

Implementation of Elements of Preparedness: Not-for-profits in the Interrupted
Environment of Humanitarian Supply Chain Management

by

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Abstract

This thesis addresses aspects of preparedness, by not-for-profit humanitarian relief organizations, for effectively responding to natural disasters. It asks how not-for-profit organizations, engaged in humanitarian supply chain management, develop capabilities and implement various elements of preparedness. The research methods consist of a combination of case-based research and grounded research in examining two very different organizations, one comparatively small and faith based and the other larger and secular. Data collection consisted of mostly open-ended interviews with representatives of the two organizations. The findings consist of a number of themes centred on the concept of a local focus on vulnerable communities. Associated themes include the importance of establishing a presence in the community, local capacity building, and early needs assessment. These themes are summarized as testable propositions. A summary framework is presented for the integration of international and local supply chains, in preparing to respond to natural disasters.

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Dedication

This thesis is dedicated to my Mom and Dad, who spent all their lives developing relationships with people, connecting with them, listening to them, helping and supporting the neglected and the poor in the society.

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Responding to Disasters: Preparedness

Pakistan Earthquake

It was 8 October 2005, the early hours of just another ordinary day in the foothills and valleys of the Himalayas. People were getting ready for work, shopkeepers were preparing to open businesses, and children were busy humming the lessons in their classrooms when, all of a sudden, the whole world shook around them. It was a massive earthquake, measuring 7.6 on the Richter scale (Heigh, 2006) and spreading destruction across thousands of square kilometres in the northern part of Pakistan and parts of Indian controlled Kashmir. Houses crashed, roads twisted, bridges fell, army bunkers collapsed, as did hospitals. Communication systems disappeared and the shock literally flattened whole cities, including Muzaffarabad, the capital city in Kashmir. Aftershocks caused a series of landslides along the mountain ranges, wiping out bridges and roads and destroying everything in their paths. It took a whole day for the Pakistani government to realize the extent of damage and destruction. The death toll reached 74,000 (Davidson, 2006) within the first few days. The number of displaced people reached hundreds of thousands, including those who were injured and who lost all their possessions, homes and families. Many still lay buried in the rubble somewhere in the mountains, bleeding and awaiting rescue, in the first couple of days after the disaster. The homeless count reached 3.3 million. People were living without shelters, many in the open, waiting the approaching winter under the freezing rains and open skies. As the news spread, the governments, the military, and the not-for-profit (NFP) sector around the world geared up

for action in an attempt to save lives and to provide relief. There was a need for a response that was swift, effective, coordinated and organized, so that relief supplies could reach the victims as quickly as possible. In such situations where needs are massive and urgent and resources are meagre, the effectiveness of the response is vital in saving lives and in reducing the impact of the disaster.

Increasing Frequency of Disasters

There is a general agreement that the world is experiencing an increased frequency and severity of natural and man-made disasters, whether counted in terms of the number of affected people or in relation to the cost of response and recovery (Tatham, Spens and Oloruntoba, 2009). Figure 1 shows the number of disasters in the past 100 years.

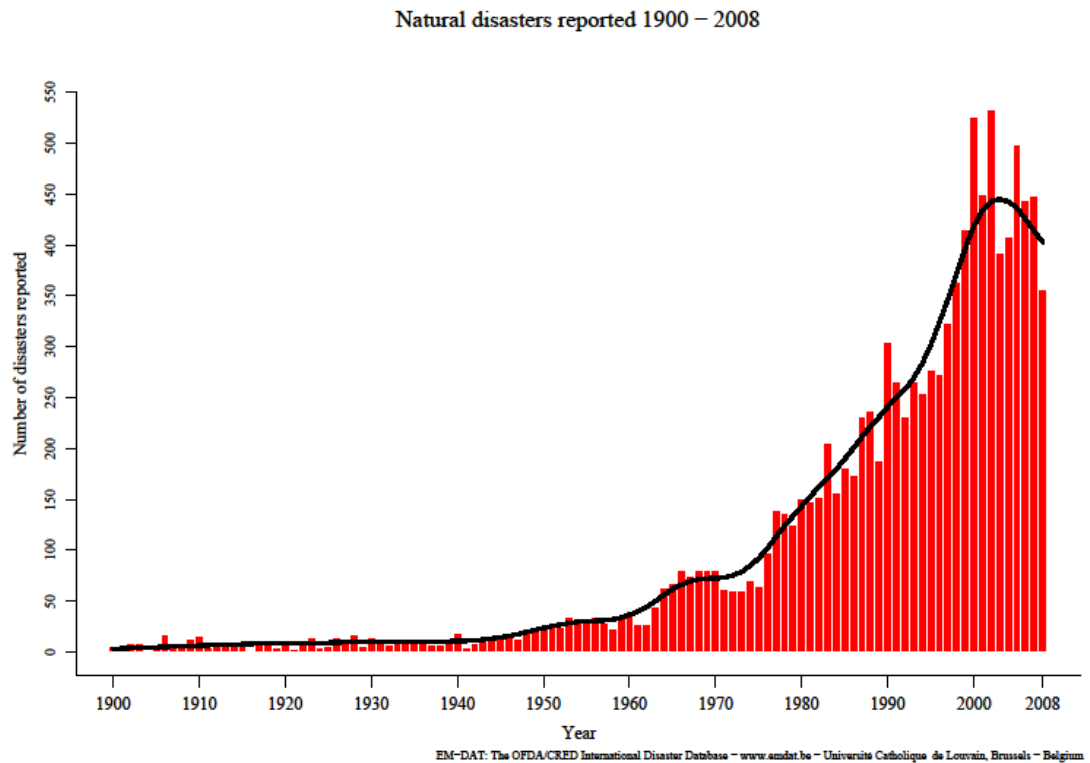


Figure 1. Number of disasters in the world (1900-2008).

Taken from "EM-DAT: The OFDA/CRED International Disaster Database – www.emdat.be – Université Catholique de Louvain – Brussels – Belgium."

The number of natural disasters has been increasing dramatically for the last several decades although there is a slight reduction in the trend in the last few years.

Figure 2 shows the combined trend of the natural disasters in the last more than 100 years.

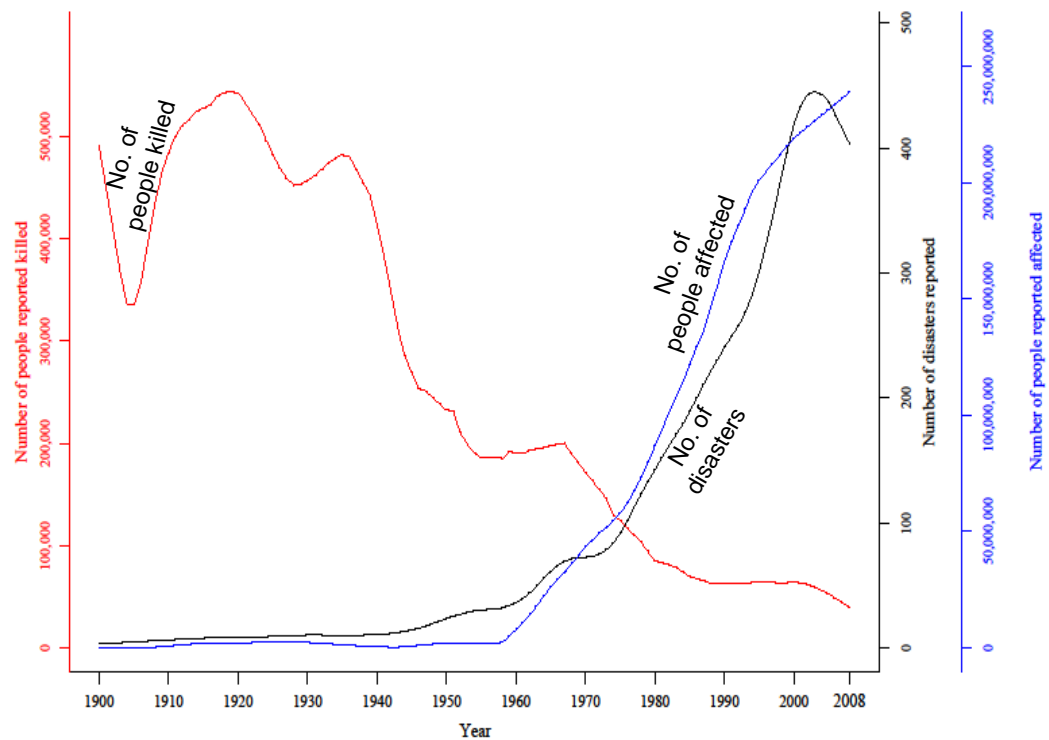


Figure 2. Natural disasters summary (1900-2008).

Adapted from "EM-DAT: The OFDA/CRED International Disaster Database – www.emdat.be – Universite Catholique de Louvain – Brussels – Belgium."

An important factor that may have some bearing on the growing number of people affected is the world's population, which has been growing steadily. This may also have some effect on the increase in the number of man-made disasters, and possibly on natural disasters, given possible effects on the world's environment. The population data are shown in Figure 3.

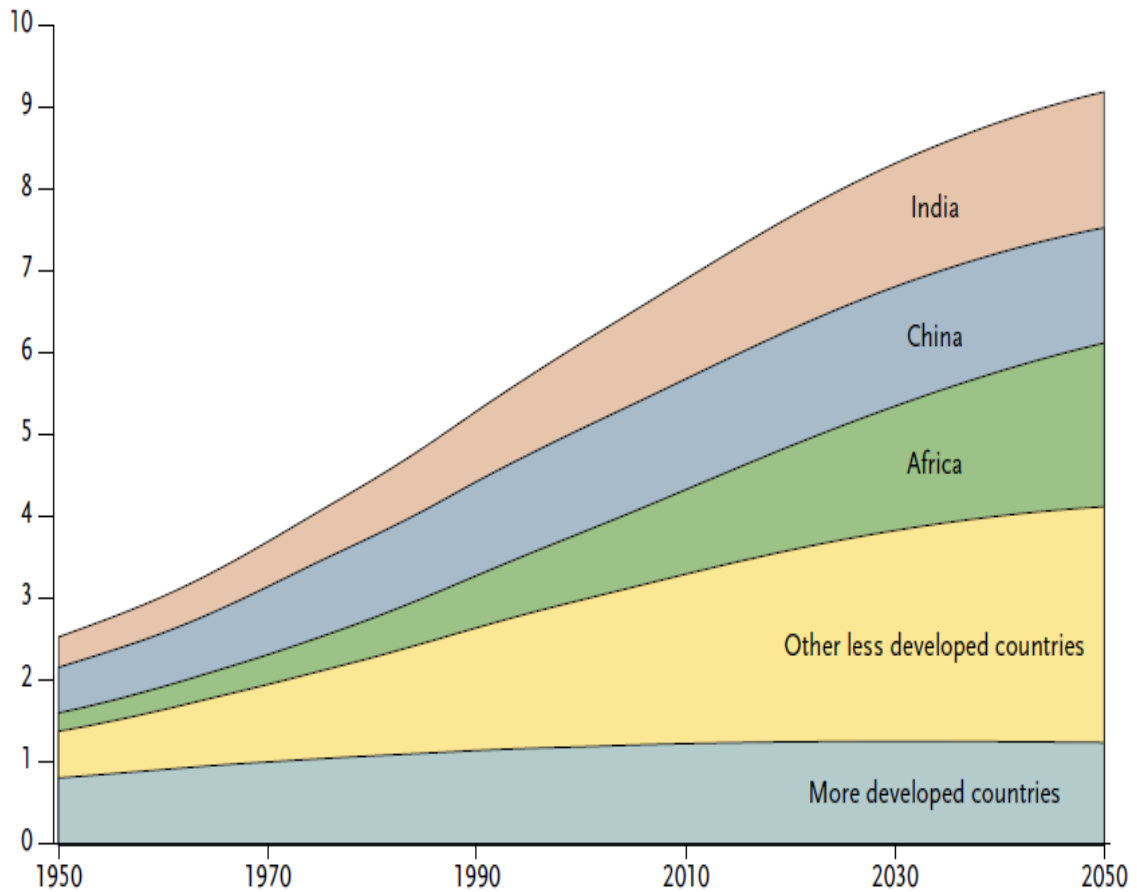


Figure 3. World's population data.

Taken from: http://www.prb.org/pdf08/08WPDS_Eng.pdf

The people "affected" are those who require immediate assistance during an emergency; including displaced or evacuated people. The increase in the number of people affected is consistent with the other three trends. That is, one would expect an increase in the number of affected people as population rises, as the number of disasters increases, and as the number of deaths decreases. Overall, the number of people needing relief has been increasing dramatically, as well.

The reason for the lower number of fatalities per disaster is not clear. It could be due to better preparedness and response by some governments (e.g., Cuba, Bangladesh),

better preparedness strategies of some NFPs, or merely better reporting methods (Scheuren, de Waroux, Below, Guha-Sapir and Ponserre, 2008).

Tatham et al. (2009) point out that while some of this increase may be the result of better reporting, the data clearly indicate that Asia is one of the most disaster-prone regions in the world, accounting for over 40 percent of world's disaster events and 80 percent of the reported victims of natural disasters in 2008 (EMDAT, 2008).

Natural disasters like the tsunami in Indonesia (2004), the earthquake in Pakistan (2005) and most recently in China, in 2008, have been serious setbacks to the economic development of the region. Drought and epidemics have occurred in many regions in Africa, resulting in extensive human casualties and economic damage. Europe has experienced extreme weather and heat waves. There have been severe hurricanes in the Americas in recent years, causing havoc in the region (Scheuren et al. 2008). The causes of these losses are many, including the degree of societal exposure to hazardous events and the vulnerability level of exposed people (Below, Grover-Kopec and Dilley, 2007). Many governments alone are unable to provide immediate relief due to the size of these events, a lack of resources and poor preparation. Unfortunately, the need for disaster relief will continue to expand, as it is forecast that over the next 50 years, both natural and man-made disasters will increase five-fold (Kovacs and Spens, 2007). The role of the not-for-profit (NFP) sector in providing relief to the victims of these disasters is becoming increasingly important due to this increasing trend. The NFP sector has a role to play in preparing communities to cope with disasters (Perry, 2007). Providing timely relief to an increasing number of communities affected by disasters is a challenge that

many not-for-profit organizations (NFPs), who are grounded in their members' values and passions (Rothschild and Milofsky, 2006), are striving to meet.

Humanitarian Supply Chain Management

There are a great many actors, actions, and issues involved with responding to disasters. These might include processes such as treating the injured, rescuing earthquake victims, engaging in diplomacy, peace building, conducting military operations, or enhancing security. Humanitarian supply chain operations will often be impacted by processes such as these, which make them relevant considerations for understanding the delivery of relief to beneficiaries.

Nevertheless, this study focuses on "humanitarian supply chain management." That is, it is mainly concerned with the timely, accurate, and cost effective flow and storage of relief material to those who are affected by disasters.

For example, relevant supply chain issues concerning governments in disaster-prone regions would typically address gaining access to the disaster area, crossing borders, obtaining visas, meeting customs regulations, and so forth, but would not be directly concerned with other issues of governance. As a second example, there are many issues concerning military units, including militias that operate in disaster areas. Once again, a relevant issue for humanitarian supply chain management might include involvement with military forces to arrange the use of a military airstrip for relief flights, but not wider issues such as military planning and operations. A final example would be the deployment of temporary field hospitals to a disaster zone, but not the medical operations per se.

In short, there are a great many considerations and influences in any disaster situation. Humanitarian supply chain management addresses these only to the extent that they impact relief operations.

A typical supply chain, or a "direct supply chain" is a "company, a supplier, and a customer involved in the flows of products, services, finances, and/or information" (Mentzer et al., 2001). Taylor (2004) states that "every company that touches a product is part of a supply chain" and "a supply chain is basically a set of facilities connected by transportation lanes." In the humanitarian relief context, an often used phrase is humanitarian logistics, which is charged with ensuring the efficient and cost-effective flow and storage of goods and materials for the purpose of alleviating the suffering of vulnerable people (Thomas and Kopczak, 2005), or it is:

The process of planning, implementing and controlling the efficient, cost-effective flow and storage of goods and materials as well as related information, from the point of origin to the point of consumption for the purpose of meeting the end beneficiary's requirements. (Thomas and Mizushima, 2005)

Another definition in use here at the Department of Supply Chain Management, University of Manitoba is:

Humanitarian Supply Chain Management is the process of strategically managing flows of goods, services, people, cash and information; along

with relationships within and among organizations; to save lives, ease suffering and conserve scarce resources.

It involves the interaction of various entities; including non-governmental organizations, government agencies, agencies of the United Nations, refugees and commercial suppliers of goods and services; and it focuses on satisfying relevant stakeholders, such as beneficiaries, donors, employees, communities, and policy makers.

There are many different expressions used for disaster relief operations in the literature, for instance, "humanitarian relief logistics," "humanitarian logistics" or "humanitarian supply chain management." There is potential confusion between references to "logistics" and to "supply chain management." The confusion concerns the word logistics, which in Europe is typically used the same way as "supply chain management" is used in North America. In North America, however, the word logistics is often used in a much narrower sense to mean only activities such as warehousing, transportation, or purchasing. This study uses "logistics" and "supply chain management" interchangeably. If logistics is meant in the narrower sense, words such as warehousing, transportation, or purchasing are used instead.

. Humanitarian supply chain management is the field of supply chain management in the humanitarian relief context. It is a world of its own. Humanitarian supply chains operate in an environment of confusion and chaos that accompanies disasters (Kovacs and Spens, 2007). By its very nature, humanitarian supply chain management concerns

change (Courtney, 1994). It is a people-intensive and people-driven endeavour that leverages on the motivation and devotion of those who choose to work for it (Samii R, Van Wassenhove, Kumar and Becerra-Fernandez, 2002a). It distinguishes itself from private sector supply chain management in a variety of ways. As Oloruntoba and Gray (2006) explain, it involves a growing and complex plethora of actors and agencies. This includes civil, business and military sectors. All these actors work in a very different environment of uncertainty, vagueness and constant change. Limited resources and an urgency to meet needs of the beneficiaries are characteristics of such an environment.

Humanitarian vs. business supply chains. In a business environment, where demand is somewhat predictable, the range of products and requirements can also be predictable (Kovacs and Spens, 2007). The processes, the knowledge of the type of skills and number of people required for operations are known as well. The training of staff is a priority and separate budgets are available for this purpose. Employee turnover is comparatively very low. In this context, efficiency, higher productivity, better training and efficient use of resources translates into profitability, higher stock value and higher returns for the stockholders.

In a total contrast to the business environment, in humanitarian supply chains, as Van Wassenhove (2006) describes, the biggest hurdle during a disaster is the sheer complexity of the operating conditions. There is an element of chaos in the immediate days after a sudden onset disaster (Davidson, 2006). Sophisticated coordination of activities is required to carry out the primary mission of humanitarian aid and its delivery to the recipients, whose survival may depend on the efficient completion of logistics and

supply chain operational activity (Kovacs and Spens, 2007). There is a need for robust equipment that can be set up and dismantled quickly (extremely adaptable and prepared for the unexpected). Greater issues of safety (operating in politically volatile climates) and time pressure (questions of life and death) prevail. One event can have detrimental effects on many suppliers, which have subsequent ripple effects throughout many supply chains (Zsidisin, 2003), and this happens at a time when supplies need to be assured.

In spite of the differences between the private and humanitarian sectors, there is a need for lessons to be learned (Tomasini and Van Wassenhove, 2009), as the supply chains of organizations that are in the field providing humanitarian relief may be comprised of players from both sectors.

Matching supply and demand. The differences between the commercial and humanitarian worlds may also be seen in the area of forecasting. In the commercial world, customers, customer requirements, and forecasts of demand can be reasonably determined. In contrast, NFPs operate without the market forces of demand and supply and hence price, which introduces risks into supply chains (Kleindorfer and Saad, 2005). There is ambiguity in the direction in which a crisis may escalate. There is always a chance of a delayed crisis. The most immediate task after a disaster is to determine the needs of those affected. This isn't easy and it must be done quickly. People are often on the move after a disaster and access to the disaster area is usually limited (Perry, 2007). Communications in such conditions might be non-existent. The situation after a disaster is very dynamic. The available information is sketchy and often inaccurate (Tomasini and Van Wassenhove, 2004), and sometimes exaggerated. The demand for relief supplies is

huge, unpredictable and immediate. Matching demand (i.e., beneficiary needs) with supply in such conditions is thus a complex issue.

Normally, the needs of the affected population are determined by aid providers who are from different countries and hence supplies are sent based on limited information (Long and Wood, 1995). For example, in the aftermath of the tsunami in Asia in 2004, many of the humanitarian aid agencies sent in their own assessment teams without including local people. Eighty eight percent of teams conducting assessments were international (Perry, 2007).

These are some of the factors causing mismatches in real demand and supply, which can lead to a waste of expensive resources. Too little of the right supplies causes an increase in peoples' suffering, often putting lives in danger. Too many supplies (especially the wrong ones) waste resources that could be used for materials that are needed by other beneficiaries. Perry (2007) provides an example from an interview after the Asian tsunami disaster, which highlights the importance of local inclusiveness to reduce these mismatches in noting that, "The uniqueness of this [tsunami] disaster was that people weren't there anymore [because of the great loss of life]. There were 223,000 people who were just not there. So we ordered tents, we ordered tarps, we ordered blankets but people were not there."

Challenges in applying mathematical models. There have been many interesting quantitative modelling and simulation papers written concerning the preparedness and immediate response phases, many of them recently (Kovacs and Spens, 2008). Beamon and Kotleba (2006) discuss inventory issues of relief items and analyze

three different inventory management policies. Hwang (1999) presents an effective distribution model for determining optimal patterns of food supply and inventory allocation for famine relief area. Ozdamar, Ekinici and Kucukyazici (2004) address the dynamic time-dependent transportation problem that needs to be solved repeatedly during ongoing aid delivery. Tovia (2007) developed a model to assist the emergency management agencies at their city offices. Balcik and Beamon (2008) developed a model that determines the number and locations of distribution centres to meet the needs of the people affected by the disasters. Sheu (2007) presents a hybrid fuzzy clustering-optimization approach to the operation of emergency logistics co-distribution responding to the urgent relief demands in the crucial rescue period. Chang, Tseng and Chen (2007) attempt to develop a decision making tool that could be used by government agencies in planning for flood emergency logistics. Yi and Kumar (2007) present a meta-heuristic of ant colony optimization (ACO) for solving the logistics problem arising in disaster relief activities. A spatial decision support system is provided by de Silva (2001). Common to these models is the problem of their assumption of particular scenarios and the existence of input data such as known nodes of demand for particular goods. Only a few of them are able to deal with the dynamics of an emergency. Many of these papers give only numerical examples or illustrate their points via randomly generated data, without including empirical data. While these approaches are interesting for the purpose of modelling and validation of a model, their applicability (and empirical value) for humanitarian logistics remains disputed (Kovacs and Spens, 2008).

Volunteerism. Skilled people are in short supply. Most humanitarian organizations depend on untrained volunteers to do the job in a difficult environment of uncertainty. The nature of humanitarian personnel, their diverse backgrounds and diversity in organizational climates, all act against process integration (Oloruntoba and Gray, 2006). While there are vast differences in the backgrounds and training of the participating volunteers (May, 1982), the overall turnover rate among the participants is very high due to the higher percentage of volunteers compared to the commercial world. As a consequence, much is lost as volunteers return home, taking with them whatever experience and knowledge they have gained during their volunteer activity. Short-term planning with each humanitarian effort requires a new supply chain and new personnel every time, hindering efficiency.

Distance from the actual scene. Another issue in humanitarian logistics, as pointed out by Oloruntoba and Gray (2006), is the fact that the headquarters of most organizations involved are located in countries and cities that are far from the actual scenes of disaster. The headquarters of major international aid agencies are located in Europe or North America while 60 percent of the world's disaster events occurred in the Asia-Pacific region (Tatham et al., 2009). The focus at the headquarters may be more concerned with relations with donors rather than with the delivery to the aid recipients. The recipients have no control over supplies, as a critical "customer" to be satisfied is actually the donor. Instead of monitoring supply chains for operational improvement, donor reporting requirements drive information collection (Russell, 2005).

This further gets complicated when people are on the move after a disaster. They move about and food and supplies must reach them wherever they are. Sometimes they enjoy political disfavour or they happen to be in a war zone, with the NFPs trying to maintain neutrality in the conflict (Long and Wood, 1995). Misleading and incomplete information usually comes out of such events. Delays, errors, and ineffectiveness are the common consequences especially when planning is done far from the scene of a disaster. Most of the concepts introduced to explain various phenomena in a normal world do not sufficiently explain the relationships in the dynamic environments of emergencies (Kapucu, 2007), when needs are urgent, stakes are high (often life and death) and challenges are immense.

