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Analysis of the civil-military relationship to improve efficacy and coordination of Humanitarian Aid and Disaster Relief efforts

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ANALYSIS OF THE CIVIL–MILITARY RELATIONSHIP TO IMPROVE EFFICACY AND COORDINATION OF HUMANITARIAN AID AND DISASTER RELIEF EFFORTS

June 2017

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This project analyzes the civil–military relationship in Humanitarian Aid and Disaster Relief (HADR) operations that have followed natural disasters, such as the 2005 earthquake in Pakistan, Hurricane Katrina in the United States, and the 2004 tsunami in the Indian Ocean, particularly in Indonesia. In the humanitarian relief process, the relationship between civil and military institutions is a key component of successful HADR efforts. The objective of this project is two-fold: it identifies critical inter-relational issues, and it recommends a viable and executable framework to ensure the efficient use of resources/efforts to promote a high state of readiness and performance in joint operations.

We analyze three major HADR organizations located in the United States, Pakistan, and Indonesia, and focus on specific HADR operations based on the magnitude of the disaster. Our analysis draws on primary research from the interviews we conducted with professionals (i.e., the heads and directors of these organizations) taking part in HADR operations. We then recommend a coordination framework, based on building strategic alliances among key players; the sharing of resources and information; and joint planning, training, and exercises to reduce cultural gaps and strengthen relations among members. We conclude that the organizational framework, communication and coordination, training, and inter-organizational culture are critical elements for efficient HADR operations. The proposed framework will not only bring synergy to the whole operation, but will also facilitate in planning and economization of resources.

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LIST OF ACRONYMS AND ABBREVIATIONS

AJK	Azad Jammu and Kashmir
BNPB	Badan Nasional Penanggulangan Bencana
BPBD	Badan Penanggulangan Bencana Daerah
CAP	Consolidated Appeals Process
CARE	Cooperative Assistance for Relief Everywhere
CERF	Central Emergency Fund
DDMA	District Disaster Management Authority
DFID	Department for International Development
DHS	Department of Homeland Security
DOD	Department of Defense
ERRA	Earthquake Rehabilitation and Reconstruction Authority
FEMA	Federal Emergency Management Agency
FRC	Federal Relief Commission
HADR	Humanitarian Aid and Disaster Relief
HN	Host Nation
HRR	Humanitarian Response Review
IASC	Inter-Agency Standing Committee
ICRC	International Committee of the Red Cross
IDRA	International Disaster Relief Assistance
IFRC	International Federation of the Red Cross
IGO	Inter-Governmental Organization
IO	International Organization
MOU	Memorandum of Understanding

NATO	North Atlantic Organization
NDMA	National Disaster Management Authority
NDMC	National Disaster Management Commission
NDMSPA	National Disaster Management System for Pakistan Act
NGO	Non-Governmental Organization
NOAA	National Oceanic and Atmospheric Administration
NRF	National Response Framework
NRP	National Response Plan
NWFP	North Western Frontier Province
PDMA	Provincial Disaster Management Authority
RAF	Royal Air Force
SCG	Strategic Coordination Group
TF	Task Force
TNI	Tentara Nasional Indonesia (Indonesian Armed Forces)
TNI AD	Tentara Nasional Indonesia Angkatan Darat (Indonesian Army)
TNI AL	Tentara Nasional Indonesia Angkatan Laut (Indonesian Navy)
TNI AU	Tentara Nasional Indonesia Angkatan Udara (Indonesian Air Force)
UK	United Kingdom
UN	United Nations
UNDMT	United Nations Disaster Management Team
UNJLC	United Nations Joint Logistics Centre
UNDPKO	United Nations Department of Peacekeeping Operations
UNFPA	United Nations Population Fund
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
UNOCHA	United Nations Office for the Coordination of Humanitarian Affairs

USNORTHCOM	United States Northern Command
USPACOM	United States Pacific Command
WFP	World Food Program

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I. INTRODUCTION

> Civil-military coordination, in light of the humanitarian perspective, is an essential dialogue and interaction between civilian and military actors in humanitarian emergencies which are necessary to protect and promote humanitarian principles, to avoid competition, minimize inconsistency and when appropriate pursue common goals. It is also a responsibility which is commonly shared and is ensured by joint training and effective liaison between aid organizations and military. (UNOCHA, 2008, p. 8)

A. BACKGROUND

The ever-increasing frequency and rising magnitude of disasters, whether natural or man-made, challenges the present technologically advanced and well-equipped world to provide better relief in crisis situations. Whether it is a predicted or sudden disaster, the situation demands a swift, coordinated, and well-organized response to deliver efficient relief to survivors. Relief operations need to be conducted carefully to reduce human suffering. Traditionally, militaries have taken part in humanitarian relief operations all around the world. As Fredrick C. Cunny indicates, the public generally expects the military will reach out to assist the civilian population immediately in any emergency situation (Cunny, 1989). Due to its capabilities, resources, and ability to operate in a contingency environment, a military's engagement depends on the magnitude and extent of destruction. The primary role of a military is to fight wars, as well as to plan, mobilize, engage, operate, and disengage at a fast pace in professional and disciplined manner. Therefore, their skills and assistance can be vital in any kind of emergency response. Furthermore, to implement an effective emergency response, military actors must collaborate with civil actors to ensure a high degree of coordination, without which the desired objectives cannot be achieved. Coordination among all civil relief actors and the military is of paramount importance; thus, this coordination requires detailed protocols and procedures.

The United Nations (UN)-Oslo guidelines (1994) clearly position civilian humanitarian agencies as the primary actor for disaster response at the local, state,

federal, and international levels, whereas it uses the military as a most efficient tool equipped with resources to execute relief efforts. Therefore, the main thrust of disaster relief comes from civilian agencies at all tiers, while the military acts in a supportive role, which varies from country to country as per each state's framework. Similarly, according to international norms, disaster relief is most often considered a civilian function, which limits the introduction of foreign military use until host nation (HN) resources are either exhausted or insufficient to handle the emergency situation, while the HN military is normally the first responder in majority of the countries. To this end, the Oslo guidelines (1994) provide an international practical disaster-response framework under which the request for foreign military aid is categorized as a final step.

Within the disaster theater itself, the various civil humanitarian participants may include international and regional organizations; federal, state, and provincial or local agencies; non-governmental organizations (NGO), and private companies. All of these civil entities are over and above own and foreign militaries, even though all are working for a single relief operation. Civil players may also include international, regional, and local relief organizations, the host government, and non-government entities as participants in Humanitarian Aid and Disaster Relief (HADR) operations. The increased number of actors in a complex emergency environment can bring much-needed resources but can complicate coordination or synchronization of efforts and use of resources in the conduct of an HADR operation.

On one hand, the diversity of different organizations working together in a humanitarian effort is an asset, but on the other hand, it highlights how these participants are different in thinking, organizational culture, and structure. Each actor brings different agendas, motivations, rules of engagement, methods, terminologies, and frameworks. This diversity poses a great threat to an essential requirement of free flow and sharing of information. In such a dynamic information environment, each participant will need different information depending upon its organization's objectives, on ground situation, and phase of the relief operation. As Larry Wentz (2006) notes, coordination and collaboration do take place among actors but on a highly unplanned and ad hoc basis,

which affects the actors' understanding of roles, capabilities, and limitations. This situation hinders communication and the free flow of information sharing between military and civil players (Wentz, 2006).

B. PURPOSE

The aim of this project is to analyze the civil-military relations during HADR operations to understand the challenges of efficient coordination and collaboration under such circumstances. Results and comparisons help in formulating a framework aimed at enhancing coordination among participants, and ensuring a high state of readiness and performance in joint relief operations.

C. SCOPE

The research carries out an analysis of civil-military relations in HADR operations to improve the efficacy and coordination of resources and activities by focusing on selected relief operations and their respective frameworks.

D. ORGANIZATION AND METHODOLOGY OF THE STUDY

The following section explains the order in which the research is presented in the remaining chapters of this thesis, and then the method by which the research and analysis were conducted is described.

1. Organization

The research is composed of four main chapters. The literature review in Chapter II gives an overview of disasters during the last decade. It also focuses on key definitions of the term disaster, and identifies major actors in HADR operations. Coordination challenges associated by HADR operations involving multiple actors are highlighted in Chapter II. In addition, the research examines the organizational structure of disaster management systems of Pakistan, the United States, and Indonesia.

Chapter III focuses on selected HADR operations from different parts of the world (i.e., in Pakistan, the United States, and Indonesia) with an aim to uncovering shortfalls in coordination between civil organizations and the military. The basis for

selecting these operations is the magnitude of the disasters, the number of players taking part in relief efforts, and the overlapping time frame of these disasters. These HADR operations occurred in Pakistan following an earthquake (2005), in the United States after Hurricane Katrina (2005), and in Indonesia after a tsunami (2004).

In Chapter IV, we analyze the HADR operations from Chapter III to identify common issues of coordination in the pre, during and post operation phases of relief. The research also focuses on the causes of coordination failures in light of the operations' respective frameworks, which resulted in delayed and poor relief response. Chapter V draws conclusions to the research and offers recommendations for improving coordination of the humanitarian community and the military during future relief efforts.

2. Methodology

To conduct this research, we employed a historical/archival method supported by inductive reasoning. A literature review serves as the primary means to identify the critical inter-organizational relationship and coordination issues encountered in civil-military joint HADR missions. Further, the study focuses on joint operations conducted by HNs, the UN, the United States Agency for International Development (USAID), and NGOs with militaries in recent past. The identified problem areas are then be analyzed against the respective organizational frameworks and doctrines to understand the reasons for evident shortfalls. Identified issues are then evaluated in terms of the three aforementioned major joint HADR operations to draw conclusions about how these issues were managed by the respective agencies conducting these operations. The research is supported by interviews on the subject with professionals who participated in all phases of the various HADR operations, as well as with the heads of institutions and specialized academic personnel. In the final chapter, we also recommend measures to enhance collaboration and coordination among civil and military partners to achieve a high level of readiness and performance in joint HADR operations.

II. LITERATURE REVIEW

A. BACKGROUND ON DISASTERS AND RELIEF EFFORTS

Since the start of the 21st century, the frequency of natural disasters has remained high, affecting masses all over the world. According to AccuWeather, an average of 78 natural disasters was reported in 1970; in 2004, that number rose to 348, thereby increasing the number of people affected by these disasters to 217 million per year since 1990. Disasters related to climate rose 80 percent between 1980 and 2009. The total financial loss due to the surge in natural disasters from 1981 to 1990 was $528 billion, and by 2009, it rose to $1.2 trillion (Anderson, 2013). Since 2000, major disasters include Typhoon Yolanda/Haiyan (2013) in the Philippines, Hurricanes Katrina (2005) Hurricane Sandy (2012), and Irene (2011) in the United States, the earthquake in Pakistan (2005), and tsunamis (2004) and earthquakes that plagued Japan and other countries, and many more. Scientists have concluded that the increase in climatic disasters is due to global warming, as well as other natural and man-made factors (Borgen, n.d.). Some sources further highlight how global warming has contributed to rising temperatures, resulting in storms and severe weather conditions. Another cause of the increase in flash and coastal flooding can be traced to new trends in urbanization (Borgen, n.d.).

Table 1 shows, number of major natural disasters and the people affected, and Figure 1 provides a graphical representation of data (which at least affected more than 10,000 people in each occurrence):

Table 1. Disasters Record from 2004 to 2016. Source: CRED International Disaster Database (n.d.).

Year	Number of Disasters	Total Deaths	Total Injured	Total Affected
2004	226	241,461	79,885	136,769,294
2005	185	87,580	148,552	80,494,987
2006	228	25,717	167,030	91,926,788
2007	146	16,562	61,425	189,771,925
2008	157	237,129	392,346	83,256,739
2009	123	8,989	11,808	104,690,847
2010	142	266,865	609,559	194,853,602
2011	134	29,538	20,600	167,141,783
2012	101	4,836	9,305	71,836,829
2013	117	16,569	41,107	74,586,958
2014	73	15,530	70,567	36,967,052
2015	93	15,081	118,946	37,515,661
2016	64	2,786	203	10437665
TOTAL	**1,789**	**968,643**	**1,731,333**	**1,280,250,130**

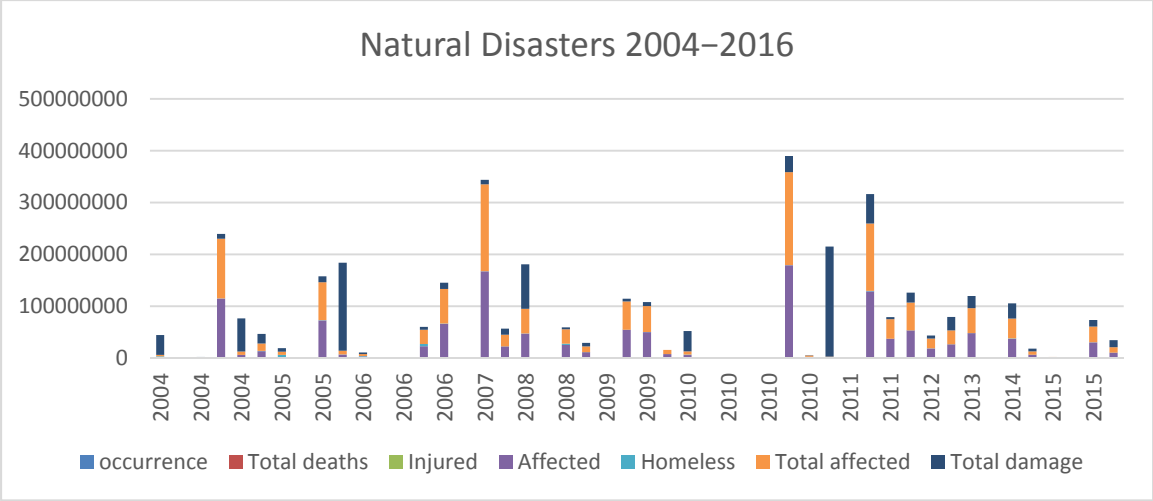


Figure 1. Natural Disasters in the Asia-Pacific Region, 2004–2016. Source: CRED International Disaster Database (n.d.).

Disasters have no boundaries; they have struck all across the globe. The numberof the natural disasters, though, is high in the Asian Pacific region (Moroney, Pezard, Miller, Engstrom, & Doll, 2013). This same phenomenon is mirrored in the data shown in Figure 2.

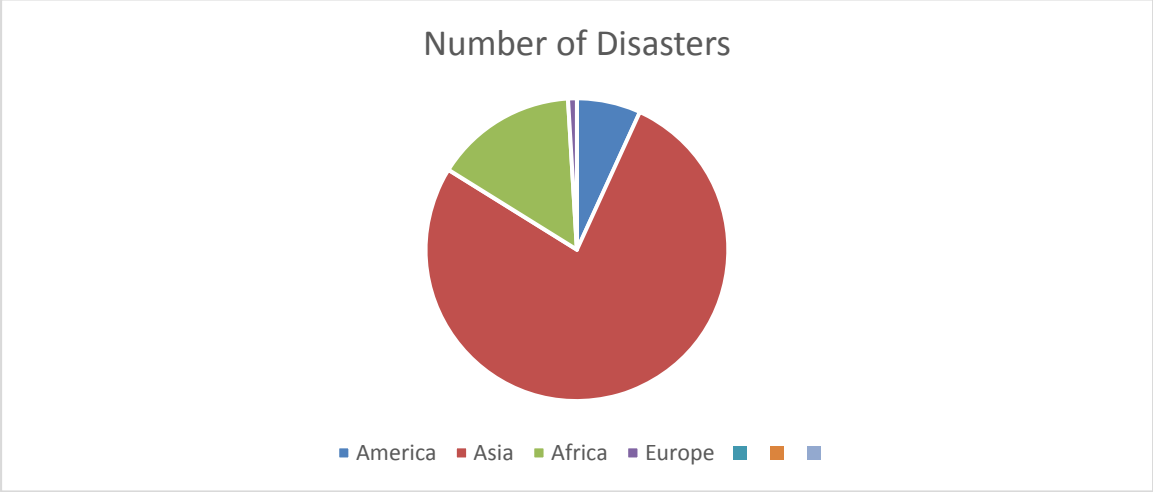


Figure 2. Major Disasters by Continent, 2004–2016. Source: CRED International Disaster Database (n.d.).

Figure 2 clearly indicates that maximum causalities occurred in Asia during the period under review (2004–2016). The paper thus focuses on selected disasters in Asia and in the United States with an aim to determine a correlation between distinct cultures and their respective response mechanisms as well as of the civil-military coordination in those mechanisms. To understand the relief effort in the right perspective, first, we have to understand the correct meaning of relevant terminologies.

1. Definitions of Disaster

The term disaster has been defined distinctly by different organizations and people in light of their organizational objectives and scope. The U.S. Federal Emergency Management Agency (FEMA) requires the president's authority to determine the need for federal supplemental aid and uses a statutory definition from the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 2016 (also called the Stafford Act). Pointing to the Stafford Act, the U.S. Congress defines a major disaster as:

> Any natural catastrophe (including any hurricane, tornado, storm, high water, wind-driven water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, snowstorm, or drought) or, regardless of cause, any fire, flood, or explosion, in any part of the United States, which, in the determination of the President, causes damage of sufficient severity and magnitude to warrant major disaster assistance under the Stafford Act to supplement the efforts and available resources of States, local governments, and disaster relief organizations in alleviating the damage, loss, hardship or suffering caused thereby. (Robert T. Stafford Disaster Relief and Emergency Assistance Act, 2016)

FEMA explains the criteria in deciding an entity's eligibility to receive federal aid and what amount of federal assistance an entity can expect in disaster relief as per the FEMA framework. The relevant clause is reproduced in Appendix A.

2. Complex Emergencies

The UN classifies disasters as complex emergencies and defines the term as "a humanitarian crisis in a country, region or society where there is total or considerable breakdown of authority resulting from internal or external conflict and which requires an international response that goes beyond the mandate or capacity of any single and/or

ongoing UN country program" (UN, 2003). Participants who respond to such emergencies have distinctive roles as indicated by International Humanitarian Law. Militaries, for example, continue to protect victims and facilitate civil agencies in relief activities.

3. Disaster Classification

In defining the term disaster, FEMA concentrates on only the outcome of an event; FEMA does not consider on the nature of the event itself. By contrast, Luk N. Van Wassenhove (2006) classifies disasters according to their speed (slow versus sudden onset) and their source (natural versus man-made) (Wassenhove, 2006)This information enables actors not only to classify the occurrence but to planning a response accordingly. Figure 3 shows Wassenhove's (2006) categorization of disasters by sudden and slow onsets and natural versus man-made causes.

	Natural	Man-made
Sudden-onset	Earthquake Hurricane Tornadoes	Terrorist Attack Coup d'Etat Chemical leak
Slow-onset	Famine Drought Poverty	Political Crisis Refugee Crisis

Figure 3. Categorizing Disasters. Source: Wassenhove (2006).

To classify a disaster within the appropriate quadrant, it is important to understand the disaster's cause(s), which may not be explicitly visible or traceable (Kovacs & Spens, 2009). The natural cause of a flood could be excessive rain; however,

the man-made element comes in when as a result of an earthquake, a dam constructed on a tectonic fault line breaks. This represents a major challenge in humanitarian logistics. Although man-made causes of disasters can be neutralized, which ultimately may restrict the extent and magnitude of destruction caused by a natural disaster, the effort to neutralize this factor alters the focus of a relief operation (Kovács & Spens, 2009). We can conclude that the whole of the relief effort, including the resources needed and the involvement of major actors, hinges on all the factors discussed in the preceding paragraphs and necessitates detailed planning and coordination before, during, and after operations.

4. Humanitarian Assistance and Disaster Relief

The literature agrees on the broad understanding of the terms Humanitarian Assistance (HA) and Disaster Relief (DR). These two types of disaster-response efforts are conducted to reduce human suffering in the short and long term. DR is denoted as the first response, whereas HA is the one that ensures support for an extended period of rehabilitation and recovery efforts (Apte, 2009).

The U.S. Department of Defense (DOD) also defines HA and DR in Joint Publication 1-02 (2011) as the following:

Humanitarian Assistance — "Programs conducted to relieve or reduce the results of natural or manmade disasters or other endemic conditions such as human pain, disease, hunger, or privation that might present a serious threat to life or that can result in great damage to or loss of property" (p. 158).

Foreign Disaster Relief — "Aid which is provided by U.S. military to alleviate the suffering of foreign disaster victims, humanitarian services and transportation; the provision of food, clothing, medicine, beds, and bedding; temporary shelter and housing; the furnishing of medical materiel and medical and technical personnel; and making repairs to essential services" (p. 136).

5. Major Response Actors

Major actors are divided into two major categories as defined by United Nations guidelines:

Humanitarian Actor — All the civilian community, whether national, local, governmental or otherwise, which is working in the cause of humanitarian assistance/ support and actively participating in relief efforts at any level comprises humanitarian actors (IASC, 2004).

Military Actor — These are official militaries of the state working together under some agreement and following a hierarchical chain of command; these can be armed personnel or otherwise (IASC, 2004). This category also includes "UN peacekeeping troops, international military observers, foreign occupying forces, regional troops, or other officially organized troops" (IASC, 2004, p. 9).

Having defined civil and military actors in HADR, we must consider the subsets of these two categories. According to Humaninet, participants represent the following organizations (Humaninet, n.d.):

- Military forces of a country or countries cooperating together;
- Developed-country government aid agencies;
- UN specialized agencies;
- Non-UN international organizations;
- International and local NGOs;
- Host-nation governments (national, regional, and local);
- Volunteer, university, and faith-based teams and individuals;
- Corporate and business sector teams and assets; and
- Service providers and contractors. (Humaninet, as cited by Wantz, 2006)

a. UN Organizations

Leaving the military forces aside, we look at the UN system and its organizations first in discussing major humanitarian actors. The UN has a complex but comprehensive structure of organizations. Centrally, the UN organization is composed of member states

and include “its six principal organs: General Assembly, Security Council, Economic and Social Council, Trusteeship Council, International Court of Justice, and the Secretariat” (Byman, Lesser, Pirnie, Benard & Waxman, 2000, p. 59). By observing the UN humanitarian aid operations, Byman (2000) explains, we can see that the Security Council, the Economic and Social Council, and the Secretariat play the most important roles throughout a disaster response. All the humanitarian efforts are coordinated by its Office for the Coordination of Humanitarian Affairs (UNOCHA) for various agencies (UN, n.d.). The UN humanitarian operation begins with the appointment of a Humanitarian Coordinator, which is one of the UN agencies that takes the lead in initiating and coordinating an operation on behalf of the UN. It will also outsource the tasks through NGOs in the fulfillment of relief efforts. The following UN agencies work together as per their scope and assigned tasks:

World Food Program (WFP)

- UN High Commissioner for Refugees (UNHCR)
- UN Children’s Fund (UNICEF)
- World Health Organization (WHO)
- UN Development Program (UNDP)
- Office for the Coordination of Humanitarian Affairs (OCHA)
- Department of Peacekeeping Operations (UNDPKO). (UN, n.d.)

The listed organizations are independent of the parent UN office with respect to their working and operations according to their assigned mandate (UN, n.d.).

b. International Organizations

Among the international organizations (IO), a Swiss institution, the International Committee of the Red Cross (ICRC) is the leading organization, with adequate resources, networks, and expertise all around the world to support relief operations for displaced people and disaster-affected communities. The committee has set out to uphold the Geneva Conventions as their framework to operate and is guided by “seven principles: concern for humanity, impartiality, neutrality, independence, voluntary service, unity, and universality” (ICRC, n.d.). In Muslim countries, the organization is called Red

Crescent. Red Cross has its headquarters in Geneva and it aims for the development of humanitarian activities. Its societies, such as the American Red Cross, play an important role in providing care to the victims of natural disasters by coordinating relief operations while staying out of the conflict zone. The organization is focused on promoting world peace (Benthall, 1997). To enhance its role in other countries, it has formed an International Federation of the Red Cross (IFRC), which is subscribed with other national societies to coordinate relief efforts under the same framework (ICRC, n.d.). Following are few examples of IOs:

- ICRC
- IFRC
- National Red Cross and Red Crescent Societies, for example, the American Red Cross
- SMOM (Sovereign Military Order of Malta) (Wentz, 2006)

c. Inter-Governmental Organizations

Inter-governmental organizations (IGO) are regional cooperation efforts among countries for common goals and interests. One of the most common driving goals for such cooperation is the economic benefits that each member state aims for, but other interests could be security, culture, politics, or shared geographic concerns (Wentz, 2006). Such cooperation also serves the purpose of coordinating efforts in the case of a natural disaster. The UN is an organization that is globally focused on all its member states' issues, whereas other IGOs are focused on specific regions or a common interest. Some IGOs are:

- World Bank Group
- International Monetary Fund (IMF)
- North Atlantic Treaty Organization (NATO)—formally Linked to the UN
- International Organization for Migration (IOM)
- European Union (EU)
- European Community Humanitarian Aid Office (ECHO)
- Organization for Security and Cooperation in Europe (OSCE)
- Caribbean Community and Common Market (CRICOM)

- Organization of American States (OAS)
- Coordination Center for the Prevention of Natural Disaster in Central America (CEPREDENAC)
- African Union (AU)
- Economic Community of West African States (ECOWAS)
- Association of Southeast Asian Nations (ASEAN) (Wentz, 2006)

d. Non-Governmental Organizations

NGOs are independent organizations, unaffiliated with governments, mostly working for humanitarian assistance and social uplift programs for underprivileged populations or working for some other positive cause. These groups have different functions, sizes, and scopes, ranging from local to global. Over time, NGOs have been able to develop reliable and trustworthy relations by which they handle and channel large amounts of funding from different sources to support humanitarian aid/relief efforts as well as other social causes (Wentz, 2006). NGOs carry out their work under the legal cover of the country where they are registered or are operating. They have their own organizational hierarchy and are accountable to the board of directors, who arrange to fund and prepare frameworks for NGOs. The UN does not have any jurisdiction over NGOs; however, the UN does play an important role in coordinating relief activities through these NGOs. A few prominent NGOs are:

- Cooperative Assistance for Relief Everywhere (CARE)
- World Vision
- Doctors Without Borders (Médecins Sans Frontières-MSF)
- OXFAM
- Church World Services (CWS)
- United Methodist Committee on Relief (UMCOR)
- Mercy Corps International (MCI)
- International Rescue Committee (IRC)
- Catholic Relief Service (CRS)
- International Medical Corps (IMC)
- Danish Relief Council (DRC)

- Norwegian Relief Council (NRC)
- Save the Children
- Alliances of NGOs:
    - InterAction (U.S.-based NGOs)
    - International Council of Voluntary Agencies (ICVA) (Wentz, 2006)

B. UNDERSTANDING CIVIL-MILITARY DYNAMICS IN HADR OPERATIONS

Disaster relief operations are those special operations in which civil and military actors come together with a common goal to help those suffering. Those involved in these operations are confronted with many challenges and amongst them one is the inter agency relations as the outcome depends on the coordination which these civil-military outfits share. To better understand this we have to understand coordination and then focus on the civil-military relations.

