National Disaster Management Authority (NDMA) (established per the Disaster Management Act on 30 December 2018)	Ministry of Disaster Management and Relief (MoDMR) (falls organizationally under the Inter-Ministerial Disaster Management Coordination Committee (IMDCC)	Lead Sector Agencies are responsible for undertaking activities ranging from monitoring to response to specific hazards and disasters: Ministry of Agriculture Ministry of Environment and Forestry Ministry of Health Ministry of Water, Irrigation and Energy Ministry of Federal Affairs Ministry of Transport Ministry of Mines Ministry of National Defense Ministry of Urban Development, Housing and Construction Ministry of Education (FDRE,2013)
Directive Emergency Management Document(s)/Plan(s)	**Emergency Response Plan System** **State Overall Plan** State Overall Emergency Response Plan (1) **Specialized Plans** Emergency Response Plans (25) Natural Disaster Incidents (5) Accidental Disaster Incidents (9) Public Health Incidents (4) Social Society Incidents (7)	The National Response Framework (NRF) is the foundational doctrine for the country's response to all types of incidents. The NRF is organized as: - Core Document - Emergency Support Function Annexes - Support Annexes - Incident Annexes	National Emergency Operations Plan and National Disaster Management Plan	Disaster Policy Act 2015 National Plan for Disaster Management (2010-2015 and 2016-2020): Building Resilience for Sustainable Human Development Standing Orders on Disaster (SOD), first introduced in 1997 and then revised in 2010 Guidelines for Government at all Levels (Best Practices Models)	National policy and strategy on disaster risk management

	Departmental Plans Relevant departments of the State Council (80) **Local Overall Plan** Local Government Plans Provincial Level City/Prefecture Level, Country Level **Public Services Units Plan** Public Services Units (Zhe, Chan, Liu, & Yeung, 2016)	- Partner Guides		Hazard Specific Plans (cyclone, flood, earthquake, Tsunami, others) Agency Plans Local Level Plan	
Last Update	No information about the updates could be identified	Periodically, to incorporate new Presidential directives, legislative changes, and procedural changes based on lessons learned from exercises and actual events, the latest update was in October 2019	Annually, no specific date identified for the latest update	Follow a 5-year planning cycle; currently, the official website of the Ministry of Disaster Management and Relief shows the 6th 5-year plan (2010-2015). The 7th 5-year plan (2016-2020) is also available on the website as a draft.	2013
The impetus for Developing or Improving the Law or National Plan	2003 SARS outbreak	The 9/11 terrorist attacks on the US	The 2004 Indian Ocean Tsunami	Economic and developmental goals	Severe droughts that critically affect the national food security
Complexity and Details of the National Emergency Response Charters	The law is about 10 pages long, however the State overall emergency response plan, the 25 specialized emergency response plans, and the 80 departmental emergency response plans could not be located via the	The Law is 187 pages. The 2019 NRF is 51 pages. The numerous states, county, and local plans could be in thousands of pages	The Disaster Management Act is 15 pages	The Disaster Management Act is 31 pages (GoPRB, 2012). The current 6th 5-year plan (2011-2015) is 117 pages including the annexes The Standing Orders on Disaster are 222 pages including 19 appendixes	National Policy and Strategy on Disaster Risk Management is 21 pages

