

LOGISTICS AND THE EFFECTIVE DELIVERY OF
HUMANITARIAN RELIEF

Fritz
Institute

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EXECUTIVE SUMMARY

Introduction

The Tsunami that struck south Asia and Africa on Sunday, December 26th, 2004 caused unprecedented destruction to the lives and livelihoods of affected people and communities. As humanitarian organizations mobilized to provide relief in this devastating and chaotic environment, it became apparent that complex supply chains would be crucial for effective relief delivering food, shelter and medical supplies from around the world. As a European Ambassador at a post-Tsunami donor conference said, "We don't need a donors' conference, we need a logistics conference"¹ Similarly, a spokesman for Doctors Without Borders, in announcing their decision to stop accepting money for the relief operation, said "What is needed are supply managers without borders: people to sort goods, identify priorities, track deliveries and direct the traffic of a relief effort in full gear"²

Methodology

To better understand the dynamics of the humanitarian logistics and supply chains in the field, Fritz Institute initiated a survey of field logisticians from the largest international organizations participating in the relief efforts. The intent of the survey was to collect data from a sample of comparable organizations in the sector and document common problems and challenges to guide preparation for future disaster relief efforts. In partnership with experts from KPMG and MIT, a supply chain survey was created and administered. In addition to the survey, a team consisting of supply chain executives from companies in North America and Asia visited areas that were impacted by the Tsunami. Approximately 100 respondents from the headquarters and the field, representing 18 organizations, participated in this survey.

KEY FINDINGS

Shortage of Logistics Experts in the Field

Humanitarian organizations were impacted by the scarcity of trained and experienced logisticians in the field. The survey found that 88% of the organizations had to reallocate their most experienced logisticians from other assignments, such as Darfur, to staff the Tsunami relief efforts.

Supply Chain Processes were Largely Manual

Most respondents to the survey felt that the initial relief effort was effective. However, only 26% of the respondents had access to software that provided track and trace capabilities to anticipate the receipt of procured goods in the field. The majority of organizations relied on homegrown technologies, solutions using Excel spreadsheets or manual processes for tracking goods in the field. Without adequate supply chain systems in place, required donor reports were onerous and time-consuming and produced very few metrics beyond the speed of delivery.

¹ New York Times, January 6, 2005.

² Economist.com Global Agenda, January 5, 2005.

Assessments and Planning were Inadequate

While 72% of the humanitarian organizations said they had an assessment process that enabled them to create a plan for relief in the Tsunami region, 62% stated that their plans fell short of needs. This was primarily due to the fact that they had no presence in the affected area such as Banda Aceh, had few or no trained local staff, and access was limited due to infrastructure that was often destroyed. 88% of team members conducting the assessments were international and 38% of organizations had assessment team members from the affected area. Only 58% of organizations used logisticians in their assessment teams, a reason why some of the logistics bottlenecks were not anticipated and planned for accordingly.

Limited Collaboration and Coordination

The survey indicates that collaboration experiences were positive. However, it seems that collaboration was done primarily on an ad hoc, "immediate needs" basis. While many reported collaborations with other humanitarian organizations in the delivery of relief, the results of the various coordination efforts were mixed as organizations struggled to balance their internal operations requirements with desire to work with others. While 77% of organizations worked with local authorities, 69% worked with the military, and 77% worked with the private sector, only 56% reported working with other agencies in setting up their supply chains.

During the early phase of relief in Banda Aceh, there were "72 coordination meetings" held every week. Lacking any standard operating procedures or common understanding of the roles each would play, on-site coordination and management among the humanitarian organizations was not optimized. Competing supply chains for procurement and transportation caused congestion at local airports and roads, taxing already limited capacity.

RECOMMENDATIONS

Improve Logistics Training

This relief effort illustrated the need to create a pool of trained and experienced logistics professionals at the international and national levels who can be deployed on short notice. Training, particularly at the field level, will help build competency and skills, and enable logisticians to create common processes, standardization and vocabulary across organizations promoting professionalism and collaboration.

Create Technology to Track Supply Chains

Humanitarian organizations have a common need for integrated information technology solutions that support procurement, distribution through a pipeline, tracking and tracing of goods and funds, flexible and robust reporting and connectivity in the field. Developing flexible technology solutions can improve responsiveness by creating visi-

bility of the materials pipeline as well as enable organizations to retain and transfer knowledge in a systematic way. Furthermore, technology can assist organizations to standardize internal processes which will increase the effectiveness of people and facilitate coordination.

Create Collaboration and Coordination Mechanisms Before a Disaster

The Tsunami experience demonstrated that collaboration was successful in meeting immediate needs on an ad-hoc basis, but less effective in meeting ongoing needs. It is important that appropriate mechanisms and tools for collaboration between the central relief players featuring the humanitarian sector and including active military and private sector partners be created before the next disaster. Similarly, the mixed reports on coordination suggest that the role of the coordinating body and its relationships to the other actors in the theater needs greater attention.