1. Definitions of Coordination

Coordination is an important factor when two or more individuals, organizations, or countries join to function as one entity. In this paper, we are focusing on civil-military coordination in humanitarian aid and disaster relief operations. Therefore, we need to understand how coordination is defined by different organizations regardless of the role they play in peacekeeping or humanitarian missions, as any such role ultimately focuses on alleviating suffering. As described by Balcik et al. (2009), coordination has two types: one is vertical coordination, and the other is horizontal coordination. In vertical coordination, the NGO must coordinate with sister organizations or with those who are over them or under them in a particular operation (i.e., an NGO coordinating for services with a transportation company). In horizontal coordination, one NGO coordinates with another NGO; that means one organization coordinates with another organization of the same kind (Balcik, Beamon, Krejci, Muramatsu, & Ramirez, 2009).

As one would expect, coordination and collaboration are two words frequently used by humanitarian organizations (Russell, 2005). Collaboration is the joining together

for a common understanding of an idea or plan, which makes it a theoretical exchange of ideas or knowledge. Coordination, on the other hand, is an action for the sharing of information and resources by more than one organization for a common goal. Balcik, B., Beamon, B. M., Krejci, C. C., Muramatsu, K. M., & Ramirez, M. (2009) reason that the term coordination has different meanings within the relief domain; coordination refers to information sharing and resources, the principle of making decisions centrally, carrying out coordinated operations, partition on the basis of regions, or a division of tasks; it can also refer to a cluster-based relief responsibility (Balcik et al., 2009). The UN and different relief agencies have specifically created offices such as the Office of Coordination for Humanitarian Affairs (UNOCHA), the United Nations Joint Logistics Center (UNJLC), and the Inter-Agency Standing Committee (IASC), which are dedicated to coordination activities. Furthermore, the UN has positioned numerous programs, including the Central Emergency Fund (CERF) and Consolidated Appeals Process (CAP), with an aim of enhancing coordination among agencies providing relief (see Reindorp, 2002; Kehler, 2004, for more details) as cited by (Balcik et al., 2009).

The UN Department of Peacekeeping Operations (UN DPKO) defines the civil-military relationship as “United Nations Civil-Military Coordination,” and describes it as a system based on interactions among agencies. This relationship centers on the “exchange of information, negotiation, mutual support, and planning at all levels,” which is carried out mutually by the military component, humanitarian organizations, and civilians of the area, with a focus on individual organizational aims and objectives (UN DPKO, 2002).

The United Nations Office for the Coordination of Humanitarian Affairs (2008) describes “civil-military coordination in light of a humanitarian perspective as an essential dialogue and interaction between civilian and military actors in humanitarian emergencies which are necessary to protect and promote humanitarian principles, to avoid competition, minimize inconsistency and when appropriate to pursue common goals.” (UNOCHA, 2008, p.8) It also terms coordination to be a responsibility commonly shared and ensured by joint training, and effective liaison between aid organizations and

the military. Coordination requires both components to work in a joint team, to ensure joint integrated plans, to establish common goals, and to be accommodating. For this type of interagency coordination, the UNOCHA uses the acronym “CM Coord” (UNOCHA, 200), as cited by (Balcik et al., 2009).

The United States Civil Affairs (CA) doctrine addresses cooperation and coordination between civil and military organizations while U.S. Joint Doctrine mentions cooperation instead of coordination. The latter emphasizes activities to develop a relationship between organizations by focusing on measures like joint training, more detailed measures for interactions and communication, and honoring diversity in the organizational culture (African Center for the Constructive Resolution of Disputes [ACCORD], 2005; Joint Publication [JP], 2003; Pollick, 2000) as cited by (Balcik et al., 2009).

Francis Kofi Abiew (2003) describes coordination as a “measure to achieve a comprehensive approach based on complementary capabilities” (Abiew, 2003, p. 33). Citing Peter Viggo Jakobsen, Abiew (2003) suggests that the civil-military relationship is a blend of effective and efficient inter-organizational partnerships of the military with aid organizations, in which mutual respect is an important component, and it is enhanced by mutual trust rather than dependence on command (Jakobsen, 2000. p. 42).

2. Civil-Military Coordination in HADR Operations

The civil-military relationship is complex, and it gets more pronounced when these organizations come together during humanitarian operations. The military plays multiple roles in executing its duty, including before, during, and after disasters. Wentz (2006) believes that military and civilian organizations are different from one another on the basis of their functionality and their distinct organizational base. The military, on one hand, has only one commander to whom all personnel report. On the other hand, civil organizations have more autonomous units, such as transport, supply, administrative and public information; this results in coordination problems in the field and invites friction (Wentz, 2006).

Normally after a disaster, no single authority controls the relief effort, so we can say it is a less regulated or unregulated effort (Stephenson, 2005). Balcik (2010) claims that the governments of the affected countries (host countries) shoulder the overall responsibility for relief operations inside their countries, and all participating members or organizations are duty bound to adhere to the laws of the host country (Balcik, 2010, p. 23). Working in harmony is required to ensure better results. If the civil organizations and the military involved in humanitarian aid are working in an uncoordinated way, they will be undermining each other. All stakeholders have to understand and accept each other's differences and move forward by joint planning, communication, and the equal distribution of roles and responsibility to ensure an adequate response to the crisis. Flexibility on both sides is required to understand one another, and training is the key method to promote this understanding (Abiew, 2003).

In terms of resources available to prevent, manage, and respond to disasters, every nation has its own safeguards and level of preparation. The U.S. DOD has some of the most modern assets, which include air and sealift aircraft to transport personnel and humanitarian supplies. It also has the most detailed distribution and supply chain, with state-of-the-art logistic capabilities, handled by some of the most professional logisticians who are trained in disaster relief, with a focus on all phases of operations management. They have a detailed setup of engineering, communication, and medical support bases, which can support military and non-military alike (Moroney, Pezard, Miller, Engstrom, & Doll, 2013). To ensure the success of a HADR operation, it is a must to have a high degree of preparedness and performance at critical times.

Civil-military coordination also plays a critical role in any HADR missions for a number of reasons. It speeds up the response and recovery process by utilizing the most appropriate and efficient assets to achieve the best results. This capability ensures the far reach of relief personnel deep into remote locations by making the best use of available road infrastructures or, if denied access on the ground, by helicopters. This detailed coordination prevents duplication of effort and saves lives and resources (Martin, n.d., p. 2): "Finally, it promotes the timely flow of information from the host nation government

down to assisting state units, agencies, and ultimately, to the people in the different communities."

Due to this close interaction between military and humanitarian organizations, many initiatives have been observed to enhance mutual coordination. A step in the same direction is the UN Civil-Military Cooperation Centers, which are aimed at enhancing the coordination effort between the military and civil organizations, including the UN agencies, during joint operations. Liaison officers (LOs) are also employed in the field with civilian organizations and NGOs to ensure the flow of information and coordination during relief efforts (Abiew, 2003). It has helped in building relations and coordination between various groups, and the same concept can also be taken a step further (Abiew, 20003, p. 35). By focusing on these points, we can judge that the main aim of all organizations is to reach out to those who are affected and to save lives. To ensure this, we have to understand the organizational structure of not only military but civilian organizations, which include government and non-government organizations.

a. Culture of Civil Organizations and the Relief Community

To ensure better understanding and cooperation between civil and military organizations, both sides need to understand each other's culture. As a RAND report (2000) states, "The actors vary tremendously in their capabilities, size, and attitudes, with considerable implications for cooperation with the U.S. military and success of the overall relief effort. Major actors include the United Nations family, the Red Cross, Red Crescent Movement, and NGOs" (Byman, Lesser, Pirnie, Benard, & Waxman, 2000, p. 59). Understanding the inner culture and functioning of these organizations is very important for a successful operation.

Each organization has its own culture, its own values, and its own distinct functioning, with a common aim of providing comfort to those who are affected in times of need. Wentz (2006) admits that civilian relief organizations have a distinct organizational culture and structure. Nevertheless, they do not believe in formality or the use of authority, and they are less conscious of security and traditions. Typically, NGOs

are headed by an executive officer, who acts as a country manager/director, in charge of the mission; under him normally is a project manager, administration staff, and security offices. Due to this flatter structure, NGOs enjoy greater flexibility and autonomy as compared to the military (Wentz, 2006).

The fact that humanitarian organizations have a culturethat is distinct from that of the military contributes to the need for effective coordination in the field whenever these organizations come in contact in either a supporting or leadship role. Abiew (2003) highlights that NGOs are distinct in in terms of their size, mandate, capacity, and professionalism, and all NGOs specialize according to their own capabilities (Abiew, 2003). Due to the increasing involvement of militaries and NGOs in relief operations, many times they have had overlapping roles. Such poor management of resources and responsibilities can occur when sharing of information and operational objectives is not coordinated properly.

b. Military Organizations and Their Culture

Military culture is one of oldest in history, and it has evolved over time. Military organizations have particular traditions and ways of working, which reflect their geographic regions and local cultures. Military culture is a rich mixture, influenced by history, values, history, geography, people, military campaigns, and the impact of the ruling elite (Murray, 1999, p. 29). In turn, military culture reflectshow a nation as a whole performs. In the words of Williamson Murray, “Military culture is the reflection of the ethos, professional attributes, both in terms of experience and intellectual study” (Murray, 1999, p. 28). Different military components and organizations have developed over time, often keeping pace with technological advancement. The basic military branches include the army, the navy, and the air force. Each arm of the military has its own sub-branches, but in this paper, we refer to all of them as the military. To study civil-military relations and their coordination shortfalls, we must begin by focusing on the military role in the disaster relief efforts. In particular, we use the example of the United States armed forces, which are the most modern military. The United States military first participated in a disaster relief operation after the San Francisco earthquake in 1906. During this relief

effort, the soldiers of the Pacific Division were joined by the National Guard, Navy, and Marines, and the University of California's Cadet Corps also took an active part (Bronson, 1959, as cited in Gaydos and Luz, 1994, p. 49). U.S. forces have not only participated as the lead support organization within the United States but internationally also. Joel C. Gaydos and George A. Luz (1994) cite Coultrip (1974) and Byrd (1980) who mention the earthquake in Nicaragua in 1972, the famous cyclone of 1978 at Sri Lanka, and the Iraqi refugee crisis after Operation Desert Storm in Gulf War, in which the military participated in the distribution of food and tents. Furthermore, the U.S. armed forces assisted in the provision of the most critical resource, water, and in ensuring cleanliness at refugee facilities (Centers for Disease Control, 1991, as cited in Gaydos & Luz, 1994). Gaydos and Luz note the following conditions as critical in the decision to make use of the United States military in disaster-related operations:

- Close availability of the military to the disaster area is often ensured because of the military's dispersion and operational areas of responsibility.
- The concept of 'citizen-soldier' and the availability of the reserves and National Guard soldiers in the general vicinity and their being accepted by local communities make the military a good choice to conduct relief efforts.
- The nuclear threat within the United States had already led to military disaster relief/response planning since 1950 (Gleason, 1957; Hammarlund, 1957; Reese et al., 1962, as cited in Gaydos & Luz, 1994).
- The specialized capabilities, such as training, coupled with modern equipment and a large and well-trained workforce make the military best suited to participate in relief operations.
- Detailed and thorough military planning, including the contingency planning, can facilitate efficient and effective HADR activities.

Like civilian relief organizations, the military has its own distinct organizational structure coupled with a rich culture, which makes it effective not only in traditional operations in the field but also in relief operations. At the same time, this structure and inherent culture frustrate civilian relief organizations who think the military is inflexible. Wentz (2006) describes military organizations as highly structured and hierarchical, with a chain of command focused on achieving the mission assigned, bounded by rules, and well laid out regulations, which works according to a detailed and well laid out process, steered by a "work hard, play hard" ethic. Furthermore, it is an organization based on

competitiveness, rich traditions, high psychological stress sustainability, which greatly respects experience, seniority, and age. The military is an organization trained on an idea of combat readiness, battle skills, physical fitness, equipment maintenance, and battlefield survival, which is also secretive of operational security. Larry Wentz (2006) points out that the military is an organization whose officers are most assertive, decisive, tenacious, and confident and are trained on the principle of "make a decision and make it now" (Wentz, 2006, p. 25).

c. Military Aid to Civilian Authorities

Paul Salmon, Neville Stanton, Dan Genkins & Guy Walker (2011) asserts that military aid to civilian authorities in the United States is a special circumstance in which the military works with humanitarian organizations in response to large emergencies within a country. When military support is required, the civil organizations or authorities can request support through the U.S. Department of Defense in the form of military aid to civil authorities. Military participation in relief operations, however, must be the only remaining option. The governing criteria for approving such a request are identified by Salmon, Stanton, Jenkins, & Walker (2011, p. 141) as the following:

- All private agencies have been found not compatible with the task at hand, or they lack the resources to take it on.
- The civilian apparatus is lacking the capability or the necessary apparatus is too expensive for the civilian agencies to develop one.
- The need to act is urgent, and although the civil authority has the capability, the authority cannot implement the capability quickly enough.

A major part in any of the disaster is played by the NGOs, which are normally part of relief efforts following a disaster (Gaydos & Luz, 1994, p. 54). Gaydos & Luz, while explaining the NGO and military relationship and partnership, mentions the questions that need to be answered for an NGO before it works with the military. These questions include who initiates a request for military support in the relief effort following a disaster? Who directs the military? How is the military activity supervised? Who pays for the military support effort? Can the military's involvement damage the post-disaster recovery outcomes? (Walker, 1992, p. 158, as cited in Gaydos & Luz, 1994, p. 54):

Whenever the United States military has to join a disaster relief effort overseas, it is on the orders of the U.S. State Department. Moreover, the State Department issues orders to the military only after receipt of an invitation from the country affected by the disaster. Gaydos also explains that military personnel are given a defined duration for their duty, along with specific support limitations, which are provided by military leadership (Gaydos & Luz, 1994, p. 55).

3. Challenges Faced in Disasters and Problem Areas

As stated in Joint Publication 3–29, "obstacles to unified action include differing objectives and modes of operation, competing missions, inadequate structure and procedures, incompatible communications, overly restrictive security classifications, cultural differences, and bureaucratic and personnel limitations" (Joint Chiefs of Staff, 2014, pp. 1–2). Some of these obstacles are evidenced by NGOs, who believe that sharing information with the military undermines their credibility in the eyes of the local population and makes their task difficult in the field. While describing this phenomenon, Gielie Van Dyk (2007) argues that humanitarian agencies perform their duties in accordance with guiding principles of "humanity, neutrality, and impartiality"; compromising these principles is a primary barrier that limits coordination among NGOs and the military (Van Dyk, 2007, p. 85). Civilian organizations give higher priority to their image of impartiality and independence; thus, they avoid the association with the military (Wentz, 2006).

a. Challenges in Disasters

The challenges to be faced in natural and manmade disasters are frequently similar. Howard Davis (2017) in his article "Organizational Challenges in the United Kingdom's Post-disaster Crisis Support Work" explains these challenges in detail. He explains that irrespective of the degree of preparation and organizational flexibility, responders have to face multiple challenges. Davis highlights that location and scale of the incident is one of the primary challenges, which is more pronounced depending on the magnitude of the disaster. While explaining secondary challenges, Davis mentions the

importance of the flow of information, coordination among agencies, and detailed planning (Davis, 2017).

b. Problem Areas

A review of the current literature on the subject of disaster relief reveals that interagency coordination during disasters is wanting (Salmon, Stanton, Jenkins, & Walker, 2011, p. 141, cited in Banipal, 2006; McEntire, 2008; Smith & Dowell, 2000). Abiew explains that coordination problems are due to improvement measures made on ad hoc basis and taken at the grassroots level. Often such measures are guided by or are the result of individual experiences of the workers in the field (Abiew, 2003). Further, it has been found that the humanitarian agencies are widely diverse in their culture and structure when compared to the set pattern and well organized and well trained hierarchical military chain of command (Lloyd & Van Dyk, 2007, p. 77). Whenever there is a disaster and the relief effort is mobilized by pre-designated teams, with or without the help of the military, the response is organized and managed at multiple tiers, operational, tactical, and strategical (UK Ministry of Defense, 2007a, as cited by Salmon, Stanton, Jenkins & Walker 2011, p. 142). Once a natural disaster strikes the operational command is activated, and it is normally the one located at the incident site, which according to British doctrine is called Bronze command level (Salmon et al. 2011, p. 142). In this tier, local resources are used along with pre-located supplies in the affected area. This is normally the first tier, and operational command goes beyond this level if the magnitude of the disaster and related relief effort is larger. The next tier, as per British doctrine, is Silver level command, and it determines the priorities for the distribution or allocation of resources. At the same time, it assesses risks and plans and coordinates the response. It also analyzes the situation, demands additional resources, and if, beyond its capability, it involves the strategic level of command (Salmon et al., 2011, p. 142). In case the magnitude of the incident is greater than what the tactical level can handle or if there are multiple incidents, then the level of response is raised to the strategic (Gold) level of command. At this level, the Strategic Coordination Group (SCG), which is a multi-agency group, is utilized. It encompasses all commanders from all lead organizations involved in the relief effort. So it becomes the responsibility of SCG to take over

command of the relief effort (Salmon et al., 2011, p. 142). According to the UK Ministry of Defense (2007a), as cited by Salmon's (2011) article, the SCG will ensure the following:

- The determination and dissemination of, as well as continuously updating, clear strategic aims and objectives.
- The preparation and execution of a policy framework for managing the incident.
- Prioritization of the demands at the Silver level and ensuring the provision of resources and personnel to meet requirements.
- Development and implementation of a media campaign and ensureing efficient plans for public communication.
- Ensuring efficient recovery by directing plans and operations focused on the response, which is beyond the immediate zone.

c. Problems Identified in UK Ministry of Defense Study

Several problem areas were discovered during our analysis of coordination challenges between civil-military organizations. Our research focuses on identifying the obstructions in the process and provides guidance to address them by drawing on observations from previous studies by experts (Salmon, Stanton, Jenkins, & Walker, 2011, p. 141). Table 2 lists the problem areas identified (Salmon, 2011, p. 153).

Table 2. Factors Limiting Coordination. Adapted from Salmon, Stanton, Jenkins, and Walker (2011).

	Factor	Problem
1.	Organizational	- Lack of clear and effective leadership - Unclear command and control structure - Inadequate or inappropriate command and control structure - Lack of clarity regarding each agency's roles and responsibilities - Inadequate multi-agency response frameworks or procedures - Conflicting goals
2.	Information Management	- Poor information management - Lack of an appropriate common operational picture - Lack of clarity regarding Military Aid to the Civilian Authorities requests
3.	Communication	- Lack of communication - Communication of inaccurate or incomplete information - Lack of clear communication links between agencies - Lack of a common communication structure
4.	Situation Awareness	- Inadequate levels of distributed situation awareness - Inadequate levels of meta-situation awareness - Lack of understanding of each agency's roles and responsibilities - Lack of understanding of each agency's capability and resources - Lack of understanding of each agency's contributions
5.	Equipment	- Inadequate communication technology - Incompatible communications technology - Poorly equipped command center

	Factor	Problem
6.	Cultural Issues	- Incompatible procedures - Lack of understanding of military concepts, processes, and procedures - Lack of understanding of civilian concepts, processes, and procedures
7.	Training	- Lack of multi-agency training exercises - Lack of experience in working with other agencies

d. Additional Inter-organizational Challenges

Some additional challenges include different agencies that have their own priorities, procedures, cultures, knowledge base, resources, and technologies. In a time of aid, when one member during the relief operation disappears another appears, and that member might not have been part of the emergency preparation (Davis, 2011). The authors of this thesis assert that, in comparison to NGOs present since the initial stage of a disaster relief operation, the military or additional NGOs joining at a later stage can cause multiple coordination problems. A mechanism is needed to integrate these organizations after requisite briefings and training.

In addition, there is a need for a systematic evacuation and support mechanism for the casualties during the relief operation, in which the phase-wise responsibilities are centrally distributed and coordinated to ensure proper care of the victims. In the case of Hurricane Katrina, for example, rescued people were left on highways and in some cases without food or shelter. Furthermore, some areas were searched multiple times, while others remained unattended, then victims were shifted to other locations without mutual communication amongst organizations (Franke, Charoy, & Khoury, 2013, p. 34, as cited by Davis, 2011). Shifting goals of organizations can result in deviation from planned relief efforts. For example, the initial plan may be to protect a residential area, but as the disaster situation worsens, the goal might shift from protection to evacuation (Franke,

2013, p. 35). This will result in the need for better and more detailed coordination in which this shift and the modification of plans should be discussed as the contingency model to ensure a smooth transition.

In terms of communication, the humanitarian community shares information related to the situation on the ground pertaining to the sufferings of civilians. Humanitarian organizations communicate effectively among themselves, but avoid sharing information with the military. Often such organizations fear that the military gathers information beyond its immediate scope, which affects the operation of the humanitarian organizations and is not of value for the relief operation itself (Abiew, 2003).

According to Van Dyk (2007) coordination is also hindered by the distinct organizational cultures and their approach to authority and decision making styles in the military and civil sector. “The military decision making is based on a hierarchical top-down approach with clear deadlines and rules of engagement that guide all parts of the structure from senior leadership to the soldiers on the ground” (Van Dyk, 2007, p. 86). Wentz (2006) states that, in the post-disaster reconstruction phase, long-term focus is not the priority of the military, which aims at speedy results; it has little or no training in developmental work and faces difficulty in coordinating with civilian elements (Larry Wentz 2006).

Following a disaster, NGOs work to acquire the funds to help those in need, and they are among the first ones to react, after the local agencies. If they are located in the area affected, sometimes NGOs are the main source of support and information for all those coming after them. Donors are the ones with the money, but they are not duty bound to fund any disaster operation (Seaman, 1999). Relief organizations have to work for the satisfaction of the donors to ensure that the flow of money continues to ensure projects on the ground. Most of the relief organizations bank on the donors’ money and are unable to provide disaster assistance prior to the funds’ availability, according to Seaman (1999), as cited by Balcik et al. (2010, p. 23). NGOs normally plan beforehand but in the case of natural disasters, they can only react once the funds are available to

them to support the relief plan (Balcik et al., 2010). Randolph C. Kent, while explaining the same dilemma linking funds with coordination, states that a funds race is common among the organizations taking part in relief operations; this competition can affect not only the relief operation but also coordination during the relief effort (Kent, 2004).

Media also plays its role as it keeps a close eye on the relief efforts and on the ground performance of different stakeholders in the field. NGOs want to get more funds from the donors and the media reports play a critical role in NGOs ability to attract more funding. Media sometimes can exert pressure on relief organizations, which can make them work contrary to their core ideas and beliefs (Seaman, 1999).

The size of the organization also affects coordination. Small NGOs are unable to spare individuals to act as liaison officers), nor can they afford much overhead, which consumes funds at the cost of human lives in the field. As a result, NGOs want to have minimal staff to harness this overhead cost. Due to the limited resource capacity, the smaller relief organizations cannot allow their limited number of workers providing relief in the field to attend coordination meetings (Moore et al., 2003). This contributes to a lack of coordination.

Means of transportation and the availability of vehicles is another major problem. It can get more pronounced if an entire country or a larger region is affected. The lack of transportation also affects the prices and means of communication to and out of those areas. Balcik, Beamon, Krejci, Muramatsu & Ramirez (2010) highlights that, Disaster relief environments can also be hostile, which can necessitate the implementation of security measures or movement in convoys (Balcik et al., 2010, p. 25). In such cases, NGOs must depend on the host country's military for security and economization of effort. This coordination and functioning with the military poses great challenges. These challenges can only be addressed by close mutual coordination. Sharing of transportation also increases bargaining power in relief operations (Balcik et al., 2010). NGOs depend largely on the military for coordinating horizontally for airlifts, sharing of warehouses nd storage facilities, logistic assets, information sharing and security (Balcik et al., 2010).

According to Wentz (2006), diverse logistical support networks also pose a difficulty in field operations. In most cases, civilian relief organizations do not have standby funds and must heavily depend on donors and other fund source, which results in delayed or interrupted supplies. The staff in the field are the ones who must make decisions appropriate for the situation, and they do not have a single point command and control authority. Moreover, NGO leaders normally receive the decision-making authority at a much younger age as compared to military decision makers. This cultural gap has a great impact and heightens the cultural differences between civilian and military organizations (Wentz, 2006).

Table 3 summarizes the problems highlighted by different authors, who have been cited in the preceding paragraphs. This will lead us to look into three selected operations in next chapters where we will see if same problems / challenges were encountered during those operations.

Table 3. Summary of Major Problem Areas

Problem Areas	Author	Citation	Remarks
Framework			
- Short fall in implementation	UNDMT and Bollen	(Bollen, 2008)	
- Inter agency coordination	Balcik, Beamon, Krejci, Muramatsu, & Ramirez	(Balcik, Beamon, Krejci, Muramatsu, & Ramirez, 2009)	
- Lack of differentiation between collaboration and coordination	Russell and Balcik et al.	(Russell, 2005) (Balcik et al., 2009)	Balcik et al. claim that coordination is different from collaboration
- UN bodies, such as UNOCHA, UNJLC, IASC, CERF, and CAP, work for interagency coordination	- Reindorp, Kehler & Balcik et al.	- (Reindorp, 2002; Kehler, 2004,	cited by Balcik et al., 2009
Policy failure	- Davis - Birkland	- (Davis, 2016 &2017) - (Birkland, 2004)	
- Inadequate response framework	- Salmon, Stanton, Jenkins, & Walker	(Salmon, Stanton, Jenkins & Walker, 2011)	
Training			
- Lack of joint training	ACCORD, JP 2003, Pollick and Balcik et al.	ACCORD, 2005, (Joint Publication (JP) 2003); (Pollick, 2000); and (Balcik et al. 2009)	
- Joint Plans	-ACCORD, JP, 2003, Pollick, and Balcik et al. - Abiew	-ACCORD 2005, (JP, 2003); (Pollick, 2000); and (Balcik et al. 2009) - (Abiew, 2003).	
- Absence of plan or too big aPlan	- Davis - Gaydos and Luz	- (Davis, 2016) - (Gaydos & Luz, 1994)	
- Joint teams	ACCORD, JP 2003, Pollick & Balcik et al.	ACCORD 2005, (JP 2003); (Pollick, 2000); and (Balcik et al., 2009)	

Problem Areas	Author	Citation	Remarks
- Developing complementary capabilities	Abiew	(Abiew, 2003)	
- Lack of multi-agency training exercise	- Salmon, Stanton, Jenkins & Walker	(Salmon, Stanton, Jenkins, & Walker, 2011)	
Inter Organizational Culture			
- Mutual respect and trust	Abiew and Jakobsen	(Abiew, 2003) and (Jakobsen, 2000)	Abiew cited Jakobsen
- Different organizational culture and structure	-Wentz - Davis	-(Wentz, 2006) - (Davis, 2016)	
- Military has strict command channel	- Wentz - Lloyd & Van Dyk	- (Wentz, 2006) - (Lloyd & Van Dyk, 2007)	
- Unclear command and control structure	- Salmon, Stanton, Jenkins, and Walker	- (Salmon, Stanton, Jenkins, & Walker, 2011)	
- Security consciousness of military	Wentz	(Wentz, 2006)	
- Military is more authoritative	Wentz	(Wentz, 2006)	
- NGOs are more flexible and autonomous	Wentz	(Wentz, 2006)	
- Lack of understanding of inter-organizational concepts, processes and procedures	- Salmon, Stanton, Jenkins, and Walker	(Salmon, Stanton, Jenkins & Walker, 2011)	
- NGOs' reluctance to share Information	- Abiew	(Abiew, 2003)	
- NGOs give higher priority to their image, independence and impartiality	Wentz	(Wentz, 2006, p. 27)	
- Spirit of competition among Relief agencies	Kent	(Kent, 2004)	
- Lack of attendance at meetings	Moore	(Moore et al., 2003)	
Problems Due to Nature of HADR Operations			
- Multiple authorities	Stephenson	(Stephenson, 2005)	

Problem Areas	Author	Citation	Remarks
controlling the relief effort			
- Host nation (HN) as final authority	Balcik	(Balcik et al., 2010, p. 23)	
- Equal distribution of roles	Abiew	(Abiew, 2003).	
- Asia is more prone to disaster which necessitates more effort	Moroney, Pezard, Miller, Engstrom, and Doll	(Moroney, Pezard, Miller, Engstrom, & Doll, 2013)	
Operational Problems			
- Inter-agency communication	- Abiew - Martin - Davis - Salmon, Stanton, Jenkins, and Walker	- (Abiew, 2003) - (Martin, n.d., p. 2) - (Davis, 2016) - (Salmon, Stanton, Jenkins, & Walker, 2011)	
- Different technologies	- Davis	- (Davis, 2016)	
- Distribution of responsibility	Abiew	(Abiew, 2003).	
- Duplication of effort	Martin	(Martin, n.d., p. 2)	
- Smooth flow of relief	Martin	(Martin, n.d., p. 2)	
- Inter-agency coordination	- Salmon, Stanton, Jenkins, and Walker - Abiew	- (Salmon, Stanton, Jenkins, & Walker, 2011) - (Abiew, 2003)	Cited by Banipal, 2006; McEntire, 2008; Smith and Dowell, 2000
- Lack of clarity of roles and responsibilities	- Salmon, Stanton, Jenkins, and Walker	(Salmon, Stanton, Jenkins, & Walker, 2011)	
- Lack of common operational picture	- Salmon, Stanton, Jenkins, and Walker	(Salmon, Stanton, Jenkins, & Walker, 2011)	
- Knowledge of inter-organizational capabilities and roles	- Salmon, Stanton, Jenkins, & Walker	(Salmon, Stanton, Jenkins, & Walker, 2011)	
- Lack of systematic evacuation of casualties	Frank, Charoy, & Khoury	(Franke, Charoy, & Khoury, 2012, p. 34, as cited in Davis, 2011)	Cited by Davis
- Shifting goals of	Franke	(Franke et al., 2012,	

Problem Areas	Author	Citation	Remarks
organizations		p. 35)	
- Security measures	Balcik et al.	(Balcik et al., 2010, p. 25)	

III. DATA COLLECTION

A. HADR ORGANIZATIONS AND THEIR FRAMEWORKS

To understand the relief process, we have to focus on the major organizations and their frameworks. It will help us in seeing it in connection with the problem areas which we have already talked about.