	web search, and their details could not be identified				
Purpose, Mission, or Priorities	The purposes of the law are "preventing and reducing the occurrence of emergencies, controlling, mitigating and eliminating the serious social harm caused by emergencies, regulating the activities in response to emergencies, protecting the lives and property of the people, and maintaining national security, public security, environmental safety, and public order" (MoEE, 2017)	The NRF establishes the following incident management priorities: - Save lives and protect the health and safety of the public, responders, and recovery workers. - Ensure ***security*** of the homeland. - Prevent an imminent incident, including acts of ***terrorism***, from occurring. - Protect and restore critical infrastructure and key resources. - Conduct ***law*** enforcement investigations to resolve the incident, ***apprehend the perpetrators*** and collect and preserve evidence for the prosecution and/or attribution. - Protect property and mitigate damages and impacts on individuals, communities, and the environment. - Facilitate the recovery of individuals, families, businesses, governments, and the environment (NRF, 2019)	"Save Lives and Protect Livelihood" (RoM, 2007)	**Vision** "To reduce the risk of people, especially the poor and the disadvantaged, from the effects of natural, environment and human-induced hazards to a manageable and acceptable humanitarian level and to have in place an efficient emergency response management system" and "These emerging risks present major challenges to the continued human development, poverty reduction, and economic growth of the country, and to the lives, livelihoods, and health of its people." (Government of the People's Republic of Bangladesh (GoPRB, 2017).	**Vision** "To see the capacity for withstanding the impact of hazards and related disasters is built at national, local, community, household and individual levels; and damages caused by disasters are significantly reduced by 2023." **Mission** "To provide a framework that enables to withstand impacts of hazards and related disasters and reduce damage caused by a disaster through establishing an effective, people-centered, integrated, coordinated, accountable and decentralized disaster risk management system that focuses on multi-hazard and multi-sectoral approaches as well as on measures that need to be taken before, during, and after the disaster period." (FDRE,2013)

Objectives and Goals	"Preventing and reducing the occurrence of emergencies, controlling, mitigating and eliminating the serious social harm caused by emergencies, regulating the activities in response to emergencies, protecting the lives and property of the people, and maintaining national security, public security, environmental safety, and public order" (PRC, 2007)	The preparedness goal is a unified list of identified threats and the kinds of things governments can do to prevent or mitigate them (Securiguard.com) "A secure and resilient nation with the capabilities required across the whole community to prevent, protect against, mitigate, respond to, and recover from the threats and hazards that pose the greatest risk." These risks include events such as natural disasters, disease pandemics, chemical spills, and other manmade hazards, terrorist attacks, and cyber-attacks. (FEMA, n.d.)	"To promote an integrated and coordinated system of disaster management, with special emphasis on prevention and mitigation, by National, Atoll and Island institutions of the government, statutory functionaries, private sector, non-government organizations and other role-players involved in disaster management and communities" (RoM, 2007)	The plan has three core goals: - Saving lives - Protecting investments - Effective recovery and rebuilding "The significance of disaster management and resilience-building is enormous in the developmental context of Bangladesh" "NPDM 2016-2020 is designed to support the government of Bangladesh's target to become a middle-income country by 2021 and a developed country in 2041. The plan, which sets out priorities and core targets for the next five years within a longer-term perspective for 2030, aims to realize the country's economic and development goals by safeguarding them from the impacts of disasters through disaster management (DM) for resilience. DM to achieve resilience is highly important in Bangladesh for reducing the adverse impacts of disasters and thereby safeguarding the socio-economic progress of the country and	**General Objective** The main objective of the Policy is to reduce disaster risks and potential damage caused by a disaster by establishing a comprehensive and coordinated disaster risk management system in the context of sustainable development. **Specific Objectives** 1- To reduce and eventually prevent disaster risk and vulnerability that pose challenges to development through enhancing the culture of integrating disaster risk reduction into development plans and programmes as well as by focusing on and implementing activities to be carried out before, during, and after the disaster period to address underlying factors of recurrent disasters. 2 -In times of disasters, to save lives, protect livelihoods, and ensure all disaster-affected population is provided with recovery and rehabilitation assistance.

				contributes towards sustainable development" (GoPRB, 2017).	3- To reduce dependency on and expectations for relief aid by bringing attitudinal change and building resilience of vulnerable people (FDRE,2013).
Structure of the National Plan	The State is required to establish a sound precautionary system for emergency response. The State Council is responsible for drawing up and organizing the making of special national emergency response plans for specific national emergencies. The various departments of the State Council are coordinated to make their departmental State emergency response plans in their respective capacities in line with the relevant emergency response plans of the State Council. One Planning plus Three Systems framework; one emergency response plan is followed by emergency legislative, institutional, and regulatory systems.	A base document (National Response Framework), Emergency Support Function (ESF) Annexes, Support Annexes, and Incident Annexes. The Annexes provide detailed information to assist with the implementation of the NRF. The Base Plan includes Concept of Operations, Coordinating Structures, Definitions and Appendixes, which include a Glossary, Acronyms, Authorities, and Compendium of National Interagency Plans (DHS, n.d.)	1- Measures for the prevention of disasters, or the mitigation of their effects. 2- Measures to integrate risk mitigation into national and local development plans. 3- Measures for preparedness and capacity building to effectively respond to any threatening disaster situation or disaster. 4- Roles and responsibilities of different Ministries, Departments or agencies in the disaster management process (RoM, 2007)	Considering the changes in the disaster patterns and other factors over the years, preparation and updating of the country's plan for DM is undertaken on a regular basis in 5-year cycles (GoPRB, 2017)	Community centered and organized mass mobilization-based disaster risk management system shall be set up (FDRE,2013).
Categories of Emergencies	Natural disasters Accidental disasters	Biological Incident Catastrophic Incident	Disaster: "serious disruption in a community, caused by the impact of	Flood Cyclone and surge, tornado	None identified