Donors and funding. Most funding becomes available for a particular disaster through donor appeals. Media attention plays a very critical role in raising funds for disasters and many organizations pay special attention to media relations. This affects the policies of some organizations. Some try to be the first to respond in order to be seen as the leaders. Their organizational structure requires facilitation for this early intervention. Thus, in the humanitarian world, the recipients of the output (i.e., beneficiaries) are different than the sources of funds (i.e., the donors) (Oloruntoba and Gray, 2006). This is in stark contrast to the commercial world, where the customer both pays for and receives the output. In a disaster scenario, the beneficiaries have no real control over relief supplies. Donor relations are a major concern to humanitarian agencies, as the wishes of donors must always be taken into account (Russell, 2005). Often, these wishes can focus more on visibility for the donor than on the effectiveness of the relief operation. For

example, donors are typically more interested in funding immediate and visible relief after a disaster has occurred than they are in funding mitigation and preparedness activities that could help prepare effectively for a disaster that may never occur. Targeted donations make it difficult for relief organizations to devote funds to pre-disaster preparation and capability building (Thomas and Kopczak, 2005). This is sometimes referred to as the "donor mindset," in which donors prefer to see visible victims (Samii et al., 2002a) and insist that their money goes directly to help victims and not to finance back-office operations such as preparation and training, which are often neglected. What you need is money to organize, not the money to deploy, and that's what you don't get (Murray, 2005). As Bernard Chomilier, former head of Logistics at the International Federation of the Red Cross and Red Crescent Societies (IFRC) pointed out, "It is easy to find resources to respond; it is hard to find resources to be more ready to respond" (Van Wassenhove, 2006). Donors are willing to donate after a disaster, even if the materials need to be airlifted, which is prohibitively expensive, but are not typically ready to provide funds in advance to facilitate cost effective methods and training, etc. Funding is accompanied with many requirements about documentation and reporting for accountability. As a consequence, headquarters staff for relief agencies may be more concerned with donor relations than with the delivery of aid to recipients, as the "customer" to be satisfied is the donor (Oloruntoba and Gray, 2006).

Collaboration. After a disaster, there is a great need for collaboration between different agencies involved in the relief effort. Examples include foreign aid agencies, local groups, non-governmental organizations (NGOs), various governmental agencies,

private-sector suppliers, freight forwarders, and military forces. This need for collaboration is present in all the three phases of disaster relief, namely, preparedness, immediate response, and reconstruction (Kovacs and Spens, 2007). For example, the use of military resources is sometimes desirable, especially in inaccessible regions like those in the northern parts of Pakistan, where U.S. military helicopters were utilized to reach inhabitants in the remote and inaccessible mountains. Such collaboration and partnership is required not only in the short-term (immediate response) but also in the long-term between the victims themselves, the local authorities and other actors, for a successful relief and reconstruction effort (Oloruntoba, 2005). Larson (2009) describes types of relationships between different players and the NFPs in the humanitarian context. Practitioners are doing a lot of work to improve collaboration, better information sharing, and other aspects of delivering relief, with some success (Kovacs and Spens, 2007).

Different types of supply chains. Larson and McLachlin (2007) present a conceptual framework describing the characteristics of four types of supply chains in four different environments (Figure 4). In this figure, each quadrant represents a different type of supply chain. These are for-profits in an uninterrupted environment, for-profits in an interrupted environment, not-for-profits in an uninterrupted environment, and not-for-profits in an interrupted environment. Uninterrupted environments are those that are relatively stable in terms of political and economic conditions, along with logistics infrastructure, customers, suppliers, service providers and employees. The characteristics of an interrupted environment are a lack of stability, more complex supply chains and special challenges in serving customers and being served by suppliers. Compared to for-

profit organizations, not-for-profits (NFPs) emphasize social objectives rather than economic objectives.

| Sector | Environment | |
|----------------|---------------|-------------|
| | Uninterrupted | Interrupted |
| For-profit | Q1 | Q 2 |
| Not-for-profit | Q 3 | Q 4 |

Figure 4. Four types of supply chains.
Larson & McLachlin (2007)

In Figure 4, Q1 is the quadrant representing the uninterrupted or normal environment in which most business organizations operate (e.g., Wal-Mart). However, the supply chains of some of these organizations stretch across various continents of the world. These long supply chains are vulnerable and face the risk of various interruptions, such as accidents, natural disasters, or terrorist attacks. These interruptions in the supply chain may move the organization from an uninterrupted environment (Quadrant 1) into an interrupted environment (Quadrant 2). This shift may be temporary and the organizations try to move back to Quadrant 1 as quickly as possible. As an example, during Hurricane Katrina, most Winn-Dixie grocery stores managed to function in the interrupted environment. Therefore, Winn-Dixie actually operated in Q2 during the crisis.

In Figure 4, Quadrant 3 represents the NFPs operating in an uninterrupted or stable environment. An example is Winnipeg Harvest, which is a local non-profit food bank that collects and provides food for the poor and hungry. Quadrant 4 represents the unstable and unpredictable environment where NFPs like international relief organizations operate during a disaster response. The World Food Program (WFP) is an example. It operates in many parts of the world, such as the Darfur region in Sudan in order to deliver relief materials to the local population affected by famine. It is difficult to make sharp distinctions or boundaries between these four quadrants. There can be organizations that operate simultaneously in different quadrants but the four quadrants provide a conceptual framework to help understand the different characteristics and management challenges faced by various players in these different operating conditions. Different strategies will be required to tackle these different challenges.

Phases within a Disaster

Researchers have described a disaster in terms of its different phases. This description is important to know as the various phases have different characteristics and issues and thus require different strategies to handle them. Kovacs and Spens (2007) describe three phases consisting of preparation, immediate response and reconstruction (Figure 5).

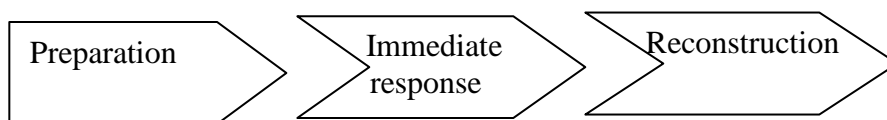


Figure 5. The three phases in disaster relief operations.
Kovacs & Spens (2007)

Van Wassenhove (2006) adds mitigation to the above three. Mitigation may help in avoiding the disaster itself or in reducing the impact of it. The preparedness phase is represented as the time between two disasters. Many researchers and organizations have realized the importance of this phase, as the response to a disaster very much depends on preparedness activities that must be undertaken before the disaster. These include specific materials, professional and financial resources that are earmarked and available for relief operations, along with the organizational structures to rapidly deploy them (Stoddard, 2004). The response phase is the actual delivery of relief to beneficiaries. It involves a great many actors. The need for coordination is critical among various actors (Kovacs and Spens, 2007). As the initial needs of beneficiaries are intense and immediate, they require readily available resources. The emphasis during the response phase is on saving lives and providing relief to sustain life in the immediate aftermath of a disaster. This phase is followed by long-term rehabilitation activities, which aim at bringing back normalcy to the lives of the affected. It may involve the construction of housing, various development projects to repair and rebuild damaged infrastructure, and the long-term psychological care of survivors. See Table 1 for the various phases within a disaster as described by Van Wassenhove (2006).

Table 1
Phases within a Disaster

| Mitigation | Preparedness | Response | Rehabilitation |
|-----------------------------|-----------------------------|--------------------------------|----------------------------|
| City planning | Education | Saving lives | Reconstruction of homes |
| Flood protection procedures | Training | Providing relief | Infrastructure development |
| Dikes | Early warning systems | Emergency roof or shelters | Psychological help |
| | Pre-positioning of supplies | Protection of women & children | |
| | Postponement | Treatment of injured | |
| | Role of logistics | Counselling | |

Responding to Disasters

In the words of Van Wassenhove (2006), "A successful humanitarian operation mitigates the urgent needs of a population with a sustainable reduction of their vulnerability in the shortest amount of time and with the least amount of resources."

During the early stages of a disaster, the main criterion is timeliness and speed takes precedence over cost. While effectiveness in making sure that the right relief items are matched with the needs of beneficiaries is important, even this can be sacrificed in the early stages of a disaster in order to respond quickly. One example of this is an airdrop.

An airdrop sometimes can be the only way to reach an affected population shortly after disaster strikes, as was the case in the largely inaccessible west coast, near Banda Aceh, Indonesia, after the 2004 tsunami (Hudspeth, 2005). The airdrop is quick and some beneficiaries will get some relief, but it is costly and not sufficiently accurate. After a brief period of time, such approaches give way to more effective means during the response phase – such as the movement of relief items by truck to beneficiaries who have been identified as being in need of particular relief items. As more time passes, the issue of the cost of the response also becomes important. Finally, during the rehabilitation stage, cost is paramount, provided that issues of timeliness and effectiveness continue to be addressed. The ability to respond quickly and appropriately is a cornerstone of disaster relief activity (Perry, 2007). A timely response not only saves lives but the recipients who receive relief assistance immediately after a disaster (within 48 hours) find the road to recovery more bearable and feel an improved sense of security compared to those who receive assistance later (Fritz Institute, 2006). Timeliness is thus a critical element of success. Thus, a successful response requires an early assessment of needs and an effective manner of delivery, which is able to match supply and demand in a timely fashion. Matching supply and demand in an interrupted environment is a complex problem (Samii, Van Wassenhove, Kumar and Becerra-Fernandez, 2002b).

Thus, an effective response implies:

1. Having a timely response
2. Matching supply and demand
3. Launching the response cost effectively

Preparedness and Response

Delivering an effective response after a disaster hits is a challenge for NFPs. Many researchers have linked an effective response with preparedness. The more one is prepared, the more effective the response (Van Wassenhove, 2006). Humanitarians have begun to realize that they have to work hard not only during a disaster but also between disasters, in order to be better prepared when a disaster strikes. The two elements of preparedness and response are considered absolutely critical to disaster management (Van Wassenhove, Samii and Chomilier, 2003). Organizations, like the IFRC are now focusing more on disaster management, which they equate to preparedness plus response. Leach (2005) points out that one of the two hurdles in providing relief during both the 2005 New Orleans hurricane and the 2004 Asian tsunami disasters was a lack of preparedness. Carroll and Neu (2007) propose a doctrine of universal training that emphasizes preparation, rather than response. Kopczak and Johnson (2004) point out the improvements in operation of the IFRC that were achieved by conducting advanced planning (preparedness). They were able to reduce costs and enable better coordination between partners and other NFPs, alleviating the inevitable congestion and confusion that tends to inhibit the flow of relief to beneficiaries. Courtney (1994) emphasizes the establishment of quality teams throughout organizations, the establishment of quality assurance systems, regular service evaluations, and a greater emphasis on training individual staff and volunteers to achieve aims and objectives through strategic planning (preparedness). According to Carroll and Neu (2007) preparedness, advance preparation or pre-event planning, and capability development are key in any successful humanitarian relief operation.

As the relationship between a better-prepared organization and an effective response is well established in the literature, the remainder of this study assumes that preparedness and response interact positively. That is, a better prepared organization will be in a better position to launch an effective response to a disaster.

Lack of preparedness. The literature talks overwhelmingly about the need to prepare in advance for an effective and timely response but the reality is full of gaps in preparedness, as pointed out by many researchers. The World Disasters Report (International Federation of Red Cross and Red Crescent Societies, 2002) refers to governments and agencies not placing sufficient importance on preparing to cope with disasters (Perry, 2007). Donini (1996) identifies a low level of preparedness in humanitarian organizations in terms of human resources and sectoral capacities. Carroll and Neu (2007) indicate a clear gap between practice, empirical evaluations and preparedness, which could activate a whole scenario of risk-related failures. Murray (2005) describes the many reasons for a lack of preparedness by quoting Van Wassenhove, "There is a long way to go, and a lot of it has to do with politics, insufficient resources, and insufficient understanding that you need to prepare if you want to react." Bermejo (2006) notes the slow progress towards more adequate preparation worldwide. Chaikin (2003) discusses the lack of insight into disaster relief logistics in emergency preparedness plans. The greatest obstacle in the humanitarian sector, as pointed out by Van Wassenhove (2006), is that while logistics should be recognized as an intrinsic element of any relief operation, this is usually not the case. Russell (2005), while surveying 39 organizations involved in relief operations during the Indonesian Tsunami

in 2004, found that 38 percent of the organizations did not even have a process to plan for relief, and only 38 percent of those who had one found their plans to be adequate. Fifty percent of the organizations that had plans, found them inaccurate. Unfortunately, lack of preparation is common even for relief organizations in the richer countries, but its effects are devastating in lower-income countries (Bermejo, 2006). McEntire (1999) discusses the perpetual problems in humanitarian supply chains and points out that inadequate preparedness, matching supply and demand, distribution and trust related issues are common.

Researchers have also identified wide gaps in the effectiveness of response efforts (Carroll and Neu, 2007; Donini, 1996; Perry, 2007). In addition, the NFP sector has been historically lagging in their application of mainstream business tools designed to enhance operational performance (Reyes, 2006). The situation becomes more complex due to the dynamism of the humanitarian supply chain environment where uncertainty and vagueness prevail. If better preparedness implies better response, the lack of it implies the opposite (Oloruntoba and Gray, 2006) and so there is a need to better understand aspects of preparedness in humanitarian supply chains.

A reactive approach. Long and Wood (1995) described relief as a foreign intervention into a society with the intention to help local citizens. Once the disaster strikes the region, the humanitarian industry gears up to respond and huge amounts of relief materials begin to move from different parts of the globe to reach recipients in a disaster zone in another part of the world, usually by airlifting, especially in the early parts of a disaster (See Appendix B and note the airplanes used as the mode of shipment

used by the IFRC for the earthquake in China in 2008). The whole process of delivery of relief from long distances is intrinsically inefficient and expensive due to the large distances involved. Many disasters occur in one part of the world and many large international aid agencies are stationed in the other part, separated by many international borders and oceans. All are hurdles to the smooth flow of people and material. Making it worse, the current method of delivery is more reactive than proactive and is based on the principle of immediate and reactive international intervention (Alexander, 2006). The system is currently structured disproportionately towards investment in "crises response" rather than in "preparedness capacity," resulting in undue costs in lives and resources (Stoddard, 2004). When the news flashes on media networks around the world about a disaster, public sympathy rises and donors begin to make contributions. Thus, funding is readily available after the event, even though airlifting supplies and people from afar is prohibitively expensive, error prone and sometimes a slow process full of obstacles. It is much more difficult to obtain funding to prepare for a low probability event. Thus, disaster relief is often a reactive response, with people rushing from one crisis to the next, never really fixing problems, just stopping them from getting worse (Bohn, 2000). Consequently, a strategic approach to disaster preparedness is required (Fritz Institute, 2006).

Local focus. Kovacs and Spens (2007) provide a conceptual framework for disaster relief logistics. The model makes a strong distinction between local and international players, or regional vs. non-regional perspectives. It emphasizes the need for coordination and collaboration between these two types of players after the event, when

they meet. That is, they come into contact with each other only after a disaster happens, but plan separately during the preparedness phase, independently of each other. The focus is not on the "local context" during the preparedness phase.

There is a need for a local focus in the organizational planning and practices. Long and Wood (1995) points out the importance of information coming from the local personnel related to logistics operations and the use of local expertise and labour. Perry (2007), from studying logistics managers responding to the Asian tsunami in 2004, identifies the lack of preparedness, training, collaboration, logistical expertise and proposes a framework based on the inclusiveness of the local players. Current practice is said to be disproportionately invested in crises response rather than in preparedness capacity (Stoddard, 2004), with the reactive funding pattern in the current system severely affecting the speed and effectiveness of response. This paper suggests a need for permanent indigenization of capacities for preparedness for the relief effort. It is also important to not just use the local staff, but also to utilize them in policy and decision making positions. Chen, Liu and Chan (2006) describes a new community based disaster management program being implemented in Taiwan. While many of the major agencies claim to hire over 80 percent local staff, few of them occupy senior policy or management positions (Forman and Parhad, 1997). There is a need for a radical change in the international community's attitude to disasters, with greater emphasis on risk reduction rather than merely reacting to events as they occur (Alexander, 2006), a need to build the trust and ownership of relief and reconstruction efforts among the local people and using them as much as possible in the operations (Oloruntoba, 2005), or a need for more frequent drills and increased levels of funding to improve the state and

county preparedness in Hawaii on a community level (Helfand, 2001). Overall, there is an emphasis in the literature toward more mitigation and preparedness at the local community level, as opposed to reactive aid from afar.

This study fills a gap in the current literature by analyzing elements of preparedness at an organizational supply chain level. Any improvement in the efficiency of resource utilization resulting from a better insight of the processes is expected to result in an improved response.

Research Focus

This study focuses on humanitarian organizations (which are the prominent organizations that fit Quadrant 4 – or not-for-profit organizations operating in interrupted environments), as described previously and shown again in Figure 6. Humanitarian activity may be divided into development and relief operations. This study focuses mainly on relief operations, which are those operations that occur immediately after a disaster occurs.

Furthermore, Van Wassenhove (2006) has classified disasters into a number of types that include natural and man-made disasters with sudden and slow onset. This study considers only natural disasters as shown by the shaded portion in Figure 6.

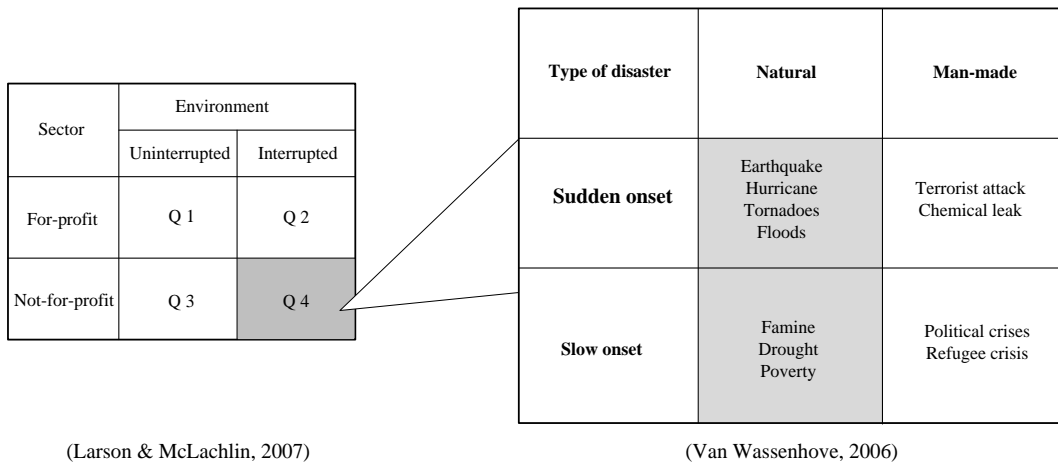


Figure 6. Types of disasters.

Looking further into the preparedness phase of the disaster, Van Wassenhove (2006) and others describe a number of important characteristics and five important areas as shown in Table 2. The activities under each area of preparedness are taken from Van Wassenhove (2006) and from other researchers during the literature review and added in the table.

This study has a focus on preparedness because of its impact on a successful response, as discussed earlier. In order to further understand the process of preparedness, the study initially focused on four characteristics of preparedness selected from Table 2 that were considered important at the beginning of the study. One characteristic was selected from each of four areas, with the "resources" section left out, as it was not considered that important from a supply chain stand point. That proved to be wrong later, due to the importance of donor issues, which emerged during the analysis. The four elements comprising the initial focus were (1) training, (2) role of logistics, (3) collaboration with key players, and (4) learning from previous disasters. Each of these selected elements is discussed, in turn, in the following material.

Table 2
Five Important Areas within Preparedness

| Human Resources | Knowledge Management | Operations & Process Management | Resources | Community Collaboration |
|------------------------------|---|--|----------------------------------|---------------------------------------|
| Selection of employees | Transferring knowledge | Agreements with suppliers | Funding for training | Collaboration with key players |
| Training | Codifying knowledge & procedures | Organizational structure | Availability of sufficient funds | Mutual frame agreements |
| Building trained local teams | Learning from previous disasters | Alternate modes of transportation in place | Appeal process for funding | Collaboration between crises |
| Upgrading skills | Information management | Pre-positioning of supplies | Media policy | |
| | Prediction of disasters | Role of logistics | | |
| | | Integration | | |
| | | Needs assessment | | |
| | | Deployability | | |
| | | Niche being served | | |

Note. Adapted from Van Wassenhove (2006) and others.

Training. In an interrupted environment, the needs are urgent, events are unpredictable and resources are scarce. The use of better-trained people is vital. As humanitarian supply chain management is dependent on volunteers for its delivery system, volunteers need training in advance in the necessary skills in disaster

management, in order to be effective during crises. Perry (2007) recounts an interview taken after the Tsunami disaster in Indonesia in 2004: "You could only give one job at a time to the local workers. They would do the task and then wait for the next instructions and you weren't always around because you were so busy. It was frustrating." As in the business sector, one of the challenges for NFPs today is finding trained people who can sense and respond to rapid shifts, people who can process new information very quickly and make decisions in real time. For example, "accountants" were also required for the enormous job of purchasing supplies, hiring assistants and accounting for donation spending, in the response to the 2004 tsunami disaster in Asia (Perry, 2007). As Long and Wood (1995) describe, the more prominent emergency agencies such as the Red Cross are often better trained in emergency operations but lack familiarity with local conditions. Another important issue that Kovacs and Spens (2007) mention is that of the donors, who insist that their money goes directly to help victims and not to finance back office operations. Consequently, preparation and training are often neglected.

Training can be at different levels and may include local partners (organizations in different countries with which the NFPs collaborate), as well as the training of the organization's own staff and volunteers. Local partners typically need training in areas such as communications, logistics, needs assessment, and language skills. Training in communications may include learning about the internet, hands-on training about various types of communication equipment and other computer training. Training in logistics may include knowledge about local suppliers, local laws and regulations, and third party logistics. Training in language skills may include activities such as learning and writing English, writing emails and making reports. Staff training may include activities such as

the ability to communicate with military and government agencies, professional courses in logistics, knowledge about alternate suppliers and shipping documentation, and needs assessment.

Role of logistics. It is forecasted that over the next 50 years, both natural and man-made disasters will increase five-fold (Thomas and Kopczak, 2005). In 1991, relief related to food items alone accounted for \$5 billion (Long and Wood, 1995). As disaster relief is 80 percent logistics (Van Wassenhove, 2006) and is involved in every stage of the relief operation (Thomas, n.d.), the way to improve is through effective logistics operations or supply chain management. Thus, similar to the business world, logistics has become critically important in the field of humanitarian relief operations (Van Wassenhove, 2006). Logistics is central to disaster relief and it is critical to the performance of both current and future operations and programs (Thomas, n.d.). The speed of humanitarian aid after a disaster depends on the ability of logisticians to procure, transport and receive supplies at the site of a humanitarian relief effort. Even the packing affects the survivability of supplies, ease of handling, and transportation requirements and improper packing results in large amounts of wasted food being transported (Long and Wood, 1995). Unfortunately, humanitarian supply chain management is still considered to be a "support function" or a "back-office function" by some organizations, as pointed out by several researchers including Kovacs and Spens (2007) and Thomas (2003). The logisticians are often given limited authority to carry out their decisions (Perry, 2007).

Parallels may be drawn with the four stages of the role and view of operations within industrial environments (Wheelwright and Hayes, 1985) who describe the view of

operations within a firm and its associated role as being at one of four stages. These stages are internally neutral (Stage I), externally neutral (Stage II), internally supportive (Stage III), and externally supportive (Stage IV). At one extreme, the "internally neutral" operations function can offer little contribution to an organization's success; at the other, it provides a major source of competitive advantage (Stage IV). In a firm that reaches Stage IV, the operations function is no longer reactive; rather it is playing a proactive strategic role that contributes to business success. Strong similarities appear to be operating in the context of humanitarian supply chains. That is, many humanitarian organizations still view logistics as a Stage I activity, for which the logistics function is expected to be internally neutral. It is considered to be a function that can be staffed and operated with people of limited skill. For example, as one respondent from a well-known international aid agency stated, at his agency, the logistics function had recently been addressed as a priority in their strategic plan. However, he also pointed out that for some other agencies, "logistics is seen as a truck driver and a warehouse manager – and that's it." At the other end of the spectrum, some humanitarian agencies are actively trying to elevate logistics to a more strategic role - one that is comparable to or approaching to Stage IV (externally supportive) of the Wheelwright and Hayes (1985) model. At this level, the logistics function would be expected to make a positive contribution to the overall success of relief operations. Thus, the way the role of the logistics function is viewed within a humanitarian agency should help explain the effectiveness of its response to disasters.

Collaboration. Collaboration among the various players involved in disaster relief is a key activity required for efficient operations and is present in all the three phases of disaster relief. During the immediate response phase, the coordination of the activities of all actors in the supply network of humanitarian aid is of extreme importance, but even in the reconstruction phase, these players need to collaborate with each other and coordinate activities (Kovacs and Spens, 2007). It is a difficult task especially when actors from different countries and backgrounds, representing different organizations, suddenly meet in a very chaotic and dynamic environment after a disaster. In addition, there are sometimes issues of trust between players and sometimes within the communities, especially when the military is involved. The Asian tsunami in 2004 set a precedent and it is now very likely that military forces will be significantly involved in future humanitarian operations. It is therefore important to establish better communication channels and coordination procedures between military and humanitarian partners. Many responders in both military and civilian entities were reluctant and inadequately prepared to work together, having had little or no direct coordination experience and/or bringing biases from bad experiences in other operations. Van Wassenhove (2006) describes how organizations that insist on working in isolation during a large-scale disaster could be even less effective than organizations that attempt to cooperate with others.

Learning from previous disasters. There are lessons to be learned from every disaster relief operation. However, lessons learned from one disaster to the next are often lost (Oloruntoba and Gray, 2006), especially if they are not properly recorded and

communicated across the organization and used in future policy changes, the same mistakes could happen again with the same consequences. In the humanitarian world, there is usually a high rate of volunteer turnover. In every disaster, many new people join the relief operation. When they leave, the experiences and knowledge they gained leaves with them unless a formal attempt is made to capture this knowledge. That is, it is very important to know how the organizations benefit from their experiences and how they make use of it for their preparedness plans for future responses. Also the logistical experience is difficult to transmit from one field situation to the next (Oloruntoba and Gray, 2006). Nevertheless, until now, there has been little incentive to use the lessons learned from disaster relief operations to improve performance the next time around (Van Wassenhove, 2006).

Research Question

This study addresses the question, "How do not-for-profit organizations (NFPs), engaged in humanitarian supply chain management, develop capabilities and implement elements of preparedness in their operations, as they await the onset of a natural disaster?"

