THE RISE OF HUMANITARIAN LOGISTICS

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ABSTRACT

The paper begins by presenting the humanitarian sector at its widest through sketching the history and development of the field and the environment within which humanitarian logistics must take place. Next, the range of role-players engaged in humanitarian logistics, the nature of humanitarian space and the challenges to conventional logistics thinking are examined. The key similarities and differences between conventional private sector and humanitarian logistics are discussed and areas for increased public/private partnerships in logistics are highlighted.

1. INTRODUCTION

Disasters are inevitable: at any point in time cases of natural disasters (such as famine, flood, earthquake, tsunami, cyclone, hurricane, etc), man-made disasters (such as war, terrorism), diseases like HIV/AIDS and extreme poverty are to be found somewhere in the world. While some crises or disasters provide a modicum of warning, others occur suddenly, shocking the world with destruction and chaos. The companion of disasters is however the deployment of aid: people, equipment, materials and funds - resources employed to relieve suffering wherever it occurs.

Natural or man-made disasters of a sufficient scale to warrant an extraordinary response from outside of the affected area are on the increase. Due to various factors such as steady population growth, urbanisation and residential densification, these disasters are having greater impacts on lives and livelihoods than ever before: according to Thomas and Rock Kopczak (2005) *"disaster relief is and will continue to be a growth market. Both natural and man-made disasters are expected to increase another five-fold over the next fifty years due to environmental degradation, rapid urbanization, and the spread of HIV/AIDS in the developing world. According to the Munich Reinsurance group, the real annual economic losses have been growing steadily, averaging US$75.5billion in the 1960's, US$138.4 billion in the 1970's, US$213.9billion in the 1980's and US$659.9billion in the 1990's."*

2. HUMANITARIAN LOGISTICS

The field of humanitarian logistics is relatively new with significant research only having begun to be undertaken within the last five years. It is a challenging sub-field of logistics where the disaster itself may prevent conventional distribution: in a rapid onset disaster such as an earthquake, flood, tsunami or mudslide, the transportation and communication networks may be damaged or destroyed to such an extent that previously economically unviable transportation options (such as air drops of aid) may be the only means of accessing the affected population rapidly.

An aid logistics chain, at its simplest, starts with the procurement and despatch of aid for

shipment to the beneficiary region. The aid may be stored in either a national or regional warehouse before transport to the Extended and then Final Distribution Points where the aid is handed to the beneficiaries.

2.1 Role-players

Due to the increasing scale and scope of disasters, the Humanitarian sector has experienced huge growth and today many aid agencies are multi-billion dollar organisations spanning all continents and a wide range of relief activities. There are a variety of role-players but the most common are:

2.1.1 The United Nations and NGOs

While not a humanitarian organisation by design, there are a number of agencies within the United Nations System that are humanitarian. Amongst them are those that are mandated to respond to disasters and those some are more focused on development. A few, such as UNICEF (The UN Children's Agency), and the World Food Programme (WFP) straddle both activity areas. The NGO sector is equally diverse with a number of organisations with different focus areas, expertise and operating ideologies. Many of them are charity or religious based such as the International Federation of the Red Cross/Red Crescent Societies (IFRC), Medicens Sans Frontiers (Doctors Without Borders), World Vision and Oxfam, to name just a few.

2.1.2 The military

Generally in a disaster one of the first groups to respond is the affected country's military. Depending on diplomatic relations, neighbouring or regional countries' militaries may also offer or be requested to extend humanitarian aid such as the 2000/2001 floods in Mozambique where South African National Defence Force helicopters were despatched to assist in search and rescue operations. Military humanitarian missions are often amongst fastest in terms of response times. At the same time that a military humanitarian mission may be underway, conventional military units and other peacekeeping forces may be dispatched to a crisis area to safeguard humanitarian workers, the aid itself and/or to assist in the de-conflicting of a troubled area.

2.2 The lifespan of a disaster

Disasters can commonly be classified as either a rapid onset disaster such as an earthquake or flood, which require immediate interventions of rescue and aid, or a slow onset disaster such as drought and famine which may allow more time to respond. Whatever the nature of the onset, the scale of the response typically follows a lifecycle represented in Figure 1 below. As shown in the Figure, the response can be divided into three distinct phases of:

1. **Ramp up:** when aid and infrastructure (assets and staff) are deployed to the area.
2. **Sustainment:** when the aid and aid infrastructure are employed fully for the period of responding to the crisis.
3. **Ramp down:** when assets are gradually reduced and withdrawn from the area to be redeployed elsewhere.

