ORGANIZING FOR DISASTER: LESSONS FROM THE MILITARY

Michael R. Weeks
United States Air Force Academy
mrw@weeks2000.com

Abstract
Recent global events have highlighted the need for disaster planning by leaders in all types of organizations—civilian and military. This article illuminates lessons learned during relief operations for the 2005 earthquake in Pakistan from an academic and personal viewpoint. The author provides guidance for designing resilient and robust organizational structures that can deal with the uncertainties of a disaster environment. Organizations frequently form temporary command centers to improve information flow in a crisis. Managers are advised to create temporary organizational structures with a common cognitive map to improve sense-making for employees. Other lessons presented include the establishment of a nuanced priority system for assessing potential courses of action and the need to eliminate bureaucratic barriers to action to improve the speed of response when lives are at stake. The article concludes by pointing out that proper organizational structures need to be considered prior to the disaster for an organization to be effective and efficient during the course of a disaster mitigation effort.

Keywords: Disaster Management, Organizational Structure, Military, Planning

Disaster operations have received a great deal of attention in the last few years, both in the U.S. and globally, due to high profile events such as the Asian tsunami and Hurricanes Katrina and Rita. These events resulted in a massive human toll and property damage measured in the billions of dollars. In addition to the human suffering, many corporations in the disaster areas have been crippled financially by these tragedies.

In the wake of these catastrophes, a number of authors have provided guidance on dealing with disasters for organizations in the practitioner literature (Barrett, 2005; Myers, 2005) as well as the academic literature (Alexander, 2004; Lagadec, 2004). Planning for disasters involves two factors: mitigation of damage through advance actions, and planning for the response to the event once the damage is done. This article focuses on the latter factor to illuminate how leaders of all types of organizations might learn lessons from military organizations involved in disaster relief and therefore better prepare their processes and personnel for a disaster situation.

MILITARY EXPERIENCE WITH DISASTER OPERATIONS

The response to many recent disasters has a common thread—significant involvement of the U.S. military. The military provided critical resources and expertise in both the tsunami and Hurricane Katrina disasters and President Bush has indicated that he would like to see an even larger role for the military in domestic disaster response (Anonymous, 2005a). The military continues to provide its resources for disaster relief in any corner of the world even as the discussion about increased roles progresses. One of the most recent examples is the humanitarian relief operation for the Pakistan earthquake. The current author participated in the Air Force relief effort for the earthquake in late 2005. This article presents lessons from an academic and personal

viewpoint which has applicability beyond the military context from that operation.

Military units have unique attributes which make them suitable for disaster operations. Combat units are designed for mobility and quick response. These characteristics allow military organizations to bring communications equipment and supplies to almost any region of the world quickly. Consequently, military units are often among the first on the scene of a disaster situation. The National Guard has this responsibility as one of its primary missions for domestic crises, but many traditional active duty units also find themselves involved in disaster response operations world-wide

Despite the frequency of military response to disaster organizations, military units often struggle with the same difficulties as civilian organizations in these environments. Even though the probability of a military response is high, often the personnel assigned to these operations have limited experience in actual disaster environments. Frequent rotation of military personnel means that lessons learned in one situation are often not applied to the next crisis. So despite organizational experience, the transfer of knowledge about the challenges is difficult, and many military personnel are experiencing the myriad problems associated with a disaster environment for the first time.

Military units, as well as other government agencies, compile lessons-learned reports after major disaster response operations. The two most recent reports prior to the Pakistan earthquake involved the Asian Tsunami and Hurricane Katrina. Both reports highlighted organizational structure concerns as problems during these operations (Deptula, 2005; Townsend, 2006). The Pakistan relief operation was no different. There were organizational successes and failures during the operation. Most of the failures were overcome with determination by personnel on the ground to ensure that adequate humanitarian supplies were delivered in a timely manner. The aim of this paper is to provide some insight into effective organizational structures for disaster operations for civilian organizations that have a need for disaster planning, but have not actually put those plans into action.

WHAT IS A DISASTER?

Giving an event the appellation "disaster" implies a few characteristics which must be described to enable a meaningful discussion of this topic. One distinction that often arises is the difference between "natural" disasters and "man-made" disasters. While each of these descriptions has certain characteristics, I would like to describe the application of this article a little more carefully since much of the previous literature uses the term disaster loosely. Careful distinctions between the terms accident, crisis, and disaster need to be drawn for this article. Accidents in the current context are localized events which tend to involve the failure of technology or the failure of human interaction with technology. Crises involve wider geographic areas and require quick action by authorities and those affected by the crisis. Disasters are widespread events which involve massive loss of life and significant damage to shared infrastructures.

An example of an accident would be the failure of the Challenger space shuttle in 1986. The event was described as a disaster in the press and many academic volumes were written about that event (Maier, 1997; Perrow, 1999; Starbuck & Milliken, 1988; Vaughan, 1996). The Challenger accident demonstrates that some events, although relatively localized in nature, are recognized for wider significance and attention. However, the loss of life from this event, while tragic, was relatively small. Despite the extensive implications for some organizations, the lessons learned focused on technology issues as well as behavioral topics such groupthink and normalized deviance (Esser & Lindoerfer, 1989; Vaughan, 1996).