	Public Health Incidents Social Security Incidents (Zhe, Chan, Liu, & Yeung, 2016)	Cyber Incident Food and Agriculture Incident Mass Evacuation Incident Nuclear/Radiological Incident Terrorism Incident Law Enforcement and Investigation 20(DHS, 2008)	an event, that requires a significant coordinated response by the government and other entities” Serious disruption: “loss of human life, or illness or injury to humans; and/or widespread or severe property loss or damage; and/or widespread or severe damage to the environment” (RoM, 2007)	Earthquake Riverbank erosion Landslide Drought Tsunami Lightning Arsenic contamination Human-induced hazards: - Fire - Building collapse - Oil & toxic chemical spills - Health hazards (GoPRB, 2017)	
Classification of Incidents	Especially serious (I) Serious (II) Relatively serious (III) Common (IV) (Zhe, Chan, Liu, & Yeung, 2016)	Incident Level I Incident Level II Incident Level III (Federal Emergency Management Agency [FEMA], 2017)	Local (island) state disaster Atoll level state disaster National state disaster	None identified	None identified
Emergency (Response) Management System	Centralized leadership Integrated coordination Categorized management Level-based responsibility Localized management (Zhe, Chan, Liu, & Yeung, 2016)	It follows scalable, flexible, and adaptable concepts within a tiered system that includes local, tribal, State, and Federal levels, NGOs, and the private sector	Central coordination to ensure the Disaster Management Plans prepared by Ministries, departments, agencies, and public and private corporations conform with the National Disaster Management Plan Cluster system: **Shelter**; Ministry of Housing and Infrastructure **Education**; Ministry of Education	Three (3) fora coordinate disaster response in Bangladesh at the national level: The National Disaster Management Council (NDMC), responsible for strategic decisions for disaster management; the Inter-ministerial Disaster Management Committee (IMDMC), responsible for coordination across ministries; and the National Disaster	None identified

			Health; Ministry of Health **Nutrition**; Ministry of Health **Fisheries & Agriculture**; Ministry of Fisheries & Agriculture **Disaster Risk Reduction**; National Disaster Management Authority **Water & Sanitation**; Ministry of Environment & Energy (RoM, 2007).	Management Advisory Committee, responsible for policy development and advice (GoPRB, 2019).	
International Cooperation and Drivers	The only mention of international engagement is mentioned in Article 15 of the China Law "The Government of the People's Republic of China shall carry out cooperation and exchange with the governments of other countries and the international organizations concerned in matters of emergency prevention, monitoring, early warning, emergency handling, rescue and relief, and post-emergency rehabilitation and reconstruction." (PRC, 2007)	The word international was mentioned 23 times through the Homeland Security Act of 2002, although most of those mentions are related to names and titles of officials and committees. Under the section of the Office of International Affairs it is stated that the office focuses on "promotion of information and education exchange … to promote sharing of best practices and technologies relating to homeland security" it also mentions "To identify areas for homeland security information and training exchange where the United States has a demonstrated weakness, and another friendly nation or nations	Local Disaster Management plans were initially developed with support from different UN ESCAP (Economic and Social Commission for Asia) and the Pacific and the Asian Disaster Preparedness Center which also helped in the development of the community-based Disaster Based Risk Management framework. The Strategic National Action Plan was developed to support the implementation of Hugo Framework (Hassan, n.d.). The national charters mention that "The Authority may accept the assistance of any legitimate International and local government	The DM charters were developed in accordance with the Millennium Declaration of September 2000 (MDG), the Hyogo framework for action (HFA) 2005-2015, the South Asian Association for Regional Cooperation (SAARC) Framework for Action (SFA) 2006-2015, the Sendai Framework for Disaster Risk Reduction (SFDRR) 2016-2030, the Asian Regional Plan for Disaster Risk Reduction (ARPDRR); and the Sustainable Development Goals (SDGs) (Ministry of Disaster Management and Relief, n.d.). Although the charters do not address a formal process for initiating and terminating requests for international	Is one of the main components of the policy and strategy The charters states that the Government of Ethiopia is highly committed to operationalizing the recommendations for action coming from the Hyogo Framework for Action (HFA) and the Africa Regional Strategy for Disaster Risk Reduction. It is also stated That Ethiopia's international cooperation shall be strengthened in accordance with the disaster risk management direction, relevant laws and directives of the country and on the basis of international, regional and sub-regional laws, directives, and agreements ratified by the country.