The ramp down phase does not signal the end of the need for aid, and it is normal for developmental or long-term aid to ramp up in the area to complement the ramping down of the emergency response. As much as formulaic responses are preferable in an emergency, it is important to note that each crisis is unique and may require a tailor-made response. Slow onset disasters present an ideal opportunity to refine the crisis response. These crises also provide an opportunity to strive towards increased coordination of the response with developmental programmes.

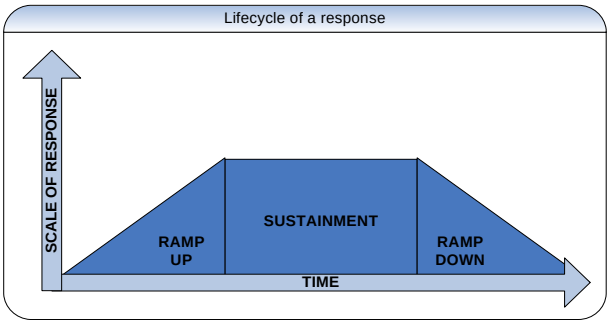

Figure 1 Lifespan of a disaster

(Adapted from INSEAD lifecycle of a response. Tomasini & Van Wassenhove, 2006**)**

2.3 Humanitarian Space

While different in their founding principles and mandates, all aid organisations whether NGO, UN or other are constrained in their need to operate within the Humanitarian Space as described by INSEAD in the figure below.

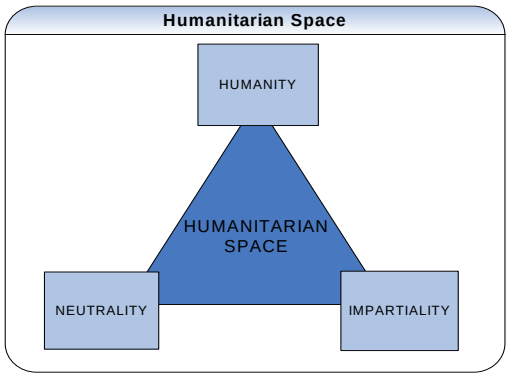

Figure 2 Humanitarian space.

(Adapted from: Tomasini, & Van Wassenhove, 2006.)

Only aid that is extended within boundaries of humanity, neutrality and impartiality can be termed to be truly humanitarian in nature. The difficulties of maintaining this space particularly during an emergency are clear. In preserving the boundaries of this humanitarian space, many ideological debates rage on controversial aspects of aid, sometimes impacting tremendously on the logistics of aid distribution: the fact that no country is obliged to accept offered aid regardless of the scale of the disaster was highlighted again in the Southern African food crisis of 2002-2004 where various countries were gripped by drought and requested food aid. This aid was later rejected by some of the affected countries as it was found to contain traces of Genetically Modified (GM) grain. The beneficiary countries demanded new GM free aid and the international humanitarian community was left scrambling to comply while ethical debates raged for both sides. This further complicated a complex supply chain as aid already in the pipeline was halted and returned. After extensive negotiations between the humanitarian sector and the national governments in each country individual arrangements were reached whereby each affected country's specific requirements were met. For example, in some cases milling GM aid was acceptable so another step had to be factored into the logistics chain incurring additional time and financial cost (Tomasini & Van Wassenhove, 2005).

3. COMPARING THE HUMANITARIAN SUPPLY CHAIN TO A COMMERCIAL ONE

Anyisa Thomas, Executive Director of the Fritz Institute is quoted by Rodman (2004) as saying: “humanitarian logistics has much in common with corporate logistics, yet the best practices from the corporate world, or from other humanitarian organisations in many cases, have not crossed over.” Davidson (2006) concurs that private sector and humanitarian logisticians face many of the same challenges surrounding cost trade-offs and performance management, but the largest commonality is that speed of the chain is of the utmost importance. Beaman (2004) constructed a table (as shown below in Figure 3) that depicts some of the characteristics of the two supply chains:

	Commercial Supply Chain	**Humanitarian Relief Chain**
Demand Pattern	Relatively stable, predictable demand patterns. Demands occur from fixed locations in set quantities.	Demand is generated from random events that are unpredictable in terms of timing, location, type, and size. Demand requirements are estimated after they are needed, based on an assessment of disaster characteristics.
Lead Time	Lead time determined by the supplier-manufacturer-DC-retailer chain.	Approximately zero lead times requirements (zero time between the occurrence of the demand and the need for the demand?, but the actual lead time is still determined by the chain of material flow.
Distribution Network Configuration	Well-defined methods for determining the number and locations of distribution centers.	Challenging due to the nature of the unknowns (locations, type and size of events, politics, and culture). And “last mile” considerations.
Inventory Control	Utilizes well-defined methods for determining inventory levels based on lead time, demand and target customer service levels.	Inventory control is challenging due to the high variations in lead times, demands, and demand locations.
Information System	Generally well-defined, using advanced technology.	Information is often unreliable, incomplete or non-existent.
Strategic Goals	Typically: to produce high quality products at low cost to maximize profitability and achieve high customer satisfaction.	Minimize loss of life and alleviate suffering. [Thomas (2003)]
Perfomance Measurement System	Traditionally: focused on resource performance measures, such as maximizing profit or minimizing costs.	Primary focus on output performance measures, such as the time required to respond to a disaster [Thomas (2002)] or ability to meet the needs of the disaster (customer satisfaction).
What is “Demand”?	Products.	Supplies and People.

Figure 3 Summary of the characteristics of the humanitarian and commercial supply chains. (Beamon, 2004)

According to Beamon one of the primary differences between the supply chains is the nature of the demand pattern: whereas commercial supply chains experience relatively stable and predictable demand patterns the demands in a humanitarian chain are irregular and occur suddenly in unpredictable locations.

3.1 Performance Management

A significant challenge for humanitarian organisations is that of performance management. According to Beamon (2004) performance measurement is vital to humanitarian organizations. This translates directly to an increased focus on logistics for improved transparency of operations and measurement of logistics performance. Beamon (2004) goes on to state: *“Today, contributors, donor agencies, scholars, and relief and development practitioners are all asking: Do NGOs practice what they preach? How do we know? How effective are their programs and projects?”* Effective and efficient logistics processes are vital to these organizations and performance measurement is important for their accountability.

Beamon argues that the foundation of performance management in the private sector could be applied to humanitarian chains. This includes:

- **Resource Performance Measures:** the extent to which an organisation is able to utilise its resources as received from donors.
- **Output Performance Measures:** the extent to which the organisation has an impact (through relieving suffering).
- **Flexibility Performance Measures:** the extent to which the organisation is able to adapt operations and programmes as required. This can be further sub-divided into:
  - The different magnitudes of disasters ("volume flexibility").
  - The time taken to respond to disasters ("delivery flexibility").
  - The different types of disasters ("mix flexibility").

Performance management in the humanitarian logistics system is not simple. Critical issues remain regarding which measures are the most appropriate indicators of performance and how these factors influence the flow of information for decision making. It may also be necessary to have more than one set of criteria for performance management: one for rapid onset disasters and another for slow onset disasters. Much more research is required on this topic. While the success of a commercial supply chain might be minimizing transport costs to maximize profit it would appear that the success factor of a humanitarian supply chain may be striking a balance between employing resources in a cost effective manner (so as to be able to spend maximum financial aid on product aid) while still ensuring the speedy and reliable delivery of the aid to beneficiaries.

Thomas and Rock Kopczak (2005) further argue that: "*if the use of metrics is leveraged, aid agencies will be able to:*

- *Use actual performance as input into future operational plans*
- *Identify and eliminate causes of performance breakdowns*
- *Use analysis of current performance to inform continuous improvement of processes*
- *Use actual data to strengthen voice with donors, suppliers and logistics service providers*
- *Report performance to donors and the media to enhance the reputation and image of logistics and of the aid agency."*

Davidson (2006) details the valuable results of collaboration between the International Federation of the Red Cross/Red Crescent Societies (IFRC) and the Fritz Institute to develop software to capture the necessary data to inform the IFRC of the performance of the supply chain. Four indicators were developed that measure logistics performance in terms of the normal logistics trade-offs of speed, cost and accuracy. They are:

1. **Appeal coverage:** this is measured by the percentage of appeal coverage (reflecting the quantity of items pledged for donation out of the quantity requested) and the percentage of items actually delivered to the disaster site.
2. **Donation to delivery time:** this is measured by the lead time between when an item is pledged for donation and when it arrives at the disaster site.
3. **Financial efficiency:** this is measured through comparing the budgeted and actual prices paid for items. It is also measured by the transportation cost which is expressed as a ratio of the total transportation costs over the total costs for the delivered items. The rationale of this measurement is that the cost of transportation should decrease over the lifecycle of the disaster as less expensive means of transportation are sourced and used.