CONCLUSION

This survey illustrated the importance of logistics to humanitarian relief and the innovativeness and ingenuity of logisticians in the field to get the job done despite huge obstacles to effectiveness. It also highlighted some common challenges to logistics across organizations in the sector. Creating a cadre of trained logisticians, utilizing integrated technology systems to capture and analyze information and focusing on performance management systems to measure the effectiveness of a supply chain are some concrete steps that can be taken to enhance the contribution and effectiveness of the logistics function to global humanitarian aid.

The humanitarian organizations providing tsunami relief reacted quickly and relatively efficiently; however they recognize relief can and needs to be faster and more efficient. The successes and achievements of an organization depend on the selfless work of many in the front line doing routine and mundane work without special recognition. The logistician in the field provided valuable support during the Tsunami by being resourceful and innovative.

Introduction

The survey was sent to 39 international humanitarian organizations that participated in the Tsunami relief effort. Both headquarters and field operations staff were asked to complete the comprehensive survey to ensure that the different perspectives of people working on the supply chain during the relief effort were incorporated. Allowing for the most appropriate respondent to answer the question, most organizations consolidated their responses and the survey information reflected the feedback from 3-4 different people. With a 47% response rate, 18 organizations completed the survey. Taking into consideration that each response reflected the input from numerous people in each organization, almost 100 people participated in the survey. The survey was structured to reflect the supply chain process and therefore was divided into ten sections: Preparedness, Assessment & Appeal, Resource Mobilization, Procurement, Transportation Execution, Track & Trace, Stock Asset Management, Monitoring Evaluation & Reporting, Communications, and Collaboration.

Objectives of Survey

- Collect data on supply chain effectiveness in the areas impacted by the Tsunami
- Assess specific issues related to logistics that hampered relief efforts such as gridlocks, customs, and human resources
- Analyze data from the survey to determine both the specific nature of the logistics challenges and their root causes
- Share the findings with the humanitarian organizations to create an action plan to address the issues
- Establish baseline data to be used in benchmarking, and designing future responses

Preparedness

While most organizations (72%) said they have a process that enables them to create a plan for relief, few (38%) stated that their plan met their needs. The uniqueness of this particular disaster may have a strong impact on plan effectiveness. Indeed, 50% of organizations stated their original plans were not accurate. However, communication processes may also be a root cause. Only 33% of the respondents confirmed that the plan of action was distributed according to established guidelines. Lacking accurate original plans hinders an organization's ability to follow established processes and move efficiently to the next steps of assessment, appeal, and resource mobilization.

Assessment and Appeal

Organizations initially did not have an accurate assessment of the number of beneficiaries, locations and other programs due to the lack of clear ground information that they were readily available. The lack of information was due in large part to: 1) the lack of trained local staff and presence and 2) the destruction of infrastructure limiting access to impacted areas. However, organizations were unable to leverage knowledge from other organizations to compensate for the challenges in obtaining information. While 76% of the organizations in the survey conducted independent assessments, only 38% participated in both independent and joint assessments.

Another issue in assessment accuracy was the knowledge of the assessment staff. 88% of team members conducting the assessments were international, while only 38% of organizations had assessment team members from the area with local knowledge. Almost all of the humanitarian organizations created an assessment team with a multi-disciplinary participation, but only 58% of those teams included a logistician. The lack of local team members and trained logisticians only made it harder to collect useful information.

The problem of accurate information was more acute in Indonesia due to the historical lack of organizational presence and trained staff in the local area as well as the complete destruction of roads. In Sri Lanka the damage to the infrastructure was less severe.

Resource Mobilization

Resource mobilization was analyzed in three separate categories: Financial Resources, Human Resources, and Organizational Set Up

Financial Resources

The magnitude of destruction caused by the Tsunami created an unprecedented response from people and organizations around the world. Only one response stated that necessary financial resources were not available when needed.

Human Resources

When analyzing the mobilization of human resources the survey examined the quantity, quality and training level of the staff at the international, regional, national and area level.

Rating of Organizations Human Resources for the Tsunami

	International	Regional	National	Area
Quality (specific expertise required)	4.5	3.7	3.8	2.9
Quantity (Adequate number)	3.4	2.9	3.3	2.9
Training (Trained to do specific tasks)	3.8	3.5	3.1	2.1

Scale: 5=Excellent, 4=Good, 3=Average, 2=Needs Development, 1= Very Poor, 0=None, NA Not Applicable

It is clear that there simply were not enough people who had the appropriate training to perform some specific tasks. International or HQ people were rated to have greater expertise and training, but they were not enough to mitigate the lack of trained people at the local area.