		have a demonstrated expertise" (Public Law, 107, 2002). One of the 2004 National Response Plan annexes is about International Coordination and it "provides guidance for carrying out responsibilities regarding international coordination in support of the Federal response to domestic Incidents of National Significance" (Department of Homeland Security [DHS], 2004). The 2008 NRF clearly states that the US can accept donations from foreign countries, individuals and organizations in the case of major incidents (DHS, 2008)	and non-government organization, private corporation, business establishment, or volunteer civic group to assist itself in the discharge of its duties under this Act." Additionally, it is stated that "The government may appeal for international humanitarian assistance with the consent of the Council to deal with an event of disaster effectively" (RoM, 2007).	assistance, nor the structure and level of details to be included in such request, however, the Act includes several clauses dealing with international assistance and relief including Article 23(a)(b), Article 5.6, and Article 53 (GoPRB, 2017)	

CHAPTER 4: DISCUSSION

Over the past two decades, countries across the world directed increasing attention, efforts, and resources to establish or strengthen their emergency management systems or to enhance their performance. These efforts encompassed a variety of strategic national actions, including enacting laws, restructuring existing emergency management frameworks, or establishing new governmental agencies specially tasked with emergency management. This trend that can be marked by the US Homeland Security Act of 2002 was primarily driven by the series of surprising major natural and human-made incidents that struck many parts of the world. These disasters include the 2001 terrorist attacks in the US (the 9/11 plane attacks on multiple critical targets in the US), the 2002 Bali bombings, the 2003 Severe Acute Respiratory Syndrome (SARS) outbreak, the 2004 Indian Ocean Tsunami, the 2005 Kashmir earthquake, the 2008 Sichuan earthquake, the 2009 H1N1 Pandemic, the 2010 Haiti earthquake, and the 2011 Fukushima earthquake and subsequent nuclear disaster. Along with other local smaller-scale disasters, these incidents alerted different countries and the broader international emergency management and humanitarian relief communities to the global nature of major disasters and the extensive human, social, and economic impacts of such events. These major incidents called for international collaboration on a variety of levels including establishing international recommendations and frameworks, sharing of expertise and information (including intelligence information), developing and improving emergency response systems, allocating financial resources to enhance the existing infrastructure and improve human capacities and performance, and increasing research in the field of emergency preparedness and response. Despite all these calls for international collaboration during disasters, many countries have rejected or delayed the acceptance of foreign assistance and aid. Additionally, still today, different countries have substantially different structures (legally and operationally), organization, priorities, and complexity of their national emergency systems. These differences are primarily driven by the various political and governing systems, availability of resources (financial and

human), land area, geography, technological advancement, types of hazards, and goals of the emergency management system, among others.