1. Government Organizations

Every country has its own government body to respond to disasters or to oversee disaster relief efforts. These organizations are distinct and vary from one another according to the culture and needs of their respective countries. Disaster management authority has a significant role in its effort to provide assistance in HADR operations. It regulates the relief process by focusing on the preparation, implementation, and follow-up phases of the process. In the United States, this authority is the Federal Emergency Management Agency (FEMA), which is authority component of the U.S. Department of Homeland Security and the first responder in the case of a domestic disaster (FEMA, 2014). For Pakistan, it is the National Disaster Management Authority (NDMA), which aims to manage disasters from the local level up to the national level and by enhancing the capabilities of all components in disaster relief at each tier (NDMA, 2015). Similarly, Indonesia's National Disaster Management Authority (Badan Nasional Penanggulangan Bencana [BNPB]) is responsible for relief and recovery following any disaster in the country and ensures the organization of a comprehensive relief effort (BNPB, 2015). In the following sections, we examine each country's framework to understand the organizational structure of their respective authorities with an aim to study selected operations later in the chapter.

2. National Disaster Response Management in the United States of America

After the 9/11 attacks in the United States, all the federal agencies were brought under a newly established federal agency, i.e., the Department of Homeland Security (DHS), with the aim to coordinate and provide a joint response to domestic emergencies

(DHS, 2014). According to the 2014 Quadrennial Homeland Security Review, the Department of Homeland Security has five fundamental security policies to protect the country from threats and hazards, such as promoting security to stop terrorism, increasing security at the borders, implementing immigration law, protecting cyberspace, and promoting national preparedness for disasters (DHS, 2014). FEMA is an integrated part of the National Preparedness System, which is responsible for disaster management within the country working under the umbrella of the Department of Homeland Security.

As per the National Response Framework (NRF), the U.S. disaster management system establishes the basic guidelines for disaster response and focuses on implementing the scalable-flexible-adaptable operational capabilities" (p. 5) harmonizing an effort through unified command, and organizing the response (DHS, 2013). The guidelines are formulated based on the historical experience gained in emergency response and provide a framework for disaster response. The framework encompasses the organizational structure from the local to the federal levels. Figure 4 shows the organizational structure of the U.S. Department of Homeland Security and FEMA as the leading authority in disaster management.

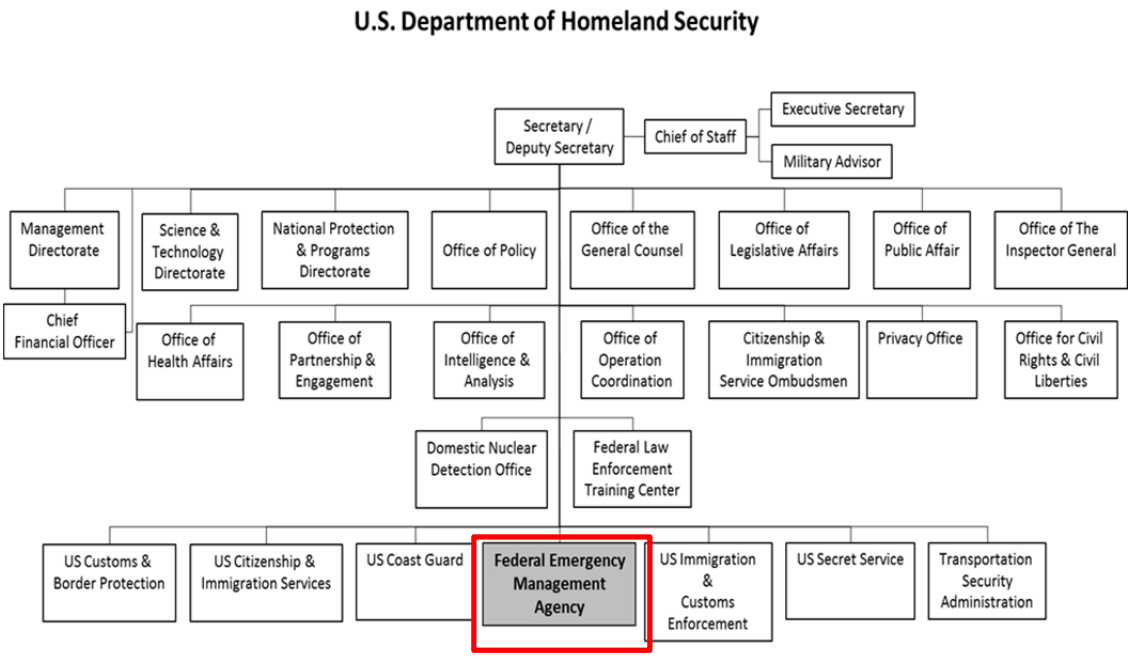


Figure 4. FEMA at Center of U.S. Department of Homeland Security Organization Chart. Adapted from Department of Homeland Security (n.d.)

a. The Federal Government

FEMA is the primary responder to any incident of national significance, and as such, FEMA's objective is to support local and state governments within the country by working together with other actors (FEMA, 2014). The agency focuses on enhancing capabilities, coordinating relief activities, and planning a joint response. The authority's priority is supporting the affected citizens before, during, and in the aftermath of a disaster with effective and efficient strategies (FEMA, 2014). FEMA works together with inter-governmental organizations, NGOs, and DOD to increase the readiness in a disaster operation. An important role of FEMA is to enhance coordination by sharing information among all the key players thereby managing disaster risks and reaching well-informed decisions to formulate a joint response (FEMA, 2014). The organization chart provided in Figure 5 depicts FEMA's organizational structure and shows the lines of authority.

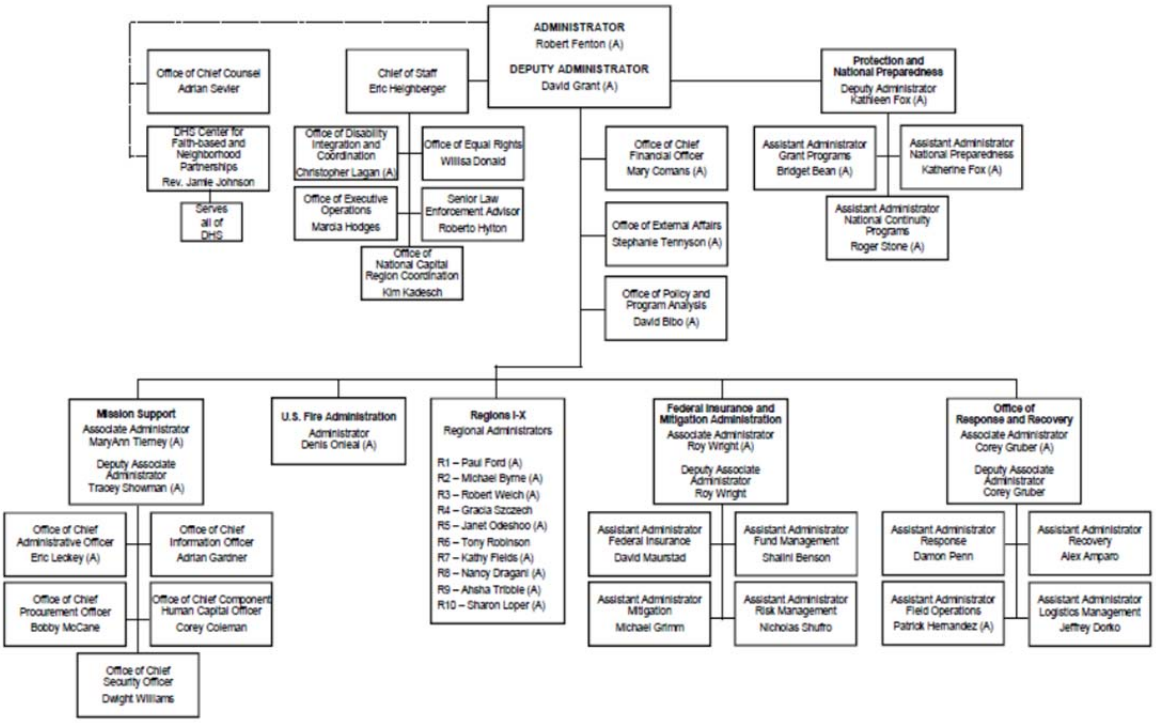


Figure 5. U.S Department of Homeland Security, FEMA Organizational Chart. Source: FEMA (2017).

b. States Governments

During the disaster relief response a major role is played by the state governments, which are adequately equipped with resources at their direct disposal. These includes "state emergency management and homeland security agencies, state police, health agencies, transportation agencies, incident management teams, specialized teams, and the National Guard" (FEMA, n.d.). According to FEMA, the state governments play a lead role in coordinating relief operations at the state level, utilizing own resources, and if need be, approaching the federal agency to support an operation, according to the terms of the Stafford Act. The detailed mandate of a state government in disaster management is given in Appendix B (FEMA, n.d.).

c. Local Governments

Local governments, comprising the lowest tier of an emergency response, directly engage in relief activities with limited capabilities and resources. Local governments

have better knowledge of their communities and local infrastructure, and thus can provide vital information to organize joint relief operations. In addition, according to the responsibility and role of the local governments, they are the last authority to leave a disaster location. Their mandate includes establishing a relationship with local communities and the private sector, as well as developing capacity and a framework to mitigate challenges and reduce friction during the contingency situation (FEMA, n.d.). The detailed responsibilities of local governments are given in Appendix B.

d. Framework

Soon after the establishment of the Department of Homeland Security, a national framework was formulated as the National Response Plan (NRP) 2004, which was approved by Congress. The NRP provides general guidelines and procedures for federal support components reacting to domestic emergencies. The NRP is an outcome of Presidential Policy Directive 8 (PPD-8), which highlights an approach for the national preparedness system that recognizes and measures risks, provides up-to-date situational awareness, and monitors the consequences and effects on the community (FEMA, 2011). The framework also focuses on capabilities assessment and its enhancement to promote well-informed decision making in order to formulate a joint response. The NRP further ensures a joint operation with all components to ensure effective distribution of resources to mount an appropriate response (FEMA, 2011).

A revised form of the NRP 2004, the National Response Framework (NRF) 2006, was implemented after Hurricane Katrina, which occurred in 2005. The NRF "is always in effect, and elements can be implemented at any time," as stated in the scope of that framework (FEMA, 2016, p. 5). As a guiding principle in engaging in partnerships with whole communities and with stakeholders, the NRF promotes coordination and direct integration with:

- Individuals, families, and households
- Non-government organizations
- Private sector companies
- District governments

- States, ethnic, territorial and insular area governments
- Central government (FEMA, 2016)

Figure 6 depicts response operational planning under the national preparedness system.

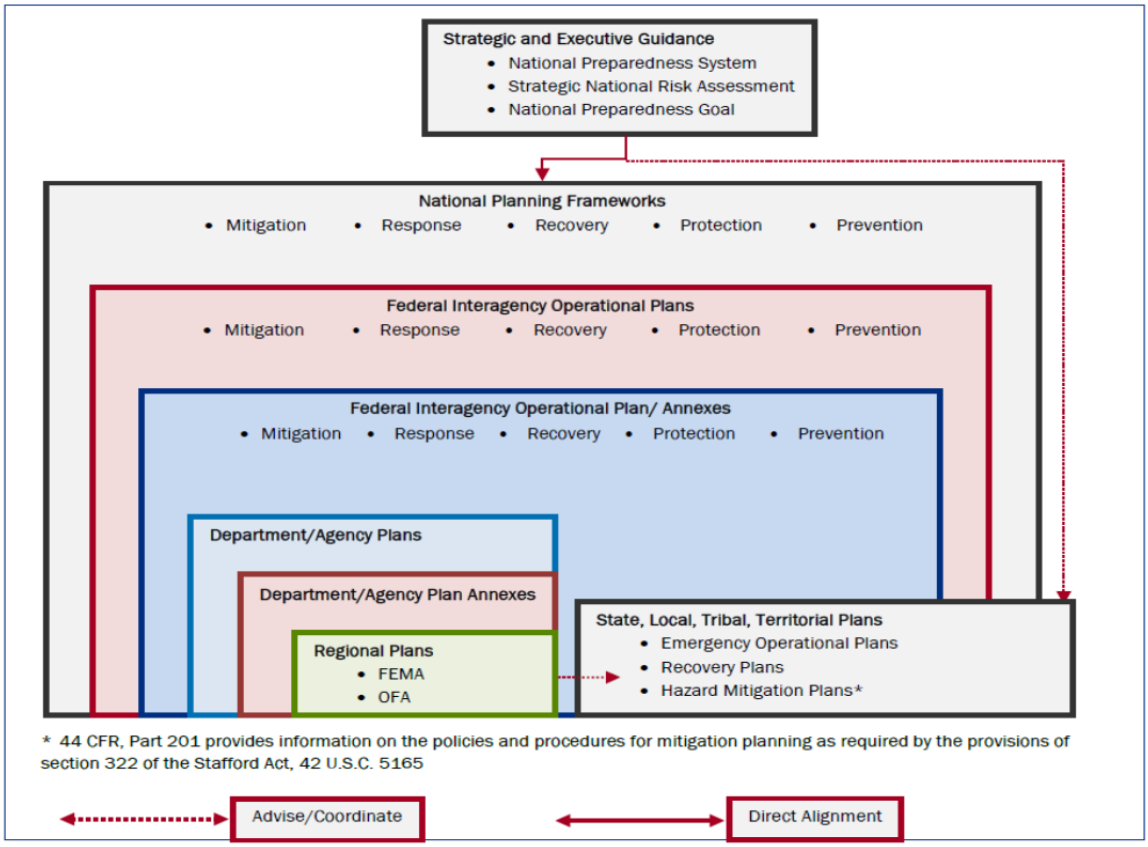


Figure 6. Alignment of Planning Efforts with PPD8-National Preparedness. Source: FEMA (June 2016).

3. National Disaster Response Management in Pakistan

Pakistan has been exposed to several catastrophes, both natural disaster as well as man-made. An earthquake on October 8, 2005, was one of the most casualty intense disasters to hit Pakistan in recent history. This event forced the government to establish disaster management agencies to ensure an appropriate response. After the incident, the government of Pakistan passed legislation (Act No. XXIV, 2010) to institutionalize a

National Disaster Management System, to provide unified relief and support during disaster situations and mitigate the coordination challenges (NA, 2010). The act provides a comprehensive roadmap to establish an organization that covers each tier—from the national level down to the provinces and the districts as well—in order to instill a unified response to emergencies. As an outcome of the act, the National Disaster Management Commission (NDMC), National Disaster Management Authority (NDMA), Provincial Disaster Management Authority (PDMA), and District Disaster Management Authority (DDMA) have been established.

a. National Disaster Management Commission

As previously mentioned, the NDMC was established through the National Disaster Management System for Pakistan Act (NDMSPA) of 2010. NDMC consists of the Prime Minister of Pakistan as chairman, leaders of the opposition, ministers of major federal ministries, and chief ministers of all provinces as members of the commission. According to NDMSPA, the commission is responsible for formulating a comprehensive framework for disaster management, guidelines for planning and integration of government and private resources, capability development, and resource allocation (NA, 2010). Further details on the role of the NDMC are given in Appendix C.

b. National Disaster Management Authority

The NDMA acts as the primary organization to ensure implementation of the plans prepared to address the challenges of the disaster relief and preparation operations and to ensure a high degree of coordination in the field during relief operations. The national authority consists of several members as may be prescribed and shall be headed by a Director General (NA, 2010). As per the NDMSPA, 2010, the authority is to act as the implementing and coordinating body to plan, execute, and monitor the response at all tiers. It also formulates the framework and guidelines for provisional and district level authorities in capacity development and building relations with local and private players. The functions of NDMA are detailed in Appendix C. Figure 7 depicts the organizational structure of NDMA.

Figure 7. NDMA Organization Chart. Source: National Disaster Management Authority Organization Chart, http://www.ndma.gov.pk/ndma.

c. Provincial Disaster Management Authority

According to the National Disaster Management System for Pakistan Act of 2010, as a policymaking board of the Provincial Disaster Management Commission (PDMC), PDMA is responsible to coordinate and implement the national policies at the provincial level in light of the NDMA guidelines. As the second tier of NDMS, PDMA coordinates and monitors the response with district level authorities and formulates a plan in line with the national plan. PDMA also ensures preparedness at the provincial level and promotes general awareness among the public about the national and provincial response plans. The detailed mandate of PDMA is given in Appendix C.

d. District Disaster Management Authority

The DDMA is a local authority in charge of planning, coordinating, and implementing the NDMA disaster policy at the respective district level, in accordance with the directions of the NDMA and PDMA (NA, 2010). The NDMSPA of 2010 states that the local council head within a district administers the DDMA and includes all the department heads at the district level. Positioned at the lowest tier, the DDMA is directly involved in disaster relief with local authorities and coordinates with the PDMA and

NDMA for efficient sharing of resources and information, vertically and horizontally. The DDMA conducts and coordinates the requisite training and preparedness of workforce, and establishes relations with local communities and players. The functions of the DDMA are detailed in Appendix C.

e. Framework

To reduce disaster risk, the Government of Pakistan implements policies, strategies, and programs that are administered by the NDMA. The national disaster risk management framework acts as a guideline for authorities who must work together with all stakeholders for national preparedness (NDMA, 2007). Moreover, the framework makes it a legally required effort to plan and develop the response from national to the local level in all phases of a disaster. Key points of the framework are (NDMA, 2007):

- Establishing legal framework for management of risk
- Assessing hazards and vulnerability to disaster within the country
- Conducting training, education, and promoting awareness among all components on disaster preparedness
- Planning disaster risk management
- Programming disaster management at the community level
- Developing an early warning system with a focus on more than one hazard as an integral part of disaster management
- Community development with a focus on reducing disaster risk
- Establishment of a detailed response mechanism for emergencies
- Recovering after a disaster and developing the capacity of communities

The National Disaster Management Authority (NDMA, n.d.) has created a graphic representation of the framework tasked to mitigate and prevent the detrimental impacts of natural disasters through the NDMA; that graphic is shown Figure 8.

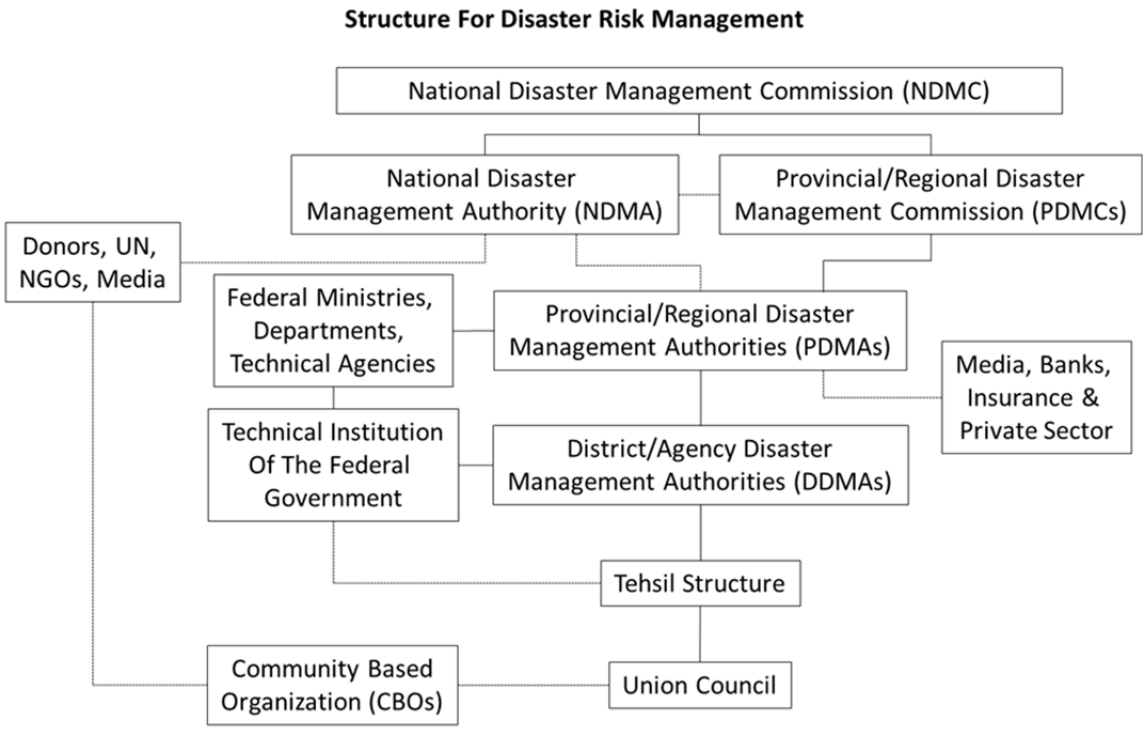


Figure 8. Structure for Disaster Risk Management. Source: National Disaster Management Authority, http://www.ndma.gov.pk.

4. Disaster Response Management in Indonesia

The Indonesian government issued Presidential Regulation No. 8/2008 to establish the National Disaster Management Authority (Badan Nasional Penanggulangan Bencana [BNPB]), the leading authority in HADR operations within the country.

a. National Disaster Management Authority (Badan Nasional Penanggulangan Bencana)

The objective of the BNPB is to coordinate and implement a planned, integrated, and comprehensive disaster management policy (BNPB, n.d). As a leading authority, BNPB has significant responsibilities to provide the framework and guidelines and the directions to implement a response plan at the national and local levels. Furthermore, it must ensure capacity building and the sharing of resources and information among key players (BNPB, 2015b). The roles and functions of the BNPB are detailed in Appendix D.

In addition to formulating and establishing disaster management policy, this office is responsible for managing internally displaced personals to reduce human suffering. The head of BNPB reports directly to the president and interfaces with members of several disaster management entities, consisting of ten government officials from echelon I or the equivalent and nine members from the professional community (Setneg, n.d.). Figure 9 depicts the organizational structure of Indonesia's National Disaster Management Authority (BNPB. n.d.).

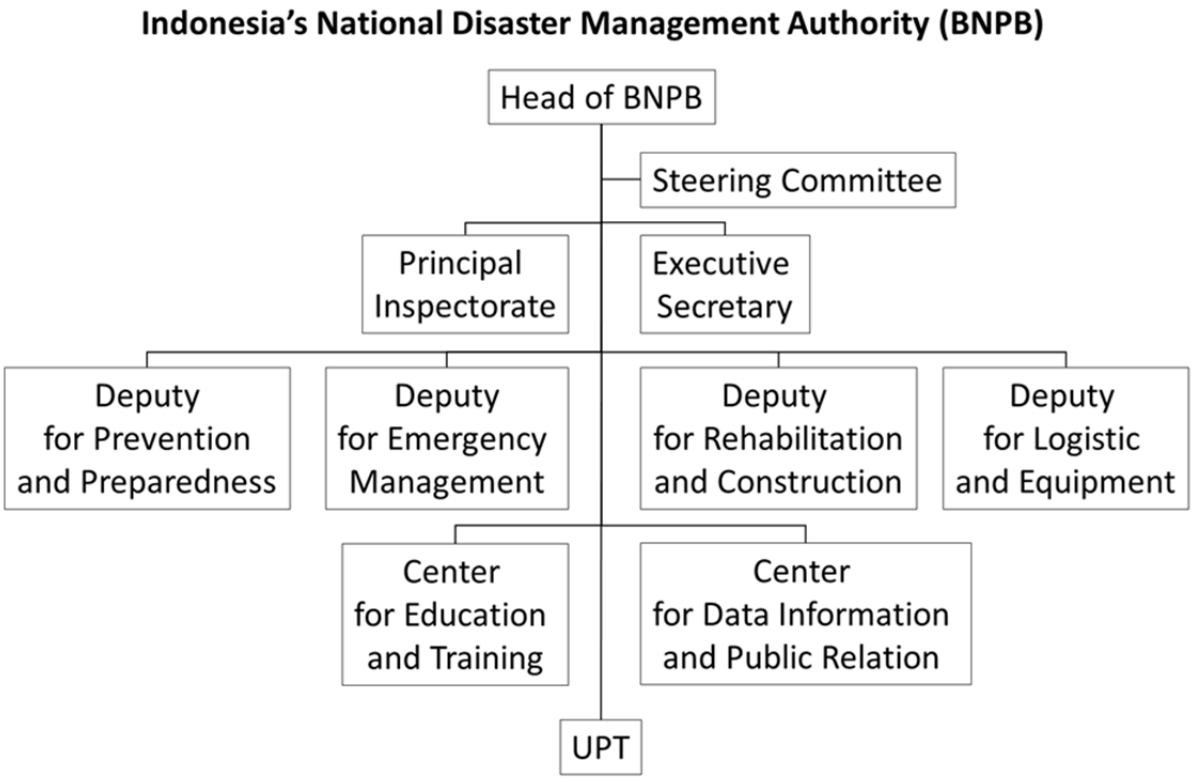


Figure 9. Structure or Indonesian National Disaster Management Authority (BNPB). Source: BNPB, http://www.bnpb.go.id/home/struktur.

b. The Local Board of Disaster Relief

The Local Board of Disaster Relief (Badan Penanggulangan Bencana Daerah [BPBD]) is the authority that is responsible for managing disaster recovery, including the fulfillment of the rights of communities and refugees affected by the disaster, based on the minimum service standards. The board also ensures the protection of the communities

from the impact of the disaster and ensures disaster risk reduction (BNPB, 2007). According to the Law of the Republic of Indonesia, Number 24 of 2007 concerning Disaster Management, an officer under each governor heads the Provincial Board of Disaster Relief (Badan Penanggulangan Bencana Daerah Provinsi [BPBD Provinsi]) and an officer under each mayor leads the District Board of Disaster Relief (Badan Penanggulangan Bencana Daerah Kota [BPBD Kota]). The mandate of BPPD is given in Appendix D.

c. Framework

The Government of the Republic of Indonesia learned from the incident of the 2004 Indian Ocean Tsunami, which was a massive disaster. The Law of the Republic of Indonesia, Number 24 of 2007 concerning Disaster Management, institutes the foundation of disaster management through the BNPB and BPBD under a legal framework. The document highlights the national and local government responsibilities, the rights and obligations of communities and businesses, and the role of international organizations, as well as the stages and requirements of disaster management, resource allocation, and management for disaster relief (Setneg, n.d.)). The law emphasizes capability development, inter-agency integration, and the need for engaging NGOs in the post-disaster rehabilitation and reconstruction process in the long term. The law welcomes international organizations and foreign NGOs to contribute in disaster relief where their workers are given protection by the government to participate freely. The national structure of disaster management in Indonesia is shown in Figure 10 (BNPB, 2015a).