Examples of crisis situations are the Mann-Gulch fire which occurred in 1949 but was still receiving attention over 40 years later (Maclean, 1972; Weick, 1993) and the French heatwave crisis (Lagadec, 2004). Crises may involve a larger loss of life and require fast action; nevertheless, these events do not involve widespread destruction of critical infrastructure such as power lines, water services, and communication lines. The primary problems in crisis situations tend to involve communication and sense-making issues (Lagadec, 2004; Weick, 1993).

2

Disaster in this context refers to an event with three characteristics. First, a disaster implies a significant loss of life. Second, a disaster normally occurs suddenly and without effective warning. Finally, a disaster has widespread impact over society, culture, and often geography. These characteristics mean that many events can be described as disasters whether they are "man-made" or "natural". For example, the tsunami that occurred in Asia in December 2004 would certainly qualify, but a "man-made" event such as the detonation of a weapon of mass destruction could also meet the criteria. Lessons learned from disasters tend to involve larger organizational issues about organizational structures for effective response and wider applications of sense-making phenomena across organizational boundaries.

Disasters are difficult to study for many reasons. The widespread destruction caused by a disaster makes access difficult. Further, the diverse types of challenges found by first-responders in these environments means that localizing an organization for study is another complicating factor. One of two situations must normally occur for a study of such an environment. A great deal of preparation must be undertaken to be ready to study a disaster situation which occurs without notice or a certain amount of serendipity must be present when a research is a part of another organization which responds to a disaster situation. The current paper is a result of the latter situation.

THE 2005 PAKISTAN EARTHQUAKE

Earthquakes often strike with sudden and unexpected fury. On October 8, 2005 a massive earthquake hit Northwest Pakistan. The earthquake measured 7.6 on the Richter scale and the government of Pakistan estimated that over 70,000 people were killed in the disaster (Anonymous, 2005b). Although short in duration, the earthquake flattened much of northern Pakistan. Moreover, the earthquake devastated some of the poorest regions of Pakistan, and to further complicate the disaster, the terrain of much of the affected region was among the most remote and severe on earth. The Himalayan Mountains provided a steep and rugged landscape which was also at very high elevation.

The U.S. military was a natural choice to lead the U.S. relief efforts in Pakistan since the

U.S. Department of Defense has significant resources in the Persian Gulf region due to current operations in Iraq and Afghanistan. Operations of the multi-national coalition in the area fall under the purview of U.S. Central Command and air operations for the command are controlled from the Combined Air Operations Center (CAOC – pronounced "kay-ock") in Southwest Asia. The author was deployed to the CAOC in October 2005 and was subsequently assigned as the director of the CAOC Operations Support Center (COSC) for the Pakistan relief operation.

The COSC was formed approximately 48 hours after the earthquake hit by Lieutenant General Walter Buchanan, the air component commander of coalition forces in the region. Although some aircraft were already arriving to provide relief supplies when the COSC was formed, the commander realized that the operation would be significant and sustained and would therefore require a dedicated staff. Approximately 40 people from the command staff were selected to coordinate the Air Force contribution to the relief effort.

The COSC consisted of roughly 20 people per shift and operated on two shifts, around-the-clock, for approximately two months supporting the relief operation. The job of the COSC was to coordinate all of the aircraft operations providing relief supplies to the primary delivery hubs within Pakistan, and work as a liaison with the Disaster Assistance Center - Pakistan in Islamabad, headed by U.S. Navy Rear Admiral Michael LaFever. Helicopter operations within the country were coordinated by the Disaster Assistance Center – Pakistan (DAC-P). Complicating the ability to provide relief resources for the U.S. military was the fact that there were already two major conflicts within Central Command's theater.

The relief operation delivered over 9 million pounds of relief supplies during the first 60 days of the operation and at the height of the operation over 1000 U.S. military personnel were deployed to Pakistan supporting the effort. The relief operation improved the relationship with Pakistan and even coined a new phrase, "Chinook Diplomacy." The phrase refers to the large Chinook helicopters which ferried supplies from the central collection points to the outlying villages in the region. The helicopters were welcome sights to the local population and

generated significant goodwill with the Pakistani populace (Stephens, 2005).

LESSONS FROM THE FIELD

There is a large body of work which draws leadership lessons from military operations for civilian contexts e.g. (Klann, 2003; Sullivan & Harper, 1997). Klann (2003) points out that many leaders find that hardship provides the greatest learning experience. Given this finding, it is not surprising that military environments can provide lessons for leaders of all types. This article broadens the types of military lessons that can be applied to civilian situations beyond the leadership discipline. The focus of this work is on the organizational structures which are suited to disaster operations. Military units must be resilient and robust to deal with the uncertainties of combat which are often referred to as the "fog of war." This resiliency is necessary for disaster environments as well, and illuminating the structures which provide this robustness should be useful information for all types of organizations.

As mentioned earlier, the CAOC Operations Support Center was created shortly after the scope of the disaster was realized. The team was overwhelmed by the scope of the task at first and was under the gun to get control of the situation quickly. Although the shifts were nominally twelve hours to provide 24-hour coverage, in reality, the shifts stretched to 16+ hours on many days and members of the team did not receive any time off from their duties till almost four weeks into the operation.