As we examined the five national emergency management charters in this study, two clear indicators reflect the individual country's perception of the importance of the field of emergency management and the attention directed towards building and strengthening its infrastructure and capabilities. The first is demonstrated by the government entity designated to oversee these activities and the second is the hierarchical level of the government official leading the national emergency management activities. Our findings showed that in four of the five countries, the highest authority responsible for overseeing the national emergency management activities is situated at the top of the government executive hierarchy. In China, the highest body responsible for emergency management is the State Council of the People's Republic of China, which is the highest authority in China, chaired by the Chinese Premier (Prime Minister). Similarly, in The People's Republic of Bangladesh and The Federal Democratic Republic of Ethiopia, the highest two emergency management authorities in those two countries, the National Disaster Management Council and the Federal Disaster Risk Management Council are chaired by the Prime Ministers. In one state, the Republic of Maldives, the highest emergency management authority in the country, the National Disaster Management Council (NDMC), is chaired by the President of the Maldives. Those two fundamentals, the government entity overseeing emergency management activities and the hierarchical level of the government official leading the national emergency management activities, ensure that directives and decisions are made at the highest governmental levels, guarantee national-level coordination, and secure the needed human and capital assets and resources required for the emergency management activities.

The impetus for creating or significantly improving and expanding the national emergency management structure were found to be substantially different among the countries in our study. However, all were propelled by a catastrophic natural or human-made national disaster that demonstrated gaps and deficiencies in responding and managing the event. Each of the five

countries realized that its emergency management system was deficient in certain areas and was unable to achieve the desired goals. The US 2002 Homeland Security Act was shortly drafted after the 9/11 attacks and the ensuing anthrax attacks. This law addressed critical gaps identified in the emergency management systems in the US and called for better coordination among different governmental and local agencies and sharing of intelligence information with other countries (Public Law 107, 2002). China's Emergency Response Law was issued after the country suffered substantial human and economic losses during the 2003 SARS outbreak resulting from a lacking emergency management system (Shi & Liu, 2007). The Maldives Disaster Management Act was enacted after the catastrophic 2004 Indian Ocean Tsunami and the increasing risks of rising sea levels; the law is primarily directed to protect the existence of that country (Hassan, n.d.). Bangladesh and Ethiopia realized that they could not achieve their economic goals unless they can protect their investments and economic development and secure food for their people through a comprehensive and robust emergency management system (FDRE, 2013; GoPRB, 2019).

Interestingly enough, none of the countries included in this study had emergency management laws before each was severely affected by a significant incident. Identifying a need for a national legal framework that encompasses all emergency management activities in the country, four of the five countries enacted emergency management laws shortly after major disasters. In the US, the 2002 Homeland Security Act became a public law about one year after the 9/11 attacks. In the case of China, its first Emergency Response Law of the People's Republic of China was issued in 2007, three years after the 2004 SARS epidemic. While for the Maldives, their Maldives Disaster Management Act was enacted two years after the 2004 Tsunami. Although Bangladesh had been directing a lot of efforts to its emergency system and had a national emergency plan since 1993, its first law, the Disaster Management Act, was only issued in 2012. Ethiopia is the only country among our study group that does not have an emergency management law; instead, it has the National Policy and Strategy on Disaster Risk Management, this document

was only issued in 2013. None of the laws or strategies in the five countries included in this study were directly related or motivated by the various international initiatives.

Although the ultimate goals of all national emergency response systems are similar and include the collaborative national efforts to reduce risks and minimize the impacts of disasters by preparing for, responding to, and recovering from all types of natural and human-made incidents; nonetheless, our study showed that different national charters address unique objectives and have specific priorities. The substantial differences in objectives and priorities were clearly recognized across the main themes of the five national charters. In the case of China, a prominent theme is focusing on social security and stability through terms like "national security, public security, public order, social stability" (MoEE, 2017). In the US, the dominant themes are about national security, terrorism, and law enforcement using terms like "ensure security of the homeland, prevent … acts of terrorism, conduct law enforcement investigations to resolve the incident, apprehend the perpetrators, and collect and preserve evidence for prosecution and/or attribution" (DHS, 2008). The Maldives' charters have no specific themes and generally focus on "saving lives and protecting livelihood" through stressing on the collaborative efforts of the government and community (National Disaster Management Authority, 2016). Bangladesh's charters' central theme is to protect and safeguard its economic development to achieve its economic goals with a focus on the poor and the disadvantaged, specifically with regard to food security. This is demonstrated through terms like "significance of disaster management … is enormous in the developmental context of Bangladesh", "NPDM 2016-2020 is designed to support the government of Bangladesh's target to become a middle-income country by 2021 and a developed country in 2041", and "safeguarding the socio-economic progress of the country and contributes towards sustainable development" (Ministry of Disaster Management and Relief, 2017). Ethiopia's strategy has similarities with Bangladesh's charters with its particular emphasis on economic development and food security (FDRE, 2013).