Research Methodology

There are many strategies available to researchers but Yin (2003) outlines three conditions for selecting an appropriate research methodology. These are (1) the type of research question posed, (2) the extent of control an investigator has over actual behavioural events, and (3) the degree of focus on contemporary events. Table 3 shows the relevant situations for different research strategies.

Table 3
Relevant Situations for Different Research Strategies

| Strategy | Form of research question | Requires control of Behavioural events? | Focuses on Contemporary events? |
|------------|--|--|---------------------------------------|
| Experiment | how, why? | Yes | Yes |
| Survey | who, what, where, how many, how much? | No | Yes |
| Archival | who, what, where, how | No | Yes/No |
| Analysis | many, how much? | | |
| History | how, why? | No | No |
| Case study | how, why? | No | Yes |

Yin (2003)

Thus, for this research, the research question is a "how" type, the investigator has no control over behavioural events, which is the case in humanitarian supply chain

management, and the focus is definitely contemporary. Consequently, a case-based research methodology was chosen, as the most appropriate approach.

This study also focuses on a relatively new academic area, namely, humanitarian supply chain management. For this area, the academic literature is scant, there is a limited body of research and there are no dedicated journals to date (Kovacs and Spens, 2007). Also the available literature is scattered and mostly lacks a theoretical basis for its analysis (Tatham et al., 2009). Similarly, the academic study of non-profits is a relatively new discipline (Schneider, 2006), with a limited quantity of research focused specifically toward the management of NFP organizations (Reyes, 2006).

Humanitarian supply chain management has received little attention in the general supply chain management literature (Beamon, 2004; McLachlin, Larson and Khan, 2007; Narasimhan and Jayaram, 1998), with significant research in the area having begun in only the last five years (Maspero and Ittmann, 2008). This sparse academic literature in humanitarian logistics is also reflected in the practitioner situation, in which humanitarian logistics practices and effectiveness tend to lag the private sector by a decade or more (Van Wassenhove, 2006).

Thus, there had been very little done in the way of formal theory, which is common in many other disciplines. Consequently, there is much theory development to be done in this area. Eisenhardt (1989) supports the use of case studies in situations where little is known about a phenomenon in the sense of little available previous literature or prior empirical evidence, clearly the situation here.

Dul and Hak (2008) describe research as "building and testing statements by analyzing evidence drawn from observations" and that it is perfectly acceptable in

exploration to derive propositions from what practitioners say about a phenomena.

Propositions derived from theory-building research should be grounded in observations that can be justifiably seen as indicators or measurements of the concepts of the propositions that are being built, in case-study research (Dul and Hak, 2008).

Table 4 shows the various tactics Yin (2003) suggests as guidelines during the various stages of the study for increasing validity and reliability of case studies.

Table 4
Case Study Tactics for Four Design Tests

| Tests | Case study tactics | Phases of research in which tactic occurs |
|--------------------|---|---|
| Construct validity | <ul style="list-style-type: none"> • Use multiple sources • Establish chain of evidence • Have key informants review draft case study report | Data collection |
| Internal validity | <ul style="list-style-type: none"> • Do pattern matching • Do explanation building • Address rival explanations • Use logic models | Data analysis |
| External validity | <ul style="list-style-type: none"> • Use theory in single-case studies • Use replication logic in multiple-case studies | Research design |
| Reliability | <ul style="list-style-type: none"> • Use case study protocol • Develop case study data base | Data collection |
| Yin (2003) | | |

These suggestions from Yin (2003) were followed, as much as possible, throughout the various stages of the study. For instance, to ensure *internal validity*, which means establishing causal relationships whereby certain conditions are shown that lead to other conditions as distinguished from spurious relationships, *explanation building* was the tactic used. The aim of explanation building is to conclude the study with some testable propositions (Yin, 2003).

Selection of Cases

The relief supply chains of two organizations were selected based on the expectations that both offer literal replication (Yin, 2003), since both of these organizations are among the good performers in humanitarian supply chain management. Choosing extreme cases likely would extend the emergent theory (Eisenhardt, 1989). The selected cases are the supply chains for relief materials of the Canadian Red Cross (CRC) and for the Mennonite Central Committee (MCC). The two cases differ in that the CRC is a large and secular organization, whereas the MCC is a comparatively small and faith-based organization. The MCC does not regard itself among the first responders after a disaster, whereas the CRC puts all its efforts to be the first to reach the zone of disaster. The CRC is an independent organization but acts as an auxiliary to the local government of Canada. The MCC, on the other hand, only collaborates with the government if it's a requirement to deliver relief to the recipients. The CRC was founded through the Geneva Convention of the United Nations, whereas the MCC has no relationship with the UN. The motivation for the MCC is faith based, whereas the CRC's motivation is purely humanitarian. Overall, the MCC represents the left side of Figure 7, and the CRC safely

falls on the other side. Figure 7 depicts the various properties looked at during the selection of the cases. Choosing contrasting cases was one rationale and convenience was another for selecting these two cases.

Although single cases are a common design for doing case studies and can be justifiable under certain conditions, the overall study is considered more robust with the use of multiple-case design, even if one can do only a two-case study (Yin, 2003).

Contrasting cases furthers the goal of having robust interpretations (Yin, 2004), offering more powerful analytic conclusions and providing stronger external validity or generalizability of findings.

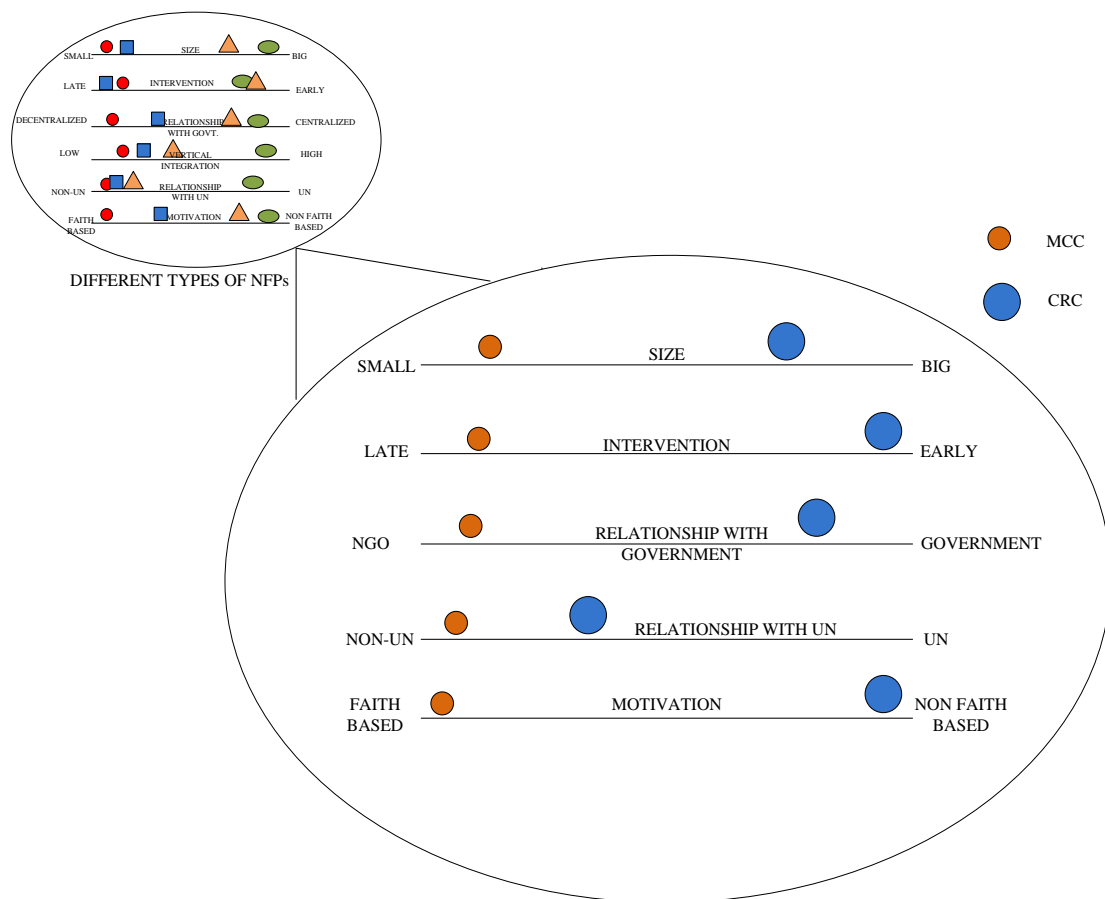


Figure 7. Selection of two cases from within the NFP sector.

Figure 7 shows the positioning of the two cases compared along several different organizational characteristics. The idea was to select two very different cases. As seen from the figure, the supply chains of both the organizations differ a lot along most of the characteristics, as described above, fall on the opposite ends of the figure, and thus were an appropriate selection in order for the conclusions to be more generalizable.

Canadian Red Cross Society (CRC). The Canadian Red Cross (CRC) is a non-profit humanitarian organization dedicated to improving the situation of the most vulnerable in Canada and throughout the world. It is comparatively a large organization, secular, and independent. Being a member of the International Red Cross and Red Crescent Movement it partners with 186 National Societies in as many countries and falls under the umbrella of the International Federation of Red Cross and Red Crescent Societies (IFRC) in Geneva. The IFRC, as it claims on its website, is the world's largest humanitarian organization. It is guided by seven fundamental principles: humanity, impartiality, neutrality, independence, voluntary service, unity and universality. (The Red Cross Movement also includes the International Committee of the Red Cross (ICRC), which is an independent, neutral organization, ensuring humanitarian protection and assistance for victims of war and in other situations of violence, in order to tackle situations during man-made disasters.)

With its national office in Ottawa, the CRC has branches in the Atlantic, Quebec, Ontario and Western regions of Canada and also within each of these regions. The CRC focuses on volunteerism, and assists millions of people around the world through its Disaster and Conflict, Health and Injury Prevention and Humanitarian Issues Programs.

The CRC has a code of conduct for its volunteers and staff, based on the seven fundamental principles, which work as guidelines and a uniting force. These principles are common with all its partners and the IFRC.

According to the Annual Report (2007-08), as published on its website, the movement is independent but each National Society acts as an auxiliary to the local government in providing the humanitarian services subject to the laws of the country. It maintains its autonomy so that it can act in accordance with the principles of the Movement.

According to a survey conducted after Hurricane Katrina in 2005, four in ten respondents named the Red Cross as the provider of overall best relief (Fritz Institute, 2006). After the earthquake in Pakistan in 2005, when the respondents of a survey was asked to identify outstanding national organizations, the Red Crescent (Hilal-e-Ahmar) and Sangi Foundation were most often mentioned (Bliss and Larsen, 2006). Thomas (n.d.), in surveying the leading twelve Humanitarian Organizations, ranked Red Cross among the top four in terms of expenditure and also included the IFRC and other Red Cross National Societies in the rankings. The IFRC received the Overall European Supply Chain Excellence Awards 2006. In 2007, it received a Tech Laureate in the Computerworld Honours award.

Mennonite Central Committee (MCC). The Mennonite Central Committee (MCC) is a non-profit, faith-based relief, development and service arm of the Mennonite and Brethren in Christ churches in Canada and the United States. It is comparatively small in size. With its national office in Winnipeg and offices in each of the six zones (BC, Alberta, SK, MB, ON, Eastern), it is accountable to its core constituency of thirteen

Mennonite churches. The MCC was founded in 1920 to respond to the needs of hungry people in the former Soviet Union. MCC Canada was founded in Winnipeg in 1963 through a merger of a number of regional inter-Mennonite service organizations, as detailed on its website.

It shares a common vision, a common value system with its provincial and national members. The common vision as described on its website is: "Peace, justice and dignity for all people; harmony with God's creation."

As part of the fund-raising activities the MCC runs 106 thrift shops and organizes several relief sales. It also runs Ten Thousand Villages stores across Canada, which is an important source for raising funds.

For more than 85 years, the MCC has been providing emergency relief, expertise in development and skills in peace building around the world through its International division. The MCC has partnerships in 55 countries and more than 1000 staff. It is involved in emergency relief as well as a long-term commitment to working with partners and rebuilding lives. It works to dismantle the injustice that keeps people down.

MCC does not engage in extensive fund-raising campaigns. Its funding is garnered primarily from Mennonite and Brethren in Christ Churches in North America who have representatives on the MCC Board of Directors. Their low fund-raising costs, a heavy reliance on local volunteers, and the relatively small headquarters structure permit the MCC to apply approximately 90 percent of its funds directly towards its programming (Brotheridge, 2003).

The MCC stocks relief goods in each of its offices in the country but has recently opened a central warehouse in Plum Coulee, MB. This was done to reduce the space

required for storage in each provincial office and also to respond quickly and in a coordinated way when there is a disaster, such as the current crises in Sudan.

The Canadian Foodgrains Bank (CFGB), one of the major suppliers in the MCC supply chain is also part of the study. The MCC is among the founder members of the CFGB which is also a faith-based organization, sharing the same common values as those of the MCC, and helping provide food and development assistance to people in need on behalf of the thirteen church members. The CFGB ranks itself on its website to be among the largest private food aid providers in the world. It is a partnership of 15 Canadian church agencies, MCC being one of them, that work together seeking a Christian response to hunger.

The Foodgrains Bank serves as a fund-raiser for its member church agencies, collecting grain and other resources from donors. Farmers, the church community, and the Canadian public provide grain and cash donations, which are deposited into designated Canadian church member accounts or in a general account. The grain can be donated right at the elevator. It then flows into a very unique Canadian Wheat Board system and enters into the account of the MCC. Grain can be instantly taken out for shipments from any of the ports of Canada, just like money from any cash machine, where money may be put in at one end and taken out at any other location almost instantaneously. Member agencies can thus draw upon resources or equity from their accounts to support projects developed in conjunction with overseas partners without worrying about the logistics part of it (www.foodgrainsbank.ca).

Unit of Analysis

The unit of analysis is thus the relief supply chains of the selected organizations involved in the delivery of relief materials. A typical supply chain may consist of a major supplier, the organization itself, and people from the organization who are involved in the delivery of relief to the recipients.

Data Collection Methods

Seventeen semi-structured and open-ended interviews were conducted (approximately one hour each) with people knowledgeable about supply chain management and humanitarian logistics issues. The interviews proceeded until it was felt that theoretical saturation is being reached and the information obtained was getting repetitive (Strauss and Corbin, 1998). All the interviews were conducted at the organizations' locations except two. One respondent came to the university for the interview and one was done by telephone, as the respondent was not available during the time we visited the organizational head office for the interviews. A wide range of information gathering techniques can be used in case studies (Gummesson, 1991). Other sources of data collection included a questionnaire, direct observations of facilities (e.g., warehouses), documentation (e.g., written reports, organizational catalogues), website information, power point presentations and CDs. This also included the training program of the CRC, which the researcher joined as a volunteer. The observations became part of the database via the use of memos. Each interview was digitally recorded and transcribed. Each transcribed interview was imported into the NVivo8 software for the purpose of organizing the data for analysis.

A case study protocol was created prior to data collection based on the four selected areas of preparedness. This was refined after the initial interviews and updated whenever it was felt that changes were required. Yin's (2003) suggestions on data collection methods were followed during and after the interviews.

Sites visited. Several sites were visited during the study for the purpose of data collection, the Canadian organizational headquarters for each organization, the headquarters of the major supplier of the MCC, a regional office of the CRC and various warehouses.

Procedure before an interview. Once a person was selected for an interview, the interviewee was sent a request for interview with a one-page introduction of the project. After having an appointment date, a protocol was prepared for the interview which worked as a reminder for the researcher. It included the brief outline of the project, the areas under investigation, starting questions for each area of focus, and some other questions that required exploration.

Procedure during an interview. At the time of interview the interviewee was asked for permission to record the interview. A consent form was provided to the participant and a signed copy was kept with the researcher. The interview usually started with an introduction and sensitizing questions, letting the participant speak as much as possible on the topic. The initial question was followed by subsequent questions in order

to continue with the interview and to keep the discussion within the area of interest. Most interviews were approximately one hour long, but some were longer.

Procedure after an interview. After each interview the participant was asked to fill in a survey questionnaire. Some filled the questionnaire at the same moment and some sent the filled in form later. The digitally recorded interview files were transferred to the computer and backed up. Discussions with each interviewee revealed new information and new areas for further exploration. This helped in revising the protocol for the subsequent interviews, as necessary.

The data collected were properly documented and stored in the NVivo8 software to make them traceable and easily retrievable by another person, thus maintaining a chain of evidence. This increases the reliability of the entire case study (Yin, 2003). Each interview was transcribed by the researcher himself. This process of transcribing offered more opportunities to become familiar with the data, which helped in gaining more insight. Each transcribed interview was imported in the NVivo software for further analysis and storage. These were accompanied by the various memos that were written during the analysis and are stored in the software in addition to the various codes that emerged during the analysis.

Method of Analysis

This research follows a theory building or explanation building approach, rather than a theory testing approach. That is, unlike pattern matching for theory testing, in which the data are checked against already stated propositions, an explanation building

approach builds propositions to fit the data. This study aims to conclude with a set of testable propositions, which may be summarized in a theoretical framework.

The study also uses a grounded theory approach to handle the data analysis (Eisenhardt, 1989; Strauss and Corbin, 1998). A grounded approach is appropriate in conjunction with a case study method for management research (Locke, 2001). Post and Andrews (1982) also advocate a grounded theory style of analysis for case study research.

The analysis need not wait till the end of the process (Kolb, 2008). Rather the analysis starts during the data collection process. In this way, the analysis of initially collected data guides later data collection in terms of what to collect and where to collect from (Yin, 2003).

For explanation building, it is very important to ensure a *fit* between propositions and the data. Conclusions drawn from a within-case analysis will fit the data for that particular case, but the propositions that emerge from a cross-case analysis must fit all cases. This process of developing a given proposition is iterative, as outlined by Yin (2003). That is, early data analysis will lead to an initial proposition. Then, as new data and new cases are examined, the proposition will be adjusted accordingly. It is important to emphasize that the proposition must be revised in such a way that it continues to *fit* the data from each and every case in the study. In this way, the propositions from this thesis will be well grounded in the data.

Coding the data. Following Strauss and Corbin (1998), open, axial, and selective coding were employed to help with the analysis. The beginning of the theory building process started with *open coding*, where the data were broken up into fragments

and compared with other incidents to discover categories in order to conceptualize incidents or events. Conceptualizing the process helps group similar items according to some defined properties. A large amount of data were reduced to smaller and more manageable pieces and constantly compared with the incoming data, as an iterative process. Patterns began to emerge as some of the properties were grouped and thus the foundation and beginning structure of theory building was laid, as described by Strauss and Corbin (1998). Extensive memoing accompanied this process, where ideas were captured as and when they strike (Locke, 2001). Memos are simple notes, recorded and kept, along with the other collected data and used during analysis. As the very act of writing memos and constructing diagrams forces the analyst to think about the data, a certain degree of analysis is taking place (Strauss and Corbin, 2008). These memos later help discover many linkages or relationships between categories.

Axial coding followed the open coding and sometimes occurred simultaneously, where the goal was to systematically develop and relate categories. This is actually the building of the theory. There are many conditions, actions/interactions, and consequences that need to be in the researcher's mind, but most importantly, it is the discovery of the ways that relate the categories to each other. These insights can come at any time, and so a record is necessary, which is the memoing part. The focus then moved towards more relevant and robust categories, and this is *selective coding*. This is the integration and refining of the theory. The categories are organized around some central explanatory concept and the integration process continues. Excesses are trimmed and poorly developed categories are filled. Relationships connecting these categories are discovered

and conceptualized. This iterative process continues and slowly the irrelevant categories separate out.

Initial open coding resulted in twenty four categories. During the selective coding process, four themes emerged. The data were re-coded several times as part of the iterative approach. Emerging conclusions were thus "grounded" in the data and resembled "reality" more than theory derived from putting together a series of concepts based on experience or solely through speculation (Strauss and Corbin, 1998). Grounded theories are drawn from data, and are likely to offer insight, enhance understanding, and provide meaningful guides to action. This search for a central theme or a central category is often difficult and takes much, thinking and memo writing. There are concepts that emerge and appear to be central but when a story is built around them there is always something missing, or they do not appear to pull all the concepts together. A central theme did appear to emerge during this process. Initially it was "international presence," but it failed to convey the whole story. After further analyzing the data and reviewing older memos this theme was adjusted to "presence in the communities." It later took the shape of "local focus." The theory was built around this concept. The theory once developed was filled for missing gaps and was validated by comparing it with the raw data and by presenting the selected quotes to respondents for their reaction. The central concept thus discovered connected other themes, leading to a set of propositions. "The aim of the analysis was to draw conclusions about whether there is a relationship between different concepts and if there is, then what type of relation it is" (Dul and Hak, 2008).

The study utilized NVivo8 software to organize and help in analyzing the transcribed interviews. The use of the computer-assisted qualitative data analysis helps to

organize the data much more efficiently. NVivo 8 software, marketed by QSR International, helps import and code documents. It makes it possible to initiate queries with a state-of-the-art search engine. It can graphically display new ideas, connections and findings in real time using models. It can also help in displaying and analyzing relationships between people, processes and concepts. Although the availability and use of various software for qualitative analysis is helpful and they contribute to creativity, by freeing the researcher from doing many tedious tasks, Corbin and Strauss (2008) remind us that computers do not do the thinking and are not a replacement for human thinking, nor they can write memos or discover relationships. The software is also utilized to maintain the study database including the interviews, the transcripts, the memos, the coding of the data and comments, as a chain of evidence, suggested by Yin (2003), as necessary for enhancing construct validity.

The questionnaire data were not used in the analysis. They were not intended to be part of a statistical survey, but simply another means of collecting data. As mentioned, there were initial reasons to believe that certain issues, such as the role of logistics could be important to the study. As it turned out, the constructs collected for the questionnaire did not prove helpful in explaining issues of preparedness to respond to natural disasters. This is consistent with the suggestion by Eisenhardt (1989) to use quantitative scales to collect data about constructs that have potential explanatory power, even if it is not clear that a given construct will have a place in the resultant theory.

Analysis

The study started with a focus on the four areas of preparedness, namely, "collaboration," "role of logistics," "learning from previous disasters," and "training." During the data collection process, many new themes began to emerge, as expected. During the data analysis, the data were coded, at one point totalling 28 codes (see Appendix D), which included the four elements of preparedness mentioned earlier as the initial focus of the study. During re-coding and analysis, these themes reduced to ten and then to four major themes, namely, "presence in the communities," "local capacity building," "early assessment of needs (capability)" and a "common value system." It should be noted that these themes are not mutually exclusive. Rather, they overlap with no clear dividing lines.

One of the goals of the analysis was to integrate these emerging categories into a central theme that connects all the other themes. According to Strauss and Corbin (1998), the integration of themes means linking categories around a central category, refining, and trimming the resulting theoretical construction. In this study, the central emerging concept that connected the others was the importance of having a "local focus."

The following section provides a case-by-case analysis for each of the four emerging themes. That is, each of the four themes is analyzed for each of the two cases, in turn, followed by a cross-case analysis. Each cross-case analysis leads to testable propositions about the theme in question.

Theme 1

Establishing Presence in the Communities

Case 1: Canadian Red Cross Society (CRC)

"So build your village level, build your community, or county level. Those are the types of things that will continue to be the enduring strength of the Red Cross movement."

(senior manager)

This statement from one of the senior managers of the CRC describes the importance of activities that engage people and organizations on a community and county level. These activities begin much before disaster hits a region. During the preparedness phase, the Red Cross Society engages communities in disaster-prone regions in a variety of ways. In doing so, it establishes itself in the region. The advantage of a *local focus* and *presence* became obvious during Cyclone Nargis, the worst disaster in the recorded history of Myanmar, which hit the region on May 2, 2008. Thousands of lives were lost and organizations and countries struggled to get into the region to provide relief. One of the senior executives of the CRC explained that, "The strength of the Red Cross is also the 186 National Societies. During Myanmar most international organizations were stuck in Rangoon with five people. We were 27,000 people on the ground."

Many well-equipped organizations and countries with plenty of resources and people were unable to provide relief to the needy because they could not reach the communities in the disaster zones nor even enter the country. They had not established

any presence in those communities in advance, nor did they have any well established partnerships in the region or relationships with the government. The government was very reluctant to allow them entry to provide relief. Some aid groups had linked aid to full access in the region. Some news headlines at the time indicated this reluctance to allow entry to foreign-based organizations in the aftermath of Cyclone Nargis. For example Mydans (2008) reported:

Despite the emerging scale of the disaster, the Myanmar government has let in little aid and has restricted movement in the delta, aid agencies say. It has not granted visas to aid workers, even though supplies are being marshalled in nearby countries like Thailand.

Similar headlines were, "U.S.-Myanmar animosity hurts cyclone-relief effort" (The Seattle Times, 2008) and "Myanmar stalling on allowing aid into the country: Millions homeless, hungry and thirsty" (Schiffrin, 2008).

Due to this lack of trust and relationships in the region, the aid agencies struggled and many failed to enter. Human suffering was the outcome of such a situation. On the other hand, the CRC had been active in the country for years before the disaster and was able to train and activate a large volunteer force during this time. The CRC works under the umbrella of the IFRC, as well as independently through bilateral agreements with various National Societies in order to develop the capacities of these local National Societies. Through their local partner (i.e., the local Myanmar National Society of the

Red Cross), the IFRC and the CRC established their presence in the country much in advance and worked for several years at the community level. A large force of volunteers was trained during this time. Relationships were developed in the region and thus they did not require last minute permission to enter the country, as they were already in, having been engaged for several years with various projects. The Red Cross was able to move materials into the region from other countries and provide relief to the needy when it was most needed, as the CRC website reports (Canadian Red Cross, 2008), in the early days of the operation:

A Red Cross relief pipeline into Myanmar has been established, with 11 flights having reached Yangon since Wednesday. This includes six flights carrying 35 tonnes of supplies from the International Federation of Red Cross and Red Crescent Societies logistics hub in Kuala Lumpur. These flights only represent the very beginning of what will be a massive logistical operation says Canadian Igor Dmitryuk, Head of the International Federation's logistics unit in Kuala Lumpur.

