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**Collaboration in Humanitarian
Logistics: Comparative Analysis of
Disaster Response in Chile and Haiti 2010**

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Jorge Anaya
December 2010**

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**COLLABORATION IN HUMANITARIAN LOGISTICS: COMPARATIVE
ANALYSIS OF DISASTER RESPONSE IN CHILE AND HAITI 2010**

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The objective of this project is to examine the relationships that occur during collaboration and cooperation amongst multiple agents (government, military, non-governmental) in the immediate aftermath of major natural catastrophes requiring the deployment of extensive humanitarian relief efforts. Specifically, the process of collaboration and the formation of interagency relationships and the effect on the humanitarian supply chain's efficiency in providing aid immediately in devastated areas and the creation of positive social relationships that spur the process of healing and recovery amongst local populations and aid providers. Furthermore, with military organizations having an increasing role in providing aid, and the involvement of non-governmental organizations as specialists in disaster relief, these relationships have a large effect on the ability and success of a humanitarian operation in providing relief efficiently in terms of time, money and lives. Often the same conflicts reoccur resulting in wasted efforts of "reinventing the wheel" and protecting organizational interests instead of expending energies in providing aid.

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LIST OF ACRONYMS AND ABBREVIATIONS

CIA	Central Intelligence Agency
CRS	Congressional Research Service
DART	Disaster Assistance Response Team
FAO	Food and Agricultural Organization
FEMA	Federal Information Management Agency
GDP/PPP	Gross Domestic Product at Purchasing Power Parity
GoC	Government of Chile
GoH	Government of Haiti
HCT	United Nations Humanitarian Country Team
IGO	International Governmental Organization
ILO	International Labor Organization
IOM	European Union and International Organization for Migration
JTF- Haiti	Joint Task Force-Haiti
MINUSTAH	United Nations Stabilization Mission to Haiti
NGO	Non-Governmental Organization
OCHA	United Nations Office for the Coordination of Humanitarian Affairs
ODI	Office of Overseas Development Institute, United Kingdom
OFDA	Office of Foreign Disaster Assistance
OHCR	Office of High Commissioner for Human Rights
ONEMI	Chilean National Emergency Office (Oficina Nacional de Emergencia–Ministerio del Interior)
PAHO	Pan-American Health of Organizations
U.K.	United Kingdom
U.N.	United Nations
UNDP	United Nations Development Program
UNICEF	United Nations Children Funds
UNESCO	United Nations Educational, Scientific, and Cultural Organization
U.S.	United States

USG
USGS
USAID

United States Government
United States Geological Survey
United States Agency for International Development

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I. INTRODUCTION

Based on the available evidence to date, it appears that the tragedy in Haiti is largely a function of disorganized hierarchal structure of authority and decision-making by overseers; this reflects poor international leadership and ineffective Inter-agency coordination

-Piotrowski, 2010, p. 110

Seeking to end squabbling over the government's performance...Enough with pointing fingers. The main problem is helping the people

-President Michelle Bachelet, CBS News Network, 2010

Good governance cannot prevent a catastrophic disaster, but it can help prepare for and respond to one

-U.S. Senate Hearing Committee, 2010, p. 6

A. BACKGROUND

Large-scale disasters, such as hurricanes, earthquakes, floods, volcanic eruptions, test the competence of those in positions of authority and power in organizing aid to those affected. A disaster defined by the Federal Emergency Management Agency (FEMA) is an event that causes 100 deaths or 100 human injuries or damage worth U.S. \$1 million (Apte, 2009, p. 6). A more systematic definition of a disaster provided by Kent (1987) emphasizes a disaster event as an occurrence of underlying causes and agents that expose the vulnerability of a group in a way that lives, economic and social structures are threatened or harmed, survival imperiled, and outside assistance required (p. 4).

A large-scale disaster requires the cooperation of many organizations, international and domestic. As Apte (2009) notes, humanitarian efforts have increased since the devastation of the Indian Ocean tsunami in 2004 with marked economic and humanitarian consequences (p. 3). Cooperation begs the questions of the origins, avenues, structures, and composition of humanitarian aid as the results significantly affect the response of the humanitarian effort, especially within the first critical days.

Humans, being social creatures by nature, cooperate to find ways to connect, collaborate, and develop strong positive relationships to weather the storms and crises, despite potential differences. Actors come together and cooperate in difficult situations; however, they also fall short of achieving cohesion and togetherness (Svedin, 2009, p. 4).

Thus, what are cooperation and collaboration? Panitz (1996) defines collaboration as “a philosophy of interaction and personal lifestyle where individuals are responsible for their actions, including learning and respect the abilities and contributions of their peers; and for cooperation is a structure of interaction designed to facilitate the accomplishment of a specific end product or goal through people working together in groups” (p. 1). Ultimately, cooperation and collaboration are the underlying foundation for interpersonal and organizational relationships between individuals and groups, and the determinant of success in providing humanitarian assistance in a timely and efficient manner.

B. OBJECTIVE

The objective of this project is to examine the relationships that occur during collaboration and cooperation amongst multiple agents (government, military, non-governmental) in the immediate aftermath of major natural catastrophes requiring the deployment of extensive humanitarian relief efforts. Specifically, the process of collaboration and the formation of interagency relationships and the effect on the humanitarian supply chain’s efficiency in providing aid immediately in devastated areas and the creation of positive social relationships that spur the process of healing and recovery amongst local populations and aid providers.

1. Scope

This report examines two recent cases, the earthquakes of Chile and Haiti, in order to analyze the factors involved in the collaborative and cooperative aspects of multiple agencies in providing humanitarian logistics. Furthermore, the interest area is the sensitivity and responsiveness of collaboration in aid deployment once the requirement for aid is identified until the initial few hours and days after aid arrives in the affected areas. What are the prerequisites for collaboration between partners, especially

partners that may have different objectives and priorities, that will facilitate the care and assistance of affected areas? What else is required to be present in the administration of care that will spur healing and recovery?

2. Benefits of Study

The primary benefit of this project is to understand if healing and recovery are more likely to be achieved when partnerships between humanitarian providers in the aid supply chain are collaborative and founded on positive social relations. Also, the intent of this project is not just to provide an understanding, but an appreciation for the depth of these relationships since major disasters are quite natural but yet unexpected at times, with little or no warning at all; such was the case for Chile and Haiti. With military organizations having an increasing role in providing aid, and the involvement of non-governmental organizations as specialists in disaster relief, these relationships have a large effect on the ability and success of a humanitarian operation in providing relief efficiently in terms of time, money and lives. Often the same conflicts occur time and again resulting in wasted efforts ‘reinventing the wheel’ and protecting organizational interests instead of expending energies in providing aid.

C. ORGANIZATION AND METHODOLOGY

This project contains data gathered from a literature review that includes recent articles, cases, and books. Chapter II provides a detailed literature review from the humanitarian logistics domain that includes disaster and crisis management, logistics, inter-organizational and cross cultural collaboration, and positive social interaction. Chapter III provides country case literature for Haiti and Chile. Chapter IV provides a cross case comparison between the earthquakes in Chile and Haiti to uncover critical themes related to the deployment of assistance and point of specific lessons learned for future logistical support following major disasters. Furthermore, it includes similarities and differences between both nations in handling their respective crises. Chapter V wraps up the project with conclusions and recommendations for future research.

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II. LITERATURE REVIEW

A. INTRODUCTION

The literature review is organized to present the concepts of humanitarian logistics, organizational behavioral concepts, and the structure of the modern humanitarian relief system. These sources provide the framework for the cross case analysis between Haiti and Chile in regards to collaboration and healing with respects to humanitarian aid and logistics efforts.

B. CONCEPTUAL FRAMEWORK LITERATURE

1. Organizational Conflict

In *Organizational Conflict: Concepts and Models*, Pondy provides a method of analysis for observing and examining conflict in organizations. First, Pondy (1967) defines conflict as a “dynamic process” or a continuum of “conflict episodes” defined by “conditions characterized by certain potentials” (p. 299). Every interaction between individuals affects subsequent interactions that in total manifest in “stable aspects of conditions, affect, perception and behavior” (Pondy, 1967, p. 299).

Pondy (1967) describes five stages of a conflict episode.

- Latent conflict (conditions)
- Perceived conflict (cognition)
- Felt conflict (affect)
- Manifest conflict (behavior)
- Conflict aftermath (conditions) (pp. 300–305)

Pondy (1967) explains that each conflict episode is a sequence of many episodes that form the substance of relationships among individuals within the organization (p. 305). However, these episodes, besides being the foundation for further conflict episodes, are also affected by outside environmental factors that form new conflict episodes, or affect unresolved episodes in the organization. See Figure 1.

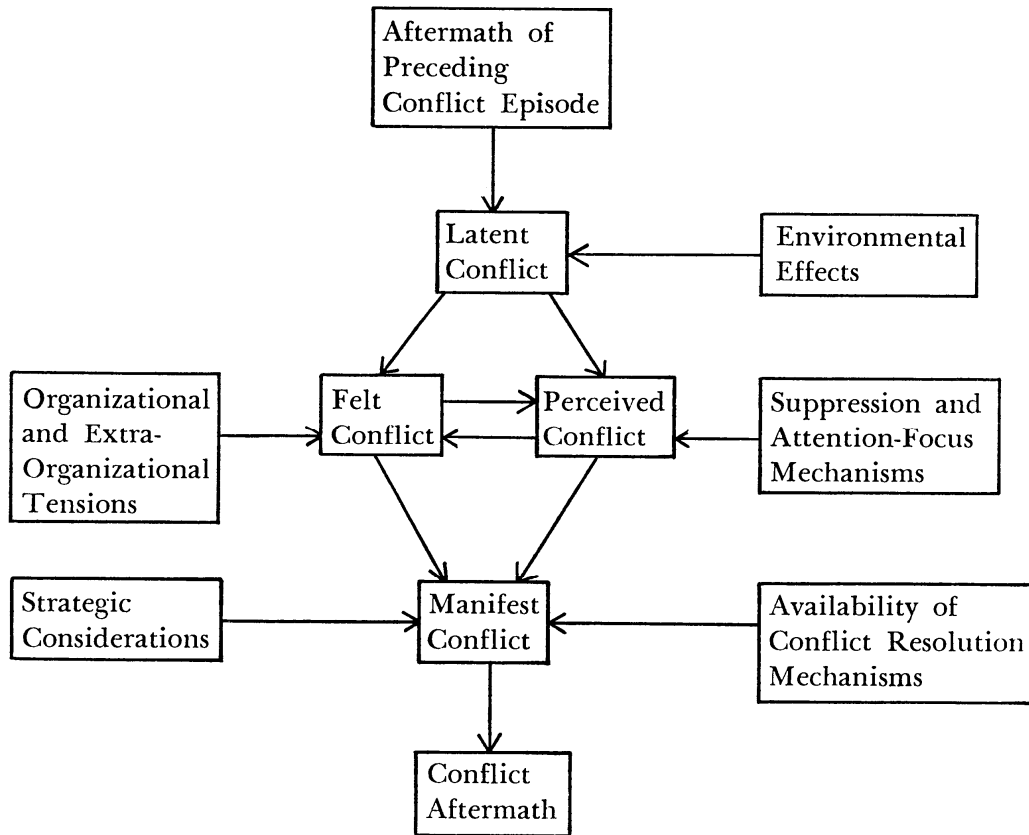


Figure 1. The dynamics of a conflict episode (From: Pondy, 1967, p. 306)

Pondy's (1967) focus on conflict within organizations is based on the implications of performance of the organization with respects to productivity (how much does the organization make), stability (how cohesive and solvent is the organization), and adaptability (how much can the organization change) (p. 308). Therefore, conflict should be viewed as "functional or dysfunctional...[as] it facilitates or inhibits the organization's productivity, stability or adaptability" (Pondy, 1967, p. 308). Conflict can create a "disequilibrium" that in the end may force resolution, dissolution, or tolerance of persistent conflict dependent on the "contributions" and "inducements" that individuals receive from the relationship (Pondy, 1967, p. 312).