One of the main differences between the five emergency management charters in this study group is the classification of disasters. China has four (4) levels of disasters; Especially serious (I), Serious (II), Relatively serious (III), Common (IV) ranked in reversed order from the most serious to the least serious. The US and the Maldives have three levels of disasters ranked in climactic order from the least or local to the most serious or national, level I to level III. We could not identify such classification in the Bangladesh and Ethiopia systems.

Categories of emergencies is also another domain of the emergency management charters that differed substantially between the different countries. In China, emergencies had four classes: Natural Disasters, Accidental Disasters, Public Health Incidents, and Social Security Incidents (Shi & Liu, 2007). In the US, emergencies are categorized into seven groups: Biological, Catastrophic Incident, Cyber, Food and Agriculture, Mass Evacuation, Nuclear/Radiological, and Terrorism Incidents (DHS, 2008). Bangladesh categorized emergencies into floods, cyclones and surge, tornado, earthquake, riverbank erosion, landslide, drought, tsunami, lightning, arsenic contamination, and a group of human-induced hazards (GoPRB, 2017). The Maldives divides emergencies differently. Disasters are categorized as either local, Atoll level, or national. It defines a disaster as "serious disruption in a community, caused by the impact of an event, that requires a significant coordinated response by the government and other entities" and a serious disruption "loss of human life, or illness or injury to humans; and/or widespread or severe property loss or damage; and/or widespread or severe damage to the environment" (RoM, 2007). Ethiopia, on the other hand, does not provide a clear description or methodology of its emergency categories (FDRE, 2013).

Two main components of the national emergency charters evaluated in this study that were remarkably different are:

First, the complexity and size of the sum of national emergency management charters that detail the legal, strategic, and operational components of the emergency management system. Those charters include the laws or acts and the supporting executive and operational documents. China's

law, the Emergency Response Law of the People's Republic of China, is a relatively short charter of ten pages. However, China has 101 State Overall Plans, Specialized Plans, and Departmental Plans in addition to many Local Overall Plan, Local Government Plans, Provincial Level, City/Prefecture Level, Country Level, Public Services Units Plans, and plans for Public Services Units (MoEE, 2017; Zhe, Chan, Liu, & Yeung, 2016). The US has a relatively long law, the Homeland Security Act, which is 187 pages. This law is amended by a 103 pages National Response Plan and a 90 pages National Response Framework. There are also numerous state, county, and city plans. The Maldives' Disaster Management Act is just 15 pages (RoM, 2007). No additional charters for the Maldives were identified. Bangladesh's Disaster Management Act is 31 pages. This is supplemented by 117 pages 5 year plan and a 222 pages Standing Orders on Disasters which includes 19 appendices. Ethiopia's National Policy and Strategy on Disaster Risk Management is limited to 21 pages.

The structure, organization, types of authority, and components of the emergency management system also differed substantially among all five countries. China follows a centralized leadership and planning model with integrated coordination, categorized management, and level-based responsibility (MoEE, 2017). The US supports a tiered system that includes local, tribal, State, and Federal levels that are supplemented by Non-Governmental Organizations (NGOs) and private sector participation. In the US model, the responsibility for responding to incidents, both natural and human-made, begins at the local level (National Response Framework, 2019). Bangladesh has its unique collaborative model where three fora coordinate national disaster response. These fora are the National Disaster Management Council that is responsible for strategic decisions for disaster management, the Inter-ministerial Disaster Management Committee that is responsible for coordination across ministries, and the National Disaster Management Advisory Committee that is responsible for policy development and advice (GoPRB, 2019). The Maldives follows another unique model called the Cluster System, where different authorities manage multiple critical areas with central coordination to address a specific emergency. For example,

shelter is managed by the Ministry of Housing and Infrastructure, Nutrition is managed by the Ministry of Health, and Education is managed by the Ministry of Education (Hassan, n.d.). Ethiopia, per their 2013 National Policy and Strategy, does not have a structured model but is planning to implement a community-centered system with organized mass mobilization based on the disaster risk (FDRE, 2013).