A Canadian, who was in charge of coordinating relief supplies to more than 20 townships in the Irrawaddy Delta, the hardest hit region, was able to reach Myanmar, spend a month inside and organize all the logistics activities for the IFRC, when most people were not allowed such access. As a journalist (Saunders, 2008) notes, "Based on his Red Cross affiliation, within 24 hours of applying, Dumoulin was granted access to the country by the military junta."

The importance of a strong local presence can also be described in the Canadian context. That is, the Canadian National Society of the Red Cross (CRC) has been establishing its presence in various communities within Canada and is ready to help if a disaster ever overwhelms the Canadian authorities' abilities to deal with it. As one manager explained, "In Western Canada we have more presence in communities, so we have a lot more locations than we have down east."

An example of local presence initiatives in the province of Manitoba is available through its community outreach offices, which maintain and expand presence in the communities, develop programs and partnerships and draw volunteers. For example, a report on the organization's website (Canadian Red Cross, 2009a) indicated the hiring of a full-time coordinator in the North to fulfill this key objective:

The Canadian Red Cross is well-represented across Manitoba with Outreach Coordinators supporting programs and services in the North, Parklands, Brandon/Westman, Central, Eastman and Interlake. A key objective to expand our presence in the North was met with the hiring of a full-time Outreach Coordinator in Thompson. Our talented Community Outreach Team looks to communities throughout the region to develop program delivery and partnerships. This approach creates teams of volunteers and professionals that carry out the mission of the Red Cross.

As is clear from the above analysis, the CRC establishes its presence in its local context, in Canada, through various activities. Similar activities are/can be undertaken by

other National Societies on their own or through partnerships with IFRC or any other National Society, including the CRC. Thus, these activities are applicable in the local, as well as in the international context.

Local partnerships. One way of establishing presence in a region is by partnering with a local organization. The CRC has available a vast network of National Societies spread around the globe in roughly 186 countries under the umbrella of the IFRC. As described by one of its directors, "The strength of the Red Cross is also the 186 National Societies." It provides universality and helps the CRC to respond to disasters. Another director of the CRC noted that, "Universality gives us the ability to respond to these multiple issues around the world."

Under the Geneva Convention, each country is required to create a Red Cross or Red Crescent Society in its domain. Each of these societies is independent but acts as an auxiliary to its respective government. Through the Geneva Convention, the IFRC and other National Societies get universal acceptance and recognition in every country. The IFRC has developed these partnerships into a "network of National Societies" or "local partners" through exchanging information and connecting these societies with each other. This huge network of local partners gives the Red Cross movement a unique character with unparalleled access to the communities and access to the countries where these partnerships occur, helping Red Cross Society to rapidly respond to disasters. Each National Society, by virtue of being a part of this movement, shares its resources with others. The partner organizations can instantly plug into the local network of another partner through bilateral agreements.

One respondent pointed out that having all the National Societies at their disposal allows them to contribute and have access to a great amount of capacity. This network of local partners not only provides access and presence to the organization, but also acts as a resource base. The capacity of each partner can be shared across the network in times of a disaster.

This information sharing process has led the IFRC to develop standard specifications for the materials in use, so that every participating partner that provides a given relief item will provide items that meet certain specifications. These standard specifications are available in the IFRC's catalogue of emergency items. There are roughly 2000 items in the catalogue (three volumes), including drugs, medical supplies and equipment, medical kits, etc. One of the directors at the CRC further described this sharing of resources among the partner National Societies:

If something happens tomorrow in, say, Honduras, and if the Honduras Red Cross doesn't have the capacity to respond to the emergency because it's a major one, they will open up and call for support from the movement, Red Cross movement, and we are one of the partners who can support the Honduras Red Cross . . . We can financially support [them] via the Federation based in Geneva or we can send the material there directly, again via some centralized unit in the region in Panama, or we can also send people.

In addition, the IFRC has been able to create and manage global stocks and pre-position them in many regions by pooling resources throughout this network. The partners contribute material and share the overall costs and resources, as a logistics officer described:

The Federation has implemented some kind of a pool where big National Societies are pitching in. We have a million dollars worth of stock in Dubai and Panama . . . The information in regards to each RLU [Regional Logistics Unit] is shared throughout the movement.

Each National Society has some capacity to respond. The CRC exchanges information concerning available resources with all its local partners (National Societies). This sharing of information of available resources acts as a pool and is available for all the local partners. Each National Society can pitch in as part of responding jointly to a disaster. Any partner can participate by sending funds, trained people, and/or relief materials, depending on its current situation. The information sharing allows for a smooth flow of materials, avoiding duplication of tasks, as a manager at the CRC described:

The Field Assessment Coordination Team [FACT] came up with the requirements. These are communicated. The requirements then go to Logistics in the shape of materials, quantities and delivery time. Then Logistics in Geneva prepares a mobilization table [see Appendix B] . . . It's a gift registry. It's a wedding registry. It's the same concept. It says, we need these items, and under

that [an indication of] who has contributed, what quantity, and then there is a running balance as to what is left to be donated.

A logistics officer also described the process by which the CRC (or other National Society) helps to contribute to an appeal by the IFRC:

[The mobilization table] is coming from the FACT team to the Federation and then to all of us in all the National Societies. Every time there is a disaster, there is an appeal from the Federation. It states what they need and how much quantity. As soon as the table comes out, we send the information to our program people asking, "Do you want to contribute? Do you have the money?" We are going to do the comparison with whatever we have in stock, giving them the options, depending on the budget they have. So we provide them some different options based on their willingness to contribute.

This comprehensive picture of needs and how they are being met is available to all the partners through the mobilization table. This centralized coordination reduces the confusion, which usually accompanies a response, and needs are met jointly by sharing resources. The pipeline report (Appendix B) is generated as the materials begin to move. It indicates all the relevant information including packaging, tracking number, flight information, etc. The logistics manager gave an example of the benefits of this centralized coordination:

Now that vehicle, if you have to buy it would be probably \$60,000; we pay 30. Why? Because we have several thousands of them. We buy like a hundred at a time and we replace them every five years or 150,000 kilometres, disposal. No questions asked. No negotiations.

The network of partnerships also allows for leveraged deals with suppliers. Partners or National Societies can take advantage of the deals done for the whole network by the IFRC, as the overall requirements are large and the IFRC is able to negotiate special terms from manufacturers. The partners (the National Societies) can tap into these terms, which may not have been possible without partnering.

Local delivery system (volunteerism). "We have a community based delivery system . . . our engagements of volunteers are certainly critical" reports a director at the CRC, as he described the importance of volunteerism, which plays the central role in the delivery of relief. The CRC draws volunteers and trains them, in the local context, in Canada, while it expands its presence in various regions. Volunteers are drawn from the local communities and provided with training. The CRC does not partner with any other organization, other than another Red Cross National Society. When asked if he would cooperate with any other organization to do the final relief distribution, a logistics manager replied:

Throughout the supply chain, the relief supplies remain in the control of the Red Cross, from origin through to the beneficiaries in the disaster affected regions . . . if the Red Cross cannot assure control of the materials so that it reaches the beneficiary families who are in need, then it will put a hold on the pipeline until this can be assured.

The Red Cross would not operate in a country where it is not given the freedom to deliver the relief on its own, in order to ensure that it reaches the recipients. This makes volunteerism critical to the Red Cross. The delivery process would stall in the absence of large number of trained volunteers available to do the job.

The IFRC has been able to develop an extensive network of millions of volunteers around the globe and has developed a comprehensive training program for the purpose, as can be seen on the CRC's website [<http://www.redcross.ca>]. Also included on the website is information on how to volunteer and join this global network. Speaking to the procurement manager, it was discovered that this volunteer based delivery process not only helps in an efficient distribution of relief but also provides feedback from the field and from within the communities. Such information has helped simplify many logistical activities into standardized procedures, as the purchasing manager described:

We have now got to the point where we developed our specifications so they are pretty clean. We are not doing the same kind of research we used to do and we are getting a lot more information from the field which makes our job a lot easier. It is almost routine now. It is not as complicated as it used to be.

Local sourcing. Like many other organizations having humanitarian supply chains, the CRC was spending large amounts of resources on buying relief materials globally and shipping them to the disaster regions. This is a costly and slow affair. This situation is changing and more emphasis is now being placed on buying from sources closer to destination points, preferably within the same region or country. (Heigh, 2006)

reported the results of a case study conducted by the IFRC, comparing three recent humanitarian interventions, the Tsunami (2004) in Indonesia, the Pakistan earthquake (2005), and the Yogyakarta, Indonesia earthquake (2006). The paper shows the effects of local sourcing on the performance of the whole operation. The three interventions had differing degrees of local sourcing. Comparable data showed that the utilization of local sources led to a reduction in the distance traveled by relief materials before they reached the recipients, reduced costs, and improved delivery times. For the Yogyakarta earthquake, procurements were local, with cross border flows of materials being eliminated altogether. Here, the delivery time was shortened by a factor of six from 18 days for the Asian tsunami (where only 13 percent of the purchases were local) to only three days. Although delivering to a disaster zone, even from regional supplies is a daunting task, it is much quicker and more effective if sourced locally. The importance of this is evident from the fact that logistics still accounted for 90 percent of the relief effort, but the total cost was lower and more beneficiary needs were met through this change of strategy at the IFRC.

Local buying also opens doors for corporate engagements and many other possibilities. A procurement manager described these advantages of corporate engagement:

Wal-Mart would work with us in a disaster program, which allows the Red Cross to go into a local Wal-Mart location and get cleaning supplies and other materials

that they can use. They provide us with the vouchers in some cases for the beneficiaries to go out and get materials if they [beneficiaries] require.

Local buying even helped the organizations providing volunteers for relief activities when required. It also provided the CRC with a credit line that is very useful in many situations. One of the managers at the CRC described the detail of their local purchasing strategy: "We did the same deal arrangement with Home Depot for a long time and they actually gave us the ability to go in and run a credit at their local stores." This partnership of local suppliers also proved to be more beneficial, as the manager further described, "...they do fund-raising for us in their stores."

Local buying is encouraged, as much as possible, as it helps in developing local relationships in the communities. As one senior manager at the CRC said, "... you want them [volunteers] to have the ability to replenish their inventories . . . and do it at the local level because it allows them to build relationships within the community, which helps them in the long term with the whole variety of other projects . . ."

Frame agreements are sometimes negotiated with capable suppliers, thus reducing the need for delivering relief from afar or pre-positioning these stocks. Instead, suppliers maintain agreed stock levels of commonly needed relief items in their inventories. OGC (2009) describes a frame agreement as "an agreement with suppliers, the purpose of which is to establish the terms governing contracts to be awarded during a given period, in particular with regard to price and quantity." A purchasing manager described, "We have framework agreements to guarantee prices over a certain amount of time. It allows us to do the pre-screening and advance purchase requests as much as we possibly can."

These agreements, as described by one of the directors, not only cover relief materials but the CRC has worked out special arrangements for its communication equipment as well. As a senior manager stated, "So we sit down with Bell Canada and we negotiate with Bell Canada. As a result we had a ton of cell phones given to us to distribute to the disaster teams." Bell Canada activates these units automatically at the time of a disaster, providing much needed communication tools instantly for relief workers.

While the agreements just mentioned are between the CRC and its local suppliers, they show that other National Societies can make similar arrangements in their own contexts.

Network of local relationships. The CRC is constantly working on developing and expanding the community-based relationship networks, both in its local context, in Canada, and also in its international context.

A lot of details on the training program at the CRC were obtained, including their online courses offered to new and different levels of volunteers and experts. This information was obtained from their office at Winnipeg and by going through their online courses. The volunteers are trained to do local purchasing with the intention of engaging the corporate sector. This collaboration with local businesses helps in leveraging their capabilities in many ways. One of the directors of the CRC explained the way they utilize the business sector for the delivery of relief in communities where the CRC is unable to establish its own presence or when the presence is very thin, "There are certain places, isolated communities, where we do not have enough capacity. So sometimes a 1-800

number was given where they can call in and we can arrange with the local suppliers who can provide them with emergency clothing."

Many businesses provide donations, collect donations, provide volunteers, discount rates, and offer warehousing facilities without charge, as is the case in many places in the Ontario region and is common practice at the CRC. A manager explained how this economizes the operation by reducing the costs and allowing inventory to be stocked near the communities for a rapid deployment in any emergency.

Corporate engagement and collaboration with the business sector can bring down the cost of stocking material via the use of donated/discounted space and materials. These stocks are required for a rapid response to a large scale event. Answering a question about whether these local pre-positioned stocks are held in rented space, the purchasing manager replied that it was ". . . rented in some cases. It is donated space by corporations and in some cases it is the warehousing logistics companies that have given us a corner in warehouses they have and are not using, so we can dump materials there." Donated space helps to save costs.

Corporate engagement also brings in reserve volunteers, allows discounts on material purchases, provides vacant warehousing space for stocking materials (usually free of charge), and many other advantages including availability of volunteers with logistics expertise, which the CRC utilizes to enhance its own local capacities. Each of these activities reduces the burden on its international pipeline. Some businesses have large networks and the CRC finds ways to leverage some of those networks for the delivery of relief. As one participant described:

In terms of corporate engagement . . . we bought the stuff and we got the best deal . . . but providing a warehouse that could provide 24/7 access and is distributed across the country and that's managed by someone who has warehouse expertise and transportation expertise. Well, that's a huge advantage. So we have tried to build some of those relationships.

There are many other ways to leverage the capabilities of the local business sector. One way is to utilize their customer base to raise funds for the organization. For example, on the organization's website, there is a report about RONA stores running a campaign to raise funding for the Red Cross Society of Canada (Canadian Red Cross, 2009b):

This year RONA and its customers contributed over \$370,000 in support of Canadian Red Cross disaster response and preparedness activities through corporate and in-kind donations as well as an annual fund-raising campaign held in RONA stores during the month of February.

One of the directors explained the important role of collaboration with the government and the necessary expansion of its network. Just like the business sector, collaboration with the local government is also helping the CRC in developing local capacities. Collaboration with fire departments and related agencies is important in responding to disasters. This close collaboration defines the role for the CRC, and guides them to build their own capacities and training of its volunteers according to its defined role in each region. It helps concentrate resources on those specific areas. In many

instances, local government agencies are providing their warehouse facilities to stock relief items in their warehouses, free of charge. One example is that of the City of Winnipeg, where the city government is holding substantial relief stocks in their warehouse for the CRC. One of the senior managers explained that, "The Canadian Red Cross is cultivating relationships with the local governments, especially the fire departments so we can coordinate our emergency preparedness and response activities with the public authorities."

Activities similar to these could be undertaken by any other National Society in its local context in order to establish and strengthen its own presence in various communities, locally or internationally.

Conclusions from Case 1: Canadian Red Cross: presence in the communities

The CRC and the Red Cross in general improves preparedness to respond to disasters by having a local focus and establishing a presence in local communities. This happens both in the "local context", in Canada, and in the "international context", where the CRC does it through a range of activities, primarily through local partnerships as part of the existing network of National Societies of the Red Cross. It also expands and solidifies its presence in the community through a range of activities that include developing a local delivery system (via volunteerism and training), sourcing more material locally, developing a local supplier base (often with frame agreements), and expanding its network of relationships. The relationships network is developed in the community, with the local governmental agencies and by engaging the corporate sector through various programs and activities.

Case 2: Mennonite Central Committee (MCC)

"We have a partner or a country representative in every country we operate in."

(warehouse manager)

A senior executive at the MCC explained how the MCC operates in more than 50 countries around the world and maintains its presence in those countries through its own country representatives by developing local partnerships. The country representatives have a number of duties. They discover local needs, do assessments, develop local networks of relationships, and find suitable partners if there are no existing partnerships. They also help plan strategy for the MCC in that region.

Local partnerships. Very similar to the CRC, the MCC was one of the few organizations that were able to provide relief to the recipients inside Myanmar after Cyclone Nargis in 2008. Many well prepared organizations with ample relief material were unable to enter the country and respond to the disaster because they had very little presence in the country in advance. Only organizations with local partners or an existing local presence were able to respond to the disaster in a timely fashion. The MCC did this by partnering with another church-based organization that had a local partner inside Myanmar. They were able to ship in and distribute relief supplies where others failed. Answering a question on how the MCC was able to deliver relief in Myanmar, a senior manager at the MCC explained, ". . . we partnered with them [an international NFP] and they had some local connections [in Myanmar] through that partner, very similar to the way we work almost everywhere else."

During the initial phase of a relief operation, little is known about the unique nature of a given disaster and time is the most critical element. This means that the initial response will be very expensive. Suppliers and service providers often take advantage of this situation, as they know that foreign organizations will be in the region for only a short period. As one respondent for the MCC explained, "Everything we do for the first six months, you do it in the most expensive way, because you don't know . . ."

Nevertheless, this learning period may be reduced with the help of local partners by using their established networks of suppliers and relationships in the community. This leads to a faster response with less waste of precious resources. Thus, through partnerships, the resulting operation is usually more effective in meeting needs compared to a direct intervention without the use of a local partner or established networks of relationships.

Partnering with a locally registered organization helps in developing relationships with the local government, as they more willingly collaborate due to the long-term commitment of the organization in the region and they feel they have more say due to the local component in the relationship. A senior manager at the MCC explained this point as:

The [local] government cooperates because then the government has some control over you, because you are a registered organization in their country. . . . The government looks at you a lot more favourably because you have actually decided to invest in their country and not just visit because of a crisis.

For this and many other reasons, as mentioned earlier, the MCC looks for local partnerships, even when similar faith-based groups are not available in a region. A senior manager explained that, ". . . we always work with partners and they are sometimes church-based agencies but not always." To respond immediately to a relief effort, the MCC has allocated separate resources for immediate use, at the request of a local partner. Due to its smaller size, the MCC does not regard itself among the first responders. Nevertheless, it is still able to respond rapidly to many disasters through its partners.

Partners typically implement development or long-term projects that the MCC undertakes in various countries. This gives the MCC more flexibility to move immediately to relief operations when required. As explained by a logistics manager, "I think probably part of the reason we can handle that [relief efforts] is because we don't run the programs, we just partner with them..." and "In Ukraine, I saw probably 100 different projects that we have shipped items to, none of these are run by MCC. We have partnered with all of them."

Due to this flexibility, the MCC can shift its resources toward relief without affecting its other commitments in the region. These commitments do provide the MCC with the necessary presence to launch an effective response.

Local delivery system. The MCC is comparatively a smaller organization and usually enters the disaster zone at a later stage and looks for unmet needs of the recipients. It undertakes its relief efforts and various long-term projects through its partners, as explained earlier. Thus, it does not need to develop a large volunteer force of its own to deliver the relief. As an example, in Myanmar they partnered with an organization that

had access to the region through their local partner. The MCC provided them with the materials to distribute, as described by one senior executive, "We partnered with another organization. They more or less did the work; we just supplied them with resources."

If the MCC wants to deliver aid to a country and they have not established their own presence in that region, they look for an organization that has that access and go through them. A logistics officer for a supplier to the MCC said, "We piggybacked off someone else who was allowed [who had permission to be] in the country [Myanmar]. We contributed funds and bought our own commodities, but through them."

They are even ready to have material delivered without their name on. Some organizations who distribute material like their own name on, and the MCC allows that as long as it reaches the recipients. As the same officer explained, "We have our own partners; we will still distribute our goods but sometimes under their names. You want your commodity in there."

Local sourcing.

"We have a policy [that] wherever possible, we purchase locally and in a manner that will help to support the local producers, local farmers." (senior manager)

During the interviews, it became evident that the MCC has a clear strategy to buy locally as much as possible but in an appropriate fashion. Many times, buying large quantities of materials may create shortages and raise local prices. This policy of local buying is pursued as long as the effects on the local economies are positive and it provides jobs for the people who have lost their livelihoods during the disaster. This

helps in rehabilitation efforts in the community and improves the effectiveness of the whole process. As one respondent said, "The project that we are working on right now, we bought 100 percent of the food in country, for the school feeding, and that makes it tremendously more efficient. You cut out almost two months of response time."

When buying locally, the demand source is near, a better picture of the needs and type of requirements is available and orders can be adjusted in a timely fashion to compensate for a changing situation, reducing the chances of error and "over or under supply" in the supply chain.

The use of local partner networks provides the initial entry into the region. The MCC then establishes its own network of relationships, expands it with actions such as recruiting locals, establishing links with local suppliers, or making local purchases to initiate a response after a disaster. One respondent explained the importance:

I worked exclusively with food issues, the effort there is to make sure that people would have good food procurement strategies in place so that in case of a disaster where food is required . . . they know ahead of time that there are certain places they can go for local purchasing [of] food and [the] logistics of moving food around . . .

Due to these advantages of local sourcing, the new manager of the Canadian Foodgrains Bank (CFGB), a major supplier and part of the MCC relief supply chain, was hired from and stationed in Africa, rather than in Canada. One of the major reasons was

to develop local suppliers, local networks, and follow up with the regional sources more closely.

Network of local relationships.

"If the disaster happens in a place where we have no relationship, we cannot go there."
(senior manager)

The existence of a relationship network is a pre-requisite for the MCC to enter into a country for any relief or development project. The MCC establishes these relationships through its "presence" in countries by sending representatives, by developing partnerships, or both during the preparedness phase. Given their relatively small size, they require these partners to operate the projects in these countries. As one executive described, "We find groups of similar persuasion . . . you go and you are plugged into their network."

The MCC's main criterion for the selection of partners is to find like minded organizations with a similar faith-based orientation. If such faith oriented partners are not available, they will partner with other groups or organizations. In this case, they prefer to partner with large well-known organizations, sometimes even from a different faith background. In the case of an organization having a different orientation, the partnership is limited to the distribution of relief aid to the recipients.

Every potential partner has some existing capacity and an existing local network or relationships. Through partnership, the MCC gets access to that region or country and their country representatives establish a presence by plugging into the partner's existing

network. This begins the expansion of these relationship networks and the establishment of communication links with the organizational offices back in Canada. As one senior executive at the MCC suggests, "If you are smart, you deliberately develop your networks."

On its website, brief details are available about the many types of programs the MCC has undertaken globally through its partners and the type of collaboration with local players and organizations. These programs include providing funding, training, sending personnel, providing loans, developing local capacities, and taking care of people affected by a conflict or disaster. For example, in Ukraine, the MCC has several on-going and finished long-term projects, which are facilitated by partnering through the locally registered Union Baptist organization. It has sent several deliveries of relief aid and has two country representatives of its own based in the country. Indonesia and Bangladesh are examples where they partnered with Muslim organizations, as it is difficult to find similar Christian faith-based groups in these regions. In Bangladesh, the MCC assists more than a dozen local partner organizations, providing them with training so they can reach out to thousands of families in their communities. Other projects include food-for-work, building roads to protect and to provide escape routes for people when flooding occurs. In Bosnia, in addition to its country representatives, the MCC has a partner organization named "Bread-for-life," a Christian relief and development organization. In Mozambique, it works through the Christian Council of Mozambique to provide emergency food needs. In Sudan, the MCC has worked for nearly 35 years in delivering relief and in various community-building projects. It is currently engaged in South Sudan in rehabilitation work. It works primarily through the Sudan Council of Churches,

individual churches and faith-based organizations and they have been involved in some interfaith collaborative efforts. The MCC has collaborated with the government of North Korea, to stay active in the country, and has provided food aid through its partner the CFGB.

When a disaster strikes a region where the MCC has no ongoing long-term projects, it utilizes the networks of its local partner to accommodate sending its own representative. For example, for the 1995 earthquake in Turkey, the country representative utilized the partner's network and used local sources to buy and deliver relief and temporary housing for the needy. A senior executive linked to the MCC explained, "In Turkey there was another church group. They have been there for decades. We initially stayed with them. They made the introductions for us, and sponsored us . . ." Thus in this way, the MCC was able to benefit from its partner's network, and used it to develop its own network of relationship. It helped MCC to engage in short-term relief and long-term projects of providing housing to people affected by the earthquake. The executive explained further, "Like in Turkey, after the earthquake I went out negotiating contracts with the local Turkish companies that were building house trailers. We negotiated lots of 102 to be built and delivered onsite . . ."

This is also an example of a link between relief work (short-term) and long-term projects, which feed into each other, augmenting the capabilities of the organization to respond in different types of situations. An organization can get involved in long-term projects, developing local capacities of communities and its partners, expanding relationship networks in the region, in the absence of a disaster. If a disaster strikes, the organization finds itself in the region, with its presence well established, well in advance.

Another senior manager described the link between relief and long term projects, "I think it's very difficult to do effective relief if you are not also doing development in the area, you are not looking at the longer term."

In other words, the MCC does not go in a country with a short-term objective of only providing relief. The relief efforts can also shift to the long-term projects that always follow the relief phase of a disaster response.

Conclusions from Case 2: Mennonite Central Committee: presence in the communities

The MCC establishes its presence in the communities through its local focus. It does that through a range of activities beginning with developing local partnerships. Having a local partner is a pre-requisite for any response by the MCC in any region. It also sends its own country representatives to various countries of interest, who together with the local partners, develop a response plan.

Through its local partnerships, the MCC expands and solidifies its presence through a range of activities that includes developing a local delivery system (which is partner-based), local sourcing of material, developing a local supplier base, and expanding its network of relationships in the community, including various local agencies. The MCC also engages in many long-term projects in vulnerable communities and regions aimed at developing local capacities that help in establishing their presence in the communities in advance of a disaster.