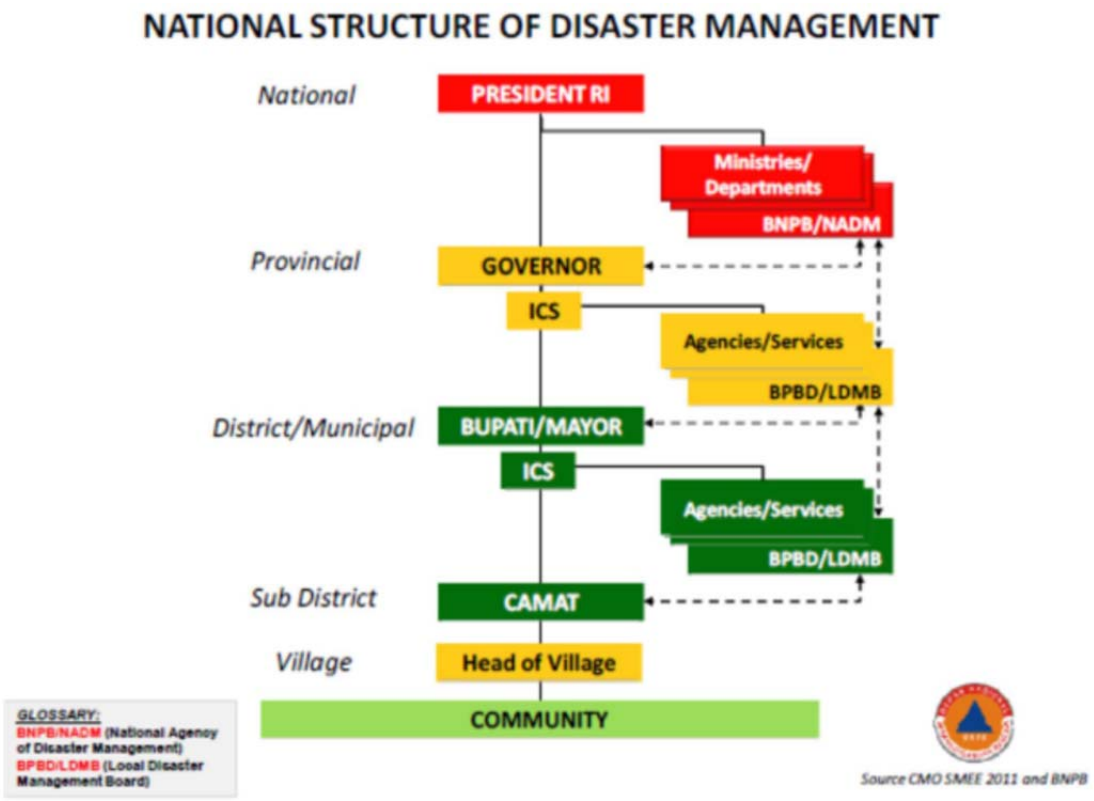


Figure 10. The National Structure of Disaster Management in Indonesia. Source: BNPB (2015a).

B. SELECTED HADR OPERATIONS

This section examines selected human aid and disaster relief operations from three different countries. The literature review detailed in Chapter II enabled us to shortlist the selected operations. The major criteria for selection are the 'magnitude of the disaster' (the greater the magnitude, the greater will be the influx of NGOs, other humanitarian organizations, and the military component) and the period from 2004 to 2005, during which the world witnessed major natural disasters in different parts of the world simultaneously. Wiley C. Thompson (2010)explains that modern disaster relief operations include representatives from the host nation, NGOs, civil volunteers, and militaries. Each component is unique due to its expertise in a particular field, which contributes greatly toward the achievement of the overall goal (Thompson, 2010).

1. Pakistan 2005 Earthquake and Civil-Military Coordination

To understand the impact of the 2005 earthquake in Pakistan, which shook more than half of the country, we need to understand the geographical setting of the country. According to Sarah J. Halvorson and Jennifer Parker Hamilton (2010), the topography of the area affected is extremely mountainous. This area includes Khyber-Pakhtunkhwa province, which at the time of the earthquake was called the North Western Frontier Province, and part of Azad Jammu and Kashmir province on the western edge of Himalayas. Halvorson also quotes Fawad Khan and Daanish Mustafa (2007), asserting that, "In the past 75 years three earthquakes—Quetta (1935), Makran (1945) and Kashmir (2005)—have exceeded magnitude 7.5 and together caused more than 120,000 deaths" (p. 186); the climate is hot but experiences snow between the months of November and March (Halvorson & Parker Hamilton, 2010). The population of the area depends on agriculture, animals, and fruits from the area for its livelihood. Halvorson and Parker Hamilton (2010) state that a total of 466 tent camps were established to support the relief operation and a total of 252,000 individuals were provided shelter in this operation (Mahmood, 2007, cited in Halvorson & Parker Hamilton, 2010). With this understanding of the population in Pakistan that was most directly affected by the disaster, let us turn our attention to the details of the earthquake itself and the subsequent relief operation.

Although Pakistan was shaken by the 7.6 magnitude earthquake on October 8, 2005, the surrounding region was also hit. This area included countries such as India, Afghanistan, and other surrounding countries. David Patley, Stuart Dunning, Nicholas Rosser (2010) published in SAARC workshop on Landslide Risk Management in South Asia mentions, that the incident was triggered by a 100-kilometer-long rupture of the Balakot – Bagh fault line. As a result of the disaster, approximately 38,000 people were injured, 3.5 million were left homeless, and a total of 780,000 structures was damaged beyond repair. It has been estimated at $3.5 billion reconstruction cost (Petley et al., 2006). Esther K. Hicks and Gregory Pappas (2006) explain that the epicenter of the earthquake was approximately 100 kilometers northeast of Islamabad, the worst hit area was Pakistan Administered Kashmir and the North West Frontier Province (NWFP), which covered 30,000 square kilometers, and has a population of approximately 4 to 5

million (Hicks & Pappas, 2006). It was the strongest earthquake since the Quetta earthquake of 1935. Wiley C. Thompson (2010) states that the Earthquake at Quetta had killed approximately 35,000 people, while the 2005 earthquake left 79,000 people dead; many more were injured, and more than two million were left homeless (Thompson, 2010). According to the early recovery framework of 2005 from the UN office at Islamabad, there were a total of 1200 aftershocks until the end 2005, a total of 84 percent housing stock was damaged or destroyed in Azad Jammu and Kashmir (AJK), the number of people affected was 3.5 million, and they needed immediate assistance (United Nations, n.d.). The early recovery framework (2005) also cites UNICEF and UNFPA, respectively, in declaring that a total of 955,000 school-going children and 800,000 women between the ages of 15 and 49 were affected (United Nations, n.d.).

It is important to mention that the Pakistan emergency response was basically guided by the Calamity Act of 1958, which was a reactive form of response (NDMA report 2007–2008). In light of this shortfall, Pakistan identified after 2005 earthquake that we need to have a proactive approach instead of a reactive approach and develop a disaster management body to harness this threat. Thompson while explaining the problems faced by Pakistan during 2005 earthquake mentions that Task Force Griffin (TF Griffin), being part of 12th Aviation Brigade, on October 9, 2005, got orders to deploy in Pakistan for the provision of humanitarian aid. It was also supported by "three UH-60 and five CH-47 helicopters from Afghanistan for Qasim Airbase in Rawalpindi, Pakistan" (Thompson, 2010). In addition to the Pakistan military, the operation was also supported by 19 other militaries in the relief effort. The basic guidelines to be followed for this mission were the Oslo Guidelines of May 1994 (Cosgrave & Herson, 2008). The areas affected is highlighted in Figure 11.

Figure 11. Earthquake Affected Areas in Pakistan. Source: BBC, http://news.bbc.co.uk/nol/shared/bsp/hi/image_maps/05/1129000000/1129569263/img/asia_quake2_click_map416.gif.

The Early Recovery Framework report (UN, 2005) states that the national response, including civilians, government bodies, and the army, was exemplary. The report emphasizes that the government immediately established the Federal Relief Commission (FRC) (United Nations early recovery framework, n.d.; Hicks & Pappas, 2006) with an aim to coordinate all the relief efforts, and it also established the Earthquake Rehabilitation and Reconstruction Authority (ERRA) to ensure the rebuilding effort, which was the main contact point for international lenders and other international organizations desirous to support the relief effort. The FRC is headed by a Federal Relief Commissioner, who reports directly to the prime minister. As per the report, the Prime Minster of Pakistan on October 17, 2005, announced a 12-point relief plan while the government announced a National Action Plan on November 1 of that year, with an aim to address the logistical and other challenges. The report asserts that the "cabinet also constituted four Committees to supervise the relief, rescue, and rehabilitation work of the

government; i.e., the Foreign Aid Committee, the Local Resources Mobilization Committee, and the Committees for AJK and NWFP with field offices in Mansehra and Muzaffarabad that oversee operations on-the-spot, ensuring that relief assistance reaches those in need without delay" (section 1.1.2) of the (United Nations, n.d.).

Bollen (2008) in his book *Managing Civil-Military Cooperation* explains that the Pakistan Government requested support from NATO, which approved and deployed a team on October 11, 2005. It was a joint force package that included a NATO Disaster Relief Team. NATO also sent supported from Turkey on October 19 in the form of a huge quantity of supplies donated by the United Nations High Commissioner for Refugees (UNHCR). Bollen also mentions that NATO established its headquarters in Pakistan to support this operation, along with a Spanish engineering team, and assisted in road repairs and construction of medical facilities. In addition, the Dutch Multinational Relief Hospital arrived, which was instrumental in providing medical relief, especially mobile teams for surgical support (Bollen, 2008).

The Early Recovery Framework also explains that the responsibility of overall coordination of international relief falls on the shoulders of UNOCHA (Bollen, 2008). UNOCHA in the case of Pakistan was supporting the UN coordinator based in the capital city of Islamabad. The framework also explains that UNOCHA provided support through United Nations Disaster Assessment and Coordination Team and established the Humanitarian Information Center. For the smooth flow of relief goods, it also established UN Field Hubs in Bagh, Bagram, Mansehr, and Muzaffarabad. On the ground, the detailed cooperation among agencies was ensured by the United Nations Disaster Management Team (UNDMT). During this effort, a total of 400 plus individuals as part of relief force were employed by the UN (United Nations, n.d.). In explaining the framework, Myriame T.I.B. Bollen (2008) states that UNOCHA was in charge of the overall coordination in the field, adopting the cluster approach at the provincial and district levels. It focused on the lead agency in each sector to ensure "quality, consistency, and predictability of relief effort" (Bollen, 2008, p. 82). The cluster approach took the form depicted in Figure 12:

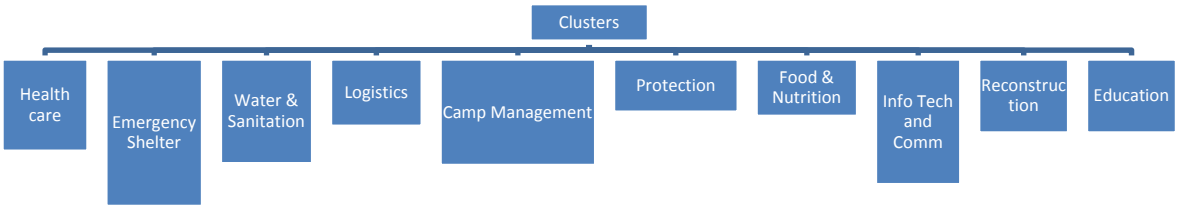
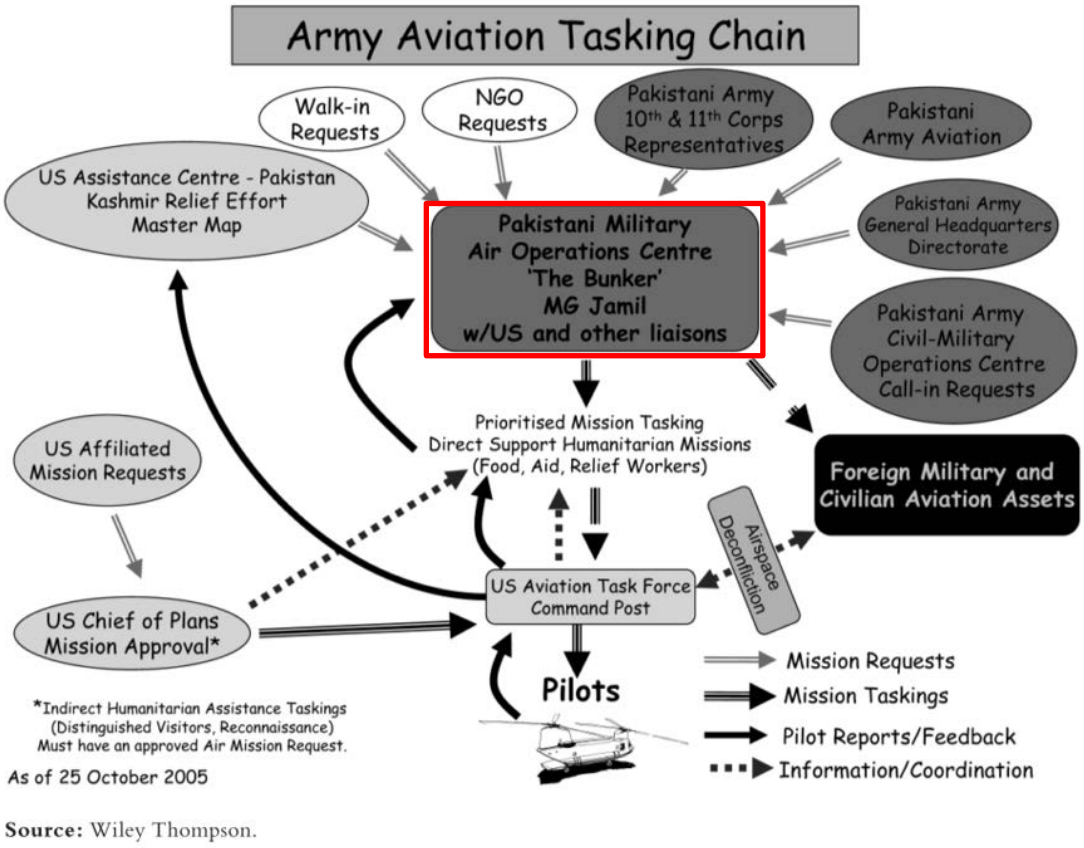


Figure 12. Organization of a Single Cluster. Adapted from Bollen (2008, p. 83).

It was well understood during this event by the Pakistan government in general and the Pakistan military in particular that the media is an important component of the relief effort. The media not only mobilizes the effort but gives recognition to those who are working and encourages those who want to participate. A number of media personnel were seen at the aviation base Chaklala, in Rawalpindi. They were transported to the affected area on relief flights, on which one or two seats were always reserved for them. This ensured the accurate reporting and the first-hand account of the relief effort. According to Thompson's account, TF Griffin managed all the aviation effort for relief to the forward areas. By establishing a tent control station at the aviation base, they took on the responsibility to coordinate the aviation support. In the words of Thompson (2010):

> TF Griffin leadership made three very important contributions. First, they ensured standardization of aviation operations between as many organizations as possible, preventing a potential aviation disaster. Second, they relieved the Pakistani Army aviation personnel from adding this briefing requirement to their already overworked force and lastly, by acknowledging in all of their actions that the Pakistanis were in charge of the relief operation and that all mission requirements should originate from the Pakistanis, TF Griffin set an example of full integration, which many other organizations followed as they came on board. (pp. 9–10)

Further, Thompson explains the TF Griffin Aviation tasking chain, which is shown in Figure 13:



Source: Wiley Thompson.

Figure 13. Army Aviation Tasking Chain. Source: Thompson (2010).

The collaboration between different humanitarian organizations, or between foreign militaries supporting an operation, can play a critical role and result in better performance. Thompson (2010) explains that during the support mission in Pakistan, a logistical situation arose when the British Royal Air Force (RAF) helicopter squadron had to decide on its living quarters and operations room at Qasim Base, Rawalpindi. The RAF squadron opted for a joint arrangement with its U.S. counterparts. It was a critical point from the logistics point of view as the RAF would have expended much effort establishing the same facilities for its own use, while TF Griffin had already established the facility.. Nevertheless, a gap in trust between the United Kingdom Department for International Development (DFID) and TF Griffin had to be bridged. The DFID did not want risk its reputation by not knowing whether TF Griffin had any hidden agenda. The gap in trust, though, was effectively bridged by TF Griffin, which offered DFID

personnel the opportunity to fly with them on a mission. This enabled DFID to see how TF Griffin worked, and as a result, DFID agreed to merge facilities, functions, and operations with TF Griffin, achieving a stronger relationship and better performance on the ground (Thompson, 2010).

The relief operation in Pakistan is viewed as a very successful one in which the initial response came from inside the host nation of Pakistan and later support from other entities, including the United States and NATO. Wilder (2010) states that the overall response was viewed as a successful operation by the aid workers and officials, who aimed at saving lives and alleviating suffering. There was very little loss of life after the initial loss, and that is the strongest proof of the standard of a relief operation (Wilder, 2010).

Wilder further explains some unique phenomena of this relief effort, reflecting the motivation and the level of the commitment of not only the organizations working to provide relief but also the governments and larger organizations involved. Wilder quotes a senior UN official who said that this was one of the only situations in which NATO, Al-Qaeda, and Western NGOs have worked together. There was no discrimination in this case. Several UN agencies, the International Committee of the Red Cross (ICRC), and NGOs worked together and delivered support goods through Jihadi organizations, and seeing the situation on ground it is safe to say this cooperation was a logistical necessity in the initial stages of the operation (Wilder, 2010). Notably, militant organizations were able to mobilize 2,500 volunteers who were vital in the burial of the dead, delivering relief goods, erecting medical facilities, and in the establishment of the schools (Wilder, 2010).

With an aim to enhance the response capacity and to enhance the preparedness, UNOCHA in mid-2005 started developing a cluster sectoral leadership approach focused on ten core areas of humanitarian activity. This was organized under an inter-agency standing committee (IASC). In the meantime, the South Asia earthquake happened and this cluster sectoral system was put to test. It was an event in which major agencies governed and funded separately came together in a single operation with the same

objective. This cluster approach was active in Geneva, Islamabad, and at the field level in the areas hit by the earthquake. Ten clusters were established under various UN agencies and partners, which oversaw shelter, food and nutrition, health, water and sanitation, camp management, logistics, protection, education, IT/telecommunication, and early reconstruction and recovery (Hicks & Pappas, 2006). The model was adopted by not only the UN agencies but also by the Pakistan military, NGOs, and the private sector. Overall responsibility for tcoordinating all the assistance was with UNOCHA. UNOCHA did the task through UN Disaster Assessment and Coordination Team, which focuses on rapid assessment and supports the HN and UN coordinators; it established a Humanitarian Information Center and set up UN field hubs (in four locations) to ensure a decentralized approach (Hicks & Pappas, 2006).

In comparison to the 2005 earthquake previously detailed, the loss of human lives, livestock, and infrastructure was huge during this disaster. The total cost was USD 5.2 billion (as shown in Table 4). The initial cost estimates were USD 398 million to address early recovery, which focused on the cash payment for rubble clearance, micro-financing projects, and the reduction of disaster risk. It also aimed at capacity building for local governance (United Nations, n.d.).

Table 4. Estimated Cost of the Earthquake. Source: United Nations (n.d., p. 2).

Category	US$	US$
Death & Injury Compensation		**205,000,000**
Relief		**1,092,000,000**
Early Recovery		**398,000,000**
Livelihoods: grant portion		97 000
Livelihoods: non-grant portion	12,303,500	
Other sectors	288,696,500	
Sub-total		301,000,000
Reconstruction		**3,503,000,000**
Short-term reconstruction		450,000,000
Long-term reconstruction		3,053,000,000
Total		**5,198,000,000**

Source: As reported by UN Agencies Recovery Needs Assessments and ADB/WB Preliminary Damage and Needs Assessment, November 2005.

2. Hurricane Katrina and Inter-organizational Coordination

Hurricane Katrina is declared to be among the most destructive tropical cyclones ever to hit the United States. According to the National Oceanic and Atmospheric Administration (NOAA, as cited by Zimmermann, 2015), the hurricane developed on August 23, southeast of the Bahamas. It first made landfall on August 25 at Southern Florida and was ranked as a category 1 hurricane. Then, as it turned toward the Louisiana-Mississippi border on August 29, it was raised to a category 3 storm, with sustained winds of 120 miles per hour (NOAA Public Affairs, 2007, as cited by Greenfield & Ingram, 2011). Figure 14 shows the track of the hurricane as it developed and made landfalls through August 31.

Figure 14. The Path and Strength of Hurricane Katrina with Dates. Source: Butts, Acton, and Marcum (2012).

The hurricane and ensuing floods took 1,852 lives, affected 8.3 million people, and caused estimated damage totaling $157 billion in the affected area (see Table 5; data retrieved from http://www.emdat.be). Before Hurricane Katrina became an extratropical low and was finally absorbed over the eastern Great Lakes on August 31, it had affected Florida, Louisiana, New Orleans, Mississippi, and some parts of Alabama and Kentucky. The ensuing storm surge, ranging 10 to 28 feet across, devastated New Orleans, a city built under sea-level. The storm surge ruptured the federal levees system and flooded 80 percent of the city and the surrounding area for next few weeks (Moynihan, 2009). This situation resulted in the displacement of more than 1 million people, one of the largest displacements. The government response to this catastrophe was slow, with bureaucratic breakdown involving the government at all tiers (Clarke, 2006). However, in the case of the humanitarian response, Lee Clarke (2006) mentions that civil organizations played

the key role, as was acknowledged by the White House (2006, p.125). Clarke also mentions that every national, state, local, and many international organizations provided aid and relief to the victims.

Table 5. Detail of Losses due Hurricane Katrina Government Response. Adapted from Center for Research on the Epidemiology of Disasters (n.d.), www.emdat.be.

Loss	Estimated number
Total Area affected	90,000 square miles
Total Deaths	1,833
Total Affected	500,000 people
Estimated Damage	$125 billion

Hurricane Katrina can be classified as a slow-onset disaster, but government agencies were caught unprepared (Moynihan, 2009). The Federal Emergency Management Agency (FEMA) is considered to be the lead agency to coordinate and monitor the response by other federal agencies under the framework of the National Response Plan (NRP), 2004. However, since the establishment of FEMA in 1979, the agency has remained "a parking lot for political appointees" by U.S. presidents (Bosner, 2005). After 9/11, the FEMA response to emergencies was examined and a higher level federal agency, the Department of Homeland Security, was established with an aim to unite 22 smaller federal agencies under one umbrella. As an outcome of this directive, FEMA, formerly an independent agency, became a sub-department of DHS, which placed FEMA under the heavy layers of bureaucratic channels, in terms of resources and autonomy of operations. Under this reorganization, FEMA failed to enhance coordination and capacity to react to national disasters.

As Katrina approached, state and city officials were unprepared. Media created pressure on response actors to show up with a plan, the Mayor of New Orleans, Ray Nagin, called for the immediate mandatory evacuation of citizens just a few hours short of the hurricane (Moynihan, 2009), but by then it was too late. State and local officials failed to forecast the magnitude of the upcoming hurricane and did not reinforce pre-positioned stocks and equipment. The National Guard of Louisiana was trapped in the water and unable to react to the situation. Infrastructure was completely destroyed; there was no electricity and no communication network available for the next two days. FEMA instead of accepting its incapacity to react kept blaming local and state authorities for the failed immediate response. FEMA also characterized their demands for help as improper even after New Orleans was flooded. Government officials kept claiming they had dispatched relief efforts, but the media continuously showed that no relief was in progress until three days after Katrina. The National Guard, which was also trapped in the water, made a number of requests to FEMA for the provision of support machinery to initiate relief efforts, but FEMA did not have the capacity to provide help. Six days after the continuing catastrophe, the White House realized the gravity of the situation and declared a state of emergency, calling for the military. U.S. NORTHCOM established JF-Katrina and started medical evacuation operations immediately. Finally, troops touched the ground on September 5 and the situation started to improve (Kochems, 2005). As per the press release of U.S. NORTHCOM of September 7, 2005 (as cited by Kochems, 2005), the total strength of National Guard personnel was 42,990; active military personnel numbered 17,417; 20 ships, 360 helicopters, and 93 fixed-wing aircraft also took part in the relief operation.

As compared to the government response to the disaster, the response of the civil community was quick and effective, but it was limited due to capacity constraints. Many of the local, state, national, and international NGOs provided humanitarian aid and relief within the United States for the first time (Eikenberry, Arroyave, & Cooper, 2007). The U.S. Government Accountability Office confirms that the charitable contributions alone from in-country and international sources reached $ 3.3 billion. However, FEMA was unable to efficiently accept and manage the goods and services offered by NGOs

(Townsend, 2006). Frances Fragos Townsend's report on the government's response to Hurricane Katrina asserts that the federal government was unable to integrate outside assistance to support overall operation. As an example, he recounts that aid from Switzerland was canceled due to a packaging issue raised by FEMA. Moreover, he further highlights that U.S. NORTHCOM was not ready to accept the offer from Germany to allow satellite communication capable of supporting 5,000 mobile calls simultaneously to coordinate the relief operation. The Red Cross initiated one of its largest disaster responses for the victims of Hurricane Katrina (Red Cross, 2015). As per the Red Cross official website, more than 245,000 Red Cross workers participated in the relief operation; providing more than 3.8 million overnight stays, 68 million meals and snacks, and financial assistance to 1.4 million families. According to Romin Lail (2014), UNICEF raised $127 million and supplied relief goods; Doctors without Borders sent over 100 doctors and supplied more than 1,000 first aid kits; Free for Children contributed over $ 1 million and helped rebuild schools in affected areas. Some of private companies such as Walmart, Home Depot, and State Farm Insurance were even able to pre-position relief goods a week before Hurricane Katrina hit (Sobel & Leeson, 2006).