Pondy (1967) provides three conceptual models in which to analyze organizational conflict: bargaining model (used when parties have problems of competition); bureaucratic model (used when parties have problems of control); and a

systems model (used when parties have problems of coordination) (p. 317). Analysis of conflict is rarely a pure version of one of the three models; however, a systems model presents a framework in which to view issues of collaboration. Pondy states that the source of conflict in such situations is the “pressures toward suboptimization” in goal-oriented groups with different priorities for a same set of goals. The potential for conflict may exist in this situation if there are sub-units that are functionally interdependent, yet have different prioritizations for the same goals, or different goals altogether (Pondy, 1967, p. 318). There are two solutions for conflict reduction in these relationships: reducing goal differentiation by modifying incentive systems, or proper selection, training and assignment procedures, reducing functional interdependence by decreasing common resources, introducing buffers, or lowering of consensus pressures (Pondy, 1967, p. 318). Pondy (1967) cautions that these techniques in conflict prevention may have significant direct and indirect costs (p. 318).

2. Organizational Cooperation in Crises

Svedin (2009) notes that crises are often managed in an “inter-organizational way” with the requirement of a clear command structure or “cooperation among horizontally organized actors” (p. 1). *Organizational Cooperation in Crises* provides a framework in which to analyze cooperation and collaboration in crises/crisis management under the assumption that the management of crises through cooperation is a way for inter-organizational structures to be “effective, efficient...and resilient in the face of threat” (Svedin, 2009, p. 1). However, in cooperation a cruel irony or duality exists, as “cooperation everywhere is interspersed with and intricately connected to conflict” (Svedin, 2009, p. 6). In a more detailed explanation:

Cooperative motivations, strategies and behavior are constantly being balanced with, played off and interspersed with competitive and conflictual drivers, strategies and behaviors as organizations interact with one another in situations where the organizations are operating under pressure. (Svedin, 2009, p. 6)

Svedin (2009) believes that by understanding cooperation and conflict as “integral and often co-existing complimentary parts of organizational behavior and strategies, we will be better able to understand the underlying dynamics of organizational crisis interactions;” thereby, understanding in which conditions cooperation or conflict will arise, and what measures will strengthen cooperation and weaken competition/conflictual sentiments (p. 6).

At the end of Svedin’s research in crisis cooperation, the following general conclusions are presented.

- “Cooperation and conflict in organizational interactions are intrinsically linked in crises” and “a mix of cooperative and competitive actions” are used to achieve their desired objectives.
- “A majority of the interactions between organizations in crises, both in decision-making situations and over the course of a crisis, are conflictual. That is, organizations interacting in crises tend to disagree, fight and engage in other competitive behavior to a greater extent than they agree, are honest toward each other, or help each other....a majority of the behavior types displayed in decision-making situations can be characterized as competitive or conflictual.”
- “The overarching crisis cooperation strategies demonstrate the complexity of organizational interactions in crises. All the strategies contain some mix of cooperative, less cooperative, and competitive behaviors” (Svedin, 2009, pp. 125–126).

Ultimately, an outline of tools for managing crisis cooperation is presented.

- “Adapting the design of the interaction forum or the inter-organizational structure to meet the characteristics and needs of the situation” (Svedin, 2009, p. 133).
- “Process adaptation” in where the “processes involved in organizational interactions” are developed with “appropriate rules to govern how the group makes decisions” (Svedin, 2009, p. 134).
- The structuring agency in where initiative and leadership are framed in cooperative ways to influence strategy and behavior of other organizations, fostering a “shared sense of responsibility and common destiny” (Svedin, 2009, p. 134).

3. Anatomy of Disaster Relief

Kent’s (1987) book, *Anatomy of Disaster Relief: The International Network in Action*, offers insight into the history and formation of the international relief network

with emphasis on the cultural norms formation of modern humanitarian organizations that have their roots in the aftermath and search for identity and mission in the post World War II/Cold War period after European reconstruction (pp. 36–39). Kent (1987) paints a picture of the rise of the United Nations as International Governmental Organization (IGO) par excellence along with the rise of Non-Governmental Organizations (NGO) that sought to involve themselves in the international relief/development effort. The thrust of Kent’s analysis is one of networks and the organizational dynamics between agents in the international aid network in providing effective relief to include “1) politics and the priority formulation process; 2) perceptions and persuasive communications; 3) organizational behavior; 4) inter-organizational relations” (Kent, 1987, p. 117).

In all, Kent’s book serves as a primer on the basics of organizational behavior in the total international relief network.

4. Humanitarian Logistics

Apte (2009) presents in the monograph, *Humanitarian Logistics: A New Field of Research and Action*, an overview of the field of humanitarian logistics as a new field of study (p. 1). The monograph is structured in six sections, which entail a comprehensive review and definition of humanitarian logistics, design factors using standard supply chain management principles, organizational issues within the humanitarian supply chain, analytical models, and academic research in current and recent operations (Apte, 2009, pp. 4–5).

Apte’s monograph presents a comprehensive examination on the subject of humanitarian logistics used as a springboard for the rest of this project. Section 5 of the monograph, “Organizational Issues in Humanitarian Logistics,” provides background on the organizational issues identified as factors during operations, with a major one being the issue of “collaboration among players” being highlighted (Apte, 2009, p. 66). Literature in the field identifies collaboration amongst organizational entities, to include “military, private and humanitarian sectors,” and the local population involved in relief operations as a factor in the effectiveness (Apte, 2009, p. 67). However, an impediment

to this effectiveness is the challenges and differences in organizational culture between civilians and the military, a lack of established “military doctrine and training in humanitarian relief operations,” and barriers in communication/information transmission (Apte, 2009, pp. 67–68).

5. Healing Communities in Conflict

In *Healing Communities in Conflict: International Assistance in Complex Emergencies*, Maynard (1999) describes that the international community possesses “a limited perspective” in reacting to complex emergencies in foreign interventions (pp. x–xi). Maynard describes the frequent action for these complex emergencies are marked by “fast response [and] short term approaches” that are “short-sighted...lacking conceptual depth,” setting the stage for continued conflict upon the end of humanitarian assistance (Maynard, 1999, p. xi). While the focus is on relief actions in the realm of conflict scenarios, a humanitarian focus is inherent in the actions in healing communities recovering from hostilities, and therefore, applicable to natural disasters.

Maynard (1999) describes four large areas in which international relief operations tend to fall short in being effective: 1) a focus on treating the outward manifestations of conflict vice the sources of conflict; 2) a narrow focus on single actions vice an integrated solution on multiple fronts; 3) limited range of disciplines utilized in response; and 4) restricted discussion vertically and horizontally within and amongst organizations that has an effect on field level activities (pp. xi–xiii). These issues have their origin in a “lack of scope [and] vision” in regards to “time span, range of disciplines, spectrum of situational factors, and lack of input from field practitioners, policy makers, senior organizational staff, and academia” (Maynard, 1999, p. xiv). Ultimately, Maynard (1999) contends that the international relief network needs to develop “an operational strategy based on a long-term perspective that will direct the collective will toward the most appropriate action leading to a self-sustaining peace” (p. xiv). Broadly, Maynard structures her treatise by analyzing the issues involved in international assistance following up with possible methods in addressing them.

Maynard's approach and analysis of international humanitarian assistance in complex emergencies is unique in that a primary focus is made via a multidisciplinary approach on efforts during and after relief aid, with an emphasis on collaboration, cohesion, community formation, healing and rehabilitation (Maynard, 1999, pp. xvi–xviii). This is in stark contrast with many analyses of aid where the predominant view and concern is a model of the transport and delivery of aid with little afterthought of the long-term mission after a disaster or crisis. Maynard emphasizes a long-term solution, which is often overlooked and avoided by many international relief agents who seem to focus on efficiency, effectiveness and expeditiousness. This long-term solution requires a much more formalized system than the voluntary collaborative methods currently utilized (Maynard, 1999, p. 200). Maynard argues for a systems approach that considers the issues of scope, time frame, preparedness, and coordination focused on the larger picture of aid before and beyond disasters (Maynard, 1999, pp. 200–201). Her recommendations for improvement of the humanitarian system involve the definition of aid to be based on mandates that supersede the specific organizational focuses that define humanitarian actors, yet are defined accordingly to provide a division of labor as to prevent confusion amongst actors (Maynard, 1999, pp. 206–207). Another recommendation is the changing of funding mechanisms that create adverse incentives of “interagency competition, delay response, reduce continuity, and limit...organizational development” (Maynard, 1999, p. 207). Maynard also advocates a regional focus that utilizes local capacities and regional institutions to address issues within a region, beyond geographic and operational limitations that currently frame operations (Maynard, 1999, p. 208). Lastly, improved information sharing is identified as a necessity as it corresponds to a requirement for “better intra and inter-organizational information sharing” that will influence “data collection, information sharing, response coordination, strategy development, contextualization, and standardization” (Maynard, 1999, p. 209).

6. Organizational Healing

Powley and Cameron (2006) in *Organizational Healing: Lived Virtuosity Amidst Organizational Crisis*, present a model that seeks to describe the process of organizational healing in the wake of a rupture of personal and organizational continuity,

relationships, perceptions and expectations that threaten “the core values and social fabric of the organization” (p. 14). Healing is defined as the work of an organization in “repairing and mending the collective social fabric...after some threat or shock to its system” and is a manifestation of the capacity that exists in the “collective identity, values, processes, and culture of an organization” to “facilitate and demonstrate virtuousness at the collective level,” allowing an organization to return to a “healthy state of functioning” (Powley & Cameron, 2006, pp. 13–15). This capacity is a collective effort of specific actions and interactions coordinated by individuals within the organization, to restore “harmony, security, and integrity” (Powley & Cameron, 2006, p. 16). Powley and Cameron state that organizational healing occurs in the aftermath of trauma within a liminal space where existing social structures are suspended and actors engage in actions that support the rebuilding and renewal of organizational social fabric, continuity, expectations, and identity (Powley & Cameron, 2006, p 16). Powley and Cameron state that the extent of occurrence of virtuous actions within this liminal space indicates the potential of healing within the organization (Powley & Cameron, 2006, p. 17).

Powley and Cameron identify four themes as a reflection of an organization’s capacity for virtuousness: reinforcing the priority of the individual, fostering high quality connections, strengthening a family culture, and initiating ceremonies and rituals (Powley & Cameron, 2006, p. 13). The first of these themes, reinforcing the priority of the individual, organizational actors reorient themselves to the core purposes of the organization by re-centering thoughts and actions focused on those purposes (Powley & Cameron, 2006, p. 23). The second theme, fostering high quality connections, refers to the extent that organizational actors deliberately create deep personal connections with others in the system (Powley & Cameron, 2006, p. 23). These connections, characterized as virtuous and high quality, help to maintain and form cohesive groups and teams offering the opportunity to strengthen and develop personal bonds with others (Powley & Cameron, 2006, p. 23). The third theme, strengthening a family culture, enabled the sharing of experience that reinforces member’ common bonds with another revealing already established virtuous patterns of interaction, caring and concern embedded cultural

attributes in organizations but only manifesting themselves in the wake of trauma and crisis (Powley & Cameron, 2006, pp. 25–26). The final theme, initiating ceremonies and rituals, allow organizational actors a space for interaction and virtuousness to facilitate the establishment of common bonds and organizational wholeness, resulting in actors regrouping, re-identifying and reorienting themselves to the organization (Powley & Cameron, 2006, p. 27).

Powley and Cameron conclude collective actions, messages delivered by organizational representatives, and planned communal activities supplemented by individual actions, facilitate organizational healing. The more virtuousness these actions, especially when undertaken within the opportunity to pursue new approaches and relationships afforded by liminal spaces, the more effective the production of desired healing within the organization (Powley & Cameron, 2006, p. 29). This is in contrast to the alternative of organizational “threat rigidity” in which organizational actors can display “self protective responses, blame others, become critical and cynical, refuse to share information, and lose confidence in leaders” (Powley & Cameron, 2006, p. 30). Powley and Cameron state that virtue in social relationships and connections within organizations is what holds organizations together in the face of crisis (Powley & Cameron, 2006, p. 30). By adopting a strategy of virtuous response, the competency and inclination to heal will exist and reside within an organization’s culture and capacity (Powley & Cameron, 2006, p. 30).