Cross-case analysis re: presence in the communities

Figure 8 summarizes the various activities of both the organizations under the theme *presence in the communities* that emerged during the cross-case analysis.

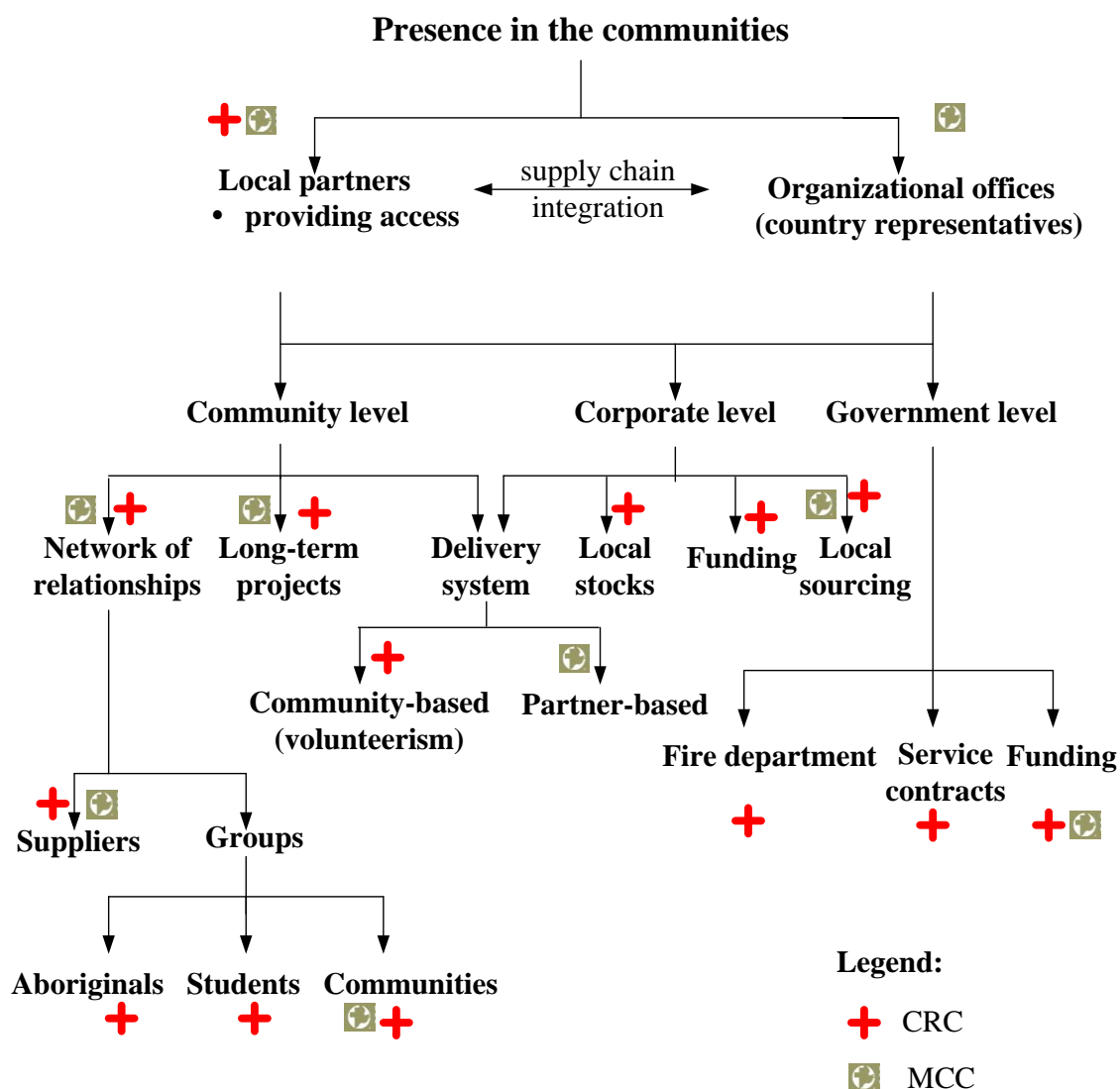


Figure 8. A Summary of activities – theme: "Presence in the communities".

The logo of an organization near any activity in Figure 8 indicates that the respective organization is practicing that particular activity. For example, the CRC undertakes *service contracts* whereas the MCC does not, as indicated by the CRC logo under the *service contracts* activity.

Establishing presence in the region/local partnerships. Through the cross-case analysis of the data, as also indicated in Figure 8, it is obvious that both organizations have a local focus and establishing presence in the communities is critical to them. In order to establish themselves in a country or a particular community during the preparedness phase, both organizations work through local partnerships. Once a presence is established, each organization proceeds with different activities to further strengthen this presence.

The IFRC has linked the National Societies through a network that acts as a pool of resources. This enables the IFRC to respond to disasters jointly with its partners by sharing their resources, as various requirements are met by different National Societies, depending on the availability at their end. The IFRC has also pre-positioned stocks worth millions of dollars in different regions of the world through these shared resources, where large National Societies contribute to the expenses. These stocks and the pooling of resources help in a rapid response. On the other hand, the MCC is a comparatively small organization. Most of its partners are small and usually in need of support. Thus, the MCC has not been able to develop such an overall pool of resources through connecting its partners. As a senior manager explained, "We don't have a mechanism . . . we don't connect with each other, but it's a good idea."

Local delivery system. Once these organizations gain access and establish their presence, they develop a local delivery system to enhance this presence. The two organizations do this differently. The CRC has a community-based delivery system. It has an extensive training program to develop a force of volunteers, which extends into thousands of volunteers, drawn from the local communities and sometimes from the corporate sector as well. The MCC's delivery system is more partner-based, where partner capacity is developed through training and through implementation of various programs. The MCC exclusively depends on the local partners and their capabilities in delivering the relief to the particular community they target. It focuses on long-term impact management of a disaster and many respondents spoke about their long-term projects being "critical." Both systems depend on organizational presence in the region.

Local sourcing. Both organizations try to do local sourcing of materials as much as is appropriate (i.e., not negatively affecting the local population or markets). The CRC engages the corporate sector through frame agreements, which ensures availability of material during an emergency at pre-arranged prices, as well as requiring major suppliers to maintain specific amounts of material all the time. The MCC also uses local sourcing as long as it has a positive impact on local communities and local economy. It acquires material regionally if the material is not available in large quantities locally.

Local network of relationships. Both the CRC and the MCC expand their local network of relationships in the communities, with the corporate sector, and with government agencies, which is critical to their operations.

Propositions re: presence in the communities

During the cross-case analysis, the following proposition emerged from the data based on the central theme "presence in the communities."

The greater the presence in a community, the greater the preparedness to respond to natural disasters.

This presence is enhanced in the communities through:

- a. Local partnerships.***
- b. Local delivery system.***
- c. Local sourcing.***
- d. Local network of relationships.***

Theme 2

Local Capacity Building

In the world of humanitarian relief and development, the word *capacity* implies capabilities or competencies, as often used in the business sector. This thesis employs the word *capacity* in this sense, as well.

Case 1: Canadian Red Cross Society (CRC)

The CRC focuses on building local capacities in Canada. Similar activities are undertaken by other National Societies on their own, or through partnerships with the IFRC or other National Societies, including the CRC. Thus, the CRC's activities are representative of both local and international contexts. As one of the directors at the CRC explained:

The preparedness is undertaken via the organizational development and capacity building of our natural partners or the National Societies. . . . So, it's basically helping them to get organized and to have the resources to respond to a disaster. But, we have also a level of preparedness that involves directly the communities and so we have disaster risk reduction programs.

Once some reasonable amount of presence in a region or community has been established, the next step is to begin preparing at the local level for future disasters. This is done by building local capacities in order to become more resilient. That is, the local

community becomes more capable of mitigating and responding to the next disaster, or as CARRI (2009) describes "it is the capability to anticipate risk, limit impact, and bounce back rapidly through survival, adaptability, evolution, and growth in the face of turbulent change." As one of the directors of the CRC explained above, these capacity building efforts are undertaken on multiple levels. They are directed not only towards the organizational capacities of the partner National Society in the region, but they also focus on building these capacities at the community level.

Training. Training is an integral part of preparedness and a major activity at the CRC. Local people cannot be well prepared to respond to disaster events without being trained to respond effectively. One interviewee explained, "We train over one million Canadians every year. In fact it's the largest non-governmental sponsored education program in the country. We also train about close to half million people a year in first aid."

Thus, a major part of the capacity building process is about training. While describing the joint ventures of the IFRC in South America, a respondent described the joint capacity building initiative for the region which included training, "So before the disaster, this unit PADRU [Pan American Disaster Response Unit] will look at supporting the National Societies in the Americas, building up their capacity, training the personnel, putting in place some stocks."

Once a disaster strikes, there is no time to develop capabilities. Rather, it is time to use available capacity, whatever it may be. Thus, the required capacities must be built in advance. The Red Cross, by relentlessly training its volunteer base, as part of ongoing

community level programs when there is no disaster, becomes much better prepared to respond when a disaster does strike. This advantage of training a large number of people in advance was made evident during the response to Cyclone Nargis in Myanmar in May, 2008, as one respondent said:

And those 27,000 people have been trained and built up over five or six years, silent, quiet work, by the rest of the movement, knowing that one day this kind of thing is going to happen. It happens everywhere.

The Red Cross operates primarily through volunteers, who tend to have a high turnover rate. This high turnover rate provides even bigger rationale for a constant focus on training activities. As one senior manager said, "I am a strong believer [that] the quality of intervention is first of all ensured by the quality of the people you send." One respondent noted, "We could have done nothing without our volunteers."

The CRC emphasizes drawing volunteers from the local communities. It is simply not economical to bring staff and volunteers from around the world in large numbers and to accommodate them near a disaster area to deal with a large scale emergency. This process of bringing people from afar is not only expensive, but the management of large numbers of people itself is complicated, prone to errors and losses. The American Red Cross was reminded of this when they sent a large number of volunteers from different states to help fight the California wildfires in October 2007. The large number of volunteers who were arriving and leaving at different times added to the chaotic situation that usually prevails in a disaster situation. Many rooms were booked and were left

unutilized. Many volunteers arrived but many hours were lost before they were assigned various duties. The American Red Cross ended up paying nearly \$700,000 for unused booked hotel rooms, which is about 22 percent of the total amount spent on only room rentals. Such a large number of hotel room bookings created problems for the evacuees, who couldn't find places to stay (McDonald, 2008).

This focus on the use of local community level volunteers also offers advantages with respect to engaging the corporate sector. As one informant stated, "Corporate and volunteers, if we can draw them together . . . we can actually have a big surge capacity without trying to spend too much money and too many resources." As an example of this local corporate engagement and training of volunteers, the CRC launched a joint training program with the Royal Bank of Canada in 2006. The General Manager for the CRC Atlantic Region explained:

It is key for our organization to have a pool of trained people that we can call on when we have a large operation. Partnerships with companies like RBC Financial Group provide us with an extensive network of well-trained volunteers that can quickly mobilize in the event of a local, large-scale disaster. These volunteers will complement our established volunteer teams . . . (Canadian Red Cross, 2006).

The CRC National Society provides a good example of training at the local level. It has developed a comprehensive multi-level training program which integrates both domestic and international experience, with many of its courses available online. One of the managers stated, "I have a training critical path for our volunteers that they take for

each of the three different levels of training. We have also got a fourth level for 'ready when the time comes'."

These programs are developed for both the staff and for the thousands of volunteers in different communities across the country. Volunteers are first screened for selection and then go through the various levels of the training program.

Some volunteers are trained to become trainers themselves so that they can go into the communities and transfer these skills to others. As a director noted, "We train a group of volunteers who go around the communities to do some training. We provide them with some of the material and equipment." Another pointed out that, "how to transfer skills to others" was one of the most important elements in the training program. As an example, the CRC Manitoba Chapter has a program of teaching instructors at the community level that could save people from drowning in emergencies (as detailed on the CRC website). People are trained in first aid, water safety and other skills to save lives during emergencies. These skills build up local capacities of communities and help them respond to a disaster situation through the availability of these trained volunteers in the communities. One senior manager commented upon these small community level programs, such as giving first aid training, as one of the lifesaving skills that has great impact in a disaster response. The standardization achieved in developing these training programs has made these tools available for wider use.

Training relies on a number of tools and standards. As a director stated, "We have been successful in developing national standards and training programs. We have adopted international best practices in logistics. That's being incorporated into our training programs."

The common network of partner National Societies, along with the IFRC, facilitates standardization in training. Standardized tools and procedures are shared among the partner societies, often with adjustments, to make them suitable to the local conditions. For example, the CRC is in the process of developing a detailed operations manual for its international and local staff. It is well equipped with many templates that are easy to use. One needs to just follow the accompanying instructions for each activity for which these templates are prepared, for instance procedures to follow to prepare a purchase order, procedures to write a goods received note, or the annual inventory checklist. The basic information in this manual was taken from the IFRC training manuals but was edited to match Canadian needs and requirements. This package has not yet been formalized but will be implemented soon. A sample template can be seen in Appendix C.

Another important activity that requires training and is often mentioned by respondents was the tools for vulnerability and capacity assessments (VCAs). As one senior manager explained, this tool has been used for more than a decade. It identifies vulnerabilities and highlights the areas for capacity development in the local context. Training the volunteers and local staff to be able to conduct such assessments is also an important activity at the CRC, as noted by one of the respondents.

There are three key areas where the CRC is developing its capabilities, namely, shelter, health, and capacity building for disaster risk reduction. As one director explained, ". . . these are the three key areas, so the vision is there for us to be a major contributor, within the Red Cross movement in those three sectors." Not surprisingly, many training programs are directed at these key areas, as one senior executive explained:

We have different types of training depending on the key sectors we are involved in. The first training we have is the Basic Training Course for the volunteers or the delegates that we send overseas. It is mainly a first introduction to the Red Cross movement. Beyond that, we have specific courses like health ERU courses, Emergency Response Unit. In the health sector, we are trying health specific training. The shelter sector is similar, distribution of emergency shelter kits, putting up transition shelters, etc.

Another respondent further described various types of training as follows:

There is training on how to conduct appropriate distribution of non-food items or kitchen sets. So you have training on the response itself, distribution, post-earthquake action, lifesaving, and first aid. You have also training related to disaster risk reduction, how to engage the community in looking at it in regards to the potential risks and how to minimize those risks.

As an example of these different specialized training programs, the CRC has trained and developed its Emergency Response Unit (ERU) staff in the health sector. These trained teams operate with these ERUs, which are independent units deployed for longer durations, such as the field hospitals that are maintained by the Norwegian Red Cross. In a partnership with these Norwegian based ERUs, the CRC provides trained teams to operate the units. Together the two National Societies are able to deploy these ERUs for large scale emergencies (Bokkenheuser, 2004).

Long-term projects. The CRC builds capacities of their local partners or National Societies through different long-term projects. As one director noted, "We have a lot of programs dedicated to building the capacities of the National Societies in disaster response and disaster management over all . . ."

These projects are designed to augment the capacities of the local partner National Societies as well as improving the resiliency of the communities. The goal is to improve the response of the local partner, as one senior executive described, "In development work . . . our premise is to support that Red Cross Society to improve its capacity so they can do it better the next time." An example of the projects that are initiated after a disaster is the building and handing over of 5500 homes to local authorities in the village of Mata, Indonesia. This was the largest construction project undertaken by the CRC. It was a disaster preparedness initiative, in that it provided clean water, sanitation, and livelihood assistance to a large community and housing that is more secure under a future disaster situation. The details of this project are available on the CRC website.

Many programs aim directly at preparing for a future disaster and involve the communities. One director explained, "We have a level of preparedness that involves the communities, the disaster risk reduction programs. We work with the communities in reducing the possible potential impact of a disaster." Interestingly, these disaster risk reduction programs or mitigation efforts play a very important part in preparedness and local capacity building activities. The focus of these programs is on developing an awareness of possible disasters that the region may experience and the associated possible impact and risks. Different programs are designed to minimize these risks, depending on the location, type of expected disasters and the existing capabilities of the

partners and communities. Understanding these risks is critical, as one director emphasized, "The critical things are the key stakeholders that are involved in the disaster preparedness and response. Do they understand what the risks are? Have they done an extrapolation of what's the nature of the impact based on their major threat analysis?"

Some programs are designed to directly mitigate the impacts of a disaster. It results in a reduction of human suffering and the required relief effort if a disaster does occur. Thus, mitigation efforts can save lives and play an important role in reducing the flow of materials and people coming in from abroad following a disaster.

One recent example of these long-term capacity building projects and their impact on a disaster was seen during the Cyclone Sidr that hit Bangladesh in 2007. Similar cyclones had hit Bangladesh earlier, causing havoc and devastation to life and property. The last major cyclone to hit the area, in 1991, caused 139,000 deaths. This time, it was a Category 4 cyclone, which devastated many regions but caused many fewer deaths (3,400), showing the effectiveness of the capacity building efforts that took place during this time, in which the Bangladesh Red Crescent Society was heavily involved, with its partners and the CRC. One senior manager said about these activities, "You should look at Bangladesh, the last disaster that hit Bangladesh. [The damage] could have been much more; the impact of the disaster could have been much higher if we hadn't worked so hard on disaster risk reduction." These programs, which lasted many years, included disaster risk reduction, community forestry, raising wells, communication, a bamboo bridge project for providing access to health care and work, an early warning system based on volunteers and bicycles, and cyclone proof shelters.

Another form of long-term project is the service contracts, under which the CRC charges a fee for the services it provides. Usually, these projects are undertaken between the CRC and local governments. The government utilizes the expertise of the CRC while the CRC leverages the capacities it develops for these projects for other relief efforts, locally as well as internationally. "It's [service contracts] a big part of our activity here [Ottawa] and it shows some of the things that we can do." (senior manager)

An example of these services contracts is the Rapid Response Project (RRP), undertaken with the Canadian government. The CRC website describes the capacity it has been able to maintain due to this project as:

The RRP also supports the highest levels of emergency preparedness by maintaining a roster of highly trained Red Cross disaster specialists who are ready to respond at a moment's notice.

The logistics manager described it as, "We have a service contract, to maintain emergency materials in a warehouse and to be able to deploy them within 24 or 48 hours." This project helped the CRC develop its logistics capability as the manager continued to explain, "The Canadian Red Cross didn't have any logistics capacity. Officially, I am here, I am . . . 100 percent funded by the Rapid Response Project."

Some of the long-term projects may not directly address preparedness activities, but they reduce vulnerabilities in the communities. In this way, they increase resilience, which helps relief efforts and mitigates disaster impacts. For instance, for the "Bed Nets

for Malaria campaign" project in Africa, the CRC is involved with the local government for the delivery of the bed nets to its communities. This enables the Red Cross to utilize local volunteers in the delivery process, who develop links and relationships as they move in the communities. This capacity is a great asset that could be utilized in case of an emergency. One respondent described this interaction of volunteers with the communities, "We know that another part of their role is what we call social mobilization. They go out in the communities and they talk ahead of time. I think it's two or three visits before the actual campaign."

Conclusions from Case 1: Canadian Red Cross: local capacity building

The effectiveness of a response to a disaster is based on the quality of the people, thus on training. As well, building local capacity at the community and National Society partner levels ensures an effective response.

Long-term projects, which include service contracts, help the CRC develop its own capacities and the capacities of its partners and local communities. The projects include mitigation efforts which reduce the impact of disasters, thus reducing the need for response and delivery of relief. Readily available stocks of relief material are necessary for a quick response. They also help in responding to small scale events. Stocks are maintained in communities, near the expected point of use, in the local context and regionally, in the international context.

Case 2: Mennonite Central Committee (MCC)

We sometimes did workshops on disaster mitigation and I would suggest a big piece of the work we do is trying to prepare people, to increase people's coping strategies, because there are some places prone to rapid onset disasters. (senior manager)

This quote provides a summary of the capacity building activities that MCC undertakes in various ways around the globe. This includes training programs, workshops, developing coping strategies for communities and staff through awareness programs and many other long-term projects. It also includes mitigation projects that reduce the impact of disasters. Like the CRC, MCC also undertakes partner level and community level capacity building programs.

Training.

"They go through orientation and they go through leadership training in Pennsylvania, but a lot of the qualifications that they need, you need to have before you come on."
(senior manager).

Due to its comparatively smaller size and fewer resources, MCC focuses more on hiring trained staff rather than training them. It expects its members to be active members of the church and assumes that training in a "common faith-based value system" is

provided through the church. It has a two-week orientation program for every new staff member and sometimes it's a month of orientation. As an interviewee at the MCC described, "There are always exceptions but the ideal is, there is at least a month's overlap between an outgoing person and the incoming person." This extensive orientation process pretty much trains the person, develops the required skills, and readies the person for the job. It is a type of on-the-job training.

Another strategy MCC tries to employ, whenever possible, is to use locals for the job. As one respondent described, "It is really nice to have locals in there. They know the area, they know the culture, and they know the language." These are the skills and knowledge that are very difficult to impart through training, but locals have them inherently.

In addition, MCC conducts several regular training workshops and programs around the globe for its partners to develop necessary skills, standardize procedures, and use best practices for various logistics activities. As a senior manager described, "My colleague is in Managua, Nicaragua, doing the workshop on project management, basic management training, so a few workshops and then periodic visits." Sometimes such programs are built for communities. These programs build local capacities in different ways. They include developing various skills that are required for managing a disaster or a long-term capacity-building project.

Another way to ensure having trained staff is to choose a suitable partner that has these capacities in the first place. A senior manager highlighted this point by stating:

What we are looking for are agencies that are effective in the work they do and agencies that can adhere to our project management requirements . . . We need partners that can do the paper work. Accountability is important, so they have the institutional capacity to pull it off.

Long-term projects. The logistics officer at the Canadian Foodgrains Bank (CFGB), which is a major supplier in the MCC supply chain, described their strategy for developing local capacities. "[Through] our work with the local partners, we can help build their capacity [so] that they would be able to respond to those [disasters]." Similarly, the MCC engages communities in long-term development projects, which it implements through its local partners. These projects are designed to develop local capacities, both organizational and on the community level. Some of these long-term development projects are mitigation efforts, which help make communities more resilient to disasters.

One of the managers described the various long-term projects that are undertaken by the MCC to mitigate the impact of a disaster:

. . . like in southern Bangladesh, for example, food-for-work projects, to build up roads and build up infrastructure. So when the flood comes, then people have places, a refuge to go to and a way to get back and forth with nice roads. So there are various things we do to help mitigate the affects of disasters. It is an effort to make sure that people are prepared logistically to respond to the disaster event.

One of the aims of the long-term projects is to enhance community independence. A major activity that the MCC undertakes in Africa is the construction of sand dams. It is an innovative concept that engages the community in providing for their long-term water needs. This affects their survival capabilities against disasters and other environmental challenges, as clean water is normally one of the commodities that is most required after a disaster. As sand dams help ensure the availability of clean water in the long run, they play a very important role in building resiliency in communities. One respondent described these projects as:

. . . not just finding water but finding clean water. So we put up these sand dams. These are concrete walls across seasonal rivers. The rain washes the sand behind there and the sand is the sponge in the filter. They say it filters 97 percent of the impurities . . . MCC's attempt is to build 400 in five years.

In addition to developing local capacities, these projects also help MCC to develop relationship networks. If a disaster strikes the region, these capacities and relationships can be diverted to disaster relief operations. One senior manager explained:

I think they [relief and development work] feed off each other. I don't think you can do effective relief if you are not also doing development in the area – I think basically being in the region and doing development. Then if a disaster strikes, you bring some relief to the situation, as needed. [This]

makes a fair bit of sense. That basically works [and is] the way we do things.

Relief and long-term development projects go hand in hand. Sometimes it is the development work that provides the basis for an effective response and sometimes it is the participation in the relief effort that opens doors for development projects in the communities.

The MCC caters to not just the immediate needs of those affected by the disaster but also considers it very important to have a long-term commitment to the region. This is difficult to achieve without long-term development projects that maintain their presence in the region. Development engagements thus become a necessity for effective responses in two ways. First, they help in developing local and organizational capacities and second, they help in meeting the longer term needs of the affected people. One senior executive explained, "If relief is provided and no capacity building is taking place, it is an extreme situation to keep people alive, but it's a sad situation."

Long-term development programs are undertaken with the intention of creating independence in local communities. This also reduces dependence on relief that flows in from abroad after a disaster. Programs the MCC is involved in include projects like building roads, providing mosquito bed nets, conducting mitigation awareness workshops, cleaning sewers to drain storm water, or providing first aid training to locals. Some of these programs are not directly related to preparedness for a disaster but still help in disaster preparedness by helping to develop community-level endurance, independence, and resilience.

One respondent explained that these capacity building projects are implemented through the MCC's partners, which frees them to respond to a disaster if there is one in the region. "I think probably part of the reason we can handle that [relief effort] is because we don't run the programs, we just partner with them."

Conclusions from Case 2: Mennonite Central Committee: local capacity building

Since the MCC delivery system is partner based, it does not rely on large number of volunteers. Instead of training its staff, it seeks trained people for its workforce, especially concerning a background in its faith-based value system. It also chooses partners that are better trained and able to take on project management. Long-term projects are considered to be essential for developing local partner capabilities, for community capacity development, and for long term management of the impacts of a disaster. These projects not only help to develop the capacities of local partners but also help to mitigate disasters.

Cross Case Analysis re: local capacity building

Both organizations focus on developing local capacities through various means which include:

Training. Both organizations emphasize training as a major capacity building activity, but they do it very differently.

Volunteerism is the cornerstone for the CRC capacity building efforts as its rapid response delivery system is community based and relies heavily on a large force of volunteers drawn from the communities and from the local corporate sector. Hence the CRC has developed a very comprehensive training program that focuses intensely on developing volunteer and staff capabilities in the various skills required in disaster management. Several respondents from the CRC considered training to be either important or critical for an effective response to a disaster (see Table 6, p. 116).