3. Indonesia 2004 Tsunami and Civil-military Coordination

Sunday morning of December 26, 2004, was frightening for most of the people in the Province Nanggroe Aceh Darussalam; it was when an enormous earthquake measuring 9.0 on the Richter scale rocked the coast of Indonesia (Margesson, 2005). While it was the deadliest earthquake of the 21st century, it also became the cause of a tsunami in nearby coastal countries in Asia. According to EM-DAT, the international disaster database, the disaster resulted in more than 226,000 of total deaths in eight countries, including Bangladesh, India, Indonesia, Malaysia, Maldives, Myanmar, Sri Lanka, and Thailand (Center for Research on the Epidemiology of Disaster, n.d.). Figure 15 shows the areas affected, along with the number of causalities.

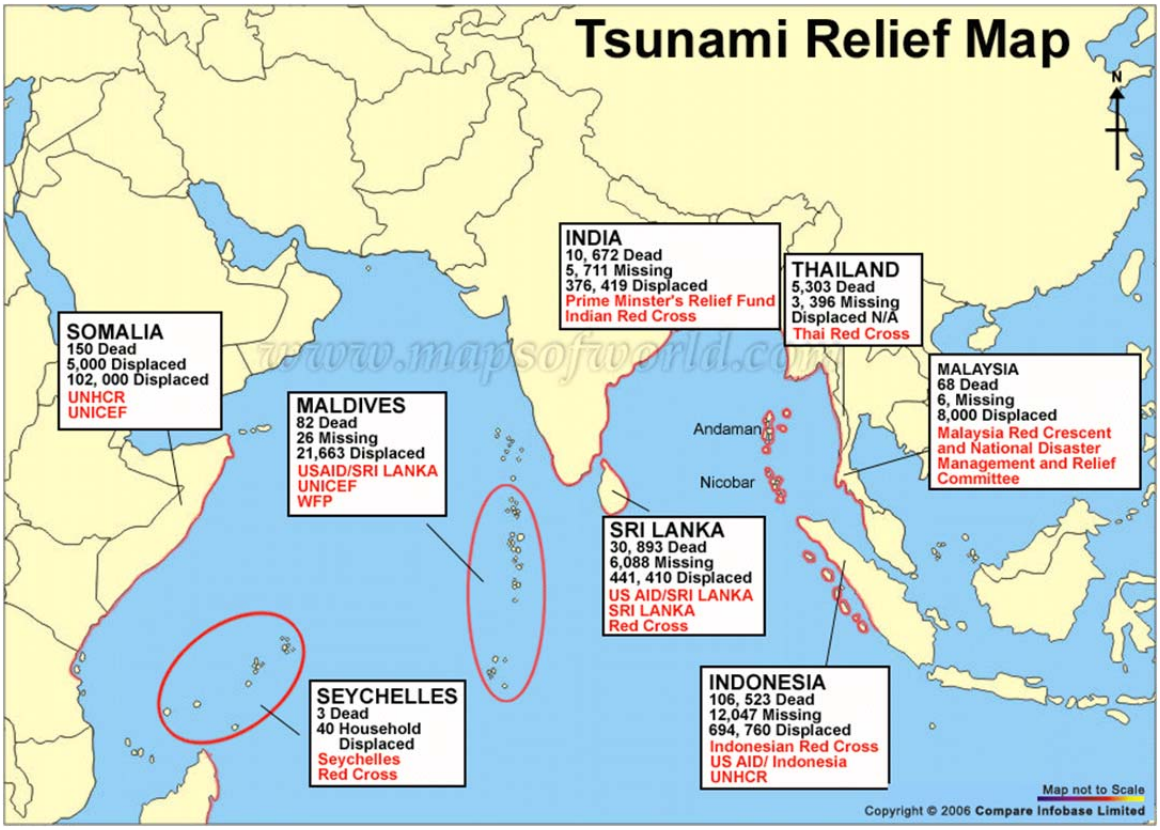


Figure 15. The Province of Nanggroe Aceh Darussalam. Source: Bing, bing.com (n.d.).

The database indicates that the earthquake and subsequent tsunami affected more than two million people and resulted in destruction costing more than $9 billion . Warren Bell Hamilton (1979) mentions that Indonesia is prone to natural disaster as the country is in an active seismic region and at the meeting point of three tectonic plates, including the Eurasia Plate, the Pacific Plate, and the Indian-Australia Plate (Hamilton, 1979).

The Province of Nanggroe Aceh Darussalam, the most western part of the Indonesian archipelago, lies between $01^0$37.2” and $06^0$04’33.6” North Latitude and between $94^0$57’57.66” and $98^0$17’13.2” East Longitude and is an average of 125 meters above sea level. When the greatest earthquake struck the area, its epicenter was 30 kilometers under the sea bed and 250 kilometers southwest of Banda Aceh, the capital of the Province of Nanggroe Aceh Darussalam (UNOCHA, 2005). This seismic movement was the largest in the world.

The Law of the Republic of Indonesia Number 34 of 2004 states that the Indonesian Armed Forces (Tentara Nasional Indonesia [TNI]) is an instrument of national defense, mandated to help the government by acting in a direct support role in the case of any natural disasters (Setneg, n.d.). TNI was the leading actor that immediately responded to the incident with assistance and relief operations in 2004 (TNI, 2005).

In the 2004 event of the earthquake and tsunami, the TNI, includes the Indonesian Army (Tentara Nasional Indonesia Angkatan Darat [TNI AD]), the Indonesian Navy (Tentara Nasional Indonesia Angkatan Laut [TNI AL]), and the Indonesian Air Force (Tentara Nasional Indonesia Angkatan Udara [TNI AU]), worked as a joint force under the direction of Indonesian National Disaster Management Authority (Badan Nasional Penanggulangan Bencana [BNPB]). According to Minister of Defense Regulation Number 06 of 2015, the involvement of TNI is a process of participation in which TNI as an integral part of BNPB focuses on preparing for and during the disaster, as well as on post-disaster response (Ditjenpp, n.d.).

According to Wiharta et al. (2008), much international assistance was also needed in light of the magnitude of relief work required. The international community's response was overwhelming and immediate. "Thirty-five states contributed 75 helicopters, 41 ships, 43 fixed-wing aircraft, and more than 30 000 personnel, including air traffic controllers, medical teams, and engineers" (Wiharta et al., 2008, p. 87). It included 16 Armed Forces from overseas countries, 14 UN organizations, and also 195 global HADR organizations. TNI played the role of lead agency on the ground to communicate and coordinate with international military support. The foreign military components worked side-by-side on a common mandate of the relief operation.

Moreover, the report highlighted the role of international counterparts. The Australian Defense Force provided initial rescue in the district of Banda Aceh starting on December 27, 2004 (Wiharta et al. 2008). They supported the Indonesian government's operation by sending the C-130 Hercules and the HMAS Kanimbla; the support also included support goods such as medical supplies, shelters food, and water. As the closest

neighboring country, Singapore's Armed Forces also sent their C-130, Chinook, and Super Puma helicopters with relief goods. Meanwhile, the U.S. Pacific Command (US PACOM) provided post-disaster HADR support by sending the fleet, ranging from the carrier USS Abraham Lincoln to the hospital ship USN Mercy (Wiharta et al. 2008). Japan's Self-Defense Force, New Zealand, and the European countries also contributed to the relief effort; however, due to a lack of updated situational information, there was a lack of coordination at Aceh between the international militaries and TNI (Wiharta et al., 2008).

According to the United Nations report on the flash appeal of the Indian Ocean Earthquake-Tsunami of 2005, UN agencies and NGOs responded to the disaster in a strategic, efficient, and coordinated manner for millions of affected people in several Asian countries (UNOCHA, 2005). The organizations working together also built a strong relationship and established sound communication at the government and institution level. In the Province of Nanggroe Aceh Darussalam, which was one of the most affected areas, UNOCHA established an office in the area to support what was called the Humanitarian Information Center. This office maintained and enhanced the capability of UN country workgroups. UNOCHA also focused on improving its special task force capabilities based on the lessons learn from the tsunami disaster. They also asked international humanitarian organizations to enhance their relief effort in collaboration with UN headquarters (Mayer, Sri, & December, n.d.).

In post-disaster humanitarian assistance in Aceh, UNICEF played a significant role, especially focusing on children who lost their families and needed support at that critical point. It also contributed to the effort in the areas of sanitation, protection, and education (Unicef, 2006).

According to a World Bank (2005) report cited by Prema-Chandra Athukorala and Budy P. Resosudarmo (2005), the total impact of the losses and damage caused by earthquake and tsunami in Aceh was roughly USD 4.45 billion. The estimated losses by sector are shown in Figure 16.

	Total impact			Property	
	Damage	Losses	Total	Private	Public
Social sectors	1,674.9	65.8	1,740.7	1,440.6	300.1
Housing	1,398.3	38.8	1,437.1	1,408.4	28.7
Education	110.8	17.6	128.4	9.0	119.4
Health	82.5	9.4	91.9	23.2	68.6
Culture and religion	83.4	n.a.	83.4	n.a.	83.4
Infrastructure	636.0	240.8	876.8	325.9	550.8
Transport	390.5	145.4	535.9	165.8	370.1
Communications	18.9	2.9	21.8	8.6	13.2
Energy	67.8	0.1	67.9	1.1	66.9
Water and sanitation	26.6	3.2	29.8	18.3	11.4
Flood control, irrigation, and sea protection works	132.1	89.1	221.2	132.1	89.1
Productive sectors	351.9	830.2	1,182.1	1,132.0	50.1
Agriculture and livestock	83.9	140.9	224.8	194.7	29.9
Fisheries	101.5	409.4	510.9	508.5	2.5
Enterprises	166.6	280.0	446.6	428.9	17.7
Cross-sectoral	257.6	394.4	652.0	562.9	89.1
Environment	154.5	n.a.	154.5	548.9	n.a.
Governance and administration	89.1	n.a.	89.1		89.1
Bank and finance	14.0	n.a.	14.0	14.0	n.a.
Total impact	2,920.4	1,531.2	4,451.6	3,461.4	990.1

Source: World Bank (2005).

Note: n.a. = data are not available.

Figure 16. Indonesia's Estimated Damages and Losses from 2005 Earthquake and Tsunami. Source: World Bank, as cited in Athukorala and Resosudarmo (2005).

C. INTERVIEW RESPONSES – INSIGHT ON MAJOR COORDINATION ISSUES

The authors of this study approached leaders and representatives of different agencies, including the military, NGOs, and UN organizations, to gain a better understanding of each organization's point of view on the subject of civil-military coordination in selected operations. We were able to get a very positive response from Director General (DG) NDMA Pakistan, Major General Asghar Nawaz, and the Director of Field and Systems Integration for the American Red Cross (ARC), Mr. Luke Beckman. We also sent a questionnaire to and tried to organize an interview with a representative from UNOCHA and a representative from BNPB, Indonesia; however, it was unsuccessful. The important issues in coordination during HADR operations cited by our respondents are shown in Table 6.

Table 6. Interview Responses Identifying HADR Operation Coordination Challenges.

Response from	Coordination challenges
NDMA response	• Non-availability of disaster relief framework • Lack of inter-agency coordination • Logistic challenges • Non-availability of on-duty officials in disaster areas being causalities themselves • Non-availability of updated maps • Lack of information sharing and information management structure • Inadequate joint training
ARC response	• Non- existence of common framework • Weak relationship with locals • Lack of free flow of information among organizations • Lack of good working relations among organizations • Non-availability of communication interface • Dependent on government-hosted joint exercises

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IV. ANALYSIS

A. COORDINATION ISSUES IN SELECTED OPERATIONS

Based on the literature review and data collection in previous chapters, here we will focus on the three selected operations to identify the specific problem areas and the measures taken during and after the relief operations to enhance coordination.

1. Pakistan Earthquake 2005 – Problem Areas Identified

In the relief operation following the 2005 earthquake in Pakistan, it was Pakistan Army that served as the main driving force, and necessitated their coordination of all the support agencies working in the field. The army had the advantage of knowing the area and had the largest logistic and transport support. The major shortfalls in coordination included lack of clarity about which organization was doing what, where, and for how long. UNOCHA had provided the overview of the cluster system implemented on the ground for the relief operation but failed to explain the procedure for coordinating activities in the center and infield. It was expected that all the cluster organizations would attend the operational meetings held at Islamabad but they failed to do so (Hicks & Pappas, 2006). The coordination of supplies on the ground, despite the meetings of cluster heads, was wanting. NGOs did not have the staff to send for the meetings, which left voids in the coordination. This coordination void resulted in duplication of effort. In the entire operation, the lack of national capacity was a hindrance as dependence was centered in the military, where, for example, there was no clear internally displaced persons policy; the military had an authoritative role at all levels as the HN was depending too heavily on the armed forces (Hicks & Pappas, 2006). These points, if addressed, would have made this operation a textbook example of an effective disaster relief operation. Even so, it has been taken as a successful operation.

UN Early recovery framework on Pakistan earthquake (2005) emphasizes a number of flaws in the coordination of the relief operation, including unclear distribution of tasks for each of the ten clusters on the ground, the weak leadership of the clusters, lack of uniformity in policy between the agencies, and lack of coherent strategies. It also

highlights that the coordination between civil-military organizations needed fine tuning throughout the recovery process. The report points out that coordination at the local level was enhanced by establishing district relief and recovery committees (United Nations, n.d). This was important as the area which was hit by this massive earthquake was a remote hilly terrain and reaching those areas was difficult as the infrastructure was damaged, necessitating the use of local committees to work in their respective areas. In the initial stage of the operation, the military rather than local self-help groups came to survivors' aid, and then other humanitarian organizations followed (United Nations, n.d). Halvorson (2010) echoes this view, mentioning the data collected from locals of the affected area, in their reply to the question, "*who has helped you the most since the earthquake?"* (p. 194). Almost half replied "NGOs," a quarter replied "everyone provided support during this process"; it was also mentioned that the "government, local people, and Jamaat–i-Islami political party" at Khyber Pakhtunkhwa provided the support (Halvorson & Parker Hamilton, 2010). This is an important observation as it helps us understand one phenomenon, which is that the army comes in early while it leaves early as well; by contrast, the NGOs stay in the affected area to support the people. That is the reason the answer from the locals is in favor of NGOs, which makes it more important to look for the long-term goals of these organizations. It is important to note that the military, although it normally is the first one to reach the affected area, does not remain as long as the NGOs. Thus, the military should work hand in hand with the NGOs and should also try to address the concerns raised by the NGOs (Halvorson & Parker Hamilton, 2010).

The Humanitarian Response Review (HRR) is an initiative of the Emergency Relief Coordinator with an aim to gauge the response. The review by the UN (2005) identifies that the humanitarian organizations like the Red Cross/Red Crescent, the UN, NGOs, and the International Organization for Migration are very important to each other and there is a need to enhance the collaboration between these organizations to achieve better results (UN, 2005). The report also points out the low level of preparedness among the organizations in the field, which results from NGOs and UN organizations each having its own distinct way of approaching problems (UN, 2005). The report also points

out inefficient camp management, low quality of equipment, and a poor stockpiling registration system as few of the areas necessitating coordination (UN, 2005).

The HRR (UN, 2005) also highlights the issue of staff with these humanitarian agencies. It is difficult for them to muster the trained manpower; they either draw relief workers from their standby pool or from their headquarters if they are big organizations. However, this staffing method affects the handling of an incident response and the support to that operation. If the organization is small, it depends on the local manpower, which normally is not well trained. The report also points out that it becomes difficult in the case of an emergency to coordinate the available manpower as volunteers have to travel and live in hard conditions even if the period is as short as 4 to 6 months (UN, 2005).

Christopher A. Curtis (2015), while discussing the problems related to the disaster relief, cites James L. Garnett and Alexander Kouzmin (2007) and points out the importance of information sharing and negotiations that take place between organizations once they are participating in a disaster relief operation. He further points out that the uninterrupted flow of information is of paramount importance in times of crisis (Curtis, 2015). Richard J. Brennan and Ronald J. Waldman (2006), while discussing the problems related to coordination, mention a poor understanding of objectives, procedures, and responsibilities (Brennan & Waldman, 2006). Bollen (2008) mentions that although the humanitarian organizations showed concern about working with the military, it took a long time to make the military, NATO, and NGOs come together and understand each other's capabilities. Bollen notes, "the way in which the Pakistani military took the lead in coordinating the relief operations, at times, frustrated civil-military cooperation" (Bollen, 2008, p. 83). In his book, Bollen also points out that due to cultural differences female healthcare workers of NGOs took the time to establish good working relations with the Pakistani authorities, especially with male members. Another important issue highlighted in the book is that female patients preferred to be treated by the female healthcare workers, which made the task of the relief workers difficult. Lack of information sharing among the organizations and military was also one of the glaring

issues as communication and flow of situational information largely depended upon the military means of communication. Organizations were trying to take a lead from one another, which resulted in the flow of fabricated information with an aim to show positive progress (Bollen, 2008). Delay in the periodical assessment was another flaw, which resulted in delayed refinement of procedures that could have enhanced coordination. Here, one of the authors of this study would also like to mention that Bollen (2008) recalls, “The commander of the Main Dressing Station stated that because of Army Regulations, it was prohibited to treat civilians and they restricted themselves to treating military and their relatives” (Bollen, 2008, p. 85); this was not the situation on ground as the author of the present study was part of this relief operation. The army was, in fact, willing to support civilians as well as the military, and they were welcome at all military setups.

While explaining the coordination challenges related to civil-military support, Bollen (2008) mentions that priorities were not well defined. The military conducted pre-winter contingency meetings to coordinate the relief effort to ensure the provision of winter tents and necessities to fight the cold, but Bollen points out that the required decisions in detailed coordination were not taken. The key relief organizations were not fully prepared to take on the relief task in such terrain and weather, and the relief workers were short of resources. Lack of central coordination for an evacuation and emergency system in the initial stages of the relief effort was also an important shortcoming highlighted by Bollen (Bollen, 2008).

Cosgrave and Herson (2008) explain that a thorough needs assessment is important to mount an appropriate response. In this case, that could not be accomplished as the area affected was too large and the infrastructure was badly damaged. Even the military, which had reached the area earlier, was unable to assess the situation as they could travel only by air to do the assessment. Cosgrave and Herson (2008) also emphasize that it is important for all the actors in the relief effort to weigh the speed of response and quality of response in case of a sudden onset disaster. Time is of the paramount importance in this case. Halvorson (2010) mentions that “Humanitarian

agencies, therefore, have to balance effective interventions based on good assessment, and rapid interventions that have the greatest potential for saving lives" (Halvorson & Parker Hamilton, 2010, p. 4). The report also argues about the relationship of time elapsed after the event with the quality of potential, which includes saving lives, and quality of needs assessment, which is shown in Figure 17 (Halvorson & Parker Hamilton, 2010).

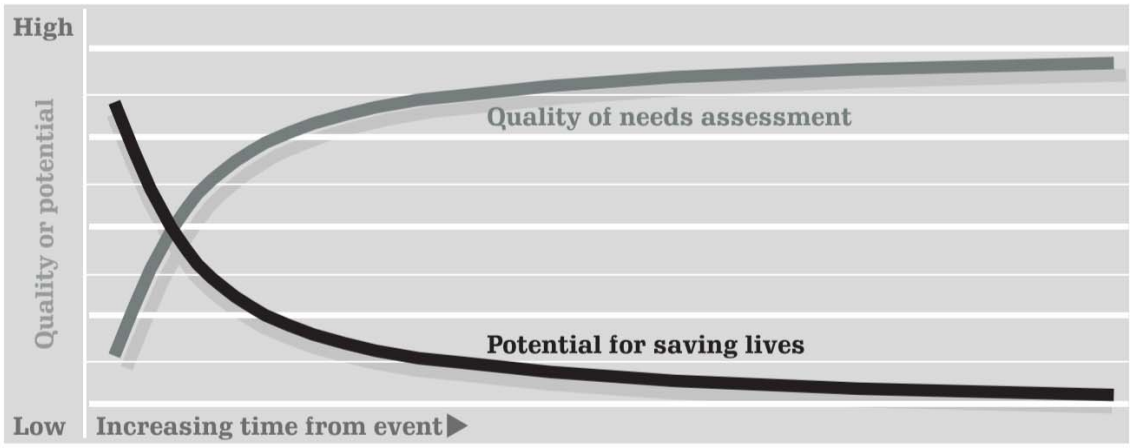

Figure 17. Relationship of Time and Event with Quality of Potential. Source: Halvorson and Parker Hamilton (2010, p. 4).

Cosgrave and Herson (2008) also point out that there was a shortage of skilled technical individuals from different fields and it was due to the ongoing humanitarian response to the tsunami and the crisis in Darfur during 2005–2006 (Cosgrave & Herson, 2008, cited in Reed et al., 2007, p. 14). While referring to the ICRC review Cosgrave and Herson mention that a "key lesson in Pakistan is that rapid deployment does not necessarily equal a rapid response" (p. 189) cited Reed et al., 2007, p. 14.. The study also highlights that the requirement to replace the first wave of the local relief workers was also an important problem normally faced in all humanitarian relief operations (Cosgrave and Herson, p. 190). Another important point highlighted in the article is that due to the earthquake the organizations had to shift some of their relief workers from the December 2004 Indian tsunami, bringing along lessons from the tsunami that were not applicable to the earthquake. While citing other sources (UNOCHA, CMCS, 2006), Cosgrave and

Herson point out the Oslo guidelines of 1994 followed in this case were found to be outdated, and this operation confirmed the need to revise them. The revised guidelines were issued in November 2006 (Cosgrave & Herson, 2008). Further, Cosgrove and Herson highlight that, as the operation was led by Pakistan military, there was a feeling that the flow of information regarding the relief effort was not always clear and easily available, and there was a gap in the relief goods distribution figures reported (Cosgrave & Herson, 2008, who cite Bauman, 2006, p. 3). These discrepancies were basically due to the security concerns of the military. While referring to the CARE evaluation on the involvement of the military, Cosgrave and Herson highlight the unsuitability of the command and control structure of the military during the relief and recovery effort. The observation of the Human Rights Commission of Pakistan was that, "military actors are neither trained nor sensitive to the importance of citizen participation. They are generally polite, but not tolerant of criticism and retaliate strongly against citizens when they criticize or protest" (Cosgrave & Herson, 2008, citing the Human Rights Commission of Pakistan, 2005, p. 24). The report also points out that, "community ownership was limited, as many decisions were taken by the military which was not under democratic control" (p. 205).

a. Measures Taken to Enhance Coordination during Relief

Keeping in mind the importance of interagency coordination especially for the humanitarian aid operations, a number of measures had been taken to ensure same. In light of the HRR (2005), the ICRC is designated as the lead agency to coordinate relief in armed conflict, but in the case of a natural disaster the same responsibility lies on the shoulders of the National Society. The HRR (2005) also highlights that IASC, as the main forum representing the UN, the Red Cross/Red Crescent, NGOs, and the International Organization for Migration has made slow progress in the field of coordination, planning, and funding (HRR, 2005). The report also points to an important coordination function undertaken by the 21 Humanitarian Coordinators within the UN system, who are supported by an equal number of Resident Coordinators. These people are highly skilled and are professionals in the field, and Humanitarian Coordinators

cannot be replaced by Resident Coordinators. These people have advanced operational, diplomatic, and negotiation skills (UN, 2005).

Bollen (2008) mentions that the medical support and evacuation of causalities was an issue, which has been mentioned previously; this issue was addressed by establishing a centralized evacuation and emergency system under the District Health Officer, who was supported by World Health Organization. The District Health Officer, though, lacked the experience and knowledge about public health care especially in affected areas; furthermore, he lacked the authority and support from the provincial government, which also affected the functioning of the surveillance and outbreak investigation teams and led to increased workload on the World Health Organization (Bollen, 2008). Bollen notes that in addition to international medical units, the army also established a Forward Treatment Center of 60 beds and a Main Dressing Station at Bagh district, and these facilities treated all civilian and military patients (Bollen, 2008). His book also emphasizes that UNOCHA and the World Health Organization tried to coordinate the healthcare support effort between civil-military organizations with an aim to ensure better relief effort, but they encountered major problems. Among them were non-attendance of meetings by a majority of health organization representatives, and the information provided to them was never updated, which resulted in a vague operational picture. It was also believed by the civil health organizations that military medical units lack understanding of the public health approach, and they lacked training and equipment to deal with disasters. These findings also show that the monitoring and evaluation of the healthcare response was also poor (Bollen, 2008).

Cosgrave and Herson (2008) point out that the role of the military in this whole operation was remarkable and was commended by all the participants; despite its limited capacity, “it insisted on controlling the process” (p. 197). They also cite the UNOCHA donor support group which states, “[a] key characteristic of the earthquake response was strong national leadership in the form of the Pakistan military …” (Cosgrave & Herson, 2008, citing ODSG, 2006). An important step was taken by the Norwegian Refugee Council, which supported the operation by providing assistance with information, counseling, and legal support; the council also helped people get identity cards so that

they could apply for compensation by the government. This initiative can be taken as a model for future disaster relief efforts (Cosgrave & Herson, 2008). The process was facilitated by the military.

b. Measures Taken after the Disaster to Enhance Capacity and Coordination

After the 2005 earthquake, the Government of Pakistan took measures to overcome the problems faced during the relief effort. According to the National Disaster Management Authority (NDMA) annual report of 2007–2008, the prevailing emergency response prior to the 2005 earthquake was based on a reactive approach, and it stayed that way until 2006. After this, a relief commission at the provincial level was established, an Emergency Relief Cell was established in the Cabinet Secretariat that focused on the response coordination at the federal level; initially "an ad-hoc Federal Relief Commission (FRC) was established which coordinated the most intricate relief and rescue operation which was hailed the world over" (NDMA, 2009, p. v). The report also states the promulgation of the National Disaster Management Ordinance in December 2006 to spell out the disaster management at the federal, provincial, and local levels. In light of this ordinance under the chairmanship of the prime minister, the National Disaster Management Commission (NDMC) was also established, and its members included:

> Leader of the opposition in the Senate, leader of the opposition in the National Assembly, Minister of Defense, Minister for Health, Minister for Foreign Affairs, Minister of Social Welfare & Special Education, Minister for Communications, Minister for Finance, Minister for Interior, Governor [Khyber Pakhtunkhwa] (for Federally Administered Tribal Areas - FATA), Chief Minister of 04 Provinces, Prime Minister of [Azad Jammu and Kashmir] AJ&K, Chief Executive of Northern Areas, Chairman, Joint Chiefs of Staff Committee (CJCSC) or any other person appointed by the Prime Minister. ((NDMA, 2009)

The report highlights that the NDMA was established as an executive body on January 18, 2007. This agency is responsible for coordinating the whole of the relief effort at the federal level (NDMA, 2009). As a result of a detailed analysis of the relief effort during 2005 earthquake and in light of the annual report 2007–2008 resulted in the National Disaster Risk Management Framework which aimed at "[Establishing]

institutions, improve capacities of stakeholders and enable them to launch programs and activities over the next five years, these include" (NDMA, 2009, p. vi):

- Institutional and Legal Arrangements for Disaster Risk Management (DRM)
- Hazard and Vulnerability Assessment
- Training, Education, and Awareness
- Disaster Risk Management Planning
- Community and Local Level Programming
- Multi-hazard Early Warning System
- Main Streaming Disaster Risk Reduction into Development
- Emergency Response System
- Capacity Development for Post-Disaster Recovery

The NDMA annual report of 2007–2008 also highlights that NDMA "initiated the National Capacity Building for Disaster Risk Management (NCBDRM) project" (NDMA, 2009, p. vi). This project focused on the development of the nine areas previously mentioned. The agency also focused on stockpiling at critical places and on preparation of contingency plans. In addition, it acted as the lead agency in this five-year period after the establishment of NDMA it responded to the disasters such as flash floods in Khyber Pakhtunkhwa and northern areas. The NDMA has also assisted internally displaced persons of Khyber Pakhtunkhwa, supported Federally Administered Tribal Areas, and responded to the earthquake of Baluchistan. The report also highlights the support NDMA extended to foreign countries hit by natural disasters. NDMA also prepositioned stockpiles of relief items at five hubs in Islamabad, Karachi, Rawalpindi, Lahore, and Quetta. To integrate civil service officers as part of the disaster relief effort, NDMA launched a special training initiative by offering to develop course material for Disaster Risk Management. It also conducted a two-day simulation on Emergency Response Management for officers at the Civil Services Academy, which has since become a permanent feature (NDMA, 2009). The training is based on the model of the disaster management cycle shown in Figure 18.