C. THE MODERN HUMANITARIAN SYSTEM

1. Introduction

The international humanitarian movement has its antecedent in the founding of the Red Cross movement in 1863 by J. Henry Dunant, after he witnessed the realities of the casualties suffered by soldiers at the Battle of Solferino in 1859 (Kent, 1987, p. 34). The genesis of this international movement spurred national movements in individual nations, as well as the Geneva Convention of 1864 that still is a cornerstone of international law (Kent, 1987, p. 34). In the aftermath of World War II, Kent describes how the modern humanitarian evolved in five distinct phases.

- From 1945–1950, growth in private voluntary and inter-governmental organizations that addressed mass disruption and distress in post-World War II Europe (Kent, 1987, p. 33).
- After European stability, the pressure for relief organizations to find “permanent and stable roles,” many of which emphasized development work, over relief, of what later was defined as the Third World (Kent, 1987, pp. 33–34).
- In the aftermath of disasters of newly-independent states from the 1960s to the 1970s, Biafra, for example, a recognition of the necessity of specialization in disaster relief led to the development of many institutions along governmental, inter-governmental and non-governmental lines (Kent, 1987, p. 34).
- From the 1970s–1980s, the increase of humanitarian actors led to significant issues with coordination. As a result, efforts were undertaken to create coordination efforts that did not rely on formal frameworks unpopular amongst independent and decentralized actors (Kent, 1987, p. 34).
- From the early 1980s, the relationships between actors led to difficulties in forming a coherent system due to “diversity of interests and approaches” (Kent, 1987, p. 34).
- An acceptance of a “plural capabilities option,” as formulated by then U.N. Under-Secretary for Administration and Management George Davidson, was a realization that rigid frameworks and hierarchies were not going to work, and the best possible solution involved offering “joint assessment procedures” that would channel actor contributions to an operation that prevented erosion of actor interest and sovereignty (Kent, 1987, p. 62).

The international relief system, never static, continues to evolve as relationships amongst actors develop and mature in response to disaster events.

2. Actors

a. Non-Governmental Organizations

Non-governmental organization (NGOs), according to the Code of Conduct for the International Red Cross and Red Crescent Movement and Non-Governmental Organizations in Disaster Relief, is an umbrella term for an organization, national and international constituted separately from the government of the country in which they are formed (Davidson, Haynes & Landon, 1996, p. 10). Harvey, Stoddard,

Harmer, Taylor, DiDomenico and Brander (2010) estimate that the size in terms of personnel and monetary resources for an operational NGO effort is 208,000 personnel (113,000 in the field), and over \$5.7 billion in spending spread out amongst 250 individual groups (pp. 19–20).

Common to NGOs is a distinct identifiable ethos fundamental to the way they conduct themselves. As many of these actors were formed in the aftermath of some of the most bloody and costly of conflict amongst nations, the principles of independence, decentralization, long-term commitment to mission, and hands-on involvement is a common theme for all (Davidson et al., 1996, pp. 13–14).

Despite the common sentiments that form the culture of NGOs, stratification and differentiation exists amongst NGOs, with resource bases, mission focus, and technology being determining factors in defining respective NGOs. First, NGOs differ with respect to the size of their funding with the largest players having over \$250 billion, and smaller agencies having \$10 million or less (Harvey et al., 2010, p. 20). Origins vary, but sources are normally comprised of public grants from national donor governments and international organizations, to private donations from individuals, businesses, religious groups and the like (Davidson et al., 1996, p. 12). Acceptance of resources can be affected, however, due to organizational ethos leading them to refuse assistance from entities they feel may compromise their organizational values (Davidson et al., 1996, p. 12). However, in the end, significant competition occurs amongst all players for the scarce amount of funding that determines, as well as reflects, organizational relevancy and effectiveness in the marketplace (Kent, 1987, p. 41). Figure 2 provides a snapshot of different tiers of NGOs in relation to resource bases of funding and personnel size.

Figure 4 Operational NGOs grouped by annual budget size	
TIER 1 > US \$250m/yr	<ul style="list-style-type: none"> • 6 organisations/federations • Combined humanitarian spending \$1.7bn • Total staff 90,400 (86,000 nationals and 4,000 internationals)
TIER 2 US \$100–250m/yr	<ul style="list-style-type: none"> • 11 organisations/federations • Combined humanitarian spending \$193m • Total staff 30,900 (28,800 nationals and 2,100 internationals)
TIER 3 US \$50–99m/yr	<ul style="list-style-type: none"> • 12 organisations/federations • Combined humanitarian spending \$388m • Total staff 24,700 (23,100 nationals and 1,600 internationals)
TIER 4 US \$10–49m/yr	<ul style="list-style-type: none"> • 27 organisations/federations • Combined humanitarian spending \$261m • Total staff 38,100 (36,400 nationals and 1,800 internationals)
TIER 5 < US \$10 m/yr	<ul style="list-style-type: none"> • 179 organisations/federations • Combined humanitarian spending \$523m • Total staff 13,900 (13,100 nationals and 800 internationals)

Figure 2. Operational NGOs grouped by annual budget size (From: Harvey et al., 2010, p. 20)

Secondly, mission focus and interest serve as another fundamental construct that shape the orientation of NGOs. Issues, such as human rights, conflict resolution, disease control, and trade, are just some of the many motivations around which NGOs orientate their activities (Davidson et al., 1996, p. 12). Despite particular interests, NGOs remain dedicated to grass roots efforts with the end goal of developing local capacities, and autonomy for their affairs (Davidson et al., 2010, p. 12). Finally, technological capacity serves a two-fold function: a reflection on size and operational locality of each respective NGO, and the priority that each organization places on technology as relevant to their operations (Davidson et al., 2010, p. 12). This issue is more pronounced with smaller organizations that have limited resources, and as such, may prioritize assets in the form of in-country programs (Davidson et al., 2010, p. 12). Technology, while useful, suffers from issues with commonality, obsolescence, and standardization that prevent upgrading items to keep up with larger organizations (Davidson et al., 2010, p. 12). Some

organizations are of the mindset that technology offers little advantage in operational contexts, as they are targets of theft or suspicion, or infrastructure in affected areas may make operation of equipment nearly impossible (Davidson et al., 2010, p. 12).

b. Inter-Governmental Organizations

Inter-governmental organizations (IGOs), with the United Nations (U.N.) as the IGO par excellence in the modern humanitarian system, are afforded a special status with respect to international law, custom and convention. When acting in response to an international humanitarian disaster, the U.N. is usually in the lead of the international response coordinating efforts with host nation concurrence and advisement as to the course of action.

Identifying significant gaps and deficiencies in certain areas in humanitarian response, the U.N. implemented reforms to develop organizational capacity for a more “predictable, efficient and effective” humanitarian response vice the ad hoc nature that had been the norm (United Nations Office for the Coordination of Humanitarian Affairs [OCHA], 2006, p. 1). The result of this reform was the creation of the cluster approach in which nine (later eleven) functional clusters were established to deal with three dimensions of aid: service provisions; relief and assistance to beneficiaries; and cross cutting issues (OCHA, 2006, p. 1). The eleven functional clusters are as follows.

- Logistics
- Nutrition
- Emergency Shelter
- Camp Management and Coordination
- Health
- Protection
- Agriculture
- Emergency Telecommunication
- Early Recovery

- Education
- Sanitation, Water and Hygiene

The cluster system seeks to address issues at the strategic and operational levels with humanitarian stakeholders to improve collaboration and accountability by providing a framework for continued cooperation and interaction in addressing issues of preparation of disasters, and coordination when mobilized in the event of a disaster (OCHA, 2006, p. 2).

c. Donors

Donors provide aid-in-kind and financial assistance to NGO/IGOs. Two major types of donors are private donors and national governments.

Private donors take the form of charitable contributions from individual persons to sizable sums from corporations and charitable bodies. Private voluntary contributions to NGOs serve as significant sources of funding, with some organizations receiving funding at levels on par with some national governments (Harvey et al., p. 22). NGO preference for this source of funding is due to the relative ability for use without conditions from donors, flexibility of use, and speed of response from donors upon solicitation (Harvey et al., p. 22).

National governments serve as the largest sources of humanitarian funding, with the United States the largest amongst world governments (Harvey et al., p. 22). National government aid may be viewed with criticism by NGOs as aid at times having served a political dimension as a function of political policy objectives of the donor nation (regional security focus, stability, influence). NGOs feel that the strings attached to such aid is a violation of their neutrality and independence, affecting their ability to proffer aid to victims in the way that the NGO sees best fit the situation.

Within the context of the United States Government (USG), the Office of U.S. Foreign Disaster Assistance (OFDA), an office within the United States Agency for International Development (USAID), serves as the lead federal agency to “provide and coordinate USG humanitarian assistance in response to international emergencies and disasters” (OFDA, 2010a, p. 13). OFDA expertise and capabilities put it in the unique

position to liaise with other federal agencies and international humanitarian actors to respond to disasters to fulfill its mandate to save lives, alleviate suffering and reduce the social and economic impact of disasters (OFDA, 2010a, p. 13). OFDA responds to disasters upon the declaration of a disaster from the U.S. Ambassador or Chief of Mission meeting the following criteria.

- “The magnitude of the disaster is beyond the capacity of the host country to respond”
- “The host country requests, or is willing to accept, assistance”
- “A response is in the interest of the USG” (OFDA, 2010a, p. 13)

OFDA will then coordinate with the U.S. Embassy or USAID Mission in the affected nation to determine the size and scope of an appropriate response, which can take the form of the following.

- “Immediate provision of up to \$50,000 to the U.S. Embassy for the local purchase of supplies or as a contribution to a relief organization”
- “Deployment of a Disaster Assistance Response Team (DART) or an emergency team to disaster-affected areas to conduct assessments, determine additional needs, deliver relief supplies, and/or recommend proposals for funding.”
- “Activation of an on-call Response Management Team (RMT) in Washington, D.C.”
- “Procurement, transportation, and distribution of emergency relief supplies, such as plastic sheeting, water containers water purification units, blankets, and health supplies, from one of OFDA’s three regional warehouses”
- Support for relief and rehabilitation activities through grants to implementing organizations, including international and local non-governmental organizations, U.N. agencies, or international organizations” (OFDA, 2010a, p. 13).

d. Recipient Governments

Within the context of humanitarian assistance, host nation sovereignty is respected and in theory, all coordination efforts are to be channeled through host nation prerogatives. Host nations are to direct the size, scope, and direction of aid. As the senior executive of the nation in distress, the head of country and its executive apparatus is responsible for the welfare of the nation.

e. Military

Foreign militaries, whether as part of a U.N. mission, or as part of a larger humanitarian mission, have played an important part in humanitarian missions. With the number and size of recent disasters, more focus has been placed on their contributions and the significance of their involvement in this arena. NGOs feel that the military's mission and responsibility with the context of relief missions is the assurance of security for NGOs to function in the distribution of aid (Davidson et al., p. 17). However, the dimensions and urgency of aid distribution, which is dependent on the scope of the disaster, may require the use of the military as an avenue for aid distribution to affected populations as they are in possession of significant command and control, transportation and logistics capabilities. NGOs feel that this is an encroachment within their operational realm and experience, or feel it is an overall drain on resources as military mobilization is an expensive proposition for humanitarian aid.

Within Joint Doctrine, humanitarian missions are a subset of Civil Military Operations (CMO) as codified in *Joint Publication 3-57*. Joint Doctrine views CMO as a primary military instrument to “synchronize military and non-military instruments of national power” and recognizes the irregular nature of such operations that are “inherently joint, interagency, and multinational” (Chairman of the Joint Chiefs of Staff [CJCS], 2008, pp. I-1 & I-2). CMO work in the seams and gaps of “organizations, phases and processes” and require the use of “political bargaining, collaboration, consensus, and relationship building” to achieve success (CJCS, 2008, p. I-2).