The MCC on the other hand relies more on its partners' capabilities and engages them in long-term projects. Its training programs and workshops focus on developing these capabilities but the programs are not as extensive as those at the CRC. It relies on hiring trained staff rather than training them. The MCC has a partner-based delivery system and, due to its strategy to enter the disaster region somewhat later after a disaster, its requirements for extensive training are greatly reduced. It provides an extensive two to four weeks orientation program for every new staff member and conducts periodic training workshops at the partner and community level and expects the church to develop the set of common values and approach in its staff. Thus there were only two respondents from the MCC that stated the training to be either critical or important, compared to six from the CRC (see Table 6, p. 116).

Long-term projects. Both organizations utilize a variety of projects to build local capacities. Some of these long-term projects are directed towards mitigation efforts, an activity critical for both organizations. These either help avoid the disaster in the first place or reduce its impact if it hits the population. There are many types of mitigation

projects and many have proved to be very successful in reducing the human suffering.

The CRC also uses some of its long-term service contracts as projects that help build its capacities in different ways.

Each organization prepares for disasters differently through capacity building, but some strategies are important and common. For example, the CRC engages in long-term projects with the collaboration of its local partner National Societies, whereas the MCC implements them solely through its many partners in the region and maintains its flexibility to move into a relief phase whenever required.

Both organizations have some long-term projects that are not directly related to capacity building for a disaster but nevertheless build capacities by reducing the vulnerabilities of communities and helping them become more independent. As one manager at the MCC said, "We would rather teach you to fish than to give you the fish." Thus by helping to build resiliency in the communities, these projects indirectly enhance preparedness for potential disasters.

Referring to Table 6 (p. 116), several respondents from both organizations termed the activity "long-term projects" as important to the effectiveness of a response and it seemed equally important for both organizations.

Summary. Figure 9 summarizes the various capacity building activities undertaken by each organization, once it has established presence in a region. The logo near each activity indicates the organization employing that activity. The figure shows the three different levels of local capacity building. Both the organizations develop these local capacities in different ways based on their overall strategy.

The CRC participates with the IFRC in the development of regional capacities. In addition to training, resource building efforts on the organizational level include long-term projects (service contracts), developing assets (including pre-positioned stocks, communication equipment, vehicles and other necessary tools), engaging the corporate sector, building a local supplier base, and leveraging the capabilities of these local suppliers. On the community level, the development of a community-based delivery system through volunteerism is a major activity for the CRC. The MCC works in communities on a variety of long-term projects initiated through its partners including the development of a partner-based delivery system.

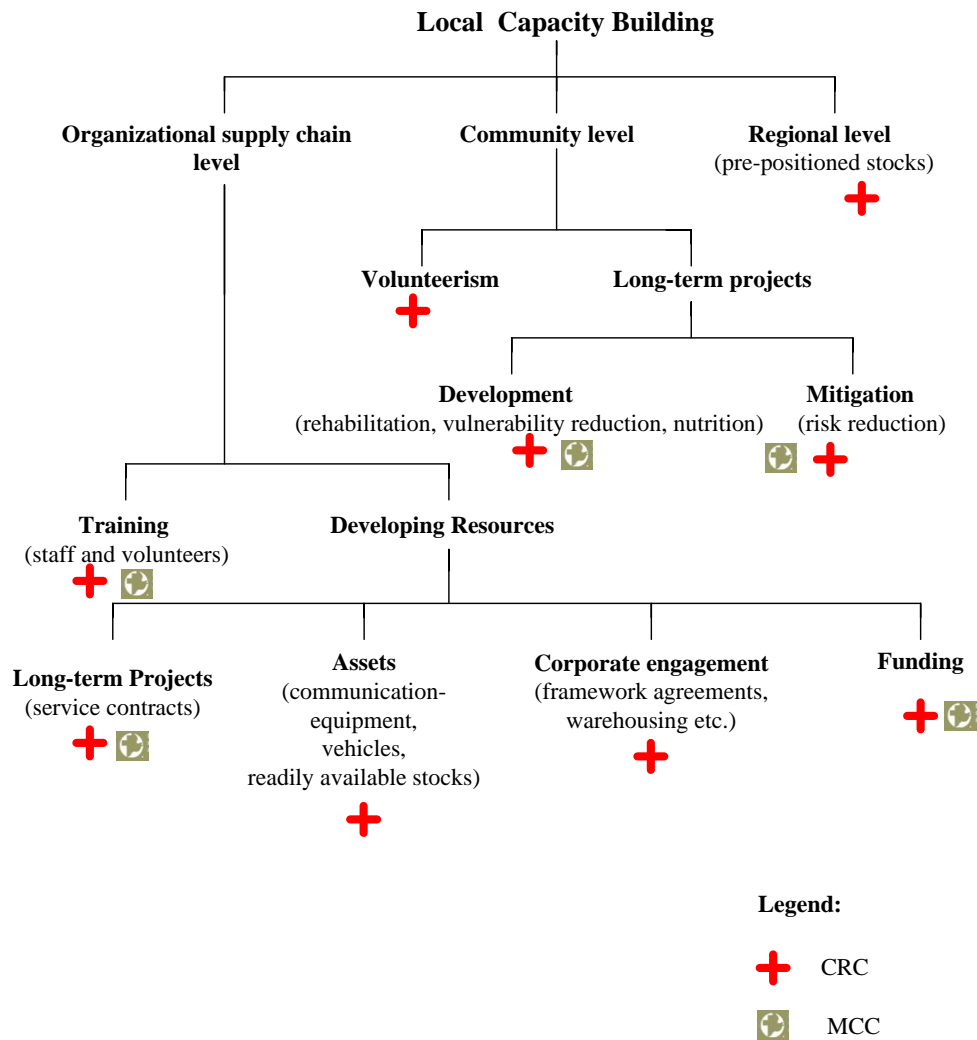


Figure 9. A summary of the activities – theme: "Local capacity building".

Proposition re: local capacity building

During the cross-case analysis, the following proposition emerged from the data based on the theme "building local capacities."

The greater the local capacities developed in a community, the greater is the preparedness to respond to a natural disaster.

The local capacity building process is enhanced through:

- a. Training***
- b. Engaging in long-term programs***

Theme 3

Early Needs Assessment (capability)

Case 1: Canadian Red Cross Society (CRC)

It is critical . . . if there is a major hurricane you almost always know that this is going to be damage to the people's facilities, so we have in our warehouses plastic sheeting and tents and blankets . . . but to ship it, you want to make sure what people want and they can receive it . . . how they want to receive it. (senior manager)

The decision to ship relief materials in a disaster relief operation needs to be based on reliable information about the needs of potential beneficiaries of the relief effort, as well as detailed information about the extent of damage to facilities and infrastructure, available local resources, and so forth. Such information is not easy to obtain immediately after a disaster. For this purpose, the CRC has created specialized Field Assessment and Coordination Teams (FACT). These are multi-disciplinary teams of experienced disaster managers who are on stand-by to support the response to sudden major disasters by conducting quick and accurate needs assessments. These teams are assembled and sent to the disaster locations as soon as the CRC decides to respond. A senior manager reported that, "When there is a disaster, a Field Assessment and Coordination Team goes in. These are a small number of people who go in, in the immediate phase, within 24 to 48 hours, as soon as possible, to determine the

requirements." These teams also include a logistician to gather information on the supply lines and infrastructure, including information on the ports through which the relief materials can enter the country, the warehousing facilities that are available, information about transportation options, the immediate needs for certain equipment and material, the status of local suppliers, and many more similar pieces of information. A logistics manager said:

I am a FACT member for logistics. So they will go in, do the rapid assessment. I will do the supply chain, infrastructure type of thing. There will be another person, who might be a health or doctor or shelter or relief person for the relief distribution.

The capacities of the local partner or the National Society and their experience in logistics are also assessed. The missing areas in their existing local capacities are included in the planning that takes place after this assessment information arrives at the offices of the CRC.

The needs assessment must be as accurate as possible. For example, for tents, it is not enough to know just the number of tents required; it is also important to know the type of tents (e.g., whether these tents each needed to have a winter lining or not). The logistics officer explained that, "For China, we sent all-weather tents [without winter liners] but we kept the winter liners here because they were requesting all-weather tents. They did not need to have the winter liner because it was warm, but for Pakistan in 2005, they needed to have winterized tents."

The CRC compiles an assessment report only after receiving information from these assessment teams. This becomes the basis for a plan of action for an appropriate intervention. Thus, a quick needs assessment is crucial as no appeals for funding and donations are launched until this report is received.

For example, the importance of conducting an accurate and early assessment of needs was highlighted after the earthquake in Bhuj, India (2001) where the information gathered was inaccurate. In response to the earthquake, the IFRC launched an operation to deliver relief materials by sending FACT members to assess the situation and to gather initial information. The sketchy information coming from many sources led to inaccuracies, such as the IFRC mobilizing 160 tons of high protein biscuits (Samii et al., 2002b). However, the government and the local communities responded effectively to the food requirements of the people and the IFRC ended up using only 25 tons of the stock. Similarly, a lack of communication between different agencies resulted in most of them appealing for a large number of tents at the same time. At the end there was an excess number of tents while other needs went unmet (Samii et al, 2002b).

There is one situation in which a response may be launched without an initial needs assessment. This occurs when the disaster is so big that it is safe to begin shipping relief items before any detailed needs are known. The best example of this was the 2004 tsunami in Asia. Without knowing detailed needs, it was obvious to everyone that so much was needed that initial shipments could be made without being concerned about shipping too much. In short, as one of the directors of CRC puts it, "The only time I have launched the appeal for assistance before the assessment came, was for the Tsunami."

These large-scale events are the exception, however. Normally, an initial assessment of needs is critical for organizational planning for the immediate and accurate delivery of relief materials. One senior executive explained the criticality of this information through an example concerning the earthquake that struck Turkey in 1992:

When the earthquake occurred . . . the head of the preparedness delegation picked up the phone, literally within ten minutes of the earthquake and started telling people in Geneva what was happening. It was a text book event so that the people in Geneva could then communicate with the other people and say, "Here is what they've got, stockpiles ready at the National Society, here are the type of things the government might be anticipating" . . . and then we can start populating our supply chain with what's more urgent and so on.

Because the IFRC had a delegation in the country at the time of earthquake, this *presence* led to the immediate availability of a reliable picture of what was going on, the type and extent of damage, and the required needs of beneficiaries. This made it much easier for the IFRC to initiate an immediate and more accurate response to the earthquake.

The CRC is aware of the costs involved in sending the teams, the time required to assemble and fly them to the disaster zones, problems in getting visas, and problems obtaining correct and reliable information - all in the shortest possible time. One senior manager explained the need to have local community and local partners' involvement in

needs assessment by pointing out that a response is "always done in collaboration, cooperation and with the full approval and request of the local National Society."

Conclusions from Case 1: Canadian Red Cross: early needs assessment

Early assessment of needs is critical for initiating a speedy response to a disaster. CRC maintains specially trained FACT members who are rushed to a disaster zone in the immediate aftermath of a disaster to conduct an assessment of the needs. These assessments become the basis for a response plan. The presence in the region enhances the capability of an immediate assessment followed by an immediate response.

Case 2: Mennonite Central Committee (MCC)

"We will try first week or two to do a proper assessment. We won't immediately ask for money." (director)

The MCC relies on the assessment of needs for planning its response to a disaster. Many times the MCC conducts its own needs assessment, but does so through its local partners and country representatives. As one senior executive explained the need for good information to justify an immediate response, "We would probably come in quickly but small, with the local partners. Now we do have the ability to send up to \$30,000 immediately, next day, to our partners, if they give us some a good indication."

The MCC has set aside substantial resources to carry out an immediate response through its partners, if the situation demands it. The Pakistan earthquake was one example, where they immediately sent funds to respond to the huge and sudden demands

from the disaster region. The senior manager explained the situation and the available information that led to the response:

Let's say Pakistan; they had the earthquake two years ago. There were a number of partners and they said, "We need to buy food, people are out there in shelters, their homes have collapsed, they are out in the open, they are cold, they need blankets, they need drinking water." Ok, we sent them \$20,000 and then we say, "Please send us your project proposal in the next two weeks."

Like the CRC's response to the Turkish earthquake, Hurricane Mitch in Honduras in 1998 provided a similar opportunity for the MCC to launch an immediate response on the basis of fast and reasonably accurate information. Two of its country representatives were present in the region as the hurricane arrived. They were able to provide very early and very reliable information about the situation. Consequently, this helped the MCC to plan and initiate a very rapid response. A respondent from the MCC described the situation:

The 1998 hurricane in Honduras and Nicaragua hit badly. Our Country Reps called our office in Akron and [one of them] said, "We have this hurricane going through here. Based on what I am seeing here, we are going to be in a medical crisis. Can we have this and this and this?" We started working that process before that hurricane was through.

In the case of large disaster situations, the MCC sends assessment teams where the in-country capacity is not enough to tackle the sudden surge of activities. One respondent from the MCC explained, "The assessment team would try to locate a local partner and with the local partner would draw up a response and then they would ship or purchase."

In countries where the MCC does not have a local presence or partner, it sends an assessment team to find a local partner through which the relief operation is undertaken. However, in many situations, the MCC does not send an assessment team as it does not consider itself to be among the first responders. Its strength lies more in taking care of long-term needs and impact management. In such cases it relies on assessments done by other organizations such as an agency of the UN or a local government agency.

According to a senior executive from the MCC:

We would attend the UN meetings or the government sponsored disaster meetings. Most NGOs would have representatives there and the government would let you know or the other NGOs who made rapid assessments would let you know what the situation is like in such and such a place.

Once the requirements and the unmet needs of the community are known after a disaster, the MCC launches its response. It also relies on its local partners for needs assessment, wherever they have local partnerships in place, because it realizes that the locals are better informed about the needs and where they exist since they come from within those communities. A senior manager at the MCC said, ". . . at the same time you

[local partner] know where the need is better than we know and you also come to us with a program plan saying, "this is where I would like to send it, this is who is going to benefit from it."

The MCC does not launch an appeal immediately after a disaster but it waits for the assessment reports to know the actual needs and then proceeds with its appeals to raise funds. It still can launch a small scale immediate response, again, based on reliable early information coming from the local partner and depending on the extent of needs.

Conclusions from Case 2: Mennonite Central Committee: early needs assessment

The MCC sends its own assessment teams only in the case of a large scale disaster, if its own representative or partner is overwhelmed by the sheer size of the disaster. It relies on the assessments from other sources in other instances. These other sources include government reports, UN reports and assessments conducted by other organizations. If it has a presence in the region at the time of a disaster, the MCC can conduct a very early assessment of needs through its own representatives, who have the capability to conduct such an assessment. This situation has enabled a rapid response to a disaster. The response is facilitated by the availability of handy funds.

Cross Case Analysis re: early needs assessment

Both organizations depend on an early assessment of needs in the aftermath of a disaster in order to launch a response but this early assessment is vital for the CRC as it is usually among the first to respond to a disaster. The MCC may not respond to every

disaster that occurs. Each organization conducts assessments in its own way. The CRC has dedicated FACT members for the purpose. These teams are rushed to a disaster location, whereas the MCC only sends its teams in case of a large scale disaster, when their own staff or partner is unable to do the job alone and requests assistance. In such cases, the MCC relies on assessments that are available from other sources, which include other organizations in the region, UN, and local government sources. Each organization was able to launch a rapid response when it was able to get this initial assessment very early in time due to the presence of their representatives in the region of a disaster. Both organizations maintain funds required to launch an immediate response, when required.

Proposition re: early needs assessment

During the cross-case analysis, the following proposition emerged from the data based on the theme "early needs assessment."

The greater the capacity to conduct an early and accurate assessment of needs, the greater is the preparedness to respond to a natural disaster.

This capacity is enhanced by:

- a. Local presence.***
- b. Local capacity building.***

A Summary of the Propositions

Table 5 summarizes the propositions that emerged from the data analysis.

Table 5

A Summary of all the Propositions from the Data Analysis

| Theme | Propositions |
|-------------------------------|---|
| 1 Presence in the communities | <p><i>The greater the presence in a community, the greater the preparedness to respond to a natural disasters.</i></p> <p>This presence is enhanced in the communities through:</p> <p><i>1a. Local partnerships.</i></p> <p><i>2a. Local delivery system.</i></p> <p><i>3a. Local sourcing.</i></p> <p><i>4a. Local network of relationships.</i></p> |
| 2 Local capacity building | <p><i>The greater the local capacities developed in a community, the greater is the preparedness to respond to a natural disaster.</i></p> <p>The local capacity building process is enhanced through:</p> <p><i>2a. Training.</i></p> <p><i>2b. Long term projects</i></p> |
| 3 Early assessment of needs | <p><i>The greater the capacity to conduct an early and accurate assessment of needs, the greater is the preparedness to respond to a natural disaster.</i></p> <p>This capacity is enhanced by:</p> <p><i>3a. Local presence.</i></p> <p><i>3b. Local capacity building</i></p> |

Summary Framework

The framework in Figure 10 links the propositions and the themes around the concept of a "local focus," and summarizes the data analysis visually. It indicates the various enhancing influences on each of the three themes, namely, presence in the communities, local capacity building and early needs assessment capability.

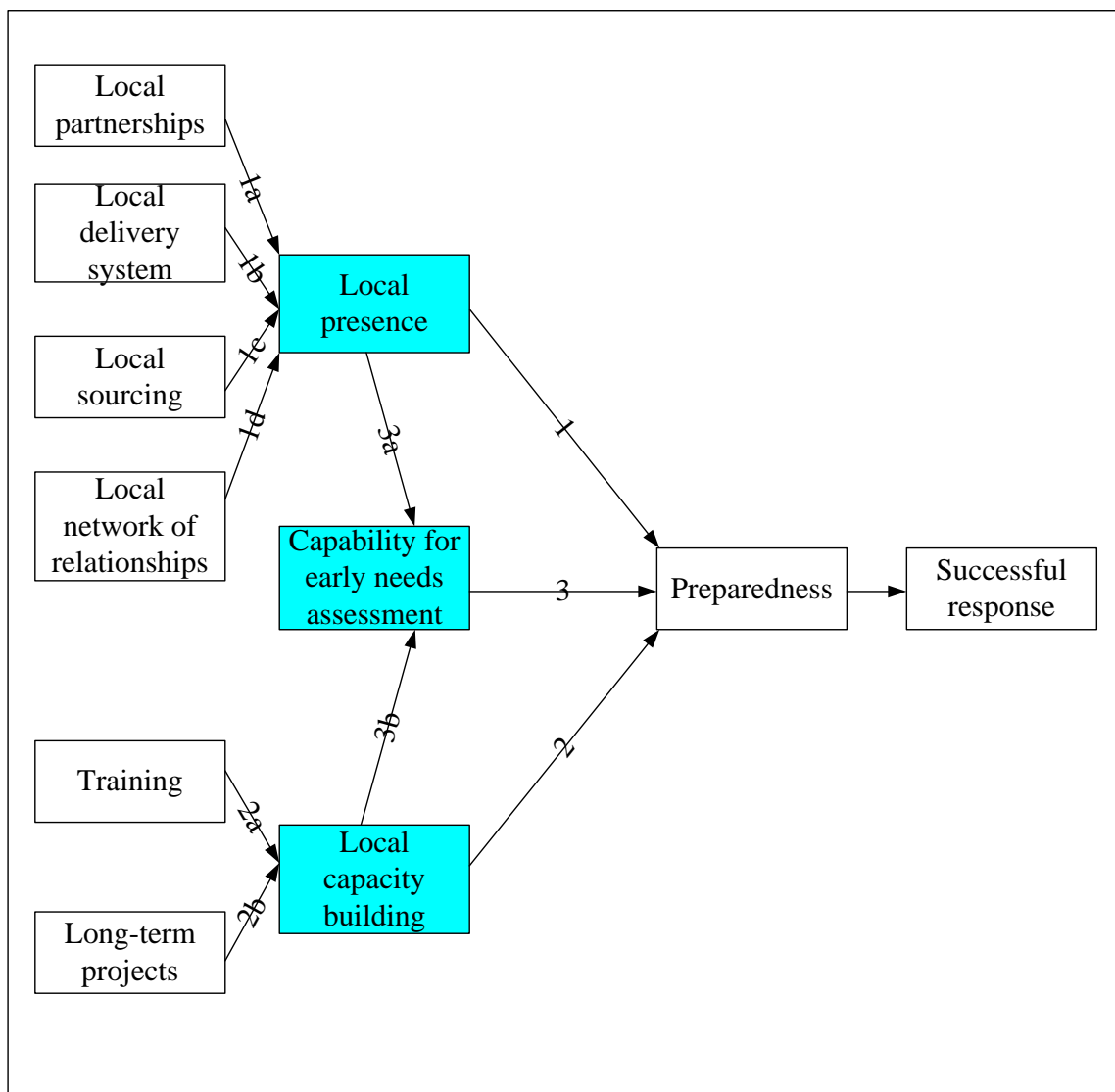


Figure 10. A summary framework.

The labelled arrows indicate the respective propositions from Table 5. The organizations first establish and enhance their local presence through a set of activities that include local partnerships, developing a local delivery system, developing a local supplier base for local sourcing, and developing a local relationship network. Once an organization has a local presence, it engages in a variety of local capacity building projects that include mitigation, risk reduction and various other capacity building efforts. These efforts are enhanced through engaging in training and various long-term projects. The local presence and the capacity building efforts are also utilized to develop a specific capacity to do needs assessment in case of a disaster. Through these efforts, the organizations improve their preparedness for an anticipated disaster.

The propositions and the summary framework are the result of a theory building effort and the causal links are testable propositions. Further research would be required to develop suitable measures of the constructs and to test the propositions.

Table 6 summarizes and indicates the interviewees that considered these emerged themes as important in preparing to respond to disasters.

Table 6
Important Themes from the interviews

| Interviewees | CRC's Supply Chain | | | | | | | | MCC's Supply Chain | | | | | |
|-------------------------------------|-----------------------|---|---|---|---|---|---|---|-----------------------|---|---|---|-----------|-----------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | CFGB 1 | CFGB 2 |
| Local presence | x | | x | | | | | x | | x | x | x | x | |
| Local partnerships | x | x | | | x | x | x | | x | x | x | x | x | x |
| Local delivery system | x | x | | | | x | | | | x | | | x | |
| Local network of relationship | x | x | x | | x | x | | x | x | | x | | x | |
| Local capacity building | x | x | x | | | | x | | | | x | | x | |
| Long-term projects | x | x | x | x | | | | | x | x | x | x | x | |
| Training | x | x | x | x | | x | | x | x | | x | | | |
| Early needs assessment (capability) | x | | | x | x | x | | | | x | | x | | |
| Common value system | x | | x | | | x | x | | x | x | x | | | |

Discussion

In this type of research, Eisenhardt (1989) has suggested enfolded the literature back into the study. The literature review conducted at the onset of the study will likely have missed focusing on themes that emerged during the study. Also, there may be new research that was not available at the beginning. Comparisons of the emergent concepts with extant literature results in stronger internal validity, wider generalizability, and raises the theoretical level of the whole study (Eisenhardt, 1989).

The following section first highlights the standard practice in humanitarian supply chain management of delivering relief from afar, where large international organizations are based in one part of the world, while most disasters happen in other parts. These organizations struggle to gather resources to deliver the relief, as quickly and effectively as possible, once a disaster strikes a region. This scenario is then compared with a scenario that may result if an organization has a deeper local focus, as the propositions and summary framework suggest. Some examples from the literature are used to compare the two scenarios and highlight the benefits associated with a *local focus*.

Moving Relief From Afar

Van Wassenhove (2006) describes preparedness as the key strategy for a successful response. Developing local capabilities and collaborating with local players are among the key elements of preparedness. He further describes four phases within disaster management as mitigation, preparedness, response and rehabilitation. Kovacs and Spens (2007), in reference to the existing humanitarian supply chain approach, describe a framework for disaster relief that separates the perspectives of two different actors during the different phases of a disaster, international actors and local actors (See

Figure 11). The international, or extra-regional perspective, comprises actors such as the UN, larger aid agencies, extra-regional NFPs, and logistics service providers. Their strategic plans are based on moving relief materials across international boundaries from global sources to a disaster zone. This approach is a primarily a reactive one.

Perry (2007) shows that 89 percent of the population affected by natural disasters between 1975 and 2003 were from Asia, whereas most international and large NFPs involved in disaster relief logistics are based either in Europe or in North America. Thus, the current model of humanitarian supply chain management is based on delivering relief from afar through international aid agencies. Long and Wood (1995) aptly describe this relief as a "foreign intervention" into a society with the intention of helping local citizens.

After a disaster hits a region, local and international groups must suddenly interact. Due to the differences in the perspectives and strategies of these actors, there are some intense and difficult collaboration efforts (Kovacs and Spens, 2007). This approach, as depicted in Figure 11, in the framework presented by Kovacs and Spens (2007), is costly, slow, and prone to errors, requiring huge supply chain management efforts, resources and expertise.