Previous research shows that some types of stress can be viewed as challenging to workers and actually improve performance, while other types of stress can create frustration and hinder performance. (LePine, Podsakoff, & LePine, 2005) Milbourn points out that a lack of "formalization" and application of the "principles of organization" can significantly add to the stress of such a situation for the members of the organization and harm performance. (Milbourn, 2006) In contrast, the stress created by long hours can be offset by the performance-improving challenge of potentially saving lives or restoring order to a disaster situation. One aim of this article is to provide guidance for leaders to minimize stress from controllable causes such as inadequate organizational structure, since the nature of these extreme environments will cause other types of stress even with a perfect organizational response.

The hectic environment of the Pakistani relief operation was typical of the early stages for many disaster relief operations and did not provide much time for reflection during the heat of the moment. It is only now, after redeployment to the U.S., that the current author is able to look back and assess lessons learned from the effort. Certainly, some fidelity is lost through the passage of time, but the operation is sufficiently recent to make a reasonable assessment of the COSC performance. What follows are the key lessons taken by the author from the experience in Southwest Asia.

CREATE A CENTRAL COLLECTION POINT FOR INFORMATION

The creation of the COSC was a significant factor in the success of the operation. The COSC acted as a central collection point for information regarding the transportation needs for the operation. The COSC was the classic ephemeral organization discussed by Lanzara which appears in extreme environments (Lanzara, 1983). Lanzara (1983, p. 72) points out that formal organizations frequently lose their effectiveness during unexpected events. The Combined Air Operations Center was fully occupied with combat operations in two theaters, so a viable alternative structure was necessary for the relief operation. Consequently, the COSC emerged solely to coordinate the needs for the earthquake relief efforts and was extinct within 60 days as the operation was assimilated into the normal steady-state operations of the CAOC.

There were several reasons this new unit was necessary. First, there were a large number of agencies that were involved with the delivery of supplies to the region: the U.S. Department of State, U.S. Department of Defense agencies, various non-governmental organizations (NGOs), and international agencies such as NATO. The large volume of information needed to be filtered to prevent overwhelming those on the ground in Islamabad. Also, the COSC had expertise from a much wider range of disciplines than the first-responders in Pakistan. For example, the COSC had civil engineers, communications specialists,
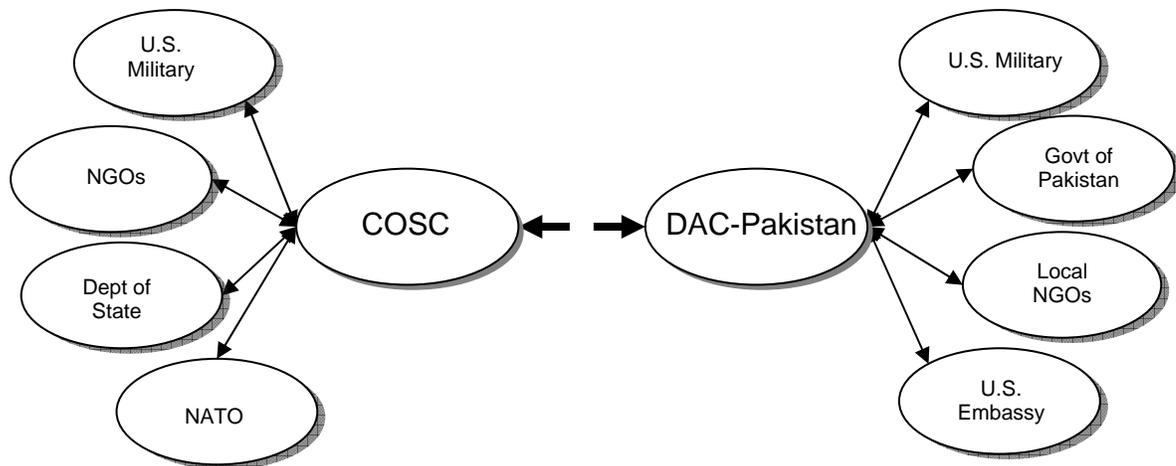
Figure 1: Communication Map

and medical specialists available around the clock to provide information and support as necessary.

A further requirement for the creation of the COSC came from the basic communications problems that were extant in the disaster environment. Although Islamabad is a large city, there was not sufficient slack communications capacity to absorb such a large requirement in a short period of time. Accordingly, the military first responders had highly limited and unreliable communications capabilities during the first days of the operation. The U.S. Air Force personnel on the ground were using a few satellite phones to communicate with the COSC. Had the COSC not performed the filtering function, the communications channels would have been quickly overwhelmed.

A graphical depiction of the communication situation is depicted in Figure 1. This diagram represents the primary communications channels for the COSC. The COSC relayed information to the Disaster Assistance Center (DAC-P) in Islamabad from a number of sources. The dashed line in the figure between the COSC and DAC-P represents the fragility of the communications links (satellite and cell phones) as well as the limited bandwidth.