Figure 18. NDMA Disaster Management Cycle. Source: NDMA (2009, p. viii).

In the preceding sections, we have described three individual relief operations that happened in the same time frame but differed from one another. They differed not only in the nature of operation and the actors involved in carrying out the operation, but also in magnitude, demography of affected populations, and geography. To understand and analyze these operations, we have to see them as a group and see what we can deduce from the information available to us from these events and from the lessons learned.

2. Hurricane Katrina 2005 – Problem Areas Identified

President George W. Bush stated in his speech to the nation on September 16, 2005:

> Many of the men and women of the Coast Guard, the Federal Emergency Management Agency, the United States military, the National Guard, Homeland Security, and state and local governments performed skillfully under the worst conditions. Yet the system, at every level of government, was not well coordinated and was overwhelmed in the first few days. (Excerpt of 2006 Speech by U.S. President George W. Bush, as cited by Clayton, 2006).

The National Guard, an important element of the military, is at the disposal of state government in a crisis situation and is sufficiently equipped with resources equivalent to active duty military (Buddelmeyer, 2007). Moreover, guardsmen have links with communities and are well aware of local areas and conditions. However, due to lack of preparedness during peace times and an inadequate forecast from FEMA, the National Guard did not have effective pre-positioning of resources and responsiveness to the disaster (Samaan & Verneuil, n.d.). Major Kevin L. Buddelmeyer mentions in his report (2007) that U.S. NORTHCOM started the coordination procedures even prior to Katrina's first landfall. However, the confusing procedure and framework requirement kept the military away from responding in the initial phase of Katrina.

A report on the preparations for and response to Hurricane Katrina formulated by the U.S. House of Representatives (2006) notes that the military played an important role in relief efforts; however, coordination was lacking. The report highlights that once active military troops are called to participate in domestic disaster relief, they operate under the chain of command of the federal government. By contrast, the other military element, the National Guard, was deployed under the state government command mechanism. The dual command structure leads to coordination issues in relief operations (Buddelmeyer, 2007). Major Buddlemeyer recalls that there were a number of occasions when active military troops and national guardsmen were assigned the same area of operation for relief activities. This situation affects efficient use of resources, lacks situational awareness, and degrades a unified disaster response (Buddelmeyer, 2007).

Lack of integration among military and federal agencies, as discussed in the ensuing paragraphs, presents a major challenge. DHS was established after 9/11 to create synergy among federal agencies involved in mitigating domestic emergencies. In addition, U.S. NORTHCOM can also be raised to manage the federal military response to any domestic incident or disaster. The congressional report on the response to Hurricane Katrina shows, however, that despite their overlapping roles in domestic emergencies, "Northern Command does not have adequate insight into state response capabilities or adequate interface with governors, which contributed to a lack of mutual understanding and trust during the Katrina response" (U.S. House of Representatives, 2006, p. 221). The

report also notes that the DOD, state and local authorities, and federal agencies failed to actively participate in joint planning, which leads to delayed response.

Similarly, in discussing the NGOs' coordination with federal agencies, the same congressional report mentions that NGOs, particularly the American Red Cross, faced significant breakdowns in coordination with FEMA, particularly. FEMA did not respond to their support requests and was unsuccessful in evacuation of those in need.

Another reason for the delayed response to Katrina and lack of coordination among government actors, the report indicates, is the lengthy process of calling active military for domestic emergency and an unclear framework. The report highlights that National Response Plan (NRP) was a source of confusion in initiating the process to call for active military in the relief operation. State government representatives kept asking for military support once state level capability was overwhelmed, and the delayed response was compounded by the federal government's delayed decision on these requests. One of the fundamental flaws highlighted in the U.S. House of Representatives report (2006) is that although the NRP acknowledges that local and state capability may quickly be overwhelmed by an event, it still assumes that "state/local authorities will be able to integrate federal resources into the response efforts" (U.S. House of Representatives, 2006, p. 202).

The single most frustrating limitation, even four years after 9/11, remained the lack of inter-operability and communication/coordination among government organizations. The same issue was amplified in Hurricane Katrina's aftermath, where local, state, and federal agencies failed to coordinate and communicate for an effective joint relief effort. Hurricane Katrina completely disrupted the core communication infrastructure in New Orleans and some other areas, impacting local emergency call service, telephone service, and broadcast communications, including radio stations and television stations (Townsend, 2006). This disruption led to coordination and interoperability issues among local, state, federal government agencies and civil organizations. The follow-up report of U.S. House of Representatives (2006) on the response to Hurricane Katrina notes that "Massive communications damage and a failure to adequately plan for alternatives impaired response efforts, command and control, and

situational awareness" (.p 163). Areas where some communication network was still intact were useless due to the loss of electricity, and cellular communication towers remained operational only for 12 hours when the batteries in the cell towers died. The National Guard was not issued with SINCGARS radio, which is used as an emergency communication means during disasters. These communication gaps led to a delayed relief response (U.S. House of Representatives, 2006). Private sector integration with federal and military elements was also lacking measures to enhance coordination during the relief effort.

The same congressional report indicates that as per the NRP, the National Communication System has the authority to build a communication network at each tier in case of an incident that needs a response at the national level. In support of the relief operations, the NSC provided 1,000 Government Emergency Telecommunication Service and 4,000 Wireless Priority Service lines to the responders and maintained the Shared Resources High-Frequency Radio Program, which was shared by 91 organizations and 431 stations nation-wide.

To address the unclear and overlapping responsibilities among federal and state government agencies, the U.S. House of Representatives (2006) report criticized the NRP assumption that federal agencies should become involved only after the state and local authorities are overwhelmed. The report asks, "How can we rely on the overwhelmed to acknowledge they are overwhelmed, and then expect them to direct and manage the process of coming to their rescue?"(p. 15). The same report also provides a Policy Coordination Response Framework, which is shown in Figure 19. Since the congressional report, the 2004 NRP has been replaced by the National Response Framework of 2007, in which the role of FEMA is enhanced as the coordinating agency that brings together 49 non-profit private organizations to better integrate the relief response (Samaan & Verneuil, n.d.).

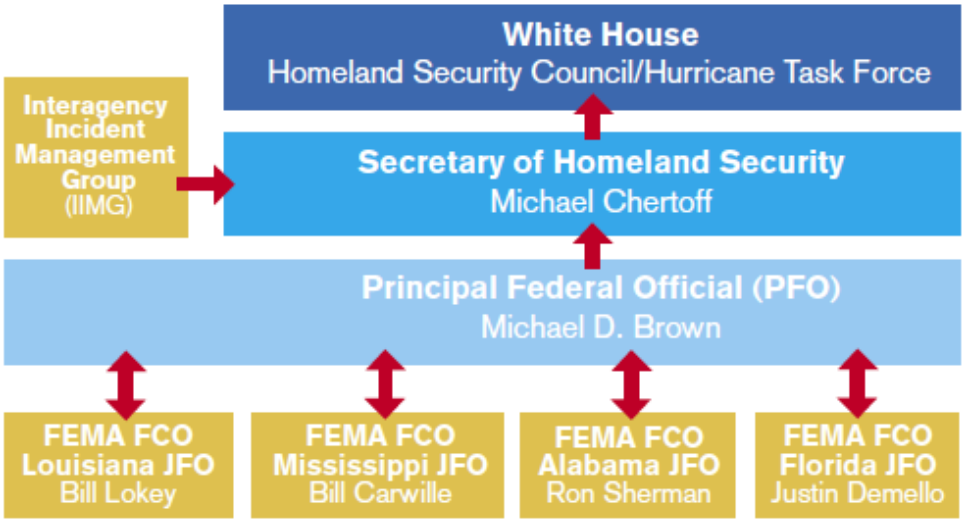

Figure 19. Policy Coordination Response Framework. Source: U.S. House of Representatives (2006).

On August 31, the day after the declaration of emergency, FEMA's Field Coordinating Officers organization started functioning in affected states according to the 2004 NRP. Each Field Coordinating Officer started joint integration operations working through local offices with local and state elements as well as private entities. This hierarchical flow of information enhanced the coordination among inter-governmental agencies, NGOs, and private actors. From NORTHCOM, JF-Katrina, established under the command of Lieutenant General Russel Honore, as Defense Coordinating Officer, started coordinating the joint operations of active duty troops and the National Guard (Bowman, Kapp, & Belasco, 2009). Once the military was called and the National Guard recovered, they were joined by the guards from other states, and relief operations started getting momentum in all affected areas. Other states and the DOD gradually increased their resources as indicated in the Table 7

Table 7. Detail of National Guardsmen and Active Duty Troops. Source: U.S. House of Representatives (2006).

Date	National Guard	Active Duty
August 26	2,505	n/a
August 27	2,633	n/a
August 28	4,091	n/a
August 29	7,522	n/a
August 30	8, 573	1,000
August 31	11,003	2,000
September 1	13,113	3,000
September 2	16,928	4,011
September 3	22,624	4,631
September 4	30,188	10,952
September 5	32,760	15,204
September 6	42,990	17,417
September 7	45,420	18,342
September 8	48,560	19,749
September 9	50,116	21,408
September 10	50,116	21,168
September 11	48,045	22,028
September 12	48,280	22,670
September 13	45,791	22,232
September 14	45,063	18,690

The aspect of disaster response which is different in the United States as compared to most of the countries is the role of the military, rather than a federal or state government actor, as the lead agency in the relief operation. Obviously, in peace times, inter-governmental coordination takes place at all levels but the contingency environment merits special focus because of the higher pace and greater force. NORTHCOM is considered to be at the right place to assume the lead role and utilize all resources at the federal and state level to formulate a unified relief effort. At this point in the response, President Bush said, “it is now clear that a challenge on this scale requires greater federal authority and a broader role for the armed forces, the institution of our government most capable of massive logistical operations on a moment’s notice.” (U.S. House of Representatives, 2006, p.14)

3. Indonesian Tsunami – 2004 Problem Areas Identified

The HADR operation in the Province of Nanggroe Aceh Darussalam provided a number of important lessons for all participants. As is widely recognized, the military has its own special capabilities, which are distinct from those of civil organizations. These capabilities include special means of transportation, airlift capabilities, and medical and surgical treatment specialties. Wiharta et al. explain that during this operation the other relief organizations did not have a good understanding of the military capabilities and did not make use of military assets for transporting the logistics to the affected area (Wiharta et al., 2008). Bennet (2006) also highlights the problem of lack of knowledge about the military's capabilities during operation at Aceh, which resulted in major problems while coordinating the evacuation of injured people from the affected areas, delivering supplies, providing humanitarian aid to the survivors in a short period of time, and removing the dead to prevent epidemics in the disaster area (Bennet, 2006). Bennet also highlights the coordination issues between the UN agencies and the military during the relief effort that stemmed from lack of communication and resulted in failure to provide timely support (Bennet, 2006).

Fragmentation of the relief effort was one of the most important problem areas, especially in the initial stage of the operation, as there were a great number of agencies on the ground (Bennett, Harkin, Bertrand, Samarasinghe, & Wickramatillake, 2006). Jon Bennett, William Bertrand, Clare Harkin, Stanley Samarasinghe & Hermantha Wickramatillake (2006) also point out the problem of responsible reporting and decision making at different levels, as it resulted in micromanagement and dependence on New York and Geneva (Bennett et al., 2006). There was a need for more centralized coordination structure to ensure field coordination among relief agencies, as stated by Bennett et al. (2006). The need for a single point of coordination got more pronounced once the Inter-Agency Standing Committee (IASC) did not have an office in the affected area and the committee had to depend on other agencies in the field (Bennett et al., 2006).

Bennett et al. (2006) also notes that during conferences it was a point of contention among agencies about which member would represent them and their point of

view; there was an air of dissatisfaction among the members on the quality of meetings during the first six months. The report also focuses on the importance of the results the meetings achieved, which were minimal; furthermore, attendance at meetings cost the smaller NGOs more and were less beneficial for them (Bennett et al., 2006). Bennett et al. (2006) also highlight the need for the right priority for the right job, which was not the case in this situation and it resulted in miscoordination while designating the talks between military and civil organizations. While addressing the issues related to the quality of personnel involved in the relief effort Bennett et al. (2006) also point out the high turnover rate, as well as lack of trust and confidence, which were serious issues. This affected the coordination between civil and military organizations. Francois Bourguignon and Jean Philippe Platteau (2015) state that "lack of coordination thus leads to excessive donor recruitment of administrators, thus causing unnecessary stress on the demand for scarce (staff) resources in the recipient countries" (Bourguignon & Platteau, 2015, p. 87).

Philippe Regnier, Bruno Neri, Stefania Scuteri, and Stefano Miniati (2008) emphasize the coordination issue and stress that the process gets more complex when the region has issues like political and social crises, as we could see in Aceh (Indonesia) (Régnier, Neri, Scuteri, & Miniati, 2008); so, this has to be kept in mind while operating in such areas. Focusing on the civil-military coordination Bennett et al. (2006) point out that although the military was used in the relief effort, its particular resources, which were vital to the success of the operation and relief effort, were not fully or efficiently used because of a lack of information and poor needs assessment. These shortcomings also affected the disposition of military assets (Bennett et al., 2006). The international community fell short on the strategic planning and correct needs assessment related to the shelters provision, which resulted in long delays; permanent housing was not the priority, and it became a crisis as highlighted by Bennett et al. (2006). The report also highlights that Civil-Military Coordination Officers of UNOCHA "were ill-equipped institutionally and technically to undertake this [relief coordination] task" (Bennett et al. 2006, p. 47).

While citing Eye on Aceh (2005), Bennett et al. (2006) highlight the problem of gender insensitivity, observing that "in Indonesia, the Provincial Bureau of Women's Empowerment initially had no special plans to address the needs of women, explaining that men and women had suffered equally. Later undoubtedly under the influence and pressure of international agencies, this view was qualified" (Sec 5.3, Gender Issues, p. 64).

a. Measures Taken to Enhance Coordination during Relief Effort

Clare Harkin (2004) asserts that "civil-military coordination will only work effectively if both parties can articulate a coherent view of their respective objectives" (Harkin, 2004, p. 4). The Indonesian Government requested assistance from other countries due to the massive scale of the disaster in Aceh. A hurdle was the bureaucracy, which caused a delay in ordering the mobilization of the military and other organizations in response to the tsunami disaster in Aceh (Harkin, 2004). The national government delivered ad hoc regulation, allowing the international actors to come in the country to provide support, and lifted all barriers to ensure relief to the suppressed community.

In the initial stage of the operation, as highlighted by Bennett et al. (2006), the turnover rate of the relief operators was high but with regulation and long-term contracts, this problem was addressed in the latter half of 2005. The report also points out that measures like a mechanism to track funds, consolidated mechanisms, and budgetary commitments helped improve the monitoring system (Bennett et al., 2006).

The relief organizations and military depended on the private sector for the provision of communication, such as cell phones, satellites, and other communication means. Nevertheless, there was no single platform to incorporate all the international groups, which affected the quality and flow of information and the relief effort itself (Bennett et al., 2006). In the initial six months of the relief effort there was no dialogue with the government directly or through representatives of the military with an aim to develop a dialog on the issue of protection of civilians, but it improved later with special efforts, as highlighted by Bennett et al. (2006).

b. Measures Taken after Relief Effort

Bennett et al. (2006) suggest that the HRR illustrates that UN agencies, the Red Cross and Red Crescent, and NGOs have to ensure vertical coordination within their own networks and further suggests that collaboration has to be enhanced among them. The important aspect highlighted by Bennett et al. (2006) is the availability of funds to INGOs and the Red Cross for recovery and emergency, and this privatization of the aid made the INGOs more efficient in the relief process.

B. COORDINATION FACTORS IN SELECTED OPERATIONS

Table 8 gives an overview of the operations, indicating the impact of each factor leading to coordination issues. These factors have been divided into three main categories: framework, coordination during operations, and training. Each contributing factor has been gauged, based on detailed analysis carried out in previous chapter. Each category is now analyzed to draw the common lessons.

Table 8. An Overview of Factors Affecting Coordination during Selected Operations.

Factors	Pakistan Earthquake 2005	Hurricane Katrina 2005	Tsunami (Indonesia) 2004
Framework			
Clarity of lead agency	High	Moderate	Low
Communication with support agencies	Moderate	High	Low
Joint exercises and training needs	Low	Moderate	Low
Hierarchical chain of command	Moderate	High	Low
Capacity development	Low	Moderate	Low
Communication/ Coordination			
Communication network	Moderate	Moderate	Moderate
Sharing of information	Moderate	Moderate	Moderate
Sharing of resources	High	Moderate	Moderate
Transportation of evacuees	High	Moderate	Moderate
Meetings/conferences	Moderate	Low	Low
Joint operations	High	Low	Moderate

Factors	Pakistan Earthquake 2005	Hurricane Katrina 2005	Tsunami (Indonesia) 2004
Inter-organizational functional knowledge	Moderate	Moderate	Low
Inter-organizational mutual trust	Moderate	Moderate	Moderate
Training			
Joint training	Low	Moderate	Low
Joint exercises	Low	Moderate	Low
Joint planning	Low	Moderate	Low
Joint courses	Moderate	Moderate	Low

a. Frameworks

The aim of having a framework is to guide a course of action, instead of devising a new plan at the time of each new emergency. A comprehensive framework is an important document that influences the response of all stakeholders and contributes to a unified and coordinated operation in the shortest time. Unlike the United States, Pakistan and Indonesia at the time of the disasters analyzed in this study did not have a framework to guide the relief effort participants. However, Pakistan's military as the lead responder in disaster and complex emergency situations was considered as lead agency to coordinate the relief operation in 2005. If we evaluate the factors under framework in Table 8, we see the need for joint training and exercises and the capacity development factors are the problem areas that need to be addressed in the framework.

In the case of the 2004 NRP, emphasis was, in fact, placed on joint exercises and capacity building; however, senior leadership failed to commit adequate resources for these factors. As mentioned in the U.S. House of Representatives report (2006), just prior to the Hurricane Katrina disaster, a hurricane Pam exercise was conducted to understand the impact of a high category cyclone in cities which were below the sea level. Because funds were not available, though, the recommendations from that exercise were not given priority. Joint training and exercises provide an opportunity to establish relations among participants, which can prove vital during joint relief operations. Moreover, such forums

can help participants in understanding the roles and responsibilities of other agencies and bring up the on-ground issues faced during the operations.

Capacity development is mainly achieved by decentralizing the role of response actors for better management and execution of plan. In the case of the Pakistan earthquake, required machinery and other equipment was unavailable, and many lives were lost. This emphasis in the framework will allow relevant government agencies to allocate sufficient resources to develop the capacity of support agencies and to integrate them into joint tasks to bring clarity to their role and capacity.

b. Communication and Coordination during Execution

This category consists of factors directly linked to coordination during execution of relief operations. Table 8 indicates that interactions among players in meetings and conferences during the relief operations following Hurricane Katrina in the United States and the tsunami in Indonesia was low, which makes the overall grading of this factor low. The practice of holding regular meetings and conferences by lead agency during the operations allows breaking of communication barriers among organizations; sharing of information, real time issues, and distribution of resources; and mitigating those issues with collective wisdom. There were occasions during the tsunami response effort when relief agency and NGO representatives were not attending periodic meetings, which resulted in a lack of coordination and wasteful duplication of effort. The other gray area in this category is inter-organizational functional knowledge, which got an overall grade of low for all three operations. This factor adds to external challenges faced by relief agencies. This shortcoming can be mitigated through more interactions during an operation; e.g., by meetings/conferences, joint operations, and mutual collaboration. In addition, emphasis on organizational integration, joint training and exercises, and joint planning in the framework will also reinforce the efforts to overcome the lack of inter-organizational knowledge.

c. Training

Out of the three categories mapped on Table 8, training has emerged as the grayest area that can contribute to improving inter-agency as well as civil-military coordination. Thus, it needs to be emphasized in the framework so that adequate frequency of such training and exercises is conducted throughout the year. These training programs and exercises need to be planned with an aim to refine standard operating procedures for relief efforts, and to gain a better understanding of needs assessments in different disaster situations as well as to explore ways to improve coordination in the disaster theater. All such training and exercises will only prove beneficial and produce results when all inter-governmental agencies, military components, and NGOs actively take part in these programs. Internationally, UNOCHA is focusing on improving inter-agency coordination in joint relief operations by offering a number of training programs and collaboration opportunities in the form of workshops, conferences, and post-mission reviews. These training forums are mostly attended by NGOs and a few governmental agencies. There is a need to engage lead agencies of countries to actively participate in such training programs to establish one-to-one relations with INGOs and know what new trends are emerging to mitigate HADR challenges. Inter-Organizational Culture

One of the most influential barriers to inter-organizational coordination is the unique culture of every organization working in HADR operations. The diversity in relief actors poses a greater challenge to coordination and collaboration of those working side-by-side in one theater. Broadly we have discussed two major actors as the humanitarian community and the militaries. Nonetheless, within the humanitarian community itself, government organizations, international and local NGOs, and private entities are different from each other and their own methods and structures. Generally, NGOs follow a functional structure in which decision making is decentralized as compared to governmental organizations that follow a mixed structure, adding a number of checks and balances and adhering to rules and regulations. Therefore, as compared to governmental organizations, NGOs enjoy greater autonomy in decision making and operations. In the case of military actors, however, which include HN military and other foreign militaries, they follow a hierarchical chain of command in which decision making takes place

centrally at a high level and strictly in accordance with the rules of engagement. To overcome these differences and constraints and to maximize coordination in joint operations, lead agencies must include appropriate representatives from participating relief organizations in joint planning and integration, and all actors must engage in joint training and exercises.

As our analysis reveals, the lack of coordination and its resulting inefficiencies in relief efforts stem from shortcomings in leadership. Although the 2004 NRP amply defined the role of FEMA and state and local governments along with other support agencies, for example, it provided no clear guidance on which actor should take the lead role, leaving that decision subject to the extent and magnitude of the disaster. Furthermore, no guidance is provided for undertaking such an assessment of the magnitude of a disaster that would determine whether to shift the leadership responsibility from state and local government to the federal government.

C. PHASES OF HADR OPERATIONS AND COORDINATION OF THE CIVIL-MILITARY RELATIONSHIP

Figure 20 depicts an inter-agency relationship during an activity as it occurs over time. The figure also shows the phases of operation and coordination in this inter-agency relationship. In the initial phase of the operation the most important task of the relief worker is the rescue effort, which is shown by a largest parabola. This is the phase in which the military is the first responder, bringing with it large resources that can help supplement the rescue effort.

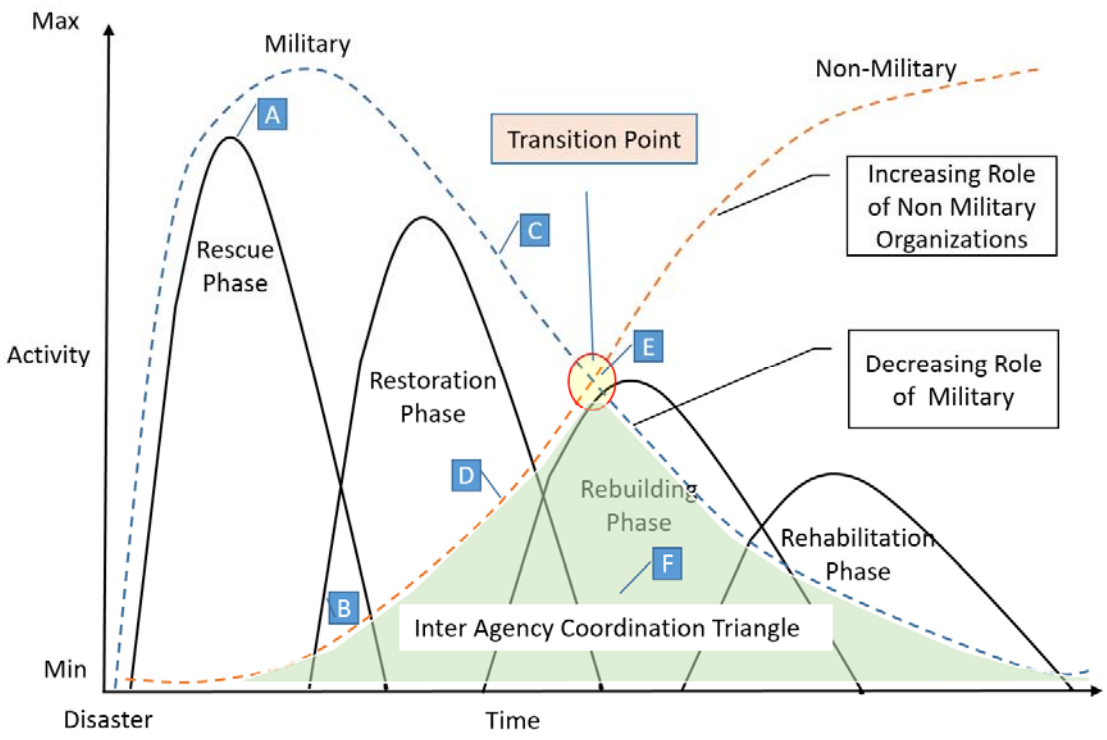

Figure 20. Phases of HADR Operation and Coordination Relationship. Adapted from Haas et al. (1977), as cited by Heaslip and Barber (2016).

In the Rescue Phase, the first actors to react to a disaster are the locals from the affected community, and who have survived the initial impact. They are the ones who require the capacity to carry out the rescue work until external help arrives. Furthermore, the local people must be trained in basic first aid and rescue procedures to cover this gap. This is a high activity time as shown by point-A on the parabola in Figure 20; it is the time when the greatest influx of support arrives after the magnitude of the disaster has been assessed. The military of the HN reacts first, after any NGOs and INGOs that are already in the area. These civil organizations may have their warehouses and forward stockpiles in those areas and will start supporting the population. It is essential for these organizations to keep the stockpiles out of the area that is likely to be the disaster zone. Having the most resources at its disposal, the military can react first and reach the affected area to carry out the initial rescue. It is crucial to undertake the rescue effort immediately to save as many lives as possible as life expectancy falls with every passing day. This is the phase in which camps are also established and the survivors are shifted to

those camps. We can see by the graph that activity is rising during this phase and then it starts dropping and transforms into a restoration phase.