One of the specially interesting areas of the emergency response systems that showed three unique paradigms are international collaboration and commitment to international recommendations. The first paradigm is identified in China's Law which does not include any mention of international or global partnerships or international treaties. The second paradigm is noted through the US Act that includes many articles about international collaboration. These articles cover a variety of international activities and even include establishing an Office of International Affairs. Among the many activities of this office are improving the exchange of information, education, and research, joint exercises, and countering terrorism (Public Law 107, 2002). None of the two laws of China and the US includes any mention of international treaties or frameworks. The third paradigm is integral in the charters of the Maldives, Bangladesh, and Ethiopia. Their charters show a strong commitment to international regulations, treaties, and frameworks like the Sendai Framework, the Hyogo Framework for Action, the South Asian Association for Regional Cooperation Framework, and the Paris Climate Change Agreement (FDRE, 2013; GoPRB, 2019; RoM, 2007).

Although the five emergency systems examined in this study fulfill, to various extents, the five preparedness functions (cycle) of mitigation, prevent, prepare, response, and recover, nevertheless, every country has its own set of priorities and objectives within its vision and mission. These sets of priorities are driven by a multitude of reasons including political, economic, social and national security. Different national emergency management charters are at varying levels of maturation and sophistication. From our observations, this can be attributed to the level of knowledge and scientific advancement, financial resources, human capability, political willingness,

or political instability. Each of the five national emergency management systems differs substantially in its construction, details of its charters, approach, agencies, and entities involved, as well as many other characteristics. Numerous factors contribute to the different emergency management models and levels of readiness and preparedness in different countries. The type, number, frequency, and scale of natural and human-made disasters, either independently or collectively, country is likely to encounter could be driving elements to develop or enhance its national emergency preparedness. However, it is clear that national emergency management plans serve other strategic goals beyond just protecting the people, infrastructure, and economy from the direct effect of disasters. Some countries developed and use their emergency preparedness and response frameworks as tools to secure and protect their economic development goals, as in the case of Bangladesh and Ethiopia. Other countries use their emergency strategies to ensure their existence, as in the case of the Maldives. In addition to such drives and to ensure achieving the goals of the emergency plans, governmental commitment and political will are essential to support the preparedness activities and that was evidenced by the supervisory authority and officials overseeing the emergency management system. Besides all the previously mentioned factors, the availability of financial resources and technical advancement, either from national resources or through international assistance, are critical contributors to the level of emergency preparedness in different countries. This is contrary to a country like Egypt, which directs all its emergency efforts to state security. Egypt does not have an emergency management law and the highest authority is a division within an administration under the Egyptian Prime Minister (GFDRR, 2019).

The complexity of some charters, like the China plan, which consists of State overall emergency response plan, 25 specialized emergency response plans, and the 80 departmental emergency response plans can be a challenge in case of international assistance and relief. At the same time, the less developed plans or the lack of laws like in the case of the Maldives and Ethiopia can also present challenges during international relief efforts.

Given the multitude of variables mentioned previously, it is logical to expect this extensive level of discrepancies between the national emergency management systems in the five countries included in this study. More differences surely exist between the rest of the world. With the substantial differences between the different countries and their emergency management systems, it would be impossible to expect effective and productive international collaboration in emergency response efforts. However, if the international community desires to move towards a collaborative effort to manage major global disasters, a first step to achieve this goal is to standardize a set of core components of the national emergency management systems. These common core domains could facilitate collaboration and assistance from other countries and relief agencies during disasters and overcome issues like those previously described.

Based on the study findings, we think that there are certain elements that should be standardized across all national emergency management systems, and those include:

Categories of disasters

Although it is normal that different countries identify and categorize the disasters within their borders according to their their unique characteristics, it would be beneficial if all countries agree on a standardized global categorization of different disasters. This standardization will be immensely helpful during international emergency response and relief efforts.

Classification of disasters

Even though national charters categorized disasters on a range of well-known categories, different countries classified disasters on entirely different scales. Disasters were categorized on either 3 points or 4 points scales and were classified in either an ascending or descending order or were not classified. This could interfere with international assistance efforts. Again, if countries can develop a unified international code for the classification of disasters that would be beneficial during international response efforts.