The thin communication channels created the necessity of a communication filter, but leaders must be wary of losing too much fidelity in the information provided to those on the scene in a disaster situation. One factor that helped overcome this problem was the physical proximity

of those working in the COSC. The set-up was a large open conference room that had been converted to the operations center for the relief efforts. The open room meant that the scene frequently seemed chaotic, yet the leaders of the COSC could overhear much of what was being communicated by the various divisions and therefore maintain situational awareness about the current actions of the organization. Also, the team had meetings every twelve hours with the on-coming shift to pass along the significant events of the day. These processes are in line with the prescriptions of Daft and Lengel for group meetings and direct contact to increase information transfer fidelity (Daft & Lengel, 1986). A caveat is in order here. The COSC performed the filtering function for the air transportation portion of the operation. There were other agencies which also performed the filtering function for other needs on the ground in Pakistan. Nevertheless, the creation of the COSC as central collection point and filter of information and was a significant element in the success of the operation.

CREATE AN ORGANIZATIONAL STRUCTURE WITH A COMMON COGNITIVE MAP

Although the COSC performed an invaluable function for the relief efforts, simply creating an information collection point is just a first step for a complex operation. The structure of the new organization must be flexible and familiar to those interacting with the entity. In the words

5

**Figure 2: A U.S. Army Chinook helicopter delivering supplies in Pakistan
(Photo courtesy of Lt Col Jeff Pennington, USAF)**

of the academic literature, ephemeral organizations should be created in such a way that the participants can create a common cognitive map of the structure quickly (Alexander, 2004). Making sense of the complex and rapidly changing environment of a disaster situation is one of the most difficult tasks for leaders and workers alike (Weick, 1988, 1990, 1993). Weick (1993, p. 635) points out that "organizations [are] important because they can provide meaning and order in the face of environments that impose ill-defined, contradictory demands." The COSC demonstrated that a new structure that is created with a common cognitive map enables effective sense-making for those in the organization.

An advantage the COSC had was its structure, which was based on the numbered military system for the general staff. The CENTCOM and CAOC staffs are built on this system, as was the DAC-P organization. This organizational structure enabled members of the

COSC and those from other organizations to create a cognitive map of the organization quickly and thus improve the sense-making process.

The general staff organizational system has at least 7 key components and the modern formulation dates back to at least World War II. In the U.S. Air Force they are numbered A1 to A7. In joint operating environments (i.e. those involving multiple armed services) the functional agencies are referred to as J1 to J7. Appendix B depicts the COSC organizational structure. Each number has a distinct function on the staff which is annotated on the chart is discussed in detail in Appendix A.

As mentioned above, the advantage to using the general staff organizational structure was that the structure of the organization immediately provided a common cognitive map for the military agencies that were interacting with the COSC on a daily basis. Alexander (2004) has proposed that creating this common operational picture is

essential for crisis situations. Simply answering the phone with the functional title A1 or A3 provides an immediate map of the structure for most military staff officers. For example, if someone called the COSC with an information technology problem and the A1 (Personnel) answered the phone, they knew immediately to ask for the A6 (Communications/Computers). The efficiency of the common cognitive map eliminated confusion about the proper contact point for a given issue.

For the Pakistan operation, even some of the commanders of non-ephemeral organizations in the field found it helpful to convert from their normal structure to the general staff structure for the operation. Col Rich Walberg was the commander of the 24th Air Expeditionary Group which handled all of the airfield operations at Islamabad. He said, "We're using an A-staff [structure] here to help relate to our sister service counterparts. In the joint environment, it's easier to refer someone to my 'A3' rather than my operations squadron commander." (Saks, 2005)

Obviously, the prescription for civilian organizations is not that they should all convert to a general staff organizational structure to improve disaster operations. Rather, the idea is that the ephemeral organizations that emerge for the duration of the crisis should use an organizational structure that is common to the affected firm. This allows employees to create a cognitive map more quickly and eliminate unnecessary searching and confusion when timely information is a top priority. Further, the common cognitive map provides a model for action that is familiar and accessible in a new and uncertain environment.

COVER ALL THE BASES

The general staff system had another advantage for the COSC. The functional departments in the system provide a nearly complete picture of the expertise necessary for a disaster operation. Any planning for a potential disaster situation will require extensive consideration of what skills will be necessary prior to the heat of the moment. By using the A-staff structure, we were reasonably certain that all of our bases were covered for the operation.

Civilian leaders will need to give careful consideration to functions required in a contingency situation. Operational concerns

typically rise to the top of the list, but other needs will be of equal importance. For example, having a presence from the human resources function in the structure can provide a point of contact for information about the whereabouts of missing personnel. A detailed explanation of the functions used by the COSC is provided in Appendix A.

ELIMINATE BARRIERS TO ACTION

Military and government organizations are well known for their tendency to paperwork and bureaucracy. Typically, moving cargo from A to B for a military organization requires a large amount of paperwork and approvals from many levels of the organization. One of the first actions of the commanding generals for the operation was to suspend most of those requirements. The relief operation moved a large amount of humanitarian supplies based on phone calls and e-mails— something that would not happen during the course of normal operations. The COSC was given wide latitude to get the job done.