CJCS Joint Publication 3-29 (2009) Foreign Humanitarian Assistance, also provides doctrine and guidance specific to the utilization and structure of DoD forces in their employment in foreign disasters. Explicit in doctrine is that “coordination and collaboration are essential in dealing” with NGOs, IGOs and other stakeholders in the humanitarian efforts (CJCS, 2009, p. II-1). Within the structure of a Joint Task Force, doctrine advises of the wisdom of the establishment of a Civil-Military Operations Center (CMOC) to coordinate between the joint force, primarily with the assistance and advice of OFDA, and other stakeholders (CJCS, 2009, p. II-21). Refer to Figure 3 for delineated functions under CMOC purview.



Figure 3. Civil-Military Operations Center Functions (From: CJCS, 2009, p. II–22)

f. Media

The media, while not a provider of aid, has a significant effect via its reporting of disasters and the response of humanitarian actors. While journalists position themselves on objectivity and impartiality with respects to the reporting of events, they can significantly impact public perception, which can affect and shape aid and relief efforts as they unfold.

3. Failures of Inter-Agency Cooperation and Opportunities for Improvement

Davidson, Hayes and Landon (1996) present findings from the workshop report, *Humanitarian and Peace Operations: NGOs and the Military in the Interagency Process*, describing the military/NGO interface within the interagency process in

responding to humanitarian emergencies. In their findings, the following themes were found to be problems in the then current relationship, and which tend to reappear in subsequent literature.

a. Planning/Training

NGOs feel that planning efforts from the United States and U.N. are unclear in objectives due to the aversion of planners to define specific and concrete goals (Davidson et al., p. 27). Agencies tend to avoid definitive benchmarks to allow themselves flexibility to adjust the response in regards to political dimensions in the domestic and international arenas (Davidson et al., p. 27). However, this avoidance results in a lack of real planning amongst civilian and military agencies that trickles down to NGOs as they no longer have input into this process (Davidson et al., p. 27). NGOs contend that their contributions are frequently solicited only after military planners have already made decisions (Davidson et al., p. 29). On the military side, the number and variety of NGO actors, each with their own unique and independent nature, complicates efforts to coordinate any effective planning effectively (Davidson et al., p. 29).

b. Coordination

Ongoing coordination while executing aid is difficult due to a lack of standardization in regards to assessing performance (Davidson et al., p. 30). Each NGO may have different views in regards to what is important as to objectives and aims, which are grounded in organizational cultures particular to each. As such, many organizations are hesitant to adopt a standardized framework that is imposed on them, leading to turf battles (Davidson et al., pp. 30–31).

c. Communication

Problems with communication are complicated at many levels. Actors may be precluded from the use of technology due to interoperability dictated by issues of access, interoperability amongst actors, and host nation sensitivities (Davidson et al., p. 32).

Another dimension that Tomassini and Wassenhove discuss is the issue of barriers to knowledge sharing amongst organizations. Information sharing amongst actors is difficult due to the cultural values of knowledge within organizations, which may view that transmission as a threat due to unknown costs/possibilities of erosion of organizational status/ideological sacred cows that create inertia (Tomassini & Wassenhove, 2009, pp. 128–129).

d. Leadership

In a most recent study on the status of the humanitarian system, a common refrain from many actors was the lack of effective leadership and coordination (Harvey et al., 2010, p. 49). Many of the issues identified as pressing issues have been identified issues for decades, with literature evidencing these issues since the beginning of the modern humanitarian movement. Effective leadership is required to transcend and overcome the reluctance of organizations to extend beyond themselves and orient towards a more coordinated system.

D. CHAPTER SUMMARY

This chapter provided the conceptual frameworks of organizational conflict and collaboration utilized to analyze the interactions of actors in crisis/conflict scenarios. Also discussed are the concepts of humanitarian logistics and the structure of the modern humanitarian system, to include the actors and mechanisms of cooperation, as well as identified deficiencies with the current system.

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III. COUNTRY CASE LITERATURE

A. INTRODUCTION

Major natural disasters around the globe are a reality that underlines humanity's vulnerability regardless of technological or societal station. However, nations benefit from developed infrastructure while others manage precariously on systems and institutions that function marginally, if at all. Geographical topology, land area, population growth, Gross Domestic Product at Purchasing Power Parity (GDP/PPP), labor force, communications, and transportation are important considerations in evaluating a nation's strength and ability to survive calamity to include a major natural disaster. Furthermore, internal infrastructure and political institutions have a significant effect on the promptness and self-sufficiency with respects to recovery. In January and February 2010, Haiti and Chile, respectively, suffered major earthquakes that destroyed or disrupted population areas, requiring significant humanitarian intervention efforts from within and from international partners to assuage the suffering of affected peoples. Before continuing to discuss the nature and effect of domestic infrastructure on humanitarian responses, it is necessary to note the differences between this project's subject nations, Chile and Haiti.

B. CHILE

1. Country Information

Chile is considered one the most modern nations in South America. Chile (see Figure 4) is a nation with a total area of 292,260 sq mi (756,950 sq km), a total population (2009 est.) of 16,746,491, a population density of 21 persons per sq km, a growth rate of 0.8 percent, a birth rate of 14.4/1000, an infant mortality rate of 7.5/1000, and a life expectancy of 77.5 years. Chile's largest city is Santiago with a population of 5,333,100 (metro. area) and 4,372,800 (city proper). Other major cities are Viña del Mar, (population 303,100), Valparaíso (population 274,100), Talcahuano (population 252,800), Temuco (population 247,200), and Concepción (population 217,600) (infoplease, 2009).



Figure 4. Map of Chile (From: Maps.com)

Current Growth Domestic Product/at Purchase Powering Parity (GDP/PPP) is about \$243.7 billion, with a per capita of \$14,700. Chile's real growth rate is -1.7 percent, the inflation rate 1.7 percent, and the unemployment rate 10 percent. Arable land is 3 percent of the total area with agriculture composed of grapes, apples, pears, onions, wheat, corn, oats, peaches, garlic, asparagus, beans, beef, poultry, wool, fish, and timber. The labor force totals 6.3 million people with a distribution as follows:

agriculture 13.6 percent, industry 23.4 percent, and services 63 percent. Major industries include copper, other minerals, foodstuffs, fish processing, iron and steel, wood and wood products, transport equipment, cement, and textiles. Natural resources comprise copper, timber, iron ore, nitrates, precious metals, molybdenum, and hydropower. Exports total \$48.8 billion in copper, fruit, fish products, paper and pulp, chemicals, and wine. Imports total \$40.91 billion in petroleum and petroleum products, chemicals, electrical and telecommunications equipment, industrial machinery, vehicles, and natural gas. Major trading partners are the United States, Japan, China, South Korea, Netherlands, Brazil, Italy, Mexico, and Argentina.

Communications infrastructure includes telephones, of which 3.436 million are main lines and 10.57 million are mobile cellular phones. Radio broadcast stations comprise 180 AM (eight inactive), 64 FM, and 17 shortwave (one inactive). There are 63 television broadcast stations in addition to 121 repeaters. Internet hosts amount to 506,055 with 6.7 million Internet users. Finally, in regards to transportation, the railways total 6,585 km, the highways 79,605 km, and the waterways 725 km. There are 16,080 km of paved roads, and 63,525 km of unpaved roads. Ports and harbors include Antofagasta, Arica, Huasco, Iquique, Lirquen, San Antonio, San Vicente, Valparaíso and 36 airports.

2. Chilean Earthquake Sequence of Events

At 3:30 am local time on Saturday, February 27, 2010, an 8.8 magnitude earthquake struck Chile with an epicenter centering on Chile's second largest city, Concepción (USGS, 2010a). According to a Congregational Research Service (CRS) report, over 100 aftershocks of magnitude 5.0 or greater were recorded initially after the major temblor (Beittel & Margesson, 2010, p. 1). Approximately 20 minutes after the earthquake, a tsunami generated by the force of the shake struck the coast creating more destruction in various port cities south of epicenter.



Figure 5. Regions Affected by Chilean Earthquake (From: U.N. OCHA as cited in Beittel & Margesson, 2010)

As preliminary reports began to arrive, the Government of Chile (GoC) began to assess the situation. President Bachelet issued a “state of catastrophe” on 28 February for six regions affected by the earthquake: Valparaíso, Metropolitana, O’Higgins, Maule, Bio-Bio, and Araucanía (shown in Figure 5). According to an AON Benfield report

(2010), the GoC and the Chile's National Institute of Statistics estimated over 4.5 million households, of which at least 1.5 million were affected by the earthquake (p. 8).

With infrastructure severely damaged, and reports of looting and violence, President Bachelet ordered military leadership to take control of the affected areas; however, that order came 48 hours after the earthquake (Radio Cooperativa, 2010). Concepción mayor Jacqueline van Rysselberghe warned GoC officials in Santiago of the potential for severe social tension, “we need food for the population. We are without supplies and if we don't resolve that we are going to have serious security problems” (BBC News, 2010). El Mercurio, a Chilean newspaper, reported that military commanders, in consultation with both Minister of Interior and Defense, declared a curfew for the city of Concepción, and extended martial jurisdiction to the regions of Bio-Bio and Maule (El Mercurio, 2010). The GoC did not initially request foreign assistance; however, President Bachelet later released a statement accepting foreign aid but asked countries to defer until further assessment was made by her administration (Center for Excellence in Disaster Management & Humanitarian Assistance, 2010, p. 2). According to Beittel and Margesson (2010), the GoC took the lead in relief operations and coordinated all efforts with 16,000 Chilean military personnel providing humanitarian assistance and relief efforts after President Bachelet authorized military action to provide relief efforts and re-establish public order (Beittel & Margesson, 2010, p. 1).

According to the People's Daily, on March 1, 2010, the GoC officially requested international humanitarian relief aid (People's Daily, 2010). To organize an emergency response effort and reconstruction, the GoC established two committees with minister-level designate heads, the Emergency Committee and the Reconstruction Committee, both under the Ministry of Interior. Their responsibilities entailed the coordination of efforts with the U.N., non-governmental organizations (NGOs), and foreign organizations. The U.N. deployed a team to Santiago immediately after the earthquake, lead by the Economic Commission of Latin America and the Caribbean, to begin to work with the GoC. The U.N. team included the following agencies.

- The U.N. Development Program (UNDP): An organization advocating for change and connecting countries to knowledge, experience and resources to help people build a better life.
- The U.N. Children’s Fund (UNICEF): A global humanitarian relief organization providing children with health care, clean water, nutrition, education, and emergency relief.
- The Office of the High Commissioner for Human Rights (OHCHR): An organization that oversees major programs in protecting human rights and implementing international rights agreements.
- The Pan-American Health Organization (PAHO): An international public health agency with the mission to improve health and living standards of the countries of the Americas.
- The U.N. Educational, Scientific, and Cultural Organizations (UNESCO): An organization that contributes to the building of peace, the eradication of poverty, sustainable development and intercultural dialogue through education, the sciences, culture, communication and information.
- The Food and Agricultural Organization (FAO): An organization that assists developing countries and countries in transition to modernize and improve agriculture, forestry and fisheries practices and ensure good nutrition for all.
- The International Labor Organization (ILO): An organization devoted to advancing opportunities for women and men to obtain decent and productive work in conditions of freedom, equity, security and human dignity.
- The European Union and International Organization for Migration (IOM): An IGO responsible for the coordination of migration issues. Working with governmental, inter-governmental, and non-governmental actors, IOM seeks to promote humane and orderly migration, as well as assisting refugees and internally displaced persons due to humanitarian disaster (Beittel & Margesson, 2010, p. 8).

After the GoC contacted the U.N. Office for the Coordination of Humanitarian Assistance Organization (OCHA), officials within the government made targeted requests, such as communication equipment (e.g., radios), field hospitals, and water purifications devices. Apart from OCHA coordinating with government officials, there were other humanitarian actors as well. Various NGOs were also involved, such as the following.