The restoration phase is the one in which the remediation and rebuilding process starts. This phase is supported by the local government, and in accordance with the magnitude of the damage, the external players may also play important part in this phase. This phase has less activity as compared to the rescue phase, but these two overlap each other (point-B) once the major part of the population has been rescued. In this phase the local and international NGOs also start coming in, and in some cases, the foreign militaries also join the relief operation. This is the point where the major coordination phase starts. It is a complex process as it involves coordination among different organizations with distinct cultures, as has been explained in the preceding chapters. This is the phase in which we can see that the military activities are falling and civil organizations activities are rising, as shown by points C and D, respectively.

We can see that the intersection point is point E. That point indicates that the role of the military is less prominent than the role played by the civil organizations. We would like to recommend that in countries where the army is the lead agency, this is the point where the responsibility for the conduct of operation should shift to the civil organizations, under the supervision and control of the HN. The area shown in the green triangle (area F) is the Inter-Agency Coordination triangle, which spans all stages of the operation and needs more detailed coordination. We can also see from the figure that the phase during which most coordination is required is the rebuilding stage.

Now we can see this whole process from another point of view also. Earlier we discussed the aim of analyzing different operations, from different countries, in almost the same time frame to discern impact of the civil-military relationship on the relief effort. We have presented the facts about the operations in Chapter III, and here we see what the impact of that relationship is on the relief effort. Figure 20 highlights the relationship at different stages and with varying levels of involvement of civil relief organizations and military.

D. MILITARY CONTRIBUTING COUNTRIES ANALYSIS

The increased number of disasters in this century, as has been explained in previous chapters, has resulted in an increased number of troops contributing in the disaster-response operations. The operations focused on in Chapter III provide our research base; so are analyzing the military's role in these operations from 1997 to 2006. A 2008 Stockholm International Peace Research Institute (SIPRI) covers countries that contributed assets to the International Disaster Relief Assistance (IDRA), a summary of the same is compiled in Table 9 for ease of understanding and to bring out pertinent lessons (Wiharta, Ahmad, Haine, Lofgren, & Randall, 2008) from the SIPRI report.

Table 9. Countries' Contributions to International Disaster Relief Assistance. Adapted from Wiharta et al. (2008, pp. 12–15).

Countries/ Regions	**Specialty**	**Deployed in**	**Operations**	**Remarks**
North America	Deployed assets 15 times to overseas disasters from 2003–2006	Caribbean and central America	Hurricane Mitch (1998), flood in Venezuela (1999)	-Most proactive -Facilitated by Bases world wide
Caribbean and Central and S. America	Response within region	Caribbean and Central and S. America	Hurricane Mitch (1998), flood in Venezuela (1999)	- Killed 30,000 and affected 500,000 - Response came from Argentina, Chile, Mexico, Peru, and Uruguay
Europe	- Netherlands is most frequent contributor and deployed 18 times in this period - UK made 7 deployments	- Areas like Suriname and Pakistan - Bam (Iran), Indian Ocean region, Pakistan	-Pakistan 2005 earthquake	- Deploy only outside Europe - Finland and Norway have limitations from government and contribute

Countries/ Regions	Specialty	Deployed in	Operations	Remarks
	- France contributed number of times - Belgium and Germany		- Iran (2003), Indian Ocean tsunami (2004), Pakistan earthquake (2005)	civilian resources - Only contributed to big natural disasters
Asia-Pacific	- India deploys in region	South and East Asia		- Contributed in disasters in own region
Japan (Asia Pacific)	Focused on regional role lately	Central America, Turkey, Rest of deployments in South and East Asia	Hurricane Mitch (1998), Turkey earthquake (1999)	-Strong advocate of Oslo guidelines, carried out amendment in 1992 and allowed Japan's self defense forces' deployment
Singapore (Asia Pacific)	Focused on medical care and logistics	Indian Ocean and Indonesia	Tsunami Indonesia (2004)	
Australia	Contributes irrespective of scale of disaster	Pacific (Melanesia)	Bam earthquake (2003)	Most proactive in Asia Pacific
Africa	South Africa	To neighboring countries*	All disasters in region	*Such as Botswana, Lesotho, Mozambique and Namibia

With this analysis we can discern which countries are the most active in this contribution. The major contributions are in the field of "communications, engineering,

medical support, power supply and distribution, search and rescue, transport, logistics and coordination, (air: transport, logistics and coordination) road and rail; transport, logistics and coordination – sea and inland water; and water and sanitation" (Wiharta et al., 2008, p. 15). Wiharta et al. also mention that Canada, Japan, Netherlands, and the UK were the countries that coordinated with the SIPRI organization and furnished them with full data. As a result, this comparison of troop contributions per year was created (Wiharta et al., 2008, pp. 14–15) and is shown in Figure 21.

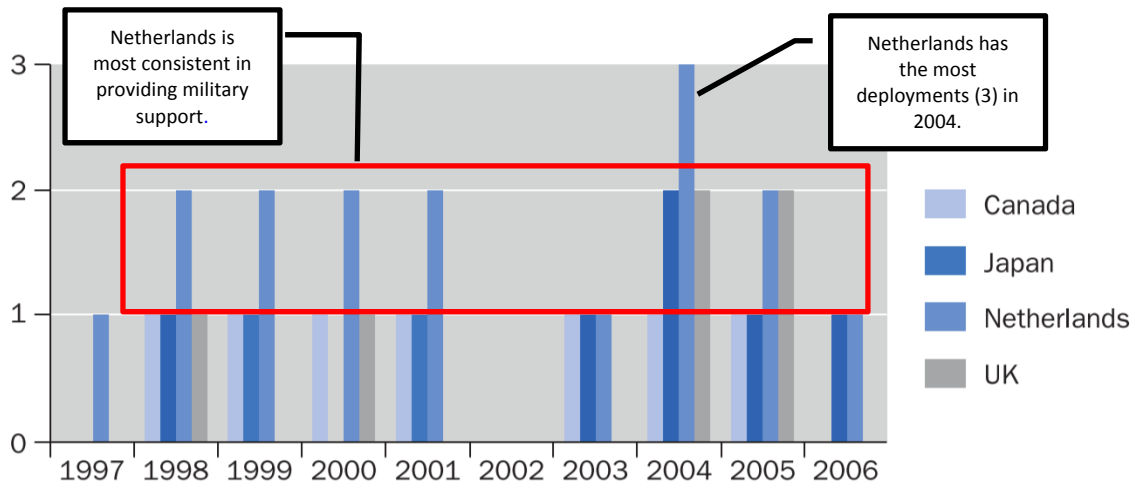

Figure 21. Annual Number of Deployments Reported by Countries Deployed, 1997–2006. Adapted from Wiharta et al. (2008, p. 15).

As Figure 21 clearly indicates, some countries contribute their militaries to other countries frequently in disaster relief operations. Clearly, these militaries must have special training and knowledge to work effectively with their counterparts in these operations. Wiharta et al. (2008) also point out that China, North Korea, and India are countries that do not accept IDRA support and do not allow foreign militaries on their soil (Wiharta et al., 2008). Nevertheless, they do contribute troops for IDRA in other countries, which makes it necessary for them to enhance their skills in joint training, working with their foreign counterparts, communication, and trust to ensure better results.

E. DISTRIBUTION OF RESPONSIBILITY AND USE OF MILITARY RESOURCES

An important factor that we have analyzed is the distribution of tasks in multi-actor relief efforts. When task distribution was poorly coordinated, it resulted in poor performance or in non-availability of relief goods. In their report, Wiharta et al. (2008) quote a Canadian contingent composed of engineers who were tasked with providing potable water. The task was done in a most professional way, but due to the difference in mandate and non-distribution of responsibility, the water did not reach the affected population and the task for delivering was not assigned to anyone else (Wiharta et al., 2008). If these points would have been addressed at the appropriate time, the outcome would have been much better.

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V. RECOMMENDATIONS

A. THE FRAMEWORK

In light of our analysis of the literature available on the topic, and on the data we collected and examined in previous chapters on selected countries' disaster frameworks and operations, we are recommending a framework to enhance coordination among the civil and military organizations in HADR operations. Given the scope of this study, we are recommending a coordination framework that should not have any impact on the structure of the individual countries' disaster management authorities. Furthermore, for situations requiring an international response, we assume the protocols in place for the HN to request external support will likely stay the same and the role of the respective ambassadors and staff in the chain will remain of paramount importance. The recommended framework is intended to highlight the measures and steps to be taken to ensure better inter-agency coordination with an aim to produce better results in disaster relief operations. Specifically, we are focusing on the on-ground coordination between the military of the HN, foreign support civil elements, and the foreign military component.

Our recommended framework is essentially composed of a series of interrelated activities that contribute to strengthening the relationship of humanitarian and military partners in disaster relief operations by integrating their efforts. To achieve this, we assert that first these actors should develop some familiarity with each other's organizational structure to identify similarities in the relief activities they perform and the processes by which they perform these activities. This familiarization task should initially be undertaken, in particular, by the leading NGOs of humanitarian relief. Our framework provides guidance for how this task can be accomplished by joint conferences, identifying and conducting joint exercises, training, planning, and offering courses, and examining civil-military relations; the same should be encouraged in educational institutions (Fitz & Walthall, 2001, pp.1–7; cited by Abiew, 2003, p. 34). Ultimately, the goal of a strengthened civil-military relationship in disaster-response efforts is greater

coordination as this is the factor, which if enhanced, can reduce the suffering of the disaster's survivors.

Figure 22 depicts the recommended coordination framework, including key factors to improve coordination among participating organizations in the disaster theater.

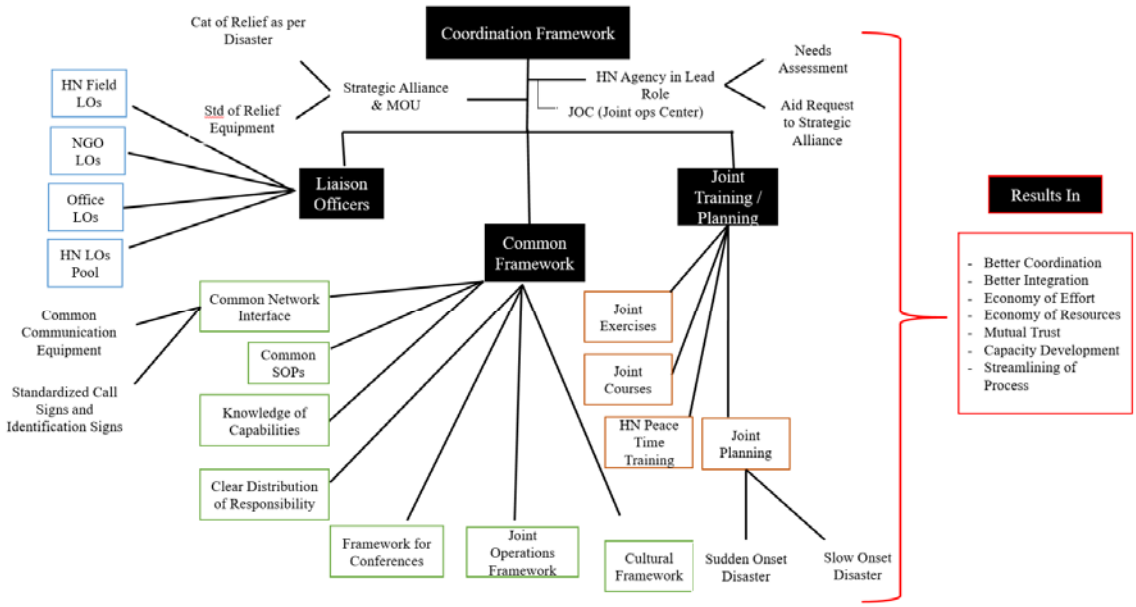

Figure 22. Recommended Coordination Framework.

1. Concept of the Coordination Framework

This framework is based on the HN and the actors most likely to participate in the relief effort, whether they are from inside the affected country or are invited by the HN after a sudden onset disaster has occurred. Depending on the extent and magnitude of the disaster, in the case that the HN is not overwhelmed, it is strongly recommended that all countries establish their own Disaster Management Authorities, which should act as the lead agency in case of a disaster. If the HN infrastructure is overwhelmed then members of the biggest organization should take over the role of lead agency. In the recommended coordination framework, we have kept the HN as the lead agency as a focal point in the coordination network. As a lead agency, the HN has to carry out the needs assessment,

and the HN must have contingency planning in place to dictate the response by in-country organizations and international actors.

The regional and international government-to-government cooperation in the field of mutual economic, security and cultural interests also ensures the cooperation in the field of relief effort. According to Major General Asghar Nawaz, Director General of the NDMA in Pakistan (in his questionnaire response to the authors), "at regional level SAARC countries have also formulated and validated guidelines with regards to dealing with any disaster, if and when a disaster happens in any of the SAARC country." We recommend that there should be strategic alliances sponsored by the respective disaster lead agencies. Such alliance should focus only on the disaster response and should include disaster agencies of other countries, military, and local/international organizations. The lead agency for the disaster response needs to develop, manage, and collaborate with the network of response organizations in the alliance, keeping in view the capabilities, resources, as well as possible disaster threats and destruction. The lead agency should sign a Memorandum of Understanding (MOU) with participating organizations of the strategic alliance and keep the United Nations informed in order to standardize the framework. This MOU should spell out and standardize the equipment, manpower, support elements, and so forth that each country or organization will contribute once it is called upon by the sponsored lead agency of a country. The key task of a strategic alliance is to formulate a response plan with participants, and to spell out the sharing of resources and level of participation in anticipation of destruction in a disaster. This MOU ensure the right degree of participation by organizations and pooling of resources, which will help in generating a unified response. The response plan devised by the strategic alliance should clearly cover following:

- Manpower details – according to the role designated and mutually agreed upon by all the members.
- Equipment details – kind of transport, communication, medical support, weapons (if any), recovery equipment, engineering elements, helicopters, mobile medical units, etc.

- Supporting goods – such as water, food, sanitation equipment and shelters, water purifiers, etc.

The HN will know from the MOU, which member will play what role in relief, and the HN will be able to direct requests appropriately to specific countries and organizations based on the needs assessment that it has carried out. This will economize the effort and reduce the load on the supporting countries and organizations as they will know exactly what is needed, will be able to divert funds in the right direction, and will ensure economy of resources.

The framework also assumes the need to maintain a Joint Operations Center (JOC) at the disaster management authority. The JOC will be disaster specific; so if there are two disasters, there will be two JOCs. The JOC serves as the communication hub, and each JOC will also have a Forward JOC, which will be established near the disaster zone(s) for field coordination.

2. Common Frameworks

It is recommended that every disaster response follow a standardized framework based on UNOCHA guidelines and that all the countries adopt the same framework. It will provide a common platform, common knowledge base, and similar action plans. The other option is that each strategic alliance group should have its own common framework and should share it with UNOCHA for knowledge and to create a central framework in future. Following are the major frameworks and guidelines that need to be standardized to act as a bridge once different organizations and nations or their armies come together during any humanitarian operation.

a. Communication Network Interface

We have come to the conclusion that communication is one of the biggest challenges in any of the humanitarian relief operation. This single factor, if enhanced, helps to overcome many difficulties. Direct communication with multiple means is very important. Two measures must be implemented to ensure effective communication: first, there is a need to standardize the communication equipment and this should be addressed

in the MOU; secondly, there is a need to ensure that all countries bring in compatible communication equipment. Furthermore, they should have multiple means of compatible communication capable of being integrated easily within one large communication network. The system has to be multi-layered with multiple means of communication to ensure free flow of information at all times. It should have pre-arranged network and communication diagrams, call signs, identification signs, passwords, code words, and nicknames. This task of preparation of network and communication diagrams, nicknames, and code words can be given to the military as they are good at it.

These measures will ensure an uninterrupted flow of information. They will also ensure that same information is available to all participating in the relief operation. The HN and the countries of the strategic alliance should also maintain a pool of interpreters for instances in which they are operating in a non-English speaking country.

b. Common Standard Operating Procedures and Operational Framework

At present each country and organization has its own methods and procedures for operating in disasters, but these should be standardized as much as possible so that each member of a relief effort, regardless of the country or organization, will have same procedures and priorities, taking into account their distinct role. These methods and procedures can encompass the following:

- Search and rescue
- Evacuation
- Priority of relief goods distribution
- Sanitation and health
- Camp establishment and management
- Interaction with civilians and military component of HN and international actors
- Transportation of relief workers
- Transportation of casualties
- Protection of children and women

c. Knowledge of Capabilities

We have noticed during our research that the lack of knowledge of capabilities results in underutilization of resources and weak relief effort. The initiatives of the strategic alliance and the signing of an MOU with the details mentioned earlier will ensure that each member country knows the equipment, workforce, and expertise that each member is contributing. It will help in the utilization of the assets of every relief component to the best of its capabilities. This knowledge base has to be as detailed as possible. Each item of relief being brought in has to be explained fully so that the HN knows exactly what it is requesting.

d. Clear Distribution of Responsibility

We have seen that due to the poor distribution of tasks and lack of clarity regarding roles and responsibilities sometimes the relief goods may arrive too late or may not reach disaster victims at all. These clear frameworks have to distribute the responsibilities among all the relief organizations, which should have a primary and a secondary role to play in case of a disaster. And, these roles should be known to all the countries and organizations in peace time so that they practice accordingly during the mock exercises. It will not only help them identify any bottlenecks in the process but will also help other supporting organizations to get familiar with their respective roles. Furthermore, it can also ensure non-duplication of effort.

Bennett et al. (2006) explain that UNOCHA has taken the initiative to formulate the principles for the use of international militaries and their assets in support of relief operations in all kind of disasters and emergencies, which are duly approved by the IASC (Bennett et al., 2006). Effort should be made to publicize these principles and to ensure that these are known to all across the board, whether they are NGOs, militaries, or government agencies, to promote more effective coordination (Bennett et al., 2006). Bennett et al. (2006) also recommend review of the IASC statement on the role of the military in emergencies. The report recommends that, “At the very least the IASC should consider replacing the ‘in the last resort’ caveat included in the Oslo and Military and Civil Defense Assets Guidelines with ‘in exceptional circumstances’, which would better

reflect the need for such rapid response" (Bennett et al., 2006, p. 52, citing from point 4.2 'Civil-military relationship.') We should make use of these principles while formulating our framework so that it has an interface with the UNOCHA and IASC.

e. Framework for Conferences

We recommend further having a framework for specific conferences. During our analysis of operations, we concluded that this platform, which is supposed to be the main source of sharing information, has not been used effectively. Organizations lose interest in these conferences as they do not believe that the substance of these conferences makes any difference during relief operations. This belief is even more common among small organizations. To enhance the outcome of meetings, during pre-deployment training, staff should receive instruction on and practice conducting meetings and making them more fruitful. There should be standard operating procedures for conducting a regular conference or meetings during relief operations that should be adopted by all stakeholders. In light of our analysis, we recommend the following must be ensured:

- An introductory conference should be held to introduce all the relief organizations and countries, and to review the rules of conferences.
- The conference agenda has to be distributed in advance to all members or all organizations participating in the relief effort.
- The members and organizations participating in the relief effort should be notified as to who will chair the conference and what the contingency plan is also.
- The schedule and sequence of conferences to be held should be known to all participants in advance.
- The number of scheduled conferences should be kept to a minimum.
- Organizations and countries should be invited to add their concerns to the agenda.
- Minutes should be kept of each conference, including clearly detailed action items and who is responsible for addressing each one and for following up on their accomplishment.
- All participants must be kept informed of the progress on the action items and points decided in the previous conference.

Well organized and interactive conferences that welcome the input of all participants will enhance the confidence of all the members and will encourage them to attend the meetings once they know that the decisions taken are also implemented.

f. Cultural Framework

The research clearly indicates that cultural differences among countries as well as among organizations—even among those from the same country—can cause gaps in the coordination of relief efforts. We need to bridge these gaps by closer interactions and more joint training. Here we would like to recommend that a cultural framework be prepared and made readily available to all in the relief effort. This cultural framework should clearly identify the different organizational hierarchies, appointments, roles or fields of responsibility for each appointment, protocols, and salient characteristics of their culture. This reference tool should also be visible during joint planning and exercises. Such a resource can help to address many issues related to interaction and protocols. We also recommend that a common cultural framework should be thoroughly documented, clearly defining hierarchical organizational status, its size, areas of expertise, and norms of interaction, along with professional and multicultural etiquette. ."

g. Joint Training and Planning

It is recommended that enhanced joint training should be undertaken. It will improve the coordination by promoting the understanding of one another's organizational roles, capabilities, and working procedures. Joint training should encompass the following areas:

(1) Host Nation (HN) Peace Time Training

Each country that is part of the strategic alliance should hold training events, courses, and exercises. The concept is to invite the key personnel of each organization and the military components with an aim to conduct a joint exercise or training, which should be jointly funded by each country taking part or by the host nation. Subject training should also have observers from UN, UNOCHA, NATO, or other organizations that are not part of the strategic alliance, so that they can also take the lessons from

training back to their institutions. It will help these organizations understand the functioning and frameworks of the strategic alliance countries, and when the magnitude of a disaster goes beyond the capability of the alliance, these observer organizations will be the ones reacting to the request of the HN, and they will have the knowledge of the country and the framework in place.

(2) Joint Courses

Human aid and disaster relief courses should be conducted regularly and invitations to attend should be extended to experts and students who will be working members of the respective National Disaster Management Authorities or organizations and the strategic alliance. Furthermore, each country or organization should identify in which area of the disaster management field it has its greatest strengths and it should share that knowledge with other members of the alliance in peace time to better prepare for the response. This should be done on the principle of Train the Trainers, whereby these selected individuals should be trained and they in turn should train their respective country teams on the subject expertise. This will also help in capacity building and will enhance reaction capabilities. The courses should not only focus on post-disaster events but on pre-disaster activities and planning also.

h. Joint Exercises

Joint exercises are important and should be made a permanent feature. We recommend adopting a three-year plan for joint exercises, which should be mutually decided upon. The disaster management agencies of each country should identify the Problem areas and then should plan the exercises addressing those grey areas. The three-year plan should be known to each member and all countries and organizations should contribute for the conduct of same. Clear responsibility for each exercise should be given to each country or organization. These exercises can be event specific. For example, a country that is likely to be hit by an earthquake or a flood may choose to develop an exercise in that country focused on a relief operation tailored to that particular disaster and its aftermath, while all others participate. NGOs also have an important role in this type of training, this training will integrate them with their counter parts and will be able

to perform better. These exercises will help enhance the capacity, expertise, and knowledge of each participant and its appreciation for the culture and capacity of its partners in disaster relief efforts.

i. Joint Planning

Strategic alliance countries should carry out joint planning for likely disasters. The process will be facilitated once a common framework, as discussed in a previous point, is in place. Joint planning will give an HN more lead time for the whole process if the HN faces any kind of disaster. For joint planning to be most effective, we recommend that the ambassadors of the strategic alliance countries should be taken onboard, along with all the strategic alliance actors. The plans should be categorized according to the likely disasters and their magnitude. Such plans should clearly indicate responsibility, equipment required as per the magnitude, relief goods needed, and so forth, It will help in contingency planning. These plans will be based on the likely needs assessment for which the previous disasters in those regions can act as a base for this pre-disaster planning. The plans should also take into account the sudden onset and slow onset disasters as the training and preparation will be different in both cases.

j. Liaison Officers

It is recommended that the Liaison Officers play a major role to enhance coordination. These officers will have to have the special skills, such as technical proficiency in a foreign language, if not country specific (which is surely preferred), at minimum should know English. There are different tiers at which we are recommending the incorporation of Liaison Officers as they all have distinct responsibilities to perform. This point has been illustrated by the Red Cross, as was confirmed by Mr. Luke Backman, director of field and system integration (in his responses in an interview with the authors on April 26, 2017). There is a need for other NGOs and relief organizations to do the same. The framework suggested here addresses this point.

(1) HN Field Liaison Officers

These are the Liaison Officers who should be maintained by the country itself in potential disaster areas. They can be individuals on the payroll of the respective provincial/state or district/county government, or they may be on the payroll of the disaster management authority. Another option is having pre-approved and trained individuals in reserve who will only be activated and paid at time of a disaster. They should be equipped with the requisite skills and knowledge and should be given a means of communication as a contingency. They will be the key persons to inform and to contact the central control room maintained at the disaster management authority. They should also be included in all training activities, and whenever they are activated, they should be given the salary as happens in the military with reservists.

(2) NGO Liaison Officers

All NGOs should have their Liaison Officers who should be pre-approved and should form part of the central control team at the disaster management authority. This individual will be the one who is all most knowledgeable about the field of his organization. To further help in bridging the communication gap, this Liaison Officer will also have his or her own contact persons as resources in the field and will be of great value.

(3) Office Liaison Officers

These are the Liaison Officers that each organization will nominate as the contact person from their respective organization. This individual will be available in the respective office of the organization rather than in the field and will act as the Liaison Officer for that organization. This resource will be more useful for the NGOs as they have fieldwork and sometimes it becomes difficult to communicate with them. This officer will be the one relaying all messages in the field to the concerned persons. The organizations will have to furnish this individual with the necessary information so that he can provide the information to the higher office or disaster management cell once

needed. This role can be assigned to one person or to a group of people, but the office will have to be staffed at all times.

(4) Host Nation Liaison Officers Pool

Each country with the strategic alliance must maintain a pool of Liaison Officers. These officers are only utilized in case of a disaster or at the time of joint exercises. Once the HN initiates a request for external support, these individuals will be activated. The Liaison Officers will be assigned to all the organizations that enter the HN for support and will assist them in their settlement, movement, and administrative support activities, and will act as a link with the disaster management authority. This pool will also be maintained according to the needs assessment. This will help in bridging the communication gap and will facilitate better coordination in the relief effort.

All the steps will ensure better coordination of relief efforts and will result in a unified response under the unified command of the HN. Furthermore, it is important to enhance capacities and maintain a log of the available assets as suggested by Wiharta et al. (2008), who recommend that the Military and Civil Defense Assets register maintained at UNOCHA also be regularly updated. It will help in quick decision making and visibility for the other organizations and will help in knowing capabilities. This information sharing will help in better coordination and will result in visibility of one another's assets. It will also ensure better planning, not only by the host country but by the troops contributing countries also. Sharing of information will save the resources, expenditures, and duplication of effort also. The same information sharing should be done by the strategic alliance countries and organizations as well.

B. CONCLUSION

Collaboration is the most important tool that can bring synergy to any aspect of the disaster response operation. We have tried to highlight the important shortcomings in collaboration and coordination in such operations by focusing on not only the present frameworks but also the selected three operations. We have proposed a framework along with recommendations to enhance coordination. The need for improvement in this area

can only be witnessed by close collaboration among national institutions and organizations but also with the international community.