While it may seem paradoxical, removing these barriers frequently changes the focus from efficiency to effectiveness. Eliminating paperwork has advantages, but it also removes many of the safeguards for efficiency. Planes that might fly only with a full cargo load aboard will sometimes fly with less than a complete load. This is not the most efficient way to move cargo, but when lives are at stake, efficiency must sometimes take a back seat.

During an emergency situation it is incumbent upon the senior leadership of any organization to eliminate barriers to action so that personnel can respond to a disaster situation with necessary speed. At some point the barriers will need to be restored however, and that is one of the leading indicators that it may be time to eliminate the ephemeral organizations that have been created for the situation. In the present case, the COSC ceased operations shortly after the normal operating requirements were restored for movement of materiel to Pakistan.

PRIORITIES – EVERTHING CAN'T BE #1

Once the barriers to action are eliminated, another problem soon arises. Given the myriad possibilities of action, what should one do? A problem for the COSC was prioritizing the needs for various supplies. Humanitarian relief supplies

**Figure 3: Off-loading supplies at a remote village in Pakistan
(Photo courtesy of Lt Col Jeff Pennington, USAF)**

would seem to be the natural #1 priority, but if a forklift wasn't available to off-load the cargo from an aircraft, delivery would be slowed considerably. This is a classic project management problem that might be solved with techniques such as the critical path method or PERT charts, but in the heat of the moment there just isn't time to apply such a meticulous methodology. Top leaders for the effort must provide timely direction on appropriate priorities. They are likely to be the only ones with enough knowledge to provide this critical "big picture" guidance.

Further complicating the prioritization problem for the Pakistan operation was the fact that the priorities could change rapidly. For example, food and water were high priorities initially for the relief effort, but as winter drew

closer the concern about shelter for refugees became more acute. Also, in the initial stages of the operation, bringing in medical teams and supplies was a high priority, but as the weeks passed the emergency medical needs diminished.

The crux of the problem for the COSC was the military's normal priority system for moving cargo. Everything that the military moves is assigned a priority and moved accordingly. The dilemma for the COSC was that humanitarian relief supplies all received the same top priority in the system. The system did not have adequate fidelity to distinguish between competing demands within the operation. Consequently, the logistics personnel had significant problems assessing which items needed to be delivered in a particular sequence.

The difficulties with the priority system were compounded by conflicting information from those on the ground in Pakistan. Each person seemed to have his or her own interpretation about what Admiral La Fever, the overall commander of the operation, said in daily meetings. The typical interpretation went something like this: "I was just in a meeting and we decided that our Number 1 priority was X." Luckily for the COSC, daily video teleconferences were conducted with all of the relevant agencies from the far parts of the globe. We were able to seek clarification from Admiral LaFever regularly on the needs of the operation.

The central lesson from this operation is that top leadership in a disaster situation must be accessible and continually provide guidance on appropriate priorities for those in the trenches of a disaster operation. Normal prioritization systems cannot handle the volume or complexity of needs that arise in an emergency situation. Hands-on guidance from top leadership is essential.

THE TIME IS NOW

One can easily envision how a civilian firm may call upon these lessons in a disaster situation. Any organization with significant operations in a disaster area will need to set up some type of command center to facilitate recovery and a return to normal operations. The principles contained in this article will provide some *ex ante* guidance for designing organizational structures which are resilient and able to hand the limited communications channels found in these types of situations. Figure 4 provides a summary of the lessons presented in this article.

The U.S. Air Force has made significant efforts in the last few years to capture lessons that have been learned during the course of relief operations. The Pakistan operation was no exception. The CAOC has an officer assigned to the organization to collect these lessons for the on-going operations in Iraq and Afghanistan and he also collected data for the efforts of the COSC. He attended many of the meetings, including almost all of the meetings during the first hectic days of the operation. In addition, he conducted extensive interviews with the people involved in the operation after the fact (including the present author). All of this data was transcribed, collated,

analyzed and diligently included in a lengthy report which is at the time of this writing in draft form and under review before publication by the Air Force.

The relevant issue regarding the publication of lessons learned is: who reads them? At the time of the Pakistan disaster the lessons learned from the tsunami disaster had been published. Despite this fact, the operation was so hectic in the initial stages that no one on the COSC staff had time to consult the report—even if they knew it existed. After events had settled into more of a steady-state operation, most of the people on the COSC had already learned their own lessons the hard way and were ready to pass them on for the next report.

The uncertain and infrequent nature of disasters means that for most of the people involved in the operation, it will be a one-time experience. This excludes those that work for organizations which respond to disaster as a significant part of their mission, such as the Red Cross. Since most leaders and organizations that find themselves in a disaster situation on an irregular and unexpected basis, those charged with responding to the emergency are not likely to have contemplated the possibility or to have consulted any previous lessons learned. Even though the military regularly responds to disasters, a given individual is not likely to be involved in the same capacity in a future event. For example, many members of the COSC were flight crew members and may be flying missions for the next disaster, but not working in a command center like the COSC.