- The American Red Cross
- The British Red Cross

- Caritas International, Catholic Charity
- Children International
- Médecins Sans Frontières (MSF)
- Organization (MERLIN)
- Oxfam International
- Save the Children (SC)
- Telecom Sans Frontières (TSF)

As emergency funds and equipment poured in, humanitarian assistance teams began to coordinate their efforts under the leadership of the GoC. On February 27, the United States Government (USG) activated a Response Management Team (RMT), under the auspices of the United States Agency for International Development (USAID)/Office of Foreign Disaster Assistance (OFDA). The OFDA Response Management Team, headquartered in Washington, DC, was established to coordinate the USG response to Chile's earthquake. On February 28, U.S. Ambassador Paul E. Simmons released a disaster declaration in response to the effects of the earthquake and after consultation with the GoC. Upon receipt of this declaration from the U.S. Embassy in Chile, USAID deployed a 16-member Disaster Assistance Response Team (DART) that, once in country, began to coordinate with local officials within the GoC in the delivery of emergency relief commodities (OFDA, 2010c.). The Appendix illustrates a non-exhaustive list of countries that have collaborated in providing humanitarian aid relief since March 1, 2010 when the GoC officially requested foreign humanitarian assistance.

Observers give President Bachelet's government high marks for its steady response in light of the earthquake's magnitude, as well as maintaining the orderly transfer of power to the incoming administration of then President-elect Sebastian Piñera on March 11, 2010. However, some critics pointed out the perceived initial response to the earthquake.

C. HAITI

1. Country Information

Haiti's total land area (see Figure 6) covers 10,714 sq mi (27,750 sq km), with a population (2009 est.) of 9,035,536, a growth rate of 1.8 percent, a birth rate of 29.1/1000, an infant mortality rate of 59.7/1000, a life expectancy rate of 60.7, and a population density of 323 people per sq km. The capital and largest city is Port-au-Prince with a population of 1,764,000 in the metropolitan area and 1,119,000 in the city proper.



Figure 6. Map of Haiti (From: Maps.com)

Haiti's estimated GDP/PPP is about \$11.14 billion or \$1,300 per capita. Real growth rate is 3.2 percent, and the inflation rate is 9 percent. Arable land totals 28 percent of available land area with agriculture composed of coffee, mangoes, sugar cane,

rice, corn, sorghum, and wood. Unemployment and underemployment is widespread throughout Haiti with more than two-thirds of the 3.6 million-person labor force lacking formal employment. The labor force is characterized by a shortage of skilled labor with unskilled labor overrepresented and distributed within the following sectors: agriculture 66 percent, services 25 percent, and industry 9 percent. Haiti's industrial base is devoted to sugar refining, flour milling, textiles, cement, and light assembly industries based on imported parts. Natural resources include bauxite, copper, calcium carbonate, gold, marble, and hydropower. Exports total \$554.8 million (2007 est.) with manufactured items, coffee, oils, cocoa, and mangoes being the main exports. Imports total \$1.844 billion with food, manufactured goods, machinery and transport equipment, fuels, and raw materials forming the bulk. Major trading partners include the United States, Dominican Republic, Canada, Trinidad and Tobago, Cuba, and the United Kingdom.

Haiti's communications infrastructure includes telephones with 145,300 main lines in use, and over 500,200 mobile cellular lines in existence. Radio broadcast stations total 41 AM band, 26 FM band and, zero shortwave stations. Television broadcast stations total two (plus a cable TV service). Internet hosts total seven, with 650,000 internet users. Transportation infrastructure is limited with no railways, no internal waterways, and 4,160 km in highways. Cap-Haitien is the main maritime port and 14 airports exist with one airport (Toussaint Louverture) capable of international operations (infoplease, 2009).

2. Haitian Earthquake Sequence of Events

On January 12, 2010 at 1653 local time, Haiti suffered an earthquake with a magnitude of 7.0 and epicenter 10 miles southwest of the capital of Port-au-Prince (see Figure 7). As of September 24, according to figures provided by the United States Agency for International Development (USAID), approximately 3 million people were affected by the disaster with over 230,000 fatalities, and 1.2 million displaced individuals (OFDA,2010d). While not holding the distinction of the largest earthquake in terms of seismic energy released, the United States Geological Survey ranks the 2010 Haiti

earthquake the third deadliest earthquake in terms of deaths since 1900, and the deadliest earthquake in the Western Hemisphere (USGS, n.d.).

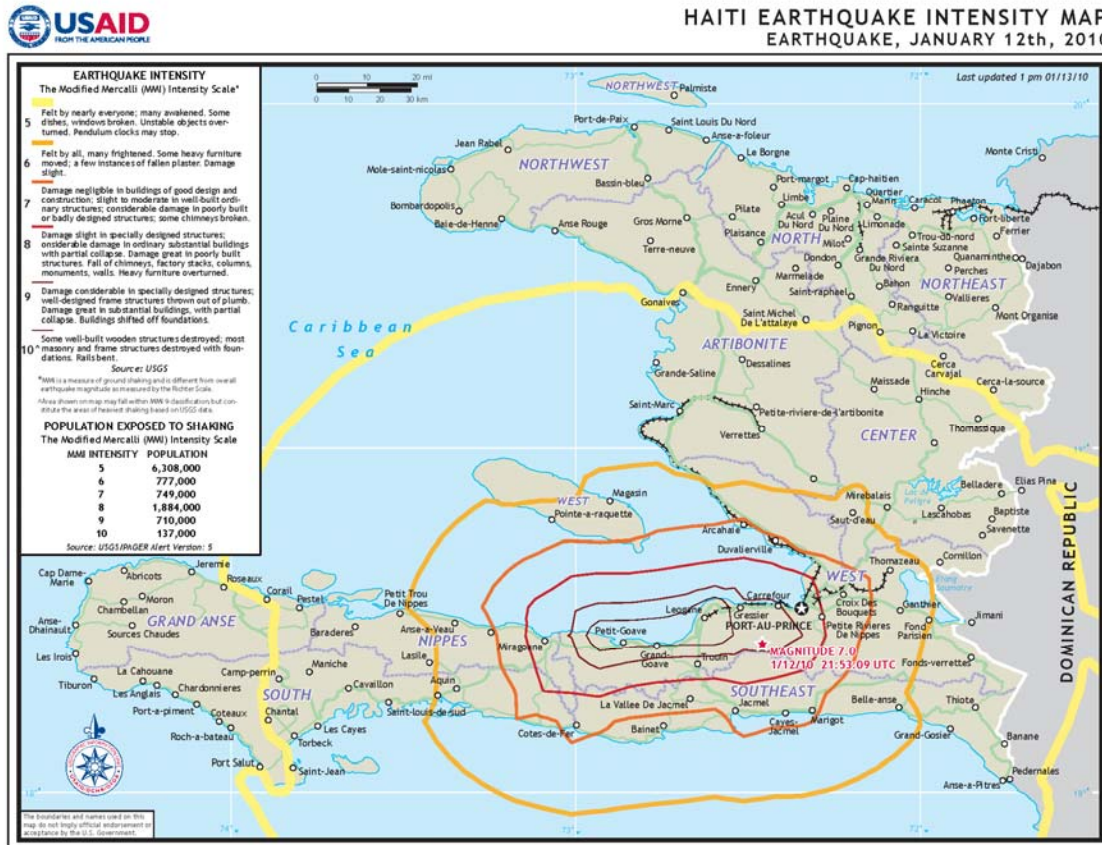


Figure 7. Map of Haiti Earthquake Affected Areas (From: USAID, 2010)

Haiti has served as a focus of activity for humanitarian assistance in the form of relief, stability and development efforts by a myriad of NGOs and IGOs. Despite longstanding aid and assistance, Haiti has not progressed to the level of prosperity of other countries within the Western Hemisphere, having the ignoble distinction of being a pauper nation with Central Intelligence Agency (CIA) (2010) estimates placing 80 percent of the population living below the poverty line, and 54 percent of the population living in the most destitute and abject conditions. Such is the deleterious effect that Haiti's continued instability could have on international peace and security. On April 30, 2004, the U.N. established MINUSTAH under Chapter VII of the U.N. Charter with a

mandate emphasizing “a secure and stable environment, the political process, and human rights” (Margesson & Taft-Morales, 2010, p. 5). The CIA’s assessment of Haiti notes that its economic plight is rooted in social/political instability and lack of infrastructure, leaving most of the population dependent on a subsistence economy and foreign remittances from relatives for their survival and the Government of Haiti (GoH) dependent on international economic assistance (CIA, 2010).

Given Haiti’s daunting political and economic reality, it is no surprise that whenever misfortune visits the country, the assistance of other nations is necessary to mitigate the suffering of the victims and survivors. However, the devastation of the January 2010 earthquake was a unique event requiring efforts beyond the natural protocols followed by humanitarian organizations. The next pages describe how that aid and the efforts in its distribution unfolded in the face of unique circumstances and inter-organizational relationships of responders that affected logistics of aid deployment.

In the immediate aftermath of the earthquake, it was determined that a significant catastrophic event had taken place, with the GoH, the U.N. Stabilization Mission in Haiti (MINUSTAH), and numerous front-line humanitarian organizations being severely compromised in their ability to function and respond in an effective manner due to losses in capacities, resources and staff (Inter-Agency Standing Committee [IASC], 2010, p. 1). With the realization of the dire situation facing the country, the GoH requested aid from the international community (Keen et al., 2010, p. 7).

On January 13, U.S. Ambassador to Haiti Kenneth H. Merten declared a disaster; thereby, setting into motion the bureaucratic framework that the Office of U.S. Foreign Disaster Assistance (OFDA), a part of USAID’s Bureau for Democracy, Conflict and Humanitarian Assistance (DCHA), uses to facilitate and coordinate U.S. government assistance overseas (OFDA, 2010b). A Disaster Response Team (USAID/DART), along with an urban search and rescue from Fairfax County, VA, landed within 24 hours of the earthquake, with a Washington D.C.-based response management team to support the DART in-country (OFDA, 2010b). OFDA also provided an initial \$50,000 grant through the U.S. Embassy to implement a response program based on DART assessments of the situation at hand to coordinate follow-on aid from emergency relief stocks.

Lieutenant General P. K. “Ken” Keen, deputy commander for U.S. Southern Command, arrived in Haiti the day prior to the earthquake, and was with Ambassador Merten minutes prior to the earthquake (Keen et al., 2010, p. 7). After evaluating the situation on the ground, General Keen requested the deployment of U.S. defense assets to Haiti after ascertaining that the scope of the devastation was beyond the capability of any one organization (Keen et al., 2010, p. 7). U.S. Southern Command, recognizing the necessity of command and control for the growing military presence established Joint Task Force-Haiti (JTF-Haiti) on January 14 to support USAID efforts as the lead U.S. agency for humanitarian assistance and disaster relief operations (United States Southern Command, 2010). Seeking to avoid disruption of organizational structures and linkages in conflict with MINUSTAH and contributing forces to the UN presence that would ensue with the creation of a combined task force, Joint Task Force—Haiti (JTF-Haiti) was established with the purpose of “support U.S. efforts in Haiti to mitigate near-term human suffering and accelerate relief efforts to facilitate transition to the Government of Haiti, the UN, and USAID” (Keen et al., 2010, p. 8). Keen identified that while the military was capable in emergency situations, the long-term follow-on relief and reconstruction efforts were best left to IGOs and NGOs (Keen et al., 2010, p. 8). The U.S. role in what later became Operation UNIFIED RESPONSE was clearly defined as one of a primary humanitarian assistance mission with limited security operations only to support the primary mission under the aegis of a U.N. security presence provided by MINUSTAH (Keen et al., 2010, p. 8).

On January 13, the deployment of the 1st Special Operations Wing to coordinate the departure and arrival of aircraft at Toussaint Louverture International Airport, and the evacuation of American citizens and delivery of relief supplies by military aircraft and U.S. Coast Guard cutter HIGGINS, served as the first response by tasked Southern Command elements (United States Southern Command, 2010). The Southern Command Phase I (initial emergency response) of Operation UNIFIED RESPONSE lasted from January 14 to February 4, with the following priorities.