Madiwale and Virk (2011) appreciate the relief efforts made during the 2005 earthquake in Pakistan and cite it as a success. They also point out that this military-led operation, which featured the largest humanitarian helicopter airlift that reached even the most inaccessible and remote areas, was the result of an effective coordination. Furthermore, while they commended the role of Pakistan's military in the operation, they also touched on the specific issue we address in this study, noting, "the experience helped build trust between the humanitarian community and the Pakistan military and established the military as a primary and effective response to natural disasters, but it also highlighted the need for more effective civil-military co-ordination" (p. 1090). The operations that we have discussed in the thesis have their commonalities and differences, but we can easily conclude that the results of each operation could have been much better if there was a more coordinated effort.

We hope that further development takes place in the field of joint planning, training, and exercises, and through more interaction among all players, which will show in the results of responses to future challenging situations.

C. AREAS FOR FURTHER STUDY

No study is ever complete, and as a result of research, new questions arise that need to be answered in future studies. Based on some of the questions raised by our own research that fell beyond the scope of this present study, we would like to suggest the following areas for further research:

- Development of a common communication network, recommending communication means and equipment along with the communication protocols.
- Preparation of a joint training and planning framework.
- Preparation of a handbook for field officers, detailing all the relief effort participants, their capabilities, organizational structures, and relevant cultural considerations for the region of operation. This handbook should

also standardize the relief equipment so that all have one baseline to follow, and it should also facilitate the communication.

- Identification of the strong points of different nations contributing to disaster response operations.
- Cost estimation for the host nations planning to conduct a joint training.

APPENDIX A. FEMA CRITERIA TO PROVIDE FEDERAL ASSISTANCE

U.S. Federal disaster law does not take into account an arithmetical formula or other criteria to decide eligibility for federal assistance in case of a disaster event. FEMA takes input from local, state, and civil organizations and considers media reports along with a number of factors to determine the severity, magnitude, and impact of a disaster (FEMA, 2013). According to FEMA guidelines, the following are some of the primary factors it uses to assess disaster events:

- Amount and type of damage (number of homes destroyed or with major damage).
- Impact on the infrastructure of affected areas or critical facilities.
- Imminent threats to public health and safety.
- Impacts to essential government services and functions.
- Unique capability of federal government.
- Dispersion or concentration of damage.
- Level of insurance coverage in place for homeowners and public facilities.
- Available assistance from other sources (federal, state, local, volunteer organizations).
- State and local resource commitments from previous, undeclared events.
- Frequency of disaster events over recent time period. (FEMA, 2013)

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APPENDIX B. ROLE OF STATE AND LOCAL GOVERNMENTS IN DISASTER MANAGEMENT

In the United States, state governments play a lead role to coordinate relief operation at the state level, and utilize their own resources, while local governments establish a relationship with local communities and private sector, develop capacity and framework to mitigate challenges and reduce friction during humanitarian response. According to FEMA, the responsibilities of state and local governments are as follows:

State Governments:

- Coordinate state resources and provide the strategic guidance needed to prevent, mitigate, prepare for, respond to, and recover from incidents of all types. In accordance with state law, may be able to make, amend, or suspend certain orders or regulations associated with response.
- Communicate to the public and help people, businesses, and organizations cope with the consequences of any type of incident.
- Command the state military forces (National Guard personnel not in federal service and state militias).
- Coordinate assistance from other states through interstate mutual aid and assistance compacts, such as the emergency management assistance compact.
- Request federal assistance including, if appropriate, a Stafford Act presidential declaration of an emergency or major disaster, when it becomes clear that state capabilities will be insufficient or have been exceeded.
- Coordinate with impacted tribal governments within the state and initiate requests for a Stafford Act presidential declaration of an emergency or major disaster on behalf of an impacted tribe when appropriate.

Local Governments

- Establish strong working relationships with local jurisdictional leaders and core private-sector organizations, voluntary agencies, and community partners. The objective is to establish relationships, coordinate, and train with local partners in advance of an incident and to develop mutual aid and/or assistance agreements for support in response to an incident.
- Lead and encourage local leaders to focus on preparedness by participating in planning, training, and exercises.
- Support participation in local mitigation efforts within the jurisdiction including, as appropriate, the private sector.

- Understand and implement laws and regulations that support emergency management and response.
- Ensure that local emergency plans take into account the needs of: the jurisdiction, including persons, property, and structures. (FEMA, n.d.)

APPENDIX C. PAKISTAN DISASTER MANAGEMENT ORGANIZATION

The National Disaster Management System for Pakistan Act (NDMSPA) of 2010 provides an effective and comprehensive national disaster management that covers all tiers, including the national level, such as NDMC and NDMA; provincial level, PDMA; and district level, DDMA. It unifies the response to emergencies. According to NDMSA 2010, all levels of authorities have a role and responsibility as follows:

National Disaster Management Commission (NDMC)

- Lay down policies on disaster management
- Approve the National Plan
- Approve plans prepared by the Ministers or Divisions of the Federal Government in accordance with the National Plan
- Lay down guidelines to be followed by the Federal Government and Provincial Authorities
- Arrange for, and oversee, the provision of funds for the purpose of mitigation measures, preparedness and responses
- Provide such support to other countries affected by major disasters as Federal Government may determine, and
- Take such other measures for the prevention of disaster or the mitigation or for preparedness and capacity building for dealing with disaster situation as it may consider necessary. (NA, 2010)

National Disaster Management Authority (NDMA)

- Act as the implementing, coordinating, and monitoring body for disaster management.
- Prepare the National Plan to be approved by the National Commission.
- Implement, co-ordinate, and monitor the implementation of the national policy.
- Lay down guidelines for preparing disaster management plans by different Ministries or Departments and the Provincial Authorities.
- Provide necessary technical assistance to the Provincial Governments and the Provincial Authorities for preparing their disaster management plans in accordance with the guidelines laid down by the National Commission.

- Co-ordinate response in the event of any threatening disaster situation or disaster.
- Lay down guidelines for or give directions to the concerned Ministries or Provincial Government and the Provincial Authorities regarding measures to be taken by them in response to any threatening disaster situation or disaster.
- For any specific purpose or for general assistance requisition the services of any person and such person shall be a co-opted member and exercise such power as conferred upon him by the Authority in writing.
- Promote general education and awareness in relation to disaster management.
- Perform such other functions as the NDMC may require it to perform. (NA, 2010)

Provincial Disaster Management Authority (PDMA)

- Formulate the provincial disaster management policy obtaining the approval of the Provincial Commission.
- Coordinate and monitor the implementation of the National Policy, National Plan, and Provincial Plan.
- Examine the vulnerability of different parts of the Province to different disasters and specify prevention or mitigation measures.
- Lay down guidelines to be followed for preparation of disaster management plans by the Provincial Departments and District Authorities.
- Evaluate preparedness at all governmental or non-governmental levels to respond to disaster and to enhance preparedness.
- Coordinate response in the event of disaster.
- Give directions to any Provincial department or authority regarding actions to be taken in response to Disaster.
- Promote general education, awareness, and community training in this regard.
- Provide necessary technical assistance or give advice to district authorities and local authorities for carrying out their functions effectively. (NA, 2010)
- Advise the Provincial Government regarding all financial matters in relation to disaster management.
- Examine the construction in the area and if it is of the opinion that the standards laid down have not been followed and it may direct the following same to secure compliance of such standards.
- Ensure that communication systems are in order and disaster management drills are being carried out regularly.

- Perform such other functions as may be assigned to it by the National or Provincial Authority.
- Prepare a disaster management plan including district response plan for the province.
- Co-ordinate and monitor the implementation of the National Policy, Provincial Policy, National Plan, Provincial Plan and District Plan.
- Ensure that areas in the district vulnerable to disasters are identified and measures for the prevention of disasters and mitigation of its effects are undertaken by the departments of the Government at the district level as well as by the Local Authorities.
- Ensure that the guidelines for prevention, mitigation, preparedness and response measures as laid down by the National Authority and Provincial Authority are followed by all departments of the government at the district level and local authorities in the District.
- Give directions to different authorities at the district level and local authorities to take such other measures for the prevention and mitigation of disasters as may be necessary.
- Lay down guidelines for preparation of disaster management plans by the departments of the Government at the districts level and local authorities in the district.
- Monitor the implementation of disaster management plans prepared by the departments of the Government at the district level.
- Lay down guidelines to be followed by the departments of the Government at the district level.
- Organize and coordinate specialized training programmers for different levels of officers, employees and voluntary rescue workers in the district.
- Facilitate community training and awareness programmers for the prevention of disasters or mitigation with the support of local authorities, governmental and non-governmental organizations.
- Set up, maintain, review, and upgrade the mechanism for early warnings and dissemination of proper information to public.
- Prepare, review, and update district level response plans and guidelines. (NA, 2010)

District Disaster Management Authority (DDMA)

- Co-ordinate with, and give guidelines to local authorities in the district to ensure that pre-disaster and post-disaster management activities in the district are carried out promptly and effectively.

- Review development plans prepared by the departments of the Government at the district level, statutory, authorities or local authorities with a view to make necessary provisions therein for prevention of disaster or mitigation.
- Identify places and buildings which could, in the event of a disaster situation, be used as relief centers or camps and make arrangements for water supply and sanitations in such buildings or places.
- Establish stockpiles of rescue and relief materials or ensure preparedness to make such materials available at a short notice.
- Provide information to the Provincial Authority relating to different aspects of disaster management.
- Encourage the involvement of non-governmental organizations and voluntary social-welfare institutions working at the grassroots level in the district for disaster management.
- Ensure communication systems are in order and disaster management drills are carried out periodically.
- Perform such other functions as the Provincial Government or Provincial Authority may assign to it or as it deems necessary for disaster management in the district. (NA, 2010)

APPENDIX D. INDONESIAN DISASTER MANAGEMENT AUTHORITIES

BNPB is the lead authority and responsible to coordinate and implement a planned, integrated, and comprehensive disaster management policy at the national and local level. According to the Law of the Republic of Indonesia, Number 24 of 2007 concerning the Disaster Management, BNPB, and BPBD have responsibilities as follows:

Indonesia's National Disaster Management Authority (Badan Nasional Penanggulangan Bencana [BNPB])

- Establish regulation and direction on disaster relief effort, which comprise national disaster preparedness, emergency response during HADR operation, rehabilitation and reconstruction after disaster in a fair and equitable method.
- Establish the standardization and implementation of disaster management needs based on laws and regulations.
- Submit information to the community for disaster prevention activities.
- Report the disaster relief operations to the President in normal situation monthly, and any times in a state of emergency.
- Utilize and responsible for national and international aid.
- Responsible for the use of National Budget (Anggaran Pendapatan dan Belanja Nasional [APBN]).
- Perform other responsibilities in accordance with the regulation.
- Develop regulation to establish the District Disaster Management Agency (Badan Penanggulangan Bencana Daerah [BPBD]).

The Local Board of Disaster Relief (Badan Penanggulangan Bencana Daerah [BPBD])

- Establish regulation and directive based on the policy of local government and the national authority (BNPB) on disaster management efforts, which comprise disaster preparedness, emergency response during HADR operation, rehabilitation and reconstruction after disaster in a fair and equitable method
- Establish a standard as well as the necessities for disaster management operations based on legislation.
- Construct, establish, and inform the hazard maps
- Prepare and establish Standard Operating Procedures (SOP) for disaster management.
- Accomplish disaster management operations on local territory
- Report the disaster management to the local head in normal conditions once a month, and in a state of emergency at all times
- Control the distribution of cash and goods
- Be responsible for the usage of the budget that is received from the local budget (Anggaran Pendapatan Belanja Daerah [APBD])
- Perform other obligations in accordance with legislation.

APPENDIX E. RESPONSE FROM MAJOR GENERAL ASGHAR NAWAZ, DIRECTOR GENERAL NDMA (2015–APRIL 2017)

The following are Major General Asghar Nawaz's replies to the questions forwarded by our team:

1. Does your organization have a set of rules/protocols / SOPs to coordinate with civil organizations and can you quote same, please?

The National Disaster Management Ordinance 2006 (later National Disaster Management Act 2010) empowers National Disaster Management Authority to utilize all resources of civil organizations including Armed Forces of Pakistan in the wake of any disaster situation. The Act also envisages utilization of resources held with UN agencies, international non-government organizations (INGOs), non-government organizations (NGOs), and civil society organizations (CSOs). In order to utilize resources held with all stakeholders, a number of rules / protocols / SOPs have been developed which provide broad guidelines to be followed by all. Some of the majors protocols develop are as follows:-

a. National Disaster Management Plan (NDMP), 2013–22 is prepared and is followed towards provision of better services to the affected ones.
b. National Disaster Response Plan (NDRP) - Under revision
c. National Disaster Risk Management Framework Pakistan
d. National DRR Policy 2013
e. National Contingency Plan to Manage Industrial /Technical Disasters
f. SOPs in emergency situation
g. National Monsoon Contingency Response Directive 2015
h. National Monsoon Contingency Plan
i. Provincial Disaster Risk Management Planning Guidelines July 2007
j. District Disaster Risk Management Planning Guidelines July 2007
k. Guidelines for minimum standards of relief.

In the event of a disaster, all stakeholders including Government Ministries/Departments/ Organizations, Armed Forces, INGOs, NGOs, and UN Agencies work through and form part of the NDMA to conduct one window operations.

Functions of the National Disaster Management Authority are as follows:-

a. Act as the implementing, coordinating, and monitoring body for disaster management;
b. Prepare the National Plan to be approved by the National Commission;
c. Implement, co-ordinate, and monitor the implementation of the national policy;
d. Lay down guidelines for preparing disaster management plans by different Ministries or departments and the Provincial Authorities;
e. Provide necessary technical assistance to the Provincial Governments and the Provincial Authorities for preparing their disaster management plans in accordance with the guidelines laid down by the National Commission;
f. Coordinate response in the event of any threatening disaster situation or disaster;
g. Lay down guidelines for or give directions to the concerned Ministries or Provincial Governments and the Provincial Authorities regarding measures to be taken by then, in response to any threatening disaster situation or disaster;
h. For any specific purpose or for general assistance, requisition the services of any person and such person shall be a co-opted member and exercise such power as conferred upon him by the Authority in writing;
i. Promote general education and awareness in relation to disaster management;
j. Perform such other functions as the National Commission may require it to perform.

Other than these plans and SOPs; certain MOUs have been agreed upon with major Civil Organizations like PIA, NLC, FWO, and Armed Forces of Pakistan. Moreover, at the regional level SAARC countries have also formulated and validated guidelines with regard to dealing with any disaster, if and when one happens in any of the SAARC countries.

2. During 2005 earthquake, what coordination challenges did your organization face while coordinating with civilian organizations whether national or international?

At the time of earthquake of 2005, the Disaster Management System did not exist in the present form. In fact the earthquake 2005 was a wakeup call which highlighted the need to establish a comprehensive system for disaster management at all levels. At that time, only the Federal Relief Commission (FRC) existed with establishment of Earthquake Rehabilitation and Reconstruction Authority (ERRA) in the immediate aftermath. The response to the earthquake of 2005 is considered as one of the best practices of the world and the efforts and challenges have been documented. Following were some of the coordination challenges:

- Lack of interagency coordination.
- Channelization of non-government/private and international actors.
- Deployment of foreign military contingent
- Corporation with foreign military contingents.
- Logistic issues.
- Government officials were unavailable; due to the earthquake, some were dead; some were attending to their deceased relatives; some were in shock and confused; consequently, there was a total dependency on the military to organize relief efforts and to create a response structure. However, the Pakistan government reacted quickly and rushed to provide relief and restore basic services.
- Lack of an “initial response” - government had no detailed plan for disaster response.
- Inability of Local Security forces: Since the local security forces were unable to perform basic functions, the Pakistan military was charged with coordinating the emergency response.
- Strain of Logistics and Resources: The terrain and sheer scale of the disaster required unprecedented logistics and resources. Since practically all the land communications were destroyed, and there was a lack of satellite cell/mobile-phones, these were the contributing factors towards the initial lack of coordination

- Lack of Updated Maps: Many staff members identified problems with maps. They used Global Positioning Systems (GPS) for locations and the maps were found to be inaccurate.
- Lack of Information Sharing: Information sharing consisted of only organic information. Initially there was only a trickle of information.
- Lack of a Comprehensive Information Management Structure

3. As a result of post-2005 earthquake analysis, has your organization come up with some particular recommendations/measures to address the coordination challenges?

Post-earthquake analysis allowed certain recommendations. Based on the experience of the 2005 earthquake, disaster management ordinance later Act, was promulgated and, disaster management system including NDMA, PDMAs were established. Accordingly, NDMA formulated polices plans and SOPs which amply address the coordination aspects.

- A dedicated permanent disaster management body should be established to ensure a speedy, unified response to any disaster. This must be a 'one window' operation.
- In the wake of a disaster, arrangements should be made for effective information management enabling monitoring, collation, and dissemination of information to all stakeholders. There should also be proper secretariat support for disaster management, possibly with secondments from key partners under pre-determined agreements.

Rescue

- Specialized search and rescue teams equipped with the latest equipment and trained personnel should be available domestically to participate in rescue missions and avoid the dependence on foreign rescue teams.
- A central database should be maintained of personnel and equipment available with all organizations.

- Training in rescue operations should also be provided at the school, college, and university level.
- Arrangements must be made to ensure members of the public have easy access to information and can get their queries (about loved ones, what donations to give, etc.) addressed quickly. These could include posting updated information on a website, setting up call centers, giving telephone numbers of personnel on ground.

Relief

- The arrival of relief support from lots of different sources (aid agencies, NGOs, civil society, individuals) should be anticipated and mechanisms put in place to ensure coordination and prevent wastage/duplication.
- For effective relief operations geographic (and/or sectoral) areas of responsibility should be assigned from the outset and strictly implemented.
- The presence of national and particularly international experts should be availed for capacity building of local personnel and planning of reconstruction work.
- Local community participation in relief and recovery efforts should be encouraged so as to avoid a 'dependency mentality' and speed up the recovery process.

4. What tools for better coordination were used in the 2005 earthquake and can you share the same?

No elaborate coordination mechanism existed at the time of the 2005 earthquake. All tools and SOPs were formulated after the raising of disaster management authorities.

5. Does your organization depend on the military for the provision of tools (the internet, wireless, communication network, satellite communication, video conferences) or do you use your own resources?

As per the NDM Act 2010, Armed Forces of Pakistan are part and parcel of the Government response mechanism. Resources held with them can be utilized as when

needed by District, Provincial, and National DMAs, depending upon the quantum of disaster. Comprehensive guidelines have been developed for the purposes.

NDMA has an elaborate communication system available with the other disaster management authorities including video conferencing capability. Moreover, NDMA has in its inventory state-of-the-art wireless communication systems, some of which have been received through donations from friendly countries (but need approval of PTA before usage). In addition to the above, NDMA developed an indigenous capacity to respond to disasters through:

- Establishment of an elaborate warehouse system in the country.
- Establishment of effective Logistic supply chain management system.
- Capacity to support 0.3 M people.
- 21000 M Tons of NFIs stocking capability.
- Standardized Inventory for all regions of the country.
- Preparation of policy guidelines.

6. Does your organization conduct regular joint training/exercises with your counterparts (civil organizations, UN, or other NGOs)? What are the major features of the training?

NDMA has established a training institute of its own; i.e., the National Institute of Disaster Management (NIDM), which is responsible for the capacity building of all government and non-government stakeholders.

Modules for various courses including simulation exercises have been developed.

The training is imparted on the subjects like formulation of plans, hazard mitigation, disaster risk reduction/management, response & recovery mechanisms, and rehabilitation & reconstruction.

Frequent simulation exercises at National, Division, and District level are conducted to enhance the response capacity of stakeholders. A case in point is simulation exercises conducted with the support of WFP Readiness Initiative Team.

School safety, urban search & rescue, and industrial hazard mitigation exercises are also conducted in timely sessions.

Training and capacity building of the community is also thoroughly practiced with intervals.

Capacity Building trainings with the help of UN partners and PEER trainings are also some of the capacity building ventures undertaken by NDMA.

7. While operating in Human Aid and Disaster Relief (HADR) operations, what Frameworks / international rules & regulations does your organization consult for operating with the NGOs or own government / civil organizations?

Guidelines and coordination mechanisms have been developed in coordination with OCHA for smooth utilization of resources held with UN agencies, NGOs, and Civil Organizations. The guidelines include assessment procedures and distribution of relief.

Presently NDMA is developing Host Nation Support Guidelines for Foreign Assistance in Disaster Response with the help of ADPC.

8. While operating with NGOs / civil organizations in disaster relief; which organization had minimal interoperability challenges?

One of the key aspects that worked throughout the recovery was interoperability, which was high. One factor that contributed to success was cross-fertilization of skills.

- NDMA is a hybrid organization with officers from military, civil bureaucracy, technocrats, people with experience of working in UN Organizations and NGOs, so these people have contacts with their counterparts in other organizations as a result.
- Many of the staff have international exposure so they support by bringing with them new skills and experiences. These opportunities for skills transfer are generally valuable, not just during an emergency.

9. From a Civil – Military coordination point of view, which operation does your organization take as a reference point being the most successful? What are the key reasons for this success as per your organization?

Management of Floods of 2010, 2011, Earthquake of 2015, and foreign relief operations post Nepal Earthquake can be taken as reference points in this regard. Following are the some of the key reasons:-

- Establishment of joint civil-military/multi-agency set up in NEOC of NDMA.
- Coordination mechanism adopted to enhance civil military cooperation at national, provincial, and district level.
- Working understanding between the agencies.
- Detailed SOPs and guidelines being developed for the purpose.

10. Is there some training course focusing on Civil – Military Coordination organized / attended by your organization members?

Primarily no specific course focusing on civil-military coordination is organized by NIDM. However, in the past such trainings have been organized with the help of UNOCHA and were attended by officials of the military and NDMA. NIDM has developed training modules of other courses like disaster risk reduction/management and response & recovery mechanisms, which broadly covers this aspect.

APPENDIX F. INTERVIEW WITH MR. LUKE BECKMAN, DIRECTOR OF FIELD AND SYSTEMS INTEGRATION, AMERICAN RED CROSS

1. Does your organization have set of rules/protocols / SOPs to coordinate with Military and other Humanitarian organizations and can you quote same, please?

On the on-set, let me make a high-level comment in the beginning that Red Cross operates internationally as an independent societ; at the same time we are linked with other societies as a federation. American Red Cross (ARC), domestically engages the U.S. government to support relief operations and internationally ARC interacts with other Red Cross/Crescent (RC) societies. For example, in the U.S., ARC has a Congressional charter and FEMA looks towards RC to support in their mandate of mass care to execute the relief operations. ARC takes the lead role in providing three things which are shelter, food, and comfort. In the U.S., we would normally coordinate with the National Guard to execute relief operations. There is a set procedure by which the Host Nation (HN) initiates a request for assistance to the RC headquarters in Geneva through the domestic/ local Red Cross/Crescent society. Subsequently, headquarters asks the nearby societies and those already engaged in the area, who can support in that area and accordingly assistance is rendered. ARC has sufficient Information and Communication Technology (ICT) tools, and ARC may go internationally in a support role with such capability under the local societies. While operating internationally, the lead RC society coordinates with the HN military or government body as the case may be.

2. What coordination challenges did your organization face while coordinating with military / civilian organizations (whether national or international) during operations?

In any disaster relief operation, the biggest challenge is the well-established relationships with the locals and their governments. One of the important tasks of a local NGO worker is to develop a relationship with locals, so that in case of a disaster the relief teams can coordinate well, as quickly as possible. ARC normally responds to 60 disasters in the U.S. and that too at individual house/ single-family level, to build a relationship. Once the relationships are established it facilitates free flow of information sharing, which is the second biggest challenge in coordinating the relief. ARC has representation in almost every state where they operate in Incident Command Systems (ICS) and they have external relations teams, which ensure that local reps have good working relations with other agencies, media, and governments. They not only respond to the disaster but they also work with them in pre-disaster planning and rehabilitation phase.

3. As a result of post operational analysis, has your organization come up with some particular recommendations/measures to address the coordination challenges?

An important innovation in improving the relations with local government in order to better coordinate the relief is that a local Liaison Officer (LO) has been placed to work side-by-side with local town councilor/mayor to ensure that there is real time two-way communication and coordination. These LOs are empowered with useful information about pre-positioning of stocks and other real time information so that they can play role in making well-informed decisions. This strategy has been adopted after the lesson we learned in Hurricane Katrina and it has proved to be very effective, recently, in Louisiana.

5. Does your organization depend on the military for the provision of tools (internet, wireless, communication network, satellite communication, video conferences) or you use your own resources?

ARC is largely independent and self-sustaining with regards to communication networks. However, ARC does not have an interface to their network as it is a low-tech organization. Normally they communicate within and with other partners using cell phones, laptops, and the internet. While operating with the military, domestically, the primary interface would be phone calls, emails, and/ or they may allow interfacing into each other's system.

6. Does your organization conduct regular joint training/exercises with your counterparts (civil organizations, UN, the military, or other NGOs)? What are the major features of the training?

ARC does not host joint exercises; however, we do conduct different in-house training and exercises with our own workforce. In the U.S., often the government hosts joint exercises during the planning phase for some slow on-set disasters, and ARC as per available capacity provides input to facilitate better planning and efficient pre-positioning of resources.

7. While operating in Human Aid and Disaster Relief (HADR) operations, what Frameworks / international rules & regulations does your organization consult for operating with the militaries / NGOs or own government / civil organizations?

In the U.S., government agencies work under the framework of NRF; however, within the RC, we operate as per the framework of ICS or as per the UN cluster system; that works the same as ICS. All the agencies communicate and coordinate with the lead agency and that lead agency coordinates with military to seek support, be it in health care, transportation, or power. Internationally, non-existence of a common framework is a big problem; having said that in such a situation foreign players see where the power flows from to understand who is willing to support the relief operation and that becomes in-charge from the HN's side to coordinate. In such scenarios, UNOCHA plays its role to reduce the gap and directly coordinate with HN agency for a successful effort.

8. While operating with militaries / NGOs / civil organizations in disaster relief, which organization had minimal interoperability challenges?

In the U.S., the National Guard (NG) has a unique culture in place from their senior leadership down to the soldier level, to say "yes" to any sort of assistance we are in need of, during relief operation. If a request came in, the NG did its best to meet the need. Some of our leadership in the ARC came from the NG. One of our new mottos is "get to Yes, never say No." If you ask me, can I get 100 meals and my initial thought is that I don't have 100 meals, I will not say that, instead, I'll try to find someone who can provide 100 meals. We are always striving to be more collaborative; we want to be an organization that works with many players and never says no to anyone. It is about changing the culture of an organization, and it starts at the top. There is a culture in NGOs, not to back the one who commits a mistake. One has to know that the leadership supports him and has his back. If one commits a mistake and loses his position, what does that tell the other young leaders? But if the leaders work with him, ask what can we learn from this mistake, this way they encourage everyone to try new things.

9. From a Civil – Military coordination point of view, which operation does your organization take as a reference point being the most successful? What are the key reasons for this success as per your organization?

There is no one single operation as the frequency of our operations is very high and we try to do better than the previous one. ARC participates and hosts also in post-action reviews; that is the forum where we analyze what went well and what went wrong to draw the lessons, and we make sure that such a problem does not happen again. We employ smart people to understand the problem and come up with a plan in steady state operation.

At the end, Mr. Luke Beckman shared a document, prepared by a former U.S. Navy Commander Dr. Eric Rasmussen, an old colleague of his in ARC, which is called the 10, 20, 30 framework.

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