If those involved in the next operation are not likely to read lessons learned, why collect them? The value of lessons learned is for senior leaders. Senior leaders can use lessons learned to adjust processes and resources in advance of the next disaster. For example, the Pakistan disaster points to a need to rethink the prioritization system for the next operation. However, if the system is not adjusted in the immediate aftermath of the operation, it will likely not be improved at all. Certainly one cannot expect that the next group of people assigned to an ephemeral organization such as the COSC will have sufficient insight to change the system at the outset of a relief operation. Lessons learned can be used to correct structural organizational problems soon after the disaster,

Lessons Learned	
Create a central collection point for information	**The large volume of information coupled with marginal communications channels requires a collection point for filtering and dissemination of information**
Use an organizational structure with a common cognitive map	**Ephemeral organizations should be familiar in structure to improve efficiency and sense-making**
Cover all the bases	**The general staff structure provides a starting point for organizations to use to consider the requisite skills required in a disaster situation**
Eliminate barriers to action	**Normal approval processes may need to be bypassed in order to ensure effectiveness, but not necessarily efficiency, in a disaster environment**
Establish an effective priority system	**Everything has a tendency to be categorized as a top priority in an emergency. Leaders must be hands-on to ensure the proper priorities are maintained.**

Figure 4: A summary of the lessons learned from the Pakistan operation

but the caveat is that they are not terribly useful for those people that find themselves thrown into the middle of a crisis situation with little notice.

Even though the previous section demonstrates that applying lessons from a disaster situation is difficult, it is not an impossible task. Careful review of previous disaster situations can be helpful if examined in the proper context and in advance of the event. Figure 4 provides a summary of the key points for consideration.

The military has unique competencies (and constraints) which cannot easily be duplicated by private sector firms. Nevertheless, the lessons presented here provide a framework for thought for leaders of all types of firms when encountering unique and extreme events in the context of their organization. The creation of ephemeral organizations to deal with the disaster situation is a common tactic and the lessons here provide some guidance for thinking about these organizations prior to the actual event. As the article points out, once the disaster happens leaders are not likely to have much time for reflection. The time for consideration is now.

REFERENCES

Alexander, D. E. (2004). Cognitive Mapping as an Emergency Management Training Exercise. *Journal of Contingencies and Crisis Management, 12*(4), 150-159.

Anonymous. (2005a, 27 Sep 2005). *Bush Eyes Bigger Military Role in Disasters*. Retrieved 31 Jan 2006, from http://www.cnn.com/2005/POLITICS/09/26/bush.military/

Anonymous. (2005b, 3 Nov 2005). *Earthquake Toll Leaps to 73,000*. Retrieved 31 Jan 2006, from http://news.bbc.co.uk/1/hi/world/south_asia/4399576.stm

Barrett, L. (2005). Disaster Planning: A Perfect Storm? *Baseline*(49), 26.

Daft, R. L., & Lengel, R. H. (1986). Organizational Information Requirements, Media Richness, and Structural Design. *Management Science, 32*(5), 554-571.

Deptula, D. (2005). *Operation Unified Assistance: Lessons Learned*.

Esser, J. K., & Lindoerfer, J. S. (1989). Groupthink and the Space Shuttle Challenger Accident: Toward a Quantitative Case Analysis. *Journal of Behavioral Decision Making, 2*(3), 167-177.

Klann, G. (2003). *Crisis Leadership: Using Military Lessons, Organizational Experiences, and the Power of Influence to Lessen the Impact of Chaos on the People You Lead*. Greensboro, North Carolina: Center for Creative Leadership.

Lagadec, P. (2004). Understanding the French 2003 Heat Wave Experience: Beyond the heat, a Multi-Layered Challenge. *Journal of Contingencies and Crisis Management, 12*(4), 160-169.

Lanzara, G. F. (1983). Ephemeral Organizations in Extreme Environments: Emergence, Strategy, Extinction. *Journal of Management Studies, 20*(1), 71-95.

LePine, J. A., Podsakoff, N. P., & LePine, M. A. (2005). A Meta-Analytic Test of the Challenge Stressor-Hindrance Stressor Framework: An Explanation for Inconsistent Relationshps among Stressors and Performance. *Academy of Management Journal, 48*(5), 764-775.

Maclean, N. (1972). *Young Men and Fire*. Chicago: The University of Chicago Press.

Maier, M. (1997). Confronting the (F)Laws of the Pyramid: Challenger's Legacy for Leadership and Organizational Development. *Public Administration Quarterly, 21*(3), 258-293.

Milbourn, G. J. (2006). Teaching the Job Stress Audit to Business School Students: Causes, Measurement, Reduction. *The Journal of American Academy of Business, 8*(2), 44-50.

Myers, R. (2005). Rethinking the Worst Case. *CFO, 21*(16), 89-91.

Perrow, C. (1999). *Normal Accidents: Living with High Risk Technologies*. Princeton: Princeton University Press.

Saks, E. (2005, 17 Nov 2005). *A-staff helps sustain joint humanitarian effort*. Retrieved 2 Feb 2006, from http://www.af.mil/news/story.asp?storyID=123012982

Starbuck, W. H., & Milliken, F. J. (1988). Challenger: Fine-tuning the Odds Until Something Breaks. *Journal of Management Studies, 25*(4), 319-340.

Stephens, B. (2005, 22 December 2005). Chinook Diplomacy. *The Wall Street Journal,* p. A14.