4. **Assessment Accuracy:** this is measured by how much the response's budget was adjusted from the initial estimate to the end of the response with the aim of reflecting how effective the organisation has been at correctly determining the scale of the disaster and the scale of the response.

These indicators have been compiled into a scorecard that while requiring adaptation to fit the varying types of humanitarian agencies, it is nonetheless a valuable first step towards providing a tool for performance management. Figure 4 depicts an example of such a scorecard as used by IFRC during their response to the Asian earthquake of 2005.

South Asia Earthquake Appeal Date: October 9, 2005				
Status Update: Month 1 ***Date: November 8, 2005***	**Operation Total (Weighted)**	**Priority 1 Housing**	**Priority 2 Kits & Sets**	***Total Op Target***
Percent of Appeal Coverage (in quantity of items)				
After 1 week	63%	61%	77%	
After 2 weeks	47%	45%	18%	
After 1 month	74%	73%	51%	
Percent of Items Delivered (in quantity of items)				
After 1 week	6%	1%	4%	
After 2 weeks	9%	5%	2%	
After 1 month	33%	27%	8%	
Donation-to-Delivery Time				
Mean (# days)	11	12	12	
Median (# days)	11	11	12	
Financial Efficiency				
(Donor Cost - Budget Cost) / Budget Cost	-7%	-12%	44%	
Actual CHF Spent - Budget CHF	(3,570,139)	(5,531,198)	1,992,575	
Assessment Accuracy: Revised Budget / Original Budget				
After 2 weeks	131%	118%	365%	
After 1 month	139%	123%	377%	

Figure 4 Example of a scorecard of performance by the IFRC during the 2005 Asian earthquake (Davidson, 2006)

One indicator that has not often been mentioned in humanitarian logistics research is that of sustainability. Due to collapsed or insufficient infrastructure particularly relating to transportation, aid agencies often invest resources into infrastructure rehabilitation (such as WFP who rehabilitated part of the railway from Nacala to the interior during the 2002-2004 Southern African Food crisis). The extent to which this investment is tied to, or in line with, the beneficiary country's infrastructure development plans has not received much attention. In an ideal situation one would hope to see aid agencies working with beneficiary countries to rehabilitate or expand transport infrastructure in line with national infrastructure plans. Aside from benefiting the beneficiary country it may also prove to benefit the aid agency in the longer term. Some agencies have experienced cases of engaging in transport infrastructure rehabilitation (to better provide aid), only to return to the same area years later to find that this infrastructure has not been maintained and that the agency must again invest in rehabilitation before aid can flow effectively. By trying to ensure that any investment in infrastructure benefits not only the movement of aid but long-term national plans too, the responsibility for ensuring proper maintenance is placed on the beneficiary country who should see the infrastructure as a tool to stimulate economic development through the promotion of trade. In many rural communities accessibility to economic centres is the major hindrance to participation in the national economy. An adequate transportation network addresses this need.

3.2 Professionalisation of humanitarian logisticians

According to Thomas and Rock Kopczak (2005), the underdeveloped state of logistics in the humanitarian sector closely resembles the state of corporate logistics 20 years ago, by displaying underinvestment, lack of recognition, and the absence of a "fulfilling professional career path" for those working in the humanitarian logistics domain.

"As we work with humanitarian logisticians around the world, a refrain that we hear over and over is that there is a lack of professionalisation of the logistics function." (The Fritz Institute, 2005) Experts in the field expect logistics management to play an increasingly important role in disaster management and emergency relief. Thomas & Rock Kopczak (2005) state that the importance of logistics is beginning to register as a European Ambassador at a post-Asian tsunami donor conference said, *"We don't need a donors conference, we need a logistics conference."* Medicens Sans Frontiers agreed with the sentiment "*what is needed is supply managers without borders: people to sort goods, identify priorities, track deliveries and direct the traffic of a relief effort in full gear.*"