Identification of the lead emergency management agency

The emergency management systems have completely different structures and organizations. Because of their complexity, it is unclear which organization within these complex structures that is the lead agency and which agency should be contacted during a response effort. If countries would agree to a standard title of this entity (e.g. similar to the WHO offices within national Ministries of Health) (even within their existing structures) that can enhance the communication and response efforts.

Acceptance of technical support, materials, and equipment

Previous situations have shown that countries spent significant time evaluating the type and importance of different offers of assistance by other countries and organizations. Lacking a single entity within the governments' emergency management system that is delegated with evaluating such offers, significant delays affected the decision to accept or deny these offers. These delays significantly affected the disaster response efforts and subsequently the disaster victims. A single entity should be responsible for accepting or denying the offer.

Country entry and custom crossing

As previously mentioned, the process of allowing personnel and equipment into a country receiving assistance created many challenges due to complex logistics and different entry and customs regulations. If countries can agree on the "special status" of personnel and equipment for international relief efforts granting them special entry processes, this could enhance the timely response to disasters.

Transfer of funds and acceptance of donations

Due to various reasons, different countries have substantially different rules and regulations regarding the acceptance of monetary assistance from other countries and international organizations as well as from individual donations and contributions. In some cases, countries refused or at best delayed the acceptance of such monetary assistance, which affected the response efforts. One other point that should be considered is the identification of the "national" entity within

the country that is receiving the monetary assistance funds and donations. Mechanisms should be in place to facilitate the acceptance these types of assistance.

Identifying and adopting new communication and social media tools

With the recent advancements in communication and social media, (major) events can be instantaneously broadcasted worldwide. These media and technology-based tools allow other countries, disaster relief organizations, the media, and the people to identify and respond to the response efforts. However, this kind of service is still under-regulated and not included in any of the emergency management charters. If this kind of service can be recognized and officiated by the international community, this could significantly impact the response efforts.

Sector-specific emergency plans

Not every national emergency management plan included sector-specific plans like healthcare, energy, communication, food, transportation, and others. It would be helpful if countries developed such sector-specific plans which could inform and guide international relief efforts on the specific needs during the response efforts. Additionally, the emergency plan must identify the roles and responsibilities of various national entities in emergency response.

Conclusion

National emergency management charters differ substantially for obvious reasons related to the government structure, political system, land area, financial resources, technical development, among many others. There are thousands of organizations, including international, private, and NGOs that work globally in the field of emergency response and disaster relief. These agencies, along with governments, face numerous obstacles and bureaucratic barriers to fulfilling their international assistance responsibilities during disasters, many of which can be attributed to the substantially different emergency management laws, regulations, and structures in different countries. Given the increasing threats and losses from natural and human-made disasters and the calls for increased international collaboration to face these threats, it is recommended that countries develop unified domains of their emergency management systems. Although this requires

numerous resources and may take decades to accomplish, nevertheless, the human, social, and economic benefits of such an approach are countless.

We believe that a global initiative led by one of the UN organizations should initiate an international effort to standardize specific components of the national emergency management charters and lay the foundations to a unified approach to emergency management structure and response. All UN Member States could adopt a global emergency law. This law could also include articles that facilitate the movement and transportation of response and relief teams and facilitate the movement of their equipment and the transfer and acceptance of aid.

In the wake of the current coronavirus outbreak and witnessing the different measures taken by every country to manage the outbreak including some actions that have been criticized globally and include accusations of inappropriate disclosure and sharing of critical medical information that have misled countries in managing the outbreak and resulted in unfavorable outcomes along with accusations of pirating equipment and supplies, countries should develop emergency management code of ethics that ensures better collaboration and eliminates unethical actions by different countries.

Limitations

There are several limitations to this study. First, this study examined the emergency management systems in only five countries. If this study includes more countries, more substantial discrepancies would be identified, and likely demonstrate more complexity of international collaboration in emergency responses. The study also only examined the published laws and regulations; however, there may be updated laws and regulations that were not publicly available. Additionally, the study examined national level emergency charters, studying local, state, or regional plans may provide more clarity on the areas that need more international consensus. Finally, although we used a number of qualitative methods in examining the different charters, a more in-depth analysis could reveal more information.

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