Sullivan, G. R., & Harper, M. V. (1997). *Hope is Not a Method: What Business Leaders Can Learn from America's Army*. New York: Broadway Books.

Townsend, F. (2006). *The Federal Response to Hurricane Katrina: Lessons Learned*.

Vaughan, Diane. (1996). *The Challenger Launch Decision: Risky Technology, Culture, and Deviance at NASA*. Chicago: The University of Chicago Press.

Weick, K. E. (1988). Enacted Sensemaking in Crisis Situations. *Journal of Management Studies, 25*(4), 305-317.

Weick, K. E. (1990). The Vulnerable System: An Analysis of the Tenerife Air Disaster. *Journal of Management, 16*(3), 571-593.

Weick, K. E. (1993). The Collapse of Sensemaking in Organizations: The Mann Gulch Disaster. *Administrative Science Quarterly, 38*(4), 628-652.

APPENDIX A

This appendix details the divisions which were used in the organizational structure of the COSC for the duration of the relief operation.

A1 – Personnel/Manpower – The A1 function is more commonly known in civilian firms as human resources. The tasks performed by the personnel function were essential during the operation and could have easily been overlooked without the proper expertise on the staff. Chief among these duties was identifying people with the appropriate skills to send into the disaster zone to provide relief operations. The personnel specialists were familiar with the wide range of skills available to the operation and knew the appropriate processes for requisitioning the necessary people. Their specialized knowledge in this area enabled the organization to quickly mobilize human resources.

A1 personnel also did the paperwork to create the ephemeral organizations that were formed for the operation. While keeping up with the paperwork may seem to be a low priority during an emergency situation, someone must do it. Without this attention to detail another function of the personnel division becomes almost impossible: maintaining accountability of those sent into the region. The limited communications and risk associated with a disaster operation mean that personnel accountability is essential for these operations. It is very easy to lose track of those on the scene and then if another disaster strikes (say a death in the family at home of one of the relief workers or, in the case of an earthquake, an aftershock), finding someone quickly becomes extremely difficult.

A2 – Intelligence – The limited communications capability discussed previously means that it is essential to have someone collecting information on the current state of the situation. Obviously, the military has a dedicated intelligence infrastructure, but modern civilian organizations now also have access to many of the same capabilities. Cable news channels are excellent sources of information as well as internet web logs (blogs). They can frequently provide up-to-the-minute information that was not accessible in such situations until recently. Another excellent source that has recently become available to the general public is satellite imaging services. Even pre-disaster images can provide details about which areas might be affected and provide critical information about the basic geography of the region.

A3 – Operations – The definition of operations will vary widely by organization. In the air force, the term "operations" generally refers to issues surrounding flying. For example, what length of runway is required for a particular airplane or what weather is suitable for an airplane to land at a field? These questions are crucial for disaster relief efforts and the corollary concerning a corporate environment would be applicable as well. The operations area would relate to those tasks considered the core mission of a civilian firm. For example, a firm might want to know the power requirements are necessary to restart a production line, or the impact of a call center outage on customer service. An accurate assessment of the situation will require extensive operational expertise for any organization.

A4 – Logistics – Logistics is another often overlooked piece of the puzzle in an extreme operating environment. Timely transportation of supplies and personnel is necessary to return to normal operations. Who can arrange for transportation into a disaster environment when normal methods may not be feasible? For example, local airports may not be functional, so rental car transportation may be necessary to get people to the scene. Shipping supplies to restart a factory process may require complicated shipping and packing processes for large or hazardous materials. Logistics knowledge will be a significant part of efforts to return to normal operations.

A5 – Plans – The A5 function in the general staff model is normally used for strategic and long-term plans. The time critical nature of a disaster operation means that this function is often