A major challenge to the humanitarian field is the extent to which logisticians can be equipped with the tools they require to perform optimally. There is a high turnover of logisticians in the field, in part due to the high pressure environment but also perhaps due to the absence of clear career paths, associated training and experience transfer. Rodman (2004) quotes Thomas (2003) that *"organisations may experience as high as 80% annual turnover in field logistics personnel."* This has huge implications for the organisations' need for experienced logisticians in a field where experience counts every bit as much as knowledge. It also has implications for the post-event knowledge transfer where the aim is to ensure that lessons learnt are captured and transformed into wisdom regarding the type of crisis, region and specific operation. In an effort to combat this brain-drain, training of humanitarian logisticians is increasing across the board in terms of a growth in the demand for training and in the variety of training programmes being offered, many of which are focused on cross-functional integrated training that is no longer organisation specific. In addition, academic and research organisations (such as INSEAD and the Fritz Institute) are collaborating with the Humanitarian sector in an effort to address the skills gap. Key challenges to the professionalisation of logisticians as identified by a survey by the Fritz Institute are: *"…lack of consistency in training, lack of ways to measure the effectiveness of training, lack of funding for training and lack of specific training in humanitarian logistics."* Also according to the Fritz Institute, the training itself is a logistical challenge as humanitarian staff from diverse nationalities with varying language proficiencies are deployed worldwide.

The Fritz Institute conducted a survey of the response to the Asian tsunami and found that humanitarian organisations were struck by the scarcity of trained and experienced logisticians in the field. The survey found that 88% of the aid agencies had to recall their most experienced logisticians from other assignments (such as Darfur) to be redeployed to staff the tsunami relief efforts. This is concerning on a number of levels; not only was the Asian crisis impacted but, through such a rapid reallocation of staff, other disasters would have been adversely affected as expertise was lost (at least temporarily). In such an emergency redeployment it is unlikely that much attention would have been paid to adequate and structured debriefings and handovers.

The Fritz Insititute (2005) states that *"training, particularly at field level, will help build competency and skills, and enable logisticians to create common processes, standardization and vocabulary across organisations promoting professionalism and collaboration."* One aspect of the professionalisation challenge that should not be lost in the drive to train and equip logisticians is that of capacity building local expertise in

logistics. Assisting the developing world to grow their own humanitarian logisticians should be as much of a priority to the international community as training western humanitarians. The Fritz Institute survey of the response to the Asian Tsunami revealed a staggering lack of local knowledge: 88% of humanitarian agency team members conducting the assessments were international while only 38% of agencies had team members from the area with local knowledge. This is especially alarming when one considers complex crises such as the Southern African food crisis of 2002-2004 where it was acknowledged by the WFP that inhabitants of the region have unique coping mechanisms that can mask the severity of such a crisis. It then becomes imperative to harness local knowledge and expertise.

4. THE PRIVATE SECTOR'S RESPONSE TO DISASTERS

4.1 Hurricane Katrina

The private sector has long been interested in emergency / disaster management from a risk management point of view. Strategies of contingency planning, remote data storage sites and others are common for major organisations. It is unusual that a private sector response to a natural disaster be contrasted to that of a humanitarian response but interestingly enough, that is what a series of articles in Fortune magazine did in the aftermath of Hurricane Katrina as part of a bigger theme on risk management. Rather than contrast the responses directly, the series of articles showed the wealth of knowledge that the private sector has when preparing for a disaster through risk management:

Just one day after the storm, all but ten of Home Depot's 33 stores in Hurricane Katrina's impact zone were open and operational, as were other private sector organisations. The private sector planned properly, prepared well and this enabled them to respond quickly. Home Depot have gone so far as to organize (geographically) their operations to match divisions with the main natural disasters they have to deal with regularly in America – earthquakes and wildfires in the Western states, blizzards in the North, and hurricanes in the South (Fox, 2005).