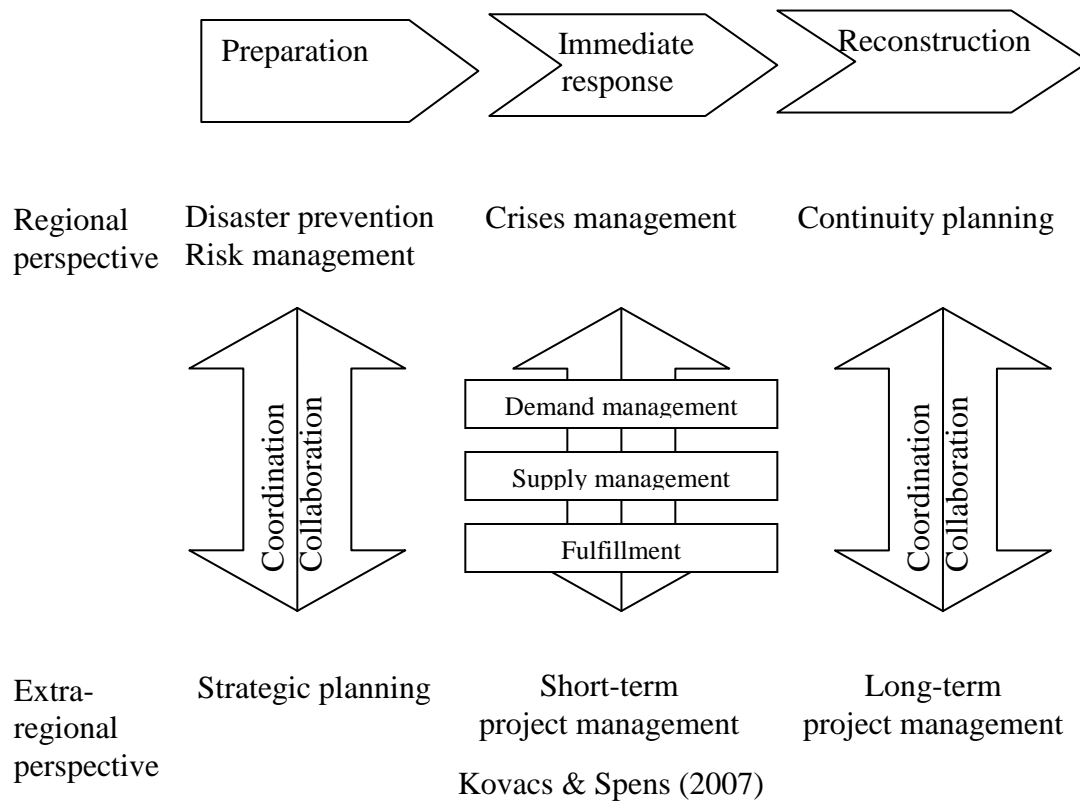


Figure 11. Disaster relief logistics framework.

Figure 12 approximates the various flows (in a hypothetical response) as relief is being moved from afar by an international agency in Country A (one of the many responding to a given disaster), to Country B, which has experienced the disaster. The thickness of the arrows represents the amount of flow and the arrows represent the direction of these flows.

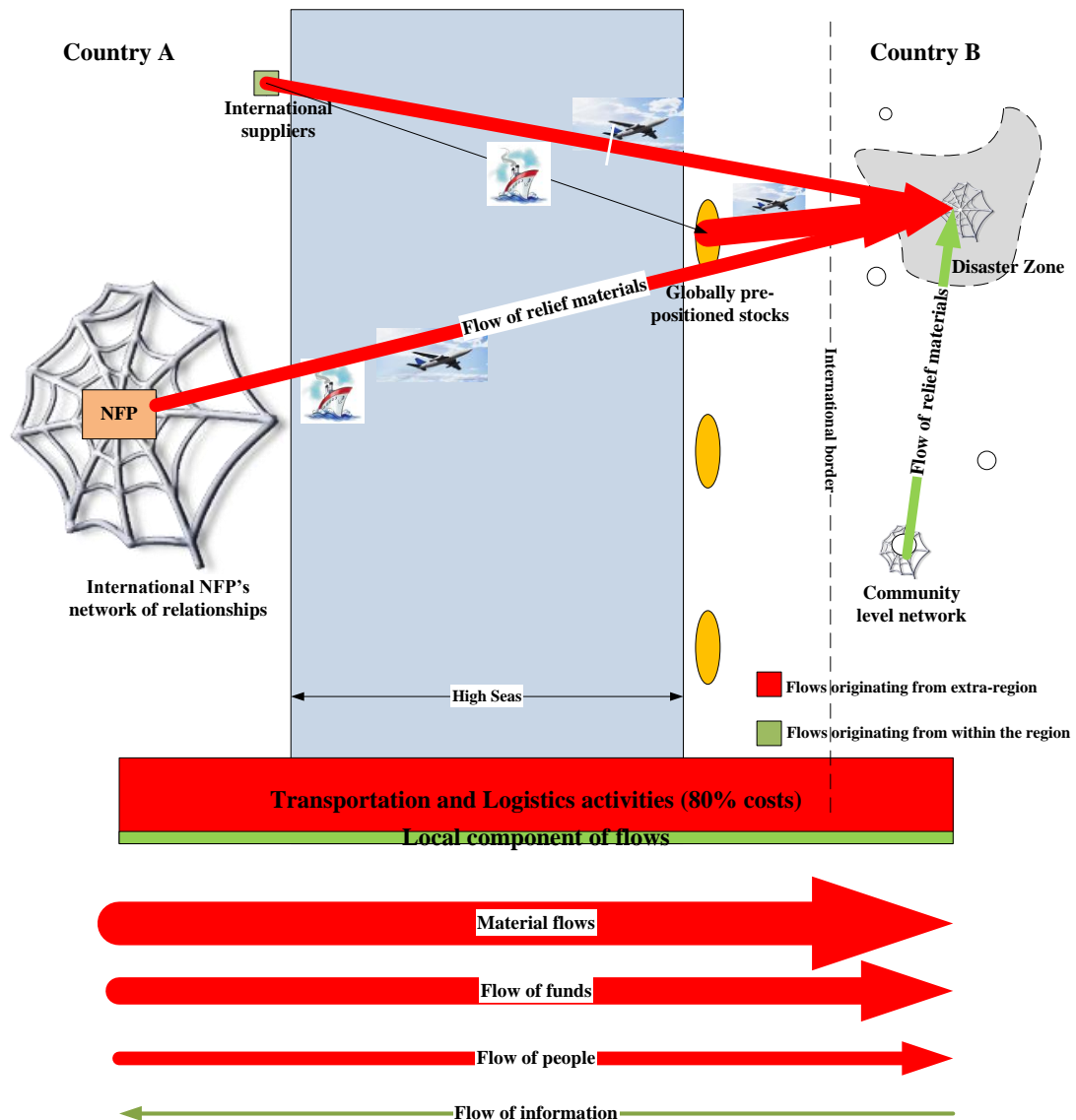


Figure 12. Delivering relief from afar – Various flows across international borders.

The international NFP is based in Country A, far from the scene of the disaster, thus having an extra-regional perspective relative to Country B, which has experienced a natural disaster. The international NFP has a network of relationships in Country A, shown as a spider web. It has a set of pre-screened major global suppliers, with some frame agreements in place, for the materials commonly used in disaster relief. The

international NFP has some pre-positioned global stocks in proximity of expected disaster zones in various regions. The pre-screening of suppliers, frame agreements and the existence of regional pre-positioned stocks indicate a less than purely reactive approach. In Country B, there are small networks of relationships built around few communities by comparatively smaller local organizations. As the disaster strikes, the flow of information from the disaster zone to Country A is minimal. The international NFP has few relationships in the region and few local processes for collecting and communicating needs assessment data. Consequently, many international NFPs must maintain assessment teams of various experts who are based in many locations around the world. When a disaster occurs, these teams are quickly assembled and rushed to the scene to conduct an early assessment of the situation and immediate needs of the affected communities, to get some idea of the *demand*.

If the teams are successful in reaching the disaster zones and in conducting their needs assessments, appeals are launched for funding. Materials begin to flow mainly from established sources, as discussed earlier. Due to the urgency of needs, large initial quantities of relief items are usually airlifted (See Appendix B). These flows of material and people grow rapidly, as news of the disaster spreads. Most of these flows cross international borders and, in particular, must satisfy Country B's customs regulations, which may or may not be waived or relaxed. Many times, issues of duties on incoming goods and packaging and labelling requirements delay shipments for days or weeks or sometimes are simply refused entry. Ports and airports typically become clogged due to these sudden massive inflows. These flows also include unsolicited materials, which may be shipped for any number of reasons, such as inaccurate or sparse initial information

about the actual needs, lack of coordination among several players, well-meaning people shipping unnecessary or low priority items, or some donors simply shipping what they have rather than what is needed. These movements also require a great deal of coordination with the local government agencies.

As time passes, the priority changes from immediacy to economy. So, the need to airlift materials is reduced and cheaper and slower modes of transportation are used. Pre-positioned stocks are replenished through mainly sea shipments. The amount spent on supply chain efforts is very large, with a very little local component to the flows. There is a strong need for collaboration among the many players, but such collaboration is difficult to achieve.

Limitations of Moving Relief from Afar

Typically, there is a lack of local context in the planning efforts of the international NFPs. Rather, the NFPs tend to be hampered by a number of conditions, including large distances from expected disaster locations, difficulties in gaining speedy entry to disaster zones, and limited knowledge about local conditions and culture. These difficulties become further complicated by having to make quick decisions that are based on the often inaccurate and incomplete information that is typical in a dynamically changing environment.

Each disaster event has brought a host of failures to light (Beamon and Kotleba, 2006). Cyclone Nargis in Myanmar (2008) is a recent example of these failures. Many organizations were ready to launch the response, had the resources and people, but were not allowed to enter the country. They waited and struggled to gain access, with many

failing and some leaving without being able to deliver relief to the affected people. Even when restrictions on flows of people and materials are not there, teams arriving from afar take time to become acclimatized to the local environment. Sometimes their arrival is so late that it hampers the relief operation, as was the case after Hurricane Mitch where the IFRC's relief delegates and technical staff were late in arriving and proved to be ineffective (Samii and Van Wassenhove, 2002b).

Large movements of people into and out of a disaster zone are also very expensive and complicated, even if these flows originate within the country experiencing a disaster, but a long distance from the disaster zone. For example, when the American Red Cross Society moved its volunteers from all corners of the country to respond to fires in California in 2008, it was very expensive to pay for airline tickets for volunteers, their hotel rooms (some unused), and food (McDonald, 2008).

Advantages of a Local Focus

Newport and Jawahar (2003) point out that disaster preparedness would not be effective without the participation of the vulnerable communities. Some organizations, like the IFRC, are now focusing less on a reactive approach and more on developing local capacities and pre-positioning material and other resources regionally. Local actors (e.g., host governments, local enterprises, and local aid agencies) are better connected to the region of disaster and have their own strategies, different from international players. In some examples, like the CRC and the MCC in Myanmar (2008) or the CRC in Bangladesh, organizations that established their presence in the vulnerable communities before a disaster occurred were able to get easier access to the region. They did this

through partnering with local organizations or National Societies. They were thus able to launch effective responses when the time came. After establishing their presence locally, these organizations focused on building local capacities on various levels.

Supply chain integration. Efforts to enhance local presence and local capacity development before disasters occur will also be reflected in greater integration of the supply chains of the international and local organizations in the model described by Kovacs and Spens (2007). The integration of the respective supply chains is critical to the success of a global, responsive and agile humanitarian supply chain (Oloruntoba and Gray, 2006). This closer relationship has a parallel with private-sector organizations, for which higher degrees of supply chain integration, with both suppliers and customers have been shown to be associated with higher degrees of performance (Droge and Vickery, 2004; Dyer, 1996; Frohlich and Westbrook, 2001). The same association between supply chain integration and performance should hold true for humanitarian supply chains.

When a natural disaster occurs, local people are in the best position to respond immediately, but they usually lack the capacity and resources to respond effectively (Perry, 2007). For example, after the Java earthquake in 2006, 65 percent of the affected households surveyed cited private individuals as the primary source of aid for the first 48 hours after the earthquake (Bliss and Campbell, 2007a). Similarly, after the Asian tsunami in 2004, 36 percent of people surveyed cited private individuals and 31 percent cited the local government (Bliss and Campbell, 2007b). Aid providers during the first two days after this tsunami were overwhelmingly locals in Indonesia, Sri Lanka, and India (Thomas and Ramalingam, 2005).

Activities undertaken after integration. The deeper integration of the international NFP with the local organization opens doors for many activities as highlighted in Figure 13. This integration will typically take place during non-response phases (e.g., mitigation, preparedness, rehabilitation).

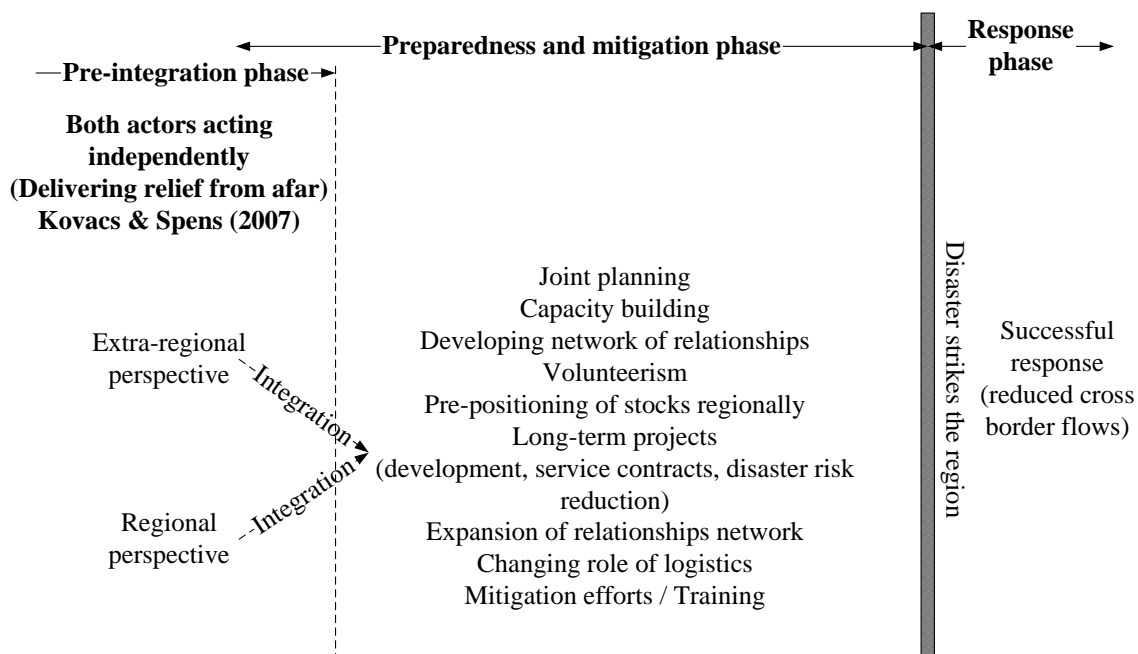


Figure 13. Activities undertaken after the integration of the supply chains.

As integration proceeds, the planning by the two sets of actors is no longer separate. Rather, there is an increasing level of joint planning aimed at various activities, such as risk reduction (International Federation of Red Cross and Red Crescent Societies, 2009), capacity building, developing relationship networks, selecting and training volunteers, pre-positioning relief material, collaboration with the business sector, long-term mitigation and development, and so forth, as suggested in Figure 13.

The various flows after integration. As shown in Figure 14, the various arrows indicate hypothetical flows after increased integration of the two supply chains. The arrows indicate only those flows that reach the disaster zones. There can be more flows, for instance those that take place between the international NFPs and its suppliers, but these are omitted in the figure. The movements of people, material, information and funds that take place from afar after a disaster strikes a region will be reduced. These flows can be compared with those shown in Figure 12 compares the improvements in the effectiveness of relief as one move from the approach of delivering relief from afar to that of an increased local focus.

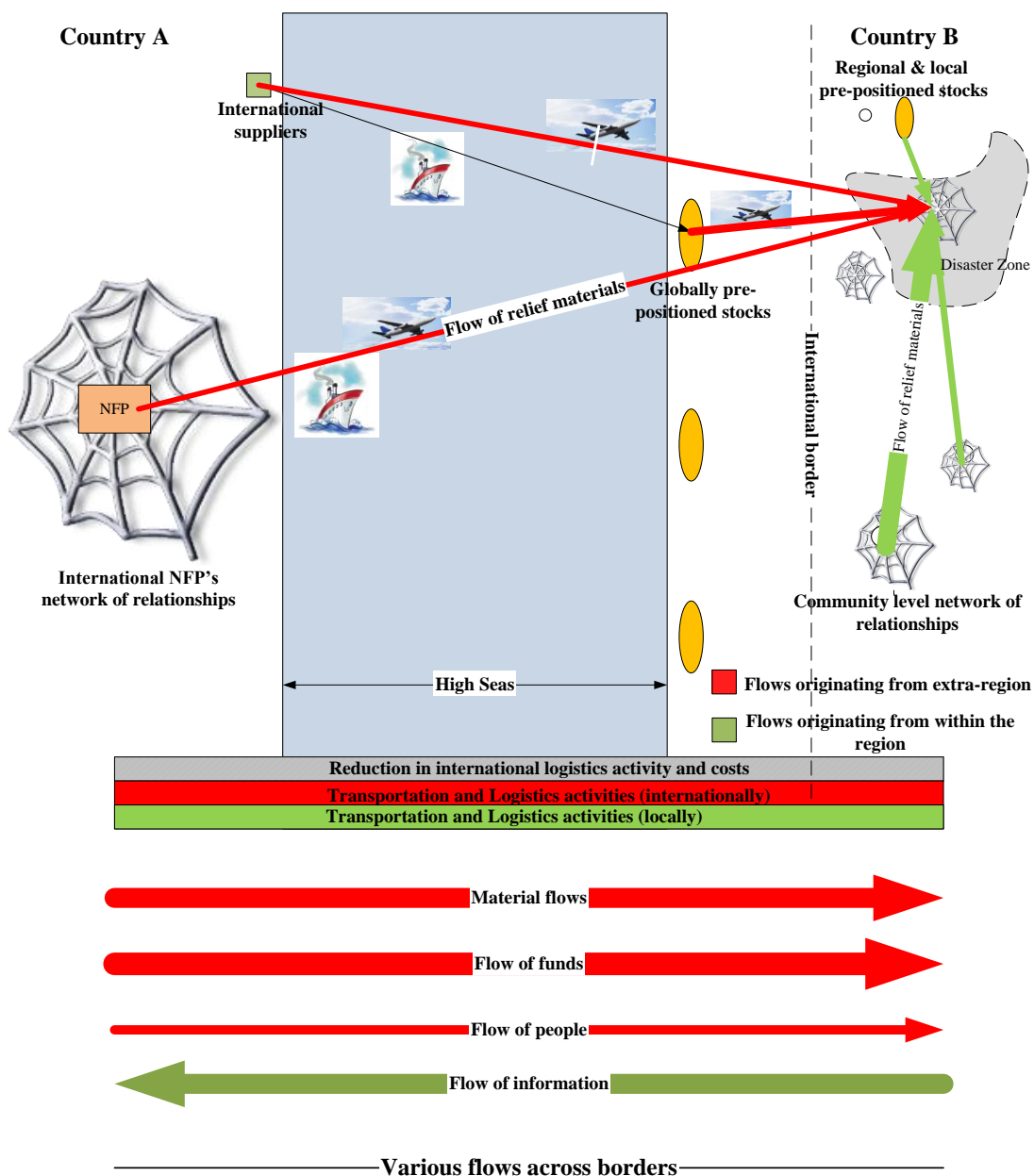


Figure 14. Delivering relief after increased supply chain integration – Various flows across international borders.

With more supply chain integration, there will be less need for assessment teams to be flown in from different countries to collect data about the needs of recipients and

the extent of damage. Of course, there will still be some need, for example for experts to make assessments in specialized areas like water and sanitation systems. The trained local volunteers and staff would be able to gather information and provide an initial assessment to the organization very early after a disaster. The speed with which the critical information is collected and used will facilitate an effective response and hence more lives could be saved (Perry, 2007).

The main advantage of increased integration is that responses on the local level would be initiated almost immediately (Perry, 2007). With the activation of local volunteers, the locally stocked materials could move very quickly to the disaster zones through local logistics teams. The international organization would still be required to mobilize resources that are not available locally, but local initiatives would help to reduce the pressure on the international pipe-line, thus increasing speed and accuracy and reducing cost. There are numerous potential advantages to increased integration. For example, there should be a reduction in problems of visa restrictions and customs regulations. Local governments should be more inclined to collaborate in this situation due to the long-term commitment of the international organization in the region and a greater sense of trust should prevail. Information should be more accurate and timely when collected by local sources. As well, there should be a reduction in the total relief requirements, as communities become more resilient through local mitigation efforts, such as the training of volunteers from the community in lifesaving skills.

As mentioned, however, there will still be needs that must be met via international aid agencies – even though these requirements would be greatly reduced. For example, the need for funds would surely still be there, as most countries that are struck by

disasters are poor. Similarly, as mentioned, there will be needs for specialized resources and expertise, including the ability to coordinate the efforts of many actors in the event of a large-scale disaster. Furthermore, for large-scale disasters, there will be requirements to augment capacity even if local community has developed the capacity on a limited scale. For example, there may be locally pre-positioned supplies, but still a requirement for more if a disaster is large enough.

In essence, increased supply chain integration between international and local actors that makes it easy for the international organization to have a local focus, has a number of advantages (e.g., speed, accuracy, and cost effectiveness) but there will still be a need for an international presence, especially in the event of a large-scale disaster.

One example of this increased local focus is provided by a recent announcement by the CRC that it is expanding its fund-raising efforts to support programs in the vulnerable regions to prepare in advance as a senior executive at the CRC explained:

Investments in prevention and preparedness activities are investments in the future. Between the global economic downturn and the increasing challenge of climate change, that is the most effective and financially prudent way for vulnerable countries to save lives. (Canadian Red Cross, 2009c)

Examples

A recent case study conducted by the IFRC on its three operations for the tsunami in Indonesia in 2004, the Pakistan earthquake in 2005, and the Indonesian earthquake in Yogyakarta, Indonesia in 2006 confirms the improvements possible through a local focus

by the use of local sourcing. The results, as shown in Table 7, indicate the impact of local sourcing on the level of service, speed and cost of the intervention (Heigh, 2006).

Table 7
Impact of Shift in IFRC's Logistics Policy towards Local Sourcing

| | Indonesia Tsunami 2004 | Pakistan EQ 2005 | Yogyakarta EQ 2006 |
|--|---------------------------|---------------------|-----------------------|
| Families Serviced | 100,000 | 95,000 | 65,000 |
| Families receiving full Package by 2 months | 0 | 0 | 42,911 |
| Percentage of goods delivered from the region | 13% | 68% | 100% |
| Days to activate end to end supply chain | 18 | 10 | 3 |
| Average distance relief items travelled to reach families (km) | 11,805 | 2,962 | 1,617 |
| Cost to deliver relief package per family at 8 months | Not available | 450 | 142 |
| The % of amount spent on logistics | | 90 | 90 |

Heigh (2006)

As shown, over a two year period, this increased emphasis on local sourcing led to some significant results. In the response to the Yogyakarta earthquake, 100 percent of relief materials were locally sourced. This resulted in earlier and faster delivery, drastically reduced distances for the relief materials to travel, and drastically reduced unit costs for relief packages.

An example of a country that has focused on developing local resilient communities is Cuba. It is considered a model by UN for its resiliency. Hurricane Jeanne hit Haiti in 2004 killing more than 3000 people. The same storm then gained strength and hit Cuban shores. No one died there (Bermejo, 2006). Hurricanes Hanna, Ike and Gustav

hit Haiti in as many weeks in September 2008, causing huge damage to life and property, with nearly 700 people dead and thousands injured. As before, these same storms gained strength and lashed Cuba. Casualties reported in Cuba were very few. Haiti was not prepared; Cuba was. Another powerful storm Paloma, a Category 4 hurricane, bypassed Haiti and hit Cuba in November 2008, with winds at peak speeds of 145 km/hr and a storm surge of 23 feet. It was considered the second most powerful storm to hit Cuba in the month of November since 1932 when 3000 people were killed by a similar storm. Not a single loss of life was reported when it hit Cuba. The entire country seems to be prepared, with their capacities built up to the point that everyone seems to know what to do in such a situation. As reported on a media website:

. . . workers warehousing bags of rice, trimming tree branches and clearing out storm drains. Bus and train transportation across central and eastern Cuba was suspended. Cuba regularly evacuates large numbers of people to higher ground ahead of tropical storms and hurricanes — a measure that historically has prevented major loss of life (Associated Press, 2008).

Another example of a National Society's capacity building effort at the community level is that of Bangladesh. Bangladesh (formerly East Pakistan) has lost huge number of lives by the many cyclones that have hit the country in the last one hundred years. The data from the five deadliest storms are shown in Table 8. The most recent cyclone, Sidr (2007) was similar to the last two cyclones that devastated many areas in Bangladesh. However, the estimated casualty figures of 4234 shows a 100-fold

improvement over the preceding 27 years (Tatham et al., 2009), as shown in Table 8.

The Government of Bangladesh has taken a number of steps to reduce the impact of

cyclones. Tatham et al. (2009) describe the key to the overall effectiveness as the

Cyclone Preparedness Program (CPP). It included a community based low-technology,

high-level warning system, based on a scale from 1 (*no danger*) to 10 (*great danger*).

Once Level 4 was reached, 44,000 volunteers from the CPP, managed and trained by the

Bangladesh Red Crescent Society (BDRC), were activated. They were able to get to the

outlying areas typically by bicycle and used loud hailers and flags to transmit messages.

As a result of this activity, around 40 percent of the population living in the predicted

path of the cyclone (3 million people) were evacuated in the 36 hours immediately

preceding landfall, with half of them being accommodated in shelters (Tatham et al.,

2009).