- Restore medical capacity
- Distribute shelter, food, and water
- Integrate with MINUSTAH and NGOs
- Support Haitians
- Opening the airport and seaport to allow the entrance of humanitarian aid (Keen et al., 2010, p. 9)

After addressing the chaotic needs faced in Phase I, Phase II (relief) commenced on February 5 and focused on transitioning to a more deliberate plan that handed over responsibilities to the GoH and NGOs, as by this time, they were in more of a stable and secure position (Keen et al., 2010, p. 9). The priorities for the relief phase were the following.

- Support efforts to provide shelter, establish settlements, and conduct debris removal
- Transition JTF-Haiti humanitarian assistance and disaster relief efforts to capable partners when ready
- Plan, coordinate, and prepare to execute a phased transition to smaller but longer-term force structure and operations (Keen et al., 2010, p. 9)

In parallel with U.S. efforts in the emergency response phase, NGO efforts were encountering a scenario that presented significant challenges in regards to logistics and coordination due to the scale of devastation, but coupled as well with the unfamiliarity of a disaster in an urban context that presented significant challenges with which most groups were unfamiliar (IASC, 2010, p. 1). While many international humanitarian actors have had a long presence within Haiti, as with the MINUSTAH, many faced significant losses in talent, experience and response capacity due to the earthquake (IASC, 2010, p. 8). Recognizing the dire humanitarian situation, an influx of “varied...international actors” responded to the call for assistance from the GoH with OCHA estimating over 400 different actors by the end of January (IASC, 2010, p. 8). The UN Cluster system was reactivated January 15 with the Logistics Cluster serving to establish common logistics services for humanitarian actors to remove logistics bottlenecks and improve supply chain efficiency to include the following.

- Providing and managing storage capacity in Port-au-Prince and outlying provinces

- Establishing logistics hubs in Port-au-Prince and the Dominican Republic
- Providing transportation services using helicopters, other air assets, trucks and boats
- Managing incoming air cargo
- Liaising with Dominican authorities to expedite customs requirements (IASC, 2010, p. 15)

Although it is implicit that the intention of all humanitarian actors responding to this episode was the well being of the Haiti and its citizens, there were “significant challenges which impeded the efficiency of the first phase of the response, and some of which continue to the present [six months after the earthquake]” (IASC, 2010, p. 16). Logistics were impeded by “damage and excessive demand” on Toussaint Louverture International Airport and the destruction of the port facilities at Port-au-Prince (IASC, 2010, p. 16), which required the use of airport facilities in Santo Domingo, Dominican Republic as a logistics node and the subsequent use of over-land transport to affected areas in Haiti. Logistics were further complicated by the poor condition of the roads, which further deteriorated due to the increased utilization, debris-strewn affected areas in Haiti, and limited receipt and storage capability in Port-au-Prince (IASC, 2010, p. 16). Contentious accusations in the heated first days erupted against the U.S. military regarding control and prioritization of airlifts of search and rescue assets over medical/relief supplies at Toussaint Louverture International (especially by Médecins Sans Frontières), thereby nullifying the effect of many organizations’ plans to transport stocks from regional and international warehouses after in-country stores were depleted (IASC, 2010, p. 16).

The early days of the first phase of the humanitarian response were thus characterized.

...logistics constraints caused by destroyed infrastructure, systems, and capacity; widespread underlying vulnerability and poverty; a Government and humanitarian community severely affected; and the arrival...of a plethora of humanitarian actors with varying capacities, resources and agenda....

...A more focused and better defined inter-cluster coordination capacity would have contributed to ensuring greater cohesion between the strategic and operational levels of the response (IASC, 2010, p. 17).

D. CHAPTER SUMMARY

This chapter provided country case literature for Chile and Haiti with respects to pre-disaster condition, as well as the sequence of events in the aftermath of their respective earthquakes. By examining each country's pre-disaster condition and post-disaster response, a cross case examination of the effectiveness of the humanitarian response can be conducted to gain insight into the factors that contributed to the overall effort.

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IV. ASSESSING HUMANITARIAN RESPONSE

A. INTRODUCTION

Based on the literature review in Chapter II, this chapter offers a cross case comparison between humanitarian relief efforts in Chile and Haiti. In particular, several dimensions within the aid response are compared to determine salient similarities and differences in the collaborative efforts of humanitarian actors. In particular, civil stability, food distribution and services restoration, infrastructure and information networks are identified as prominent for understanding the successes and failures of collaboration in the midst of a complex disaster event.

B. POST-EARTHQUAKE CIVIL STABILITY

1. Chile

According to Zilbechi (2010), earthquakes and tsunamis will create havoc in any society and will shed light on social cracks and fissures invisible in everyday life and provoke social crises that states tend to resolve with militarization (p. 2). These simultaneous catastrophes severely tested the emergency response strategies of the GoC. As is the case with sudden onset disasters, there was in this disaster too little time for preparation and notice for the government to act with an appropriate scaled response. Within hours, hundreds of looters ransacked grocery, clothing, and electronic stores. Looting spread to other parts of the country, such as Santiago, Chillan, and Talcahuano. In times of large catastrophes, government institutions, public services, and private institutions are often overwhelmed and fail. A common sentiment felt by victims was:

I am amazed by the absence of the state during the first two days of the tragedy. There was nobody to give us information, nobody to give us help. That's why there was a loss of control, one felt often abandoned.
(Estrada, 2010)

It begs the question, why was the GoC sluggish to respond to the looting and civil unrest in affected areas? The failure of effective collaboration between the GoC and the Chilean Armed Forces, and local law enforcement in the initial aftermath led to a perception of an

absence of authority in which citizens felt they needed to take actions into their own hands. This set in motion the complication of having to establish government authority in the midst of unrest, complicating the distribution of aid and relief.

Some suggest the main issue for President Bachelet was a trust issue in the government resulting in hesitation to mobilize the military to restore order and affect logistical support for relief operations. Professor Constanza Gerding, a resident of Concepción, recalled that soldiers were a constant and often brutal presence during the Pinochet regime, which saw her father, a journalist during that period, imprisoned (Neuman & Beaubien, 2010). Bachelet herself was a victim of human right abuses and forced exile during the Pinochet regime, with her father, a senior air force officer, perishing under incarceration (Long, 2010). Observers hypothesized this lingering trauma within Chilean society, and especially with a left of center government, was a root cause of the hesitation in deploying the Armed Forces. With the military in the streets, the potential for a tense environment between citizens and soldiers was a factor to be considered.

For some Chileans, seeing the military on the streets evoked painful memories of the 1970s and 1980s under the tight dictatorial government of General Augusto Pinochet. Government minister Sergio Baltar stated, “imagine for a coalition that has governed this country for 20 years and that fought against the dictatorship, the idea of having the military on the streets was not easy” (Long, 2010). However, the devastation of the earthquake required the response capacity of the Armed Forces; the GoC and its military needed to come together to provide humanitarian relief and security that is the mandate of government. For Chileans, the military was received with cries of “finally, we have soldiers proud of their role in keeping the peace, a welcome feeling for many since their military generally have not been used for police work during the 20 years of democracy” (CBS Network, 2010). Although the specter of civil/military strife of the Pinochet regime loomed in the national psyche, the GoC, the military and other actors on the ground were able to come together and coordinate an effective response to the Chilean population.

2. Haiti

As aforementioned, natural disasters tend to expose and magnify the relative shortcomings of institutions in their ability to function. In the case of Haiti, the earthquake had a devastating effect on the effectiveness of the GoH to respond to the needs of its population. Fourteen of sixteen government ministries and numerous local and national government officials perished in the earthquake (Keen et al., 2010, p. 2). GoH capacity to lead and coordinate a response was thus limited from the beginning of the crisis with the human and material losses within critical response coordination agencies (IASC, 2010, p. 7). Almost immediately, the GoH realized that the disaster was beyond the scope of their capability and capacity, necessitating coordination with the international community to best direct aid efforts in health, food, water, fuel, and safety sectors for all affected geographic areas (IASC, 2010, p. 7).

International involvement has been a constant for Haiti due to its status as a failed state. The recurrence of disasters, whether natural or political, have always triggered an international response for the sake of regional security interests in the Western Hemisphere, culminating in the presence of MINUSTAH as U.N. agent for security and development of emerging democratic institutions in Haiti (Keen et al., 2010, p. 7). However, MINUSTAH, as well as other experienced international humanitarian actors, were affected with the significant losses of headquarters and senior staff (Keen et al., 2010, pp. 7–8). The international presence in Chile was quite spartan in comparison to Haiti, which was overwhelmed with a “plethora of humanitarian actors with varying capacities, resources and agendas” who answered the call for assistance (IASC, 2010, p. 17). This influx of actors was poorly coordinated, with the U.N. Humanitarian Country Team (HCT) only established after three weeks of activity, then having to absorb coordination efforts already colored with a strong military character in the absence of effective non-military leadership, which created resentment and offense amongst actors (IASC, 2010, p. 17). Reflecting the perceptions of Haitian entities, many NGOs that did not have existing relationships in country prior to the earthquake, did not fully engage with Haitian authorities, losing opportunities to utilize local knowledge and capabilities (IASC, 2010, p. 17), and at times, duplicating efforts over existing Haitian frameworks

(IASC, 2010, p. 18). The suboptimal level of initial response can be argued to be due to the lack of collaboration and leadership from Haitian authorities and international actors that impacted coordination efforts in the immediacy of the disaster (IASC, 2010, p. 17).

C. FOOD DISTRIBUTION AND RESTORATION OF BASIC SERVICES

1. Chile

Natural disasters, such as a large magnitude earthquake, frequently expose societal stratifications and accesses to resources that manifest in some form of deprivation. In the case of Chile, rural areas and those of lower socio-economic status were affected the most. According to Phillips (2010), the middle class and less rural cities were the first recipients of humanitarian aid, as well as the first to have basic services restored. In contrast, working class communities, such as Quilicura, located thirty minutes from the center of Santiago, residents went without water and electricity for three days with riots and looting occurring despite the minimal damage reported in the Santiago area (Hernandez, 2010). “We are the last ones to get services,” said Elizabeth Meza, a store owner, “they looted everything” (Hernandez, 2010). As often is the case with many nations in Central and South America, the poor and indigenous are last to get assistance, as was the case of the Mapuches, the largest indigenous, and poorest, group in Chile (Meyer, 2010, p. 4). Mapuches live mainly in the central and southern regions of the country and have suffered many difficulties since the earthquake; their homes were completely destroyed and access to water and electricity was cut off entirely (Beittel & Margesson, 2010, p. 4).

An earthquake of such magnitude, Chile was not immune to the anxieties of their citizens that rapidly led to the erosion of public order. Despite its status as a modern, democratic, market oriented nation with a robust economy and developed infrastructure, social divisions bedeviled the delivery and prioritization of aid and recovery.

2. Haiti

Poor information resources, compounded by a devastated urban setting, an operation that was a new scenario for NGOs where there was little experience or training

to confront, impacted the distribution of food and commodities. Haiti was characterized by the decimation of a congested urban area, compounding access in and around major afflicted zones (IASC, 2010, p. 1). The lack of coordination in areas led to the migration of afflicted persons from the centralized zone in Port-au-Prince to outlying areas further compounding distribution issues and complicating relief efforts in these areas (IASC, 2010, p. 5). Also, the desire to expedite issuance of aid, despite the challenges of access due to local terrain, lead to distribution issues (air drops) that did not take into account the particulars of women and children, leading to severe criticism from local NGOs that felt that expediency led to a depersonalization of efforts that dehumanized the victims. Many of these actions were not coordinated and were of an emergent ad-hoc basis as a flood of personnel rushed in to aid (IASC, 2010, p. 27). There was little control at the borders at the beginning and it could be argued that Haiti was invaded by a multitude of people wanting to help, but creating more problems than they solved. Prioritization of unit level activities, instead of a completely coordinated effort, led to a dysfunctional approach. Delays in assistance in localized areas within the cities, and rural areas, as well as damage to central cities, were significant and created migratory pressures leading out of afflicted zones to rural area and less devastated regions, complicating relief efforts and requiring evolving solutions to emerging requirements.