Analysis was also conducted on the timeliness of getting the available human resources to the impacted areas. 72% of organizations used roster lists, and 50% of organizations had stand-by mechanisms in place. As mentioned above, funding was not an issue. Therefore, most staffing needs could be met on a temporary basis with one to three month contracts that utilized funds designated for this effort. There were a small percentage of contractor agreements lasting 3-6 months. To mitigate staffing issues 88% of organizations called on people from other operations and the same percentage sent headquarter staff to field operations.

Organizational Set Up

72% of organizations did utilize an interagency coordination hub at some point in their relief effort. Almost all of them also set up new sites or hubs in the local areas.

Procurement

100% of the responding humanitarian organizations had pre-established procurement processes that were executed during the Tsunami. Nevertheless, over half of the organizations experienced procurement delays. All organizations simultaneously chased the same items, resulting in shortages and delays.

The percentages of organizations that had pre-established framework agreements with their suppliers were 56% for non-food items, 50% for medical supplies and 70% for vehicles, the higher percent showing that vehicles are critical resources in the relief effort. Only a small percentage of organizations had pre-established agreements for food supplies due to impact that location and timing has on food sources.

The impact of unsolicited donations varied depending on the type of donation and whether there was an established process to separate solicited from unsolicited donations. Unsolicited vehicle donations were found to be "of great value improving the relief operation" and the only item which received that rating. This was due in part to the noted lack of capacity of transportation in local areas. It appears that in general, the donation of unsolicited items did not have a negative impact if the organization had an established process of stopping the goods before they reached the local area. However, if the unsolicited items slipped through and made it directly to the impacted areas, then the process of identifying the donation, prioritizing the items, and either transporting or storing the goods wasted valuable resources and negatively impacted the relief chain.

Transportation Execution

Destruction of infrastructure, such as roads and airfields, and customs delays were cited as the biggest issue affecting transportation execution.

94% of respondents replied that they encountered problems due to poor infrastructure. The Tsunami destroyed most coastal roads in Indonesia and Sri Lanka. Many locations were only accessible via helicopters. 76% of respondents said their organizations used air transportation exclusively to access the area. This added to the congestion and strain of the limited local transport capacity on the few working roads and at the airports.

71% of respondents encountered some delays due to customs and it was seen as a bottleneck in both Indonesia and at a later point in Sri Lanka. In Indonesia the problem stemmed from the customs procedures that were inconsistent and constantly changing. Items that were particularly sensitive such as radio equipment or medical supplies that could be used by rebel forces also faced longer delays. After several weeks of open customs policy, governments decided to reinstitute monitoring and restricted the flow of

goods. The sheer volume of goods and lack of clear communication of the changes in procedures and requirements created bottlenecks.

Track & Trace

Historically, humanitarian organizations have used ad-hoc solutions to handle track and trace functionality. The survey validated this observation. Only 26% of the respondents stated they used a particular software to handle Track & Trace functionality for procured products while the remainder stated they used excel spreadsheet or a manual process for updates and tracking. These methods do not capture metrics that could enable supply chain analysis. In spite of these less advanced systems, 58% of the organizations reported receiving accurate and timely updates on their pipeline information. This percentage has been challenged by interviews that indicate far less than half of the pipeline flow was communicated in a timely manner. Future surveys may need to gather more detail about pipeline visibility.

Stock Asset Management

Most of the respondents stated they had warehousing and inventory management systems and procedures in place and 85% stated they met the needs of the operation. While these systems met their needs, the organizations deployed them in new locations. 71% reported that they did not use already existing regional logistics set-ups, thus obliging them to create novel local structures for this response.

Not all inventories were put into place after the Tsunami struck. Recent efforts have been made to strategically pre-position stock. By looking at the individual responses in the table below, pre-positioning occurs primarily at the international level with only modest success. At the regional level and below, pre-positioning is not common and when used not able to meet needs. Future work could determine why the pre-positioning did not perform better.

Question: Did you have pre-positioned stock available in the following geographies and did they meet your needs?
 Scale: 5=Yes, exceeded needs, 4=Yes, met all needs, 3=Yes, adequately met needs, 2=Yes, met some needs, 1=Yes, but did not meet needs, 0=No pre-positioned stock

	Average	Individual Responses																	
International	2.09	0	0	0	0	0	1	1	2	2	2	3	4	4	5	5	5		
Regional	0.15	0	0	0	0	0	0	0	0	0	0	0	0	2					
National	0.80	0	0	0	0	0	0	0	0	1	1	1	2	2	2	3			
Area	0.31	0	0	0	0	0	0	0	0	0	0	0	2	2					

Monitoring/Evaluating/Reporting

All of the organizations have some level of reports to headquarters and to donors. Donor reports are also mandatory but were done by the finance organization, with little to no visibility by the logistics team. 73% of the organizations indicated that their supply chain is measured solely by the time of placing an order to the time it is delivered. A broader set of supply chain objectives and measurements is required to monitor and improve effectiveness of the supply chain by linking it to established goals and objectives of the operation.