Table 8
Bangladesh Cyclones Data

| Date | No. of people died | Storm category | Source |
|----------------|--------------------|----------------|-----------------------|
| November, 1876 | 175,000 | | Wikipedia |
| November, 1970 | 300-500,000 | 3 (185 Km/hr) | (Tatham et al., 2009) |
| May, 1985 | 11,000 | (115 Km/hr) | Wikipedia |
| April, 1991 | 139,000 | 4 (250 Km/hr) | ADRC/Wikipedia |
| November, 2007 | 4,234 | 4 (240 Km/hr) | (Tatham et al., 2009) |

Bangladesh is a disaster prone country with extremely limited resources. Cyclone Sidr, a Category 4 storm, that hit the country on November 15, 2007 is considered the most destructive to hit the region since 1991. The casualty figures were approximately 4234, drastically lower than any previous disaster. Although each human life lost is a great loss, the casualties could have been much higher compared to similar storms that hit the region earlier. The difference is explained by the local preparedness levels of the communities, thanks to the capacity building and mitigation efforts by organizations like the Red Crescent Society of Bangladesh, in collaboration with its partners. It has been working to develop local and regional capacities for many years and has been successful in developing a large trained volunteer force and early warning systems. These long term mitigation projects were accompanied with government and other NFP's efforts in the same direction, which all accounted for the saving of thousands of lives, as shown in Table 8 (Tatham et al., 2009).

Elements of Preparedness

As discussed earlier, this study started with an initial focus on the four selected elements of preparedness namely, the role of logistics, training, collaboration and learning from disasters. During the data collection and analysis phase of the study many other important themes emerged, which finally shaped themselves into the three themes discussed earlier. Two of the elements of preparedness, namely, training and collaboration among various players became part of these three themes. Training is a major activity in the *local capacity building* theme and collaboration or integration of supply chains of the international and local partners is among the first steps of

establishing presence in a community, which is the first theme that emerged from the data. The remaining two elements of preparedness, namely, the *role of logistics* and *learning from previous disasters* are discussed here, as the information found in the data was not complete enough to help explain preparedness. Nevertheless, there is reason to believe these themes may be useful for future research and thus are worth reporting.

Changing Role of Logistics Function

Overall, when asked about the role of logistics in their organizations, respondents offered varied responses. For example, a program officer at the CFGB said, "The role of logistics has changed but it continues to be very important."

Due to the reliance of humanitarian supply chains on the international movement of materials, it was expected that the *logistics function* would be heavily involved in the strategic planning of each organization. For example, the literature indicated that logistics is crucial to the performance of current and future operations and programs (Van Wassenhove, 2006) and serves as a bridge between disaster preparedness and response, between procurement and distribution and between headquarters and the field (Thomas and Mizushima, 2005). However, the data indicated that, although most respondents realized the importance of the logistics function for a successful response, it is still considered to be a support operation, rather than a strategic function.

This does not mean that there are no changes in logistics activity or no moves towards a more strategic role. Rather, the data were not extensive enough to draw solid conclusions about the role of logistics and preparedness. For example, for the Red Cross, this situation has changed recently at the level of the IFRC, with the logistics function

gaining more strategic importance within the overall organization. However, at the CRC, the logistics function is still not given a prominent strategic role in the organization.

The logistics function at the CRC has changed. It is a new department with an international focus and they have been engaged on a great deal of logistics activity and changes (e.g., international procurement, improved training, standardization efforts, the development of a detailed logistics manual, establishment of frame agreements with suppliers, more local sourcing, etc.). Nevertheless, in spite of these internal changes and improvements, the logistics function at the CRC is still viewed by the organization as a support function with little or no strategic role. As noted by one respondent:

Supply chain management, until very recently, hasn't been seen as really a separate important function. It has been housed under administration and it's really been a purchasing function with a warehouse manager. There hasn't been some of the integration or some of the systems that I had seen to optimize efficiencies. And I think that's fair. International [IFRC] has done better than that with some of the staff who worked with the Federation.

There is a similar situation at the MCC. A program officer noted, "I think their [logistics'] role in interacting with the partner has been increasing. They still do work in procuring and helping procure but other times their role as an advisory function has increased."

The logistics function at the MCC is experiencing change and is moving out of Canada and taking on a more international role. For example, the manager of the logistics

department of the CFGB, a major supplier in the MCC supply chain, is now based in Africa, rather than in Canada. As one respondent from the CFGB described, "We really need someone over there and their role over there. One of the main things is to do the procurement and to purchase the commodities that we need to get them where they are supposed to go."

This new role of the logistics manager includes doing more local sourcing and developing the local supplier base. A senior manager at the MCC added, "Logistics used to be about getting the food shipped, but less and less of that is happening because it is being purchased locally."

As may be seen there is a changing role for logistics, as well, at the MCC. However, like the case of the CRC, this new role is mainly one of new activity rather than a new strategic role within the organization.

Learning from Previous Disasters

The theme of learning from previous disasters is the second theme that did not reveal itself to be as useful in explaining preparedness as had been anticipated. Similar to the previous discussion, it still makes sense that having a process in place to learn from previous disasters would help in preparing for the next. However, from the interviews, there was minimal evidence of such processes. So, for this study, not much can be said about this theme and its relationship to preparedness. The following material is a report on what was found.

Learning from the past was acknowledged as important by everyone asked during the interviews. Typically, an interviewee would point out that, nevertheless, not much was being done about it. There still exist gaps between what is happening and what should be happening. In larger organizations like the CRC, there are, in fact, systems in place to record lessons learned, especially after disaster events. In general, however, the reports are shelved and it is often not easy to find suitable information to help implement the lessons learned in practice. Rather, humanitarian supply chain managers tend to reinvent the wheel. This is not restricted to the cases in this study, as all humanitarian organizations are said to be poor in utilizing lessons learned (Samii et al., 2002a). In smaller organizations, a formal process of recording and learning from events is even weaker, as much depends on the experience and understanding of the head of the organization. There is a danger of the organization losing the precious experience and knowledge when this key person leaves.

Whenever things go bad or there is lack of collaboration, there tends to be an effort to learn. As one senior manager for the CRC noted, "I think we had 13 different independent assessments taking place in Honduras after hurricane Mitch." This was done to discover what went wrong and resulted in the formation of local response teams and the Pan American Disaster Response Unit (PADRU). Nevertheless, as another director explained:

It is very easy to do some evaluation and to send some consultant but the dissemination and the application of these lessons are more critical than the rest.

So this is why you have to have some key positions internally to ensure that the lessons learned are being captured and applied.

At the CRC, every mission is evaluated, leading to a report and there are post-response evaluation assessments. However, a lot of learning is tacit and is best transferred through experience. As one director noted, "The transfer of knowledge is ensured by the fact that we have a mix of experienced people and they are around the first-time delegates. That is how we try to work." Nevertheless, much experience is still lost when volunteers leave. As one manager said:

I think that *lessons learned* are always a challenge because there are so many stakeholders, so many contractual differences, staff turnover. The team that comes in is only with you for a few months and then they are gone and it is not the same team that comes back.

There is no formal process directed at capturing experience from volunteers, mainly because of the size of the volunteer force. One respondent noted that, "There is knowledge and if we could do some additional knowledge transfer, I think things can be improved."

At the MCC, an evaluation is done after every big event, but there is much more to be gained from an improvement in the capacity to capture all of the knowledge coming from a disaster response. As one senior manager said, "I am not sure we do that well. We

have a ways to go in terms of becoming a learning organization I don't think we do that well. I think we need to work on it."

A lot of experience is lost during these operations and the organization may not be able to benefit fully from the experience gained during any intervention. As one manager explained, "I don't think we do worse than most other organizations. I just think, generally speaking, [humanitarian] organizations are not very good at that. A lot of them aren't." As a manager at the MCC pointed out, "I think we could do a lot better and I think it has a lot to do with the attitude too. We have to recognize that there is a lot we can learn from other agencies."

Overall, there have been some attempts made to capture knowledge and learn from past disaster events in both organizations, but for each, there is acknowledgement that much more could and should be done.

Common Value System

The theme "common value system" emerged during the data analysis process. It was found to be important for the smooth operation of each organization, but the evidence was not strong enough to turn it into a proposition. Nevertheless, this is another theme that should prove useful for future research and is thus reported here.

Case 1: Canadian Red Cross Society (CRC)

The CRC website describes the seven fundamental principles that link together the IFRC, the ICRC, and all the National Societies of the Red Cross around the world.

The Red Cross programs and activities are guided by these principles. These are humanity, impartiality, neutrality, independence, volunteer service, unity and universality.

To develop these principles in the attitudes and minds of every volunteer and staff member, the CRC, like other National Societies, relies on its training program. These programs emphasize these principles so that they become part of the daily life and culture at the CRC. One respondent described the importance of these principles by saying, "I think the biggest component of the training that I think is most critical to us is the training [about] our principles of the Red Cross."

These common values and principles are reflected in organizational planning and act as a unifying force that moves the organization towards common goals, as explained by one senior executive. These fundamental principles are considered one of the major strengths of the organization, without which an effective response to disasters would be more challenging. Another senior manager said, "I think the humanitarian principles that we follow are very important guidelines that give us part of our unique character."

These principles are very similar to principles followed by many other organizations and are known internationally, as they are based on the Geneva Convention. The common value system provides a strong bond uniting all National Societies. Due to this universality in the common value system all across the network of National Societies around the globe, it is easier to work with different people of different backgrounds. One of the directors at the CRC related that:

The fundamental principles tie together the value system of the organization, both internationally and domestically . . . that's actually used

in operationalized decision making. It's a hierarchy of how you organize and do work. It is quite important to recognize that. It is present in the 186 countries in the world. It is actually present with the IFRC.

This universal image of impartiality allows the CRC to access all parties easily and deliver relief to the needy. These principles are not just words, but are actually in practice in everyday activities at the CRC.

The importance of a common value system is reflected in situations where the common values were not well appreciated, as explained by a senior manager in response to a question on what types of training are critical:

All of them are. Even the BTC [basic training course] is dedicated to understanding what the Red Cross is really about and how we work and is key to us. Sometimes we don't stick to that because of emergency situations so we send people without the BTC but we can see the effects right away. So it is training plus it's the principles.

Conclusions from Case 1: Canadian Red Cross: common value system

The seven fundamental principles of the CRC or the "common value system" unite the various National Societies around the globe and help them have a unified and unidirectional response in the challenging environment of a disaster. The principles are ingrained in the minds of staff and volunteers through the extensive focus on these

principles during the various training programs, which are common among all partner National Societies, with minor variations. It has become part of the organizational culture.

Case 2: Mennonite Central Committee (MCC)

Ours is a Christian based organization. So workers have a Christian philosophical framework. We don't do that training. Churches do that, but they are required to be active members in the church. So that would be the closest to what we have as a value based training system. (senior manager)

The MCC is comparatively a smaller organization and does not have an extensive training program, but it does require a common value system. This common value system provides a common motivation, a sense of volunteerism, or a common way of looking at things. Disaster situations are not an ideal place to work, requiring sacrifices from each individual. The faith-based institution, like a church, provides the necessary motivation, a sense of giving and of helping people. This provides the necessary set of values and guidelines, which guide a person in dealing with people and situations.

Due to the importance of this value system, the MCC ensures that newly hired staff comes from a similar faith background. The MCC operates in countries through its partners and, as a senior manager explained, "We do work to a significant extent with Mennonite groups wherever they are."

However, finding similar faith-based groups in different countries can be a challenge and is not always a possibility. In cases where no Mennonite groups are

available, the MCC reaches out to groups whose approach is closest to their own, in terms of similar persuasion or philosophical background and who fit as much as possible with the mission statement of the MCC, which is "MCC seeks to demonstrate God's love by working among people suffering from poverty, conflict, oppression and natural disaster. MCC serves as a channel for interchange by building mutually transformative relationships. MCC strives for peace, justice and the dignity of all people by sharing our experiences, resources and faith in Jesus Christ."

As a logistics manager at the MCC stated, "You guys [prospective local partners] are like minded, are working for the same . . . so we agree on the same principles and theories and then I say, 'I think we can do that' and I make the request back to Canada."

Another manager at the MCC described how they choose a partner by first confirming their like-mindedness and common value system and then proceeding to partner with them, "We have our guiding principles on which the MCC lives, can you agree with them, do we agree with your principles, and are we here to accomplish the same path?"

In communities or countries where there are no similar Christian church groups available for partnership, MCC may partner with other types of groups. As a senior manager said, "We work in places like Bangladesh, with Muslim partners. We work with non-faith based agencies as well."

This last statement shows that, while the MCC prefers to partner with groups that match its values, it will partner with other groups as circumstances require. A representative for MCC explained that when relief materials are required in communities and no similar faith-based groups having common values are available, then the MCC

tries to partner with large internationally known organizations like the World Food Program (WFP) or the IFRC or other well known, but not so similar, faith-based organizations. However, the extent of these partnerships tends to be limited to only the delivery of commodities and relief materials. Such partnerships do not include any long-term development projects, programs, or commitments. For any long-term capacity building projects that MCC engages in, it looks for a common value system when entering into partnerships.

Conclusions from Case 2: Mennonite Central Committee: common value system

An existence of a "common value system" is necessary for working with the MCC, and the MCC ensures it by selecting its staff from a similar faith background. Instead of doing its own training, it expects the church to do the job and expects its staff to be active members of the church. It also looks for similar faith based groups for partnering in various countries, especially for a long-term project/commitment. It may partner with other groups if similar faith based groups are not available in a region, but such partnerships are limited in scope and used only for delivery of the relief items to affected people.

Cross Case Analysis re: common value system

Working in an interrupted environment in a disaster zone is a very difficult and challenging task, as there are environmental uncertainties and vulnerable people in need. To launch a successful response to such situations, organizations turn towards attempting to promote a common value system or common culture within their ranks and in their

policies and operating methods in order to provide guidelines for unified action for its staff and volunteers. It helps to have partners who act in a similar fashion, use similar tools, with common objectives and goals. In the case of the CRC, these partners are other National Societies, whereas with the MCC, the partners are other faith-based organizations, where possible. It also helps organizations to work with their partners, use their networks and available resources, or gain access to recipients of need.

The CRC is part of a large movement of the IFRC and its training programs are focused on the seven fundamental principles that provide the necessary guidelines and a *common value system* for all activities and programs for its staff and volunteers. The MCC also utilizes its own *common value system* based on the Christian faith, but expects the church and other religious institutions to develop these values in its staff and partners. Thus each organization depends on a set of *common values* for effectiveness in their operations and places great emphasis upon it. The respective organizations are structured around these values systems.

Limitations of the Study

This study is limited in a number of ways. First, the study consists of two cases. While it is perfectly acceptable to conduct a case study using only one case (Yin, 2003), it is also true that the more cases in the study, the better its generalizability across the variety of case types. Another limitation of the study concerns the assignment of codes to data while doing grounded analysis. While some of the coding during the initial part of the analysis was checked and compared by two raters, the majority of the coding was by a single analyst. This could lead to problems of validity of the various constructs. Third, while the unit of analysis for the study was the supply chain involved in the delivery of relief materials, which consisted of entities such as suppliers, freight forwarders, the relief agency itself, warehouse personnel, and those involved in the final distribution of relief items to recipients, there was not enough time nor enough resources to conduct interviews at numerous points along a typical supply chain. Instead, most interviews were conducted with staff from the headquarters of the two central organizations, although most of these people did have ample field experience, as well.

Future Research

One obvious possibility for future research would be to extend this study to include more cases of the relief supply chains associated with dissimilar agencies. This might include UN agencies (e.g., the UNICEF Supply Division), quasi-UN agencies (e.g., the World Food Program (WFP)), larger faith-based agencies (e.g., World Vision), and so forth. The more varied the agencies, the more generalizable the results. This study could also be extended, assuming adequate resources, to include data collection at numerous points along each supply chain – ranging from donors and initial manufacturers / suppliers of relief material to final relief distribution and the recipients of aid.

The discussion on establishing presence in vulnerable communities and building local capacities has been in the context of preparedness for large scale natural disasters. However, it would be useful to explore the impact of preparedness activities for responding to small scale events. These are the ones that occur frequently, but do not catch media attention. While they are small, their cumulative impact over time can be substantial. As one senior executive at the CRC noted:

The personal disaster assistance teams (PDATs) respond to small scale events like house fires. We regularly respond to over a 1000 of those a year. In some parts of the country, it is almost twice a day. The frequency has been going up exponentially in the last five years.

Another interesting avenue for future research would be a continuation of the work reported by Heigh (2008) that showed vast improvements in a number of measures

by engaging in local sourcing for relief efforts. The reduction in international flows of relief materials and people through the integration of supply chains of the international NFP and local partner is shown in Figure 14, p. 127. More studies are required to measure the types of flow and confirm the impacts of such a change to a more local focus.

Another associated and fruitful avenue for future research would be to focus on the issue of needs assessment, especially the impact of a local focus on the ability to quickly and accurately determine the needs of beneficiaries after a disaster. This might also include the collection and preparation of data about various vulnerable regions (e.g., terrain, transport infrastructure, population characteristics, local cultures and customs, and so forth). Having information like this available beforehand would be helpful when there is a disaster and would help with the overall needs assessment.

Finally, there is much room for research into developing measures for some of the constructs that are suggested by the propositions from this study. Any future statistical or quantitative studies in this area, such as a large-sample survey to test the propositions developed during this case study, would need to use valid and reliable measures for constructs such as "preparedness," "presence in the community," "capacity building," or "needs assessment capability."

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Appendix A

Acronyms

| | |
|--------|--|
| IFRC: | International Federation of Red Cross & Red Crescent Society |
| ICRC: | International Committee of Red Cross |
| CRC: | Canadian Red Cross Society |
| RC: | Red Cross & Red Crescent Society |
| NFP: | Not-for-profit Organization. |
| MCC: | Mennonite Central Committee |
| CFGB: | Canadian Foodgrains Bank |
| FACT: | Field Assessment and Coordination Team. |
| ERU: | Emergency Response Unit |
| PADRU: | Pan-American Disaster Response Unit |
| BTC: | Basic Training Course |
| VCA: | Vulnerability and Capacity Assessment |
| RRP: | Rapid Response Project |

Mobilization Table Report

OU Name : IFRC Regional Logistics Unit
Report Date : 10/06/08 12:51
Appeal Title : China Sichuan Earthquake

Mobilization Table of the IFRC

[illegible]



International Federation of Red Cross and Red Crescent Societies
Fédération internationale des Sociétés de la Croix-Rouge et du Croissant-Rouge
Federación Internacional de Sociedades de la Cruz Roja y de la Media Luna Roja
الاتحاد الدولي لجمعيات الصليب الأحمر والهلال الأحمر

Pipeline Report

10/06/08

Session OU : International Federation of Red Cross & Red Crescent Societies
Date : - To -

Project Name : CHINA: SICHUAN EARTHQUAKE

Country Name : China

| CNSG No | ETD | ATD | GRN Dt | Sender Name | Item | UOM | Pkg Type | Item Qty | Rem/ POE | Currency | Dest site | Trnspt Mode | Vehicle Details | Item Total Wt in Kg | Remarks |
|--------------------|----------------|-----|--------|-------------|--|-----|----------|------------------|----------|----------|--------------|---------------|------------------------|----------------------|-------------|
| CTN | ETA | ATA | | | | | | Consignment Cost | | | Consignee | Ship Docs | | Item Total Vol in M3 | |
| CSGN-MYRLU-08-0161 | 16/06/08 00:00 | | | Canada n RC | TENT, All Weather, 4x4, NON WINTERISED | Pce | | 1,250.00 | CHEN GDU | CAD | Chengd CNSPC | AIR AWB: TB C | Chartered Aircraft TBC | 77,500.00 | ETD/ETD tbc |
| 08-0000713 | 30/06/08 00:00 | | | | | | | 373,750.00 | | | | | | 250.000 | |
| CSGN-MYRLU-08-0163 | 23/06/08 00:00 | | | Canada n RC | TENT, All Weather, 4x4, NON WINTERISED | Pce | | 1,000.00 | CHEN GDU | CAD | Chengd CNSPC | AIR AWB: TB C | Chartered Aircraft TBC | 62,000.00 | ETD/ETD tbc |
| 08-0000713 | 26/06/08 00:00 | | | | | | | 299,000.00 | | | | | | 200.000 | |
| CSGN-MYRLU-08-0162 | 23/06/08 00:00 | | | Canada n RC | TENT, All Weather, 4x4, NON WINTERISED | Pce | | 1,000.00 | CHEN GDU | CAD | Chengd CNSPC | AIR AWB: TB C | Chartered Aircraft TBC | 62,000.00 | ETD/ETD tbc |
| 08-0000713 | 26/06/08 00:00 | | | | | | | 299,000.00 | | | | | | 200.000 | |
| CSGN-MYRLU-08-0159 | 09/06/08 00:00 | | | Canada n RC | TENT, All Weather, 4x4, NON WINTERISED | Pce | | 1,000.00 | CHEN GDU | CAD | Chengd CNSPC | AIR AWB: TB C | Chartered Aircraft TBC | 62,000.00 | ETD/ETD tbc |
| 08-0000713 | 23/06/08 00:00 | | | | | | | 299,000.00 | | | | | | 200.000 | |
| CSGN-MYRLU-08-0160 | 15/06/08 00:00 | | | Canada n RC | TENT, All Weather, 4x4, NON WINTERISED | Pce | | 1,000.00 | CHEN GDU | CAD | Chengd CNSPC | AIR AWB: TB C | Chartered Aircraft TBC | 62,000.00 | ETD/ETD tbc |
| 08-0000713 | 18/06/08 00:00 | | | | | | | 299,000.00 | | | | | | 200.000 | |

Pipeline Report of the IFRC

Appendix C

Supplier Evaluation Form

Name of the supplier:
Date of Evaluation
Name of Evaluators

y = yes
n = no
p = partially
n/a = not applicable

☐ Contact capacities

| | | | | |
|---|---|---|---|-----|
| Workable email address and good fax / tel connection | y | n | p | n/a |
| Ability to communicate verbally/in writing in English or French | y | n | p | n/a |

Total grade for contact capacities

RATE :

☐ Quality of service

| | | | | |
|--|---|---|---|-----|
| Shows interest in collaboration/assistance | y | n | p | n/a |
| Personnel is competent and efficient | y | n | p | n/a |
| Quality of product according to the ICRC specifications | y | n | p | n/a |
| Commodities available from stock in reasonable quantity | y | n | p | n/a |
| Supplier catalogue available | y | n | p | n/a |
| Supplier catalogue on the Web | y | n | p | n/a |
| Quick reaction capacity for emergency deliveries | y | n | p | n/a |
| Flexibility in case of order changes | y | n | p | n/a |
| Immediate information on order status and if delays occur | y | n | p | n/a |
| Documents are dispatched in time to the requested address | y | n | p | n/a |
| Delivery according to requested schedule | y | n | p | n/a |
| Agreed prices are respected | y | n | p | n/a |
| Documents are clear, understandable and correspond to the delivery | y | n | p | n/a |
| Delivery documents (W/B, P/L, invoice) are according to request | y | n | p | n/a |
| Packing and marking and labelling of goods are suitable | y | n | p | n/a |
| Acceptance of costs for late delivery according to penalty clauses | y | n | p | n/a |
| Reliable company (quality of service and constancy) | | | | |

Total grade for quality of Service

RATE :

☐ Guarantee/ Claims

| | | | | |
|---|---|---|---|-----|
| Maintenance facilities (if needed) | y | n | p | n/a |
| Respect of guarantee agreement and acceptance of justified claims | y | n | p | n/a |
| Commodities never rejected for non conformity / quality problems | y | n | p | n/a |

Total grade for guarantee /claims

RATE :

☐ Payment terms

| | | | | |
|--|---|---|---|-----|
| Proposed payment terms are accepted | y | n | p | n/a |
| Granting of interesting discount directly or on a yearly turn over | y | n | p | n/a |

Total grade for payment terms

RATE :

Total Supplier's performance

RATE :

Appendix D

List of codes generated during the analysis process

1. Ability to get initial information
2. Access to recipients
3. Accountability
4. Collaboration with business sector
5. Contrary findings
6. Development projects
7. International presence
8. Learning from previous disasters
9. Logistics activities
10. Motivation
11. Need assessment
12. Network among partners
13. Network of relationships
14. Physical assets
15. Preparedness
16. Role of logistics
17. Service contracts
18. Standardization
19. Terminology issues
20. Capacity building and response

21. Common value system
22. Collaboration and response
23. Network among partners
24. Presence in the communities
25. Quasi-UN relationships
26. Volunteerism
27. Training
28. Understanding the risks

Appendix E

Sample Consent Form for Interviewees



UNIVERSITY
OF MANITOBA



Research Project: **Implementation of elements of preparedness: Not-for-profits in the interrupted environment.**

Researcher: Soaleh Khan 204.952.8803 umkhan26@cc.umanitoba.ca

This form is part of the process of informed consent. Please review it carefully and address any questions to either researcher. A signed copy will be left with you.

The purpose of the research project is to further understand the effective management of supply chains from the point of view of not-for-profit organizations, operating in interrupted environments – such as humanitarian relief operations and investigate the implantation of various aspects of preparedness.

Your participation with this study will include an interview lasting approximately one hour, plus the completion of a brief questionnaire. The interview will be fairly open-ended, as we wish to understand supply chain issues from your point of view, given your knowledge of events and day-to-day activities within your organization and the wider environment.

The interview will be recorded using a digital recorder. It will remain confidential and anonymous. You will be identified by only a description and generic title, for example: "Respondent 27, field officer, Organization 4." Only the research team will have access to the master list of interviewees and the raw questionnaire and interview data.

Your signature indicates that you agree to participate. This does not waive your legal rights nor release the researchers or involved institutions from their legal and professional responsibilities. You are free to withdraw from participation at any time, and /or refrain from answering any questions you prefer to omit. Feel free to ask for clarification throughout the process.

This research has been approved by the Joint Faculty Research Ethics Board of the University of Manitoba. If you have any concerns or complaints about this project please contact either of the researchers or the Human Ethics Secretariat (204.474.7122; margaret_bowman@umanitoba.ca).

Participant's Signature

Date

Researcher's Signature

Date