D. INFRASTRUCTURE

1. Chile

As Chile is located in a highly seismic region, the GoC has established strict building codes with respect to infrastructure (AON Benfield, 2010, p. 9). The history of Chilean building code regulation was established in 1935 with updates in 1972, 1985, 1996, and 2003 (AON Benfield, 2010, p. 9). Sixty percent of residential structures and forty percent of commercial buildings in the nation are of masonry construction, with other structures comprised of concrete or steel construction (AON Benfield, 2010, p. 9). According to Lafsky (2010), in 1960, a massive 9.5 earthquake struck Chile that led the GoC to implement stricter building codes. Chile is a modernized and industrialized nation, with a per capita economic output that is more than 10 times larger than Haiti;

thus, emergency resources are more available and the population is better educated as to the safest places to take refuge (Lafsky, 2010). According to BBC News (2010), the earthquake's epicenter was 21 miles underground and occurred off-shore, meaning it was 70 miles from the nearest large city, Concepción. In comparison to Haiti, the epicenter was only 8 miles underground and located right next to the capital city (Reuben, 2010).

2. Haiti

The island of Hispaniola, comprised of the nations of Haiti and the Dominican Republic, located between the North American tectonic plate and the Caribbean plate, which are sliding each year at a rate of about 20 millimeters, has suffered very little seismic activity in recent decades (Schuman, 2010, p. 1). In 2004, the USGS upgraded its monitoring system in the Caribbean for earthquakes and tsunamis following the 2004 Indian Ocean earthquake and tsunami that killed thousands across the Indian Ocean area. The USGS also produced earthquake-hazard studies for the Caribbean and proposed mitigation suggestions for the region. However, according to William McCann, a seismologist and Caribbean consultant to the USGS, Haiti's earthquake preparedness has been "minimal to none, there were just so many problems there and only so much money, and you have to prioritize" (Schuman, 2010, p. 1). McCann also adds that the Dominican Republic could be setting itself up for the same problems by constructing 30-story buildings in seismically dangerous zones. The Dominican Republic this year is set to start updating 30-year-old building codes whose enforcement has been very poor, and Haiti's preparedness has been "in a much more precarious state" (Schuman, 2010, p. 1).

The differences in economic infrastructures, resources, and prioritization in enforcement and investment led to success in Chile, and were the antecedents for chronic underdevelopment and devastation that afflicted Haiti in the aftermath of the earthquake.

E. INFORMATION NETWORKS

1. Chile

In cases of natural disasters, communication efforts are typically complex, requiring coordination amongst actors in the collaborative efforts in humanitarian aid. In the case of Chile, after lines of communications were established, the government started

to provide relief to victims in affected areas under the leadership of the Chilean National Emergency Office (ONEMI), which also coordinated relief efforts with international and local humanitarian organizations.

Initially criticized for a slow response, subsequent analysis shows the GoC and Chilean Armed Forces effectively assessed their requirements with respects to aid and communicated them with other countries, complementing their ongoing rescue and relief efforts in distributing food and water within days after the earthquake (Beittel & Margesson, 2010, p. 4). Applying an analogy with origins in supply chain management, the GoC coordinated requirements and demands for resources in a “pull” orientation vice a “push” mechanism, i.e., pulling the right level of humanitarian resources rather than having resources pushed based on assumptions made by foreign actors (NGOs). Making demands and baselines clear from the onset helped to facilitate collaboration with actors outside of the GoC as was the case with the Chilean Red Cross “working in close coordination with the GoC, providing limited search and rescue services, administering first aid and distributing pre-positioned supplies” (American Red Cross, 2010).

Despite these successes, significant failures occurred as well with the Chilean Navy facing government criticism for the failure to notify residents of coastal villages about the tsunami threat after the earthquake (AON Benfield, 2010, p. 10). This calls into question the command and control capabilities within the Chilean Armed Forces and up the chain of command, especially with respects to the inaction the first few hours after the earthquake and tsunami.

2. Haiti

With respects to Haiti, the IASC (2010) identified deficiencies and delays in the collection and dissemination of data detailing the “number, location, and activities of humanitarian organizations, and on sectoral needs, coverage and gaps” (IASC, 2010, p. 24). Imperfect information on actors, their actions, and their areas of assistance complicated efforts to conduct efficient operations resulting in sub-optimization of effort during the initial response to the disaster. Availability of technology, infrastructure, and communication protocols within a post-earthquake environment has a significant impact

on the strategy and mechanism of coordination. The failures of communication and information management were rooted in the relative “lack of willingness by agencies to prioritize reporting on activities, particularly in the initial stages of the response” (IASC, 2010, p. 24).

It can be surmised that this lack of prioritization is a reflection of the organizational culture of many NGOs, which place an emphasis on action and response to a disaster, based on their own prioritizations, and not necessarily based on the needs of affected peoples. Priority on the effort of data collection and information management are administrative actions that consume resources in personnel and money; resources that NGOs feel may be better placed in direct aid to afflicted populations. Due to the independent and decentralized characteristics of the many humanitarian actors involved in Haiti, in contrast with the near insular action in Chile, many assessments “followed different standards, methods, and focuses...hampering efforts to create an overview of cross cluster needs” (IASC, 2010, p. 24). The IASC recognizes the lack of standardization of information and performance metrics disrupts the unity of effort, “challenges the principle of impartiality, and leads to a breakdown in communication with partners” and the ability to assess and monitor the totality of effort (IASC, 2010, pp. 24–25). Ultimately, a lead, OCHA as an arm of the U.N., is identified with the responsibility to “ensure... adequate and appropriate inter-cluster information management support to the overall response” (IASC, 2010, p. 24).

F. CHAPTER SUMMARY

This chapter presented a cross case comparison of the respective humanitarian relief efforts of Chile and Haiti. Specific issues common to both scenarios were identified and compared to understand the unique collaborative issues that arose within each disaster event. In the case of Chile, an effective national government, capable Armed Forces, and well-designed and maintained infrastructure were evidence of the inherent capacity for collaboration within Chilean institutions, which later facilitated collaboration amongst other humanitarian actors. In Haiti, an ineffective national government, poor urban planning and infrastructure compounded efforts to provide

humanitarian assistance which led to many well-intentioned humanitarian actors (albeit possessing different values and agendas) attempting to fill the vacuum of effective leadership, complicating coordination and collaboration efforts in the overall response.

The nature of rapid onset natural disasters and the response required in the aftermath are unique and specific to each event. Not only must humanitarian actors react accordingly to the treacherous physical environments in which they operate, but they also must coordinate the complex demands of cooperating with other actors. The next and final chapter, conclusions and future considerations, are presented with the intent of improving collaboration amongst humanitarian actors.

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V. CONCLUSIONS

A. CONCLUSIONS

In reviewing the cases of the Chilean and Haitian disaster response, the scale and scope of humanitarian relief efforts that characterized the outcome in each country were a reflection of the collaboration of the numerous actors present, and their ability to resolve the organizational conflicts between them. Despite the identification of collaboration and leadership as essential factors for success, it still remains as the issue needing the most improvement. A majority of actors feels that collaboration is critical to success of efforts; however, a sizable minority has a contrary opinion that collaboration and coordination erode operational capability of individual actors, or compromise organizational agency fundamental to their existence (Harvey et al., 2010, p. 42).

While much progress has been made to present a more structured collaborative model with the U.N.'s adoption of the Cluster System, and the DoD placing Civil-Military Operations and Foreign Humanitarian Assistance as part of the Joint Doctrine, significant dysfunction still remains with humanitarian efforts. Not being able to overcome organizational biases and parochial thinking result in failures to plan and train in the aftermath of disasters, which in turn, prevents the possibility of healing amongst humanitarian actors, and impairs the re-orientation of actors to new frameworks and relationships that would better serve the values and ethos of the humanitarian system. This has second-order effects among institutions of governments, IGOs/NGOs, and militaries that result in 1) failure to standardize, 2) failure to build contingency and infrastructure (physical or organizational), and 3) failure to create a more efficient collaborative mechanism in responding to disaster. For organizations that still do not trust each other, lingering issues remain that are still present and have not been overcome despite continued identification. For some, little incentive exists to change; rather pressure seeks to preserve the status quo. Continued focus and effort are needed to remedy these deficiencies as they create suboptimal responses to dire humanitarian tragedies. The world expects better of the humanitarian system.

Technology has progressed to increased levels of openness and accessibility, offering opportunities that can advance collaboration and communication amongst humanitarian actors. However, these opportunities elude the humanitarian system as the benefits of technology have not been fully integrated within the humanitarian system, as actors have not seen its relevance. Before that can occur, the identification of meaningful and useful protocols, hierarchies and information standardization must be created based on the values and needs of individual actors (Maynard, 1999, p. 210). A consensus must work toward this effort or the result will be information systems that do not effectively communicate amongst the humanitarian actors, rendering technology useless from the onset.

Collaboration amongst humanitarian actors is not all pervasive during a disaster event, and most often comes to a complete halt at the end of an event preventing organizational healing within the humanitarian system. Organizational healing that creates new relationships and frameworks, resulting in the refocusing and reorienting of humanitarian actors to more virtuous actions in line with their common values, is absent when collaboration stops at the end of the humanitarian operations. This lack of interaction prevents the interchange of ideas that result in common strategy or standardization. Opportunities exist for maintaining continuity and increasing interactions between all sectors in the humanitarian system, and efforts should be continued in this regard. By increasing interactions with those vested in seeing improvements in this realm, the formalization and professionalization of humanitarian logistics and relief response can occur. Maynard (1997) contends that the increased complexity of disasters require the interaction of a formalized systems-based approach that addresses the issues and requirements of actors in an “efficient and organized manner” (p. 200). Maynard suggests that insular reflection only achieves limited strides; efforts that are creative, innovative and collaborative, encompassing the many actors of the humanitarian effort, are required for comprehensive change (Maynard, 1999, pp. 200–201). As themes turn into issues, and issues result in strategy, then mechanisms and incentives can be devised for an improved functioning of the allocation of scarce physical and human resources, and response mechanisms to distribute them effectively.

Leadership and collaboration amongst NGOs, IGOs, governments, and donors, is a prerequisite before further improvement can occur.

Difficulties occur in integrating the tensions that a crisis produces among humanitarian organizations, government agencies, and military actors in the collaborative process during a disaster. Collinson (2010) notes that no effective framework exists to channel the energy of humanitarian actors (primarily NGOs) to work toward a transformative strategy to improve their relationship with governments. A realpolitik that reconciles the idealism of the humanitarian system with the politics that emanate from the competition for resources and agenda setting is a matter of considerable debate, but one of considerable importance.

For future consideration, it is important to investigate the development of mechanisms, whether in policy, funding, or training, to encourage a collaborative process for cooperation in humanitarian efforts. Also, an investigation into the development of an enhanced humanitarian corps (e.g., increasing the size of USAID), or the creation of a professional humanitarian subspecialty within militaries (beyond the scope of peacekeeping and security) that maintain long-term connections and competencies are often eroded by the rotation of key personnel.

In conclusion, this project examined recent humanitarian disasters of Chile and Haiti through organizational behavior models of collaboration, conflict, and healing to gain insight as to the factors that lead to the success and failure in responding to complex humanitarian emergencies. As detailed in recent literature, continued focus on collaboration is still warranted and required, as failures in coordination remain constant in humanitarian response for both the Chilean and Haitian disasters. However, continued failures in collaboration and coordination efforts should not be viewed as an indication of inevitable futility, but as an opportunity for determined and focused involvement. Retreat from this endeavor cannot be an option; our principles of decency and humanity require our best efforts.