Communication

83% of organizations communicated via cellular or satellite phone for the first days of the relief operation and within a week 50% of organizations communicated via email. During the collaboration theater however, 81% of organizations experienced communication issues. Based on input from the field this was in large part due to cellular systems not being able to handle the increased volume of usage on their networks.

Collaboration

Although collaboration with several types of organizations is very important in relief efforts, collaboration among humanitarian organization is still a challenge. While 77% of organizations worked with local authorities, 69% worked with the military, and 77% worked with the private sector, only 56% worked with other agencies in setting up their supply chain. The survey indicates that collaboration experiences were positive. However, it seems that collaboration was done primarily on an ad hoc, "immediate needs" basis.

Final Thoughts from Respondents

The survey left room for respondents to compose final thoughts. Representative samples of the comments are listed below:

- Give coordination of logistics to a central group (UNJLC) and let NGOs do the last mile, implementing as a partner
- Coordination meetings in the beginning did result in better coordination
- In Sri Lanka too many government agencies involved in one subject, it became a liability
- Relief assistance reached a saturation point in Banda Aceh
- Limited air capacity with too many people
- Airport overworked and transport in short supply
- Delays in general because everyone in the same step in procurement which resulted in NGOs competing for the limited resources

KEY FINDINGS AND RECOMMENDATIONS

Analysis showed that the issues organizations face are fundamentally common and not significantly influenced by organizational size. It also indicated that relief efforts need more attention on the following areas: assessment, collaboration, human resources, and supply chain technology.

Shortage of Logistics Experts

- Scarcity of trained and experience logistics personnel led to significant organizational reassignments from other programs and disasters
- In some areas, there was no local staff capable of managing the process
- Organizations may have ineffective processes to develop logistics skills in local staff
- Lack of logistics expertise reduced organizations' capacity to implement their defined processes and led to more of an ad-hoc approach

Supply Chain Processes Were Largely Manual

- Supply chain processes are in place but are still largely manual and spreadsheet driven
- Organizations do not, as a matter of priority, monitor and evaluate the supply chain for operational improvement
- Organizations are unable to generate logistics and operational reports because they are thought to be too time consuming given the lack of accurate information and the time intensive nature of manipulating spreadsheets
- Reports are currently geared more for donors and not used as operations metrics in the field

Assessment and Planning Were Inadequate

- Organizations normally depend on local staff to do the initial assessment. But many had no presence in areas such as Banda Aceh and the local staff were not trained appropriately
- Organizations were unable to understand and specify exactly what was needed due to the lack of accurate information from the local areas. Information was lacking because of destroyed infrastructure and lack of trained staff

Limited Collaboration and Coordination

- Competing supply chains caused constraints in procurement and congestion throughout the network
- Too many players taxed limited capacity of transport systems
- NGOs were competing for same resources, vendors etc., which delayed procurement processes
- Collaboration was successful in meeting immediate needs on an ad-hoc basis, but less effective in meeting on-going needs
- Organizations were unable to maximize donations from the corporate sector, especially people
- Coordination hubs were used but it was difficult to determine their effectiveness
- Websites, logistics bulletins, and maps were valuable tools in coordinating logistics and operations

CONCLUSION

One significant outcome of the Tsunami was the realization by many organizations of the critical role that logistics plays in disaster response. To strengthen their influence and recognition, logistics departments need to show results and systemic improvement. Many interviewees felt that providing specific logistics training, particularly on a community wide level, would professionalize the field, provide quality assurance, facilitate consistency of service and be helpful in decision criteria for recruitment. Traditionally, infrastructure is not the focus of donations; however, it is important to direct resources toward training especially in specific disciplines such as logistics that may help change the entire culture of emergency relief.

Due to the enormity of the disaster and the sheer number of organizations that were present, this emergency highlighted the need to leverage resources and coordinate with the military, private sector and humanitarian organizations to provide more effective relief. The challenge is to bring about smooth, speedy and coordinated response by helping organizations overcome the blurring of boundaries among the roles assigned to different organizations, and create systemic change. Humanitarian organizations recognized the value of utilizing integrated technology systems to capture and analyze information resulting in a more effective and efficient relief effort.

Proper alignment of resources, training of the people in the field as well as at headquarters and creation of proper performance measurements are essential to establishing logistics or supply chain management as a strategic function within the humanitarian organizations and delivering relief.