relegated to the back seat. What does this mean for the astute manger? This division may be a source of slack personnel resources during a time of crisis which may be used to augment the disaster operations. In fact, the current author was the Chief of Plans for the CAOC until the Pakistan relief operation began.
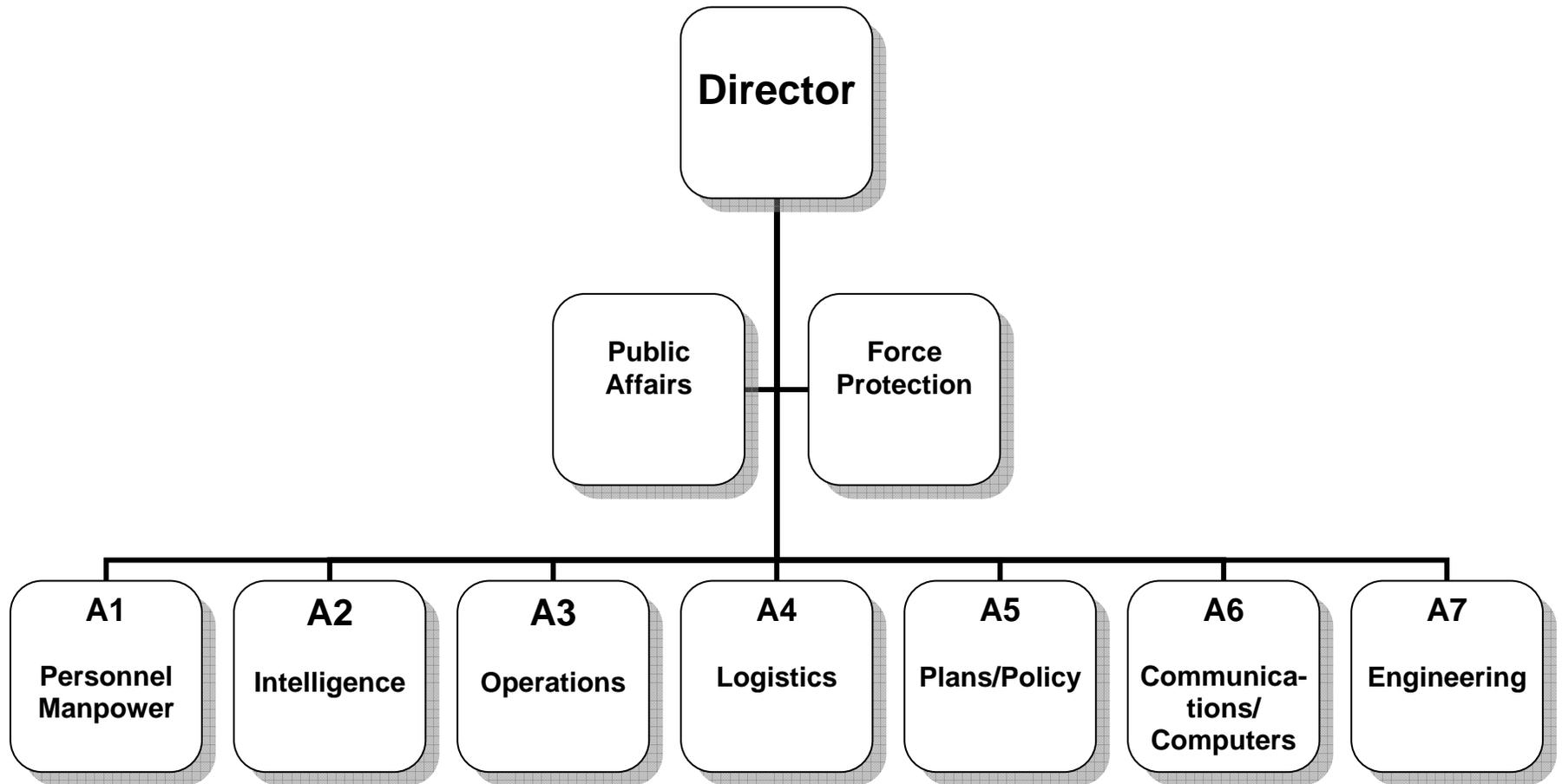
A6 – Communications/Computers – In today's environment almost every organization is dependant upon modern communication and information technology systems. The A6 personnel at the COSC worked with the IT personnel on the ground in Islamabad to bring telephone and computer network support to the operation. Internet connectivity was a necessity for the team since much of the Air Force's flight and logistics tracking is now done through web-based services. Most firms will need IT professionals to assist with disaster operations due to the dependency of almost all facets of the modern organization on information technology.

A7 – Engineering – When disaster strikes, assessment of infrastructure damage and assessment of reconstruction requirements will require engineering skills. In the Air Force, these skills reside in the A7 division. The civil engineers of the A7 division assessed the damage to facilities necessary to conduct relief operations, such as runways and support structures. They were also able to assess the feasibility of building semi-improved helicopter landing areas on short notice. Having these capabilities on the ground in Islamabad as well as within the COSC ensured that the proper resources of the U.S. government could be requested as necessary. Likewise, individual firms will need infrastructure experts to analyze their unique situation in most disaster situations.

While the general staff model provided most of the expertise needed for the COSC, there are two notable additions that contributed to operation. The first is a public affairs officer. Public affairs contributed by keeping the media informed of the activities of the U.S. military in Pakistan and also providing personnel to handle the local media attention on the ground in Pakistan. The flow of information not only benefits the general public, it helps those on the ground to see that their efforts are being noticed.

The other function that was necessary was an individual to coordinate what the military now calls force protection issues. Most civilian organizations refer to the function as security. Pakistan is in a region of the world where terrorism threats are a top concern. It was critical to ensure the safety and security of those working for the relief operation. Even without the terrorist threat there are concerns about safety and security in a disaster area. For example, it was necessary to have sufficient security presence to ensure that the local populace was not injured trying to rush to helicopters delivering supplies. Whether the problem is mob behavior due to desperation or potential looting, safety and security must be addressed by any organization operating in a disaster zone.

```
                          ┌──────────────┐
                          │              │
                          │   Director   │
                          │              │
                          └──────┬───────┘
                                 │
                    ┌────────────┼────────────┐
             ┌──────┴──────┐  ┌──┴───────────┐
             │   Public    │  │    Force     │
             │   Affairs   │  │  Protection  │
             └─────────────┘  └──────────────┘
                                 │
```

A1	A2	A3	A4	A5	A6	A7
Personnel Manpower	**Intelligence**	**Operations**	**Logistics**	**Plans/Policy**	**Communica-tions/ Computers**	**Engineering**

Functional Organizational Chart of the CAOC Operations Support Center