Even more spectacular was the response by retail giant Walmart: Leonard (2005) detailed the performance of Walmart who began preparing for the effects of Katrina six days before the storm even hit land. Walmart has an Emergency Operations Centre whose sole functionis dealing with crises from shootings to natural disasters. In 2004 alone the EOC responded to four hurricanes over only a five week period in Florida. Walmart even has a "loss prevention team" that is deployed to crisis areas to assist local staff and protect Walmart stores from vandalism or looting that can occur in the aftermath of a disaster. Walmart takes natural disasters so seriously the organisation even employs private meteorologists to provide the most advance predictions of weather patterns to the EOC and in this case, the advance notice of the swing in Hurricane Katrina's path enabled trucks to be reloaded and dispatched to the New Orleans area. It was a big undertaking but was described as fairly routine for a company of Walmart's size with 117 distribution centres spread around the country. The nonchalant response by Rollin Ford, (Walmart's executive vice president of logistics and supply chain) says it all, *"that's what we do – we move mass volume very efficiently."* They did this so efficiently that a local mayor is quoted as having said: *"The Red Cross and FEMA should take a master class in logistics and mobilization from Walmart."* The goodwill generated for Walmart has been immense and could not have come at a better time when the retail giant was facing huge criticism.

4.2 Increased private sector involvement in the humanitarian sector

Many private sector enterprises are actively attempting to engage more with the humanitarian sector. The private sector trend towards "triple bottom line" management with

attention to socially responsible businesses giving back to the community at large appears to be increasing. Consumer goodwill (from favourable press coverage) and financial benefits (from tax write-offs) can be strong motivators for many a philanthropic gesture by big business. Whatever the motivation, the time has never been better for private sector involvement in the humanitarian world and few functions translate as well as that of assistance with logistics. Finding the right match between a humanitarian agency and a private sector enterprise is not an easy one and it can be a long and arduous process for both sides to identify suitable matches, negotiate the terms of a relationship and then start trying to make it work.

One private sector firm who has a very successful partnership with the Humanitarian sector is TNT, the global logistics company. Since 2002, TNT has been an active partner of the United Nations World Food Programme (WFP). This partnership was prompted by TNT's CEO Peter Bakker reading an article while on a flight to Singapore. It quoted a horrifying statistic that a child dies from hunger every few seconds. *"It also noted that there was enough food in the world for everyone; it's just that we're not getting it to the places where it's needed most," says Bakker. "That got me thinking that hunger is essentially a logistics issue on a global scale. It seemed to me that TNT was in a unique position to be able to make a contribution to solving this problem. In our company we have the skills, systems and people that could do something to help."* (TNT website) Today the WFP-TNT partnership is one of the most high profile examples of how the private sector is able to offer assistance to the Humanitarian Sector. While the relationship experienced some teething problems, much of its success could likely be attributed to the common language both parties speak: that of logistics.

5. CONCLUSION

"Humanitarian logistics has the opportunity to increase its contribution to disaster relief and to be recognized for that contribution by implementing initiatives in the areas of knowledge management, technology, measurement, community and positioning. While moving relief items to disaster sites will continue to be an important role for logistics, the strategic focus must be on providing timely information, analyzing that information to garner insight as to how to improve operations and learning internally and with others. .. It is through these two mechanisms of information and community that humanitarian logistics can find its voice and create its future, rather than limit itself to responding to the present." (Thomas and Rock Kopczak, 2005) They go on to argue that it is imperative for humanitarian logisticians to find ways to communicate to donors and the general public how logistics effectiveness is improving. Through positive reinforcement that improvements in logistics have led to improved efficiencies, donors may be more motivated to fund not only operations but improvement initiatives too.

It is clear that much has been done on a strategic level to bring the humanitarian sector closer to the private sector in terms of accountability, transparency of operations, coordination and collaboration, improved logistics and streamlined operations. Strong leadership in terms of coordination in the humanitarian sector is however concerningly absent – much of the advancements are individual agencies' attempts to improve their service delivery. While this is laudable (and very necessary), the sector runs the risk of each agency developing systems and processes that are not able to translate to or be rolled out to other agencies, thereby improving individual agency operations and complicating the sector's response to a crisis. It is vital that such systems and processes are quickly standardised across the sector to ensure optimal performance of the humanitarian sector at its widest. It makes tremendous sense for logistics to be at the forefront of advancements in the sector, not only is it a common language, it is also an

area that has not received much attention to date. The potential for big and relatively quick wins by improving humanitarian logistics is quite large. It is hoped that through a stronger focus on logistics and especially the professionalisation of the humanitarian logistician that this focus will indeed change. If this can be achieved, humanitarian logistics will have successfully made the transition to humanitarian value chain management where every partner in the chain is committed to the goal of creating and fostering value creation for the poorest, most marginalized and disaster stricken populations on earth.

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