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**APPENDIX. DONOR CONTRIBUTIONS AND PLEDGES TO CHILE
IN RESPONSE TO THE FEBRUARY 27, 2010 EARTHQUAKE**

Country/Agency and Donor	Monetary Pledge (USD)	In-kind Support Pledge
Argentina		Delivery of 1,800 tons of food, a half million liters of water, four water purification plants and four electricity power generators, Argentine Air Force hospital composed of 12 modules, 10,000 doses of vaccine against hepatitis A.
Australia	4,413,063	Fifty generators, 150 family tents and 1,060 collapsible beds
Bolivia		40 tons of drinking water
Brazil		Two C-130s from the Brazilian Air Force transporting 18 tons of equipment for a field hospital, and 66 military staff provided 150 tents with a capacity for 10 people each.
Canada		Provided 150 tents with a capacity for 10 people each.
China	2,000,000	Chartered plane with earthquake-relief: carrying 700 tents, 10,000 blankets, 100 portable generators and two water purifiers, for a total of 96 tons
Cuba		26 member medical team and field hospital
Finland	539,811	
France		Chartered a special plane to bring to Chile a scientific, technical and humanitarian assistance mission, (including a team of seismological experts and a team of infrastructure experts), plus one ton of seismological material (27 seismological stations, solar panels, and GPS), complete satellite equipment and 10 Iridium telephones, a dialysis and water filtration machine, first aid medicines, community tents, and five water purification stations
Germany		Four-member rescue team.
Greece	269,906	
Indonesia	1,000,000	
Japan	3,336,625	Dispatch of international emergency medical team, electric generators, tents, water purifiers.
Republic of Korea		Dispatch of plane with medical equipments and non-perishables food.
Malta		Pills for the treatment of 17,000 liters of drinking water and further relief goods

Country/Agency and Donor	Monetary Pledge (USD)	In-kind Support Pledge
Mexico		Three tons of water purification equipment (chlorine, etc.) and a team of eight specialists to evaluate structures.
New Zealand	343,407	
Norway	1,675,042	
Peru		Two airplanes with 30 tons of relief items including tents, plastic sheets, water purification unit; search and rescue team of 35 specialists; one field hospital with surgical capacity and in-patient hospital care; 21 doctors
Russia		One plane with 28 MT of relief items (100 tents, 10 portable power generators, 2,000 blankets and seven tons of food)
Singapore	50,000	
Spain		7.5 tons of relief items, one field hospital, and a team of 75 experts (firefighters and sanitation experts)
Sweden	720,041	
Switzerland	276,753	Dispatched a three-person regional Rapid Response Team
United Kingdom	382,263	600 tents for up to 3,000 people
United States	10,700,000	Various type of assistance and relief supplies via USAID
Uruguay		Two water purification machines
Venezuela		Seven tons of relief supplies and assessment team of 27 experts
Vietnam	150,000	
Other:		
Organizations of American States	25,000	20 satellite telephones
Red Cross/Red Crescent	946,939	
Private (Individuals & Organizations)	13,828,311	

(From: U.N. OCHA as cited in Beittel & Margesson, 2010)

LIST OF REFERENCES

- A 521 aumentaron los fallecidos por catástrofe en Chile. (2010, May 15). *Radio Cooperativa*. Retrieved October 20, 2010, from <http://www.cooperativa.cl>
- American Red Cross. (2010). *American Red Cross responds to Chile earthquake with initial \$50,000 pledge*. Retrieved February 28, 2010 from <http://www.redcross.org>
- AON Benfield. (2010). *Event recap report: 27 February 2010, Chile earthquake*. Retrieved July 29, 2010, from <http://www.aonbenfield.com>
- Apte, Aruna. (2009). Humanitarian logistics: A new field of research and action. *Foundations and Trends in Technology, Information and Operations Management*, 3, 3–89.
- Bachelet decreta primer estado de catastrophe desde terremoto de 1985. (2010, March 1). *El Mercurio*. Retrieved October 28, 2010, from <http://www.guiaportal.com/ultimas-noticias/bachelet-decreta-primer-estado-de-catastrofe-desde-terremoto-de-1985>
- Beittel, J. S. & Margesson, R. (2010). *Chile earthquake: U.S. and international response*. Washington, DC: Congressional Research Service. Retrieved March 11, 2010, from <http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA516338&Location=U2&doc=GetTRDoc.pdf>
- Center for Excellence in Disaster Management & Humanitarian Assistance. (2010). *Chile earthquake and tsunami report*, March 1, 2010. Retrieved October 28, 2010, from <http://coe-dmha.org/Chile/Chile03012010.pdf>
- Central Intelligence Agency. (2010). *Haiti, Central Intelligence Agency world fact book*. Washington, DC: Central Intelligence Agency. Retrieved October 21, 2010, from <http://www.cia.gov/library/publications/the-world-factbook/geos/ha.html>
- Chairman of the Joint Chiefs of Staff. (2008). *Joint Publication 3-57 civil military operations*. Washington, D.C.: U.S. Government Printing Office.
- Chairman of the Joint Chiefs of Staff. (2009). *Joint Publication 3-29 foreign humanitarian assistance*. Washington, D.C.: U.S. Government Printing Office.
- Chile troops tackle earthquake looters. (2010, March 1). *BBC News*. Retrieved October 5, 2010, from <http://news.bbc.co.uk/2/hi/8542789.stm>
- Chile's army ramps up earthquake relief effort. (2010, March 4). *CBS News*. Retrieved October 20, 2010, from <http://www.cbsnews.com/stories/2010/03/04/world/main6265818.shtml>

- Collinson, S. (2010). *States of fragility: Stabilization and its implications for humanitarian action*. Retrieved October 22, 2010, from <http://www.odi.org.uk/events/report.asp?id=2474&title=states-fragility-stabilisation-its-implications-humanitarian-action>
- Davidson, L. W., Hayes, M. D., & Landon, J. J. (1996). *Humanitarian and peace operations: NGOs and the military in the interagency process*. Washington, D.C.: National Defense University.
- Estrada, D. (2010, March 3). Los Contrastes de la Tragedia. IPS. Retrieved November 4, 2010, from <http://www.ipsnoticias.net/nota.asp?idnews=94813>
- Harvey, P., Stoddard, A., Harmer, A., Taylor, G., DiDomenico, V., & Brander, L. (2010). *The state of the humanitarian system: Assessing performance and progress, a pilot study*. [Electronic version]. London: Overseas Development Institute.
- Hernandez, D. (2010, March 4). Earthquake exposes social disparities in Santiago, Chile. *Los Angeles Times*. Retrieved November 4, 2010, from <http://articles.latimes.com/2010/mar/04world>.
- infoplease (2009). Retrieved June 30, 2010, from <http://www.infoplease.com/>
- Inter-Agency Standing Committee. (2010). *Response to the humanitarian crisis in Haiti*. Retrieved October 22, 2010, from <http://www.humanitarianinfo.org/iasc>
- Keen, P., Neto, F., Nolan, C., Kimmey, J., & Althouse, J. (2010, May). Relationships matter humanitarian assistance and disaster relief in Haiti. *Military Review*, 90(3), 2–12. Retrieved November 4, 2010, from Military Module. (Document ID: 2066325591).
- Kent, R. C. (1987). *Anatomy of disaster relief: The international network in action*. New York and London: Pinter, 1987.
- Lafsky, M. (2010, March 1). The power of building codes: Chile death toll less than 1% that of Haiti. Retrieved November 4, 2010, from <http://www.infrastructurist.com/2010/03/01/the-power-of-building-codes-chile-death-toll-less-than-1-that-of-haiti/>
- Long, G. (2010, March 3). *Chile's army under scrutiny in earthquake zone*. Retrieved October 20, 2010, from <http://news.bbc.co.uk/2/hi/americas/8547653.stm>
- Margesson, R., & Taft-Morales, M. (2010). *Haiti earthquake: Crisis and response*. Washington, D.C.: Congressional Research Service.
- Maynard, K. A. (1999). *Healing communities in conflict: International assistance in complex emergencies*. New York: Columbia University Press, 1999.

- Meyer, P. J. (2010). *Chile: Political and economic conditions and U.S. relations*. Washington, D.C.: Congressional Research Service. Retrieved September 22, 2010, from <http://www.fas.org/sgp/crs/row/R40126.pdf>
- Neuman, S. & Beaubien, J. (2010, March 4). Military aid efforts provoke dark memories in Chile. *National Public Radio*. Retrieved October 20, 2010, from <http://www.npr.org/templates/story/story.php?storyId=124316265>
- Office of U.S. Foreign Disaster Assistance (2010a). *Annual report for fiscal year 2009*. Washington, D.C.: U.S. Agency for International Development.
- Office of U.S. Foreign Disaster Assistance. (2010b). *Fiscal (FY) 2010 fact sheet #1: Haiti-earthquake*. Washington, D.C.: U.S. Agency for International Development.
- Office of U.S. Foreign Disaster Assistance. (2010c) *Fiscal Year (FY) 2010 fact sheet #17: Chile—earthquake*. Washington, D.C.: U.S. Agency for International Development.
- Office of U.S. Foreign Disaster Assistance. (2010d). *Fiscal (FY) 2010 fact sheet #73: Haiti—earthquake*. Washington, D.C.: U. S. Agency for International Development.
- Panitz, T. (1996). *Collaborative versus cooperative leaning: A comparison of the concepts which help us understand the underlying nature of interactive learning*. Retrieved June 20, 2010, from http://pirun.ku.ac.th/~btun/pdf/coop_collab.pdf
- Phillips, D. (2010, March 4). Poor are the last to get aid amid class war in earthquake's ghost city, Chile. *The Times*. Retrieved November 4, 2010, from http://www.timesonline.co.uk/tol/news/world/us_and_americas/article7050551.ece
- Piotrowski, C. (2010). Earthquake in Haiti: A failure in crisis management? *Organization Development Journal*, 28(1), 107–112. Retrieved October 29, 2010, from ABI/INFORM Global. (Document ID: 1979164211).
- Pondy, L. R. (1967, September). Organizational conflict: Concepts and models. *Administrative Science Quarterly*, 12(2), 296–320. Retrieved November 18, 2010, from JSTOR database.
- Powley, E. H., & Cameron, K. S. (2006). Organizational healing: Lived virtuousness amidst organizational crisis. *Journal of Management, Spirituality & Religion*, 3(1–2), 13–33.
- Reuben, A. (2010, March 1). Why did fewer die in Chile's earthquake than in Haiti's? *BBC News*. Retrieved November 4, 2010, from <http://news.bbc.co.uk/2/hi/americas/8543324.stm>

- Schuman, J. (2010, January 13). Haiti's geology suggests more earthquakes coming. *AOL News*. Retrieved November 4, 2010, from <http://www.aolnews.com/world/article/haitis-seismic-history-suggests-more-is-coming/19315538>
- Svedin, Lina M. (2009). *Organizational cooperation in crises*. Surrey: Ashgate, 2009.
- Tomassini, R. & Van Wassenhove, L. (2009). *Humanitarian logistics*. Great Britain: Palmgrave Macmillan, 2009.
- U.N. says Chile makes request for aid. (2010, March 2). *People's Daily*. Retrieved October 28, 2010, from <http://english.people.com.cn>
- United Nations Office for the Coordination of Humanitarian Affairs. (2006). *Cluster appeal for improving humanitarian response capacity*. New York: United Nations.
- United States Agency for International Development. (2010). Haiti earthquake intensity map: Earthquake, January 12, 2010. Washington, D.C.: Author.
- United States Geological Survey. (n.d.) *Earthquakes with 1,000 or more deaths since 1900*. Retrieved October 17, 2010, from http://earthquake.usgs.gov/earthquakes/world/world_deaths_sort.php
- United States Geological Survey. (2010a). Magnitude 8.8 offshore Maule, Chile. Retrieved July 8, 2010, from <http://earthquake.usgs.gov/earthquakes/eqinthenews/2010/us2010tfan>
- United States Senate. *Haiti at a crossroads: A report to the members of the Committee on Foreign Relations*. Washington, D.C.: GPO, 2010.
- United States Southern Command. (2010, May 25). *Narrative history of operation unified response*. Retrieved October 27, 2010, from <http://www.southcom.mil/AppsSC/factFilesLarge.php?id=138>
- Zilbechi, Raul. (2010, March 18). Earthquake and tsunami in Chile: The militarization of natural disaster. *Americas Program*. Retrieved October 5, 2010, from <http://upsidedownworld.org/main/chile-archives-34/2407-earthquake-and-tsunami-in-chile-the-militarization-of-natural-disasters>

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