NOTE TO **LOGISTICS CLUSTER GLOBAL MEETING** PARTICIPANTS

- This document is to be published by the **Overseas Development Institute** as a discussion paper, to be presented at the 2016 **World Humanitarian Summit** by the **Humanitarian Logistics Association**

- Although this paper *does not target* the Logistics Cluster specifically, it *does*, however, make recommendations that will impact the work and positioning of the Logistics Cluster.

- This paper is being presented at the Logistics Cluster Global Meeting Conference in order to: (1) keep you informed of future directions being set; (2) to seek your feedback on the content; and (3) to see how it aligns with the GLC strategy being discussed.

***NOTE**:*

1. *This paper is targeting a non-logistics audience. The terminology has been adjusted to suit.*
2. *This paper is still a work in progress, and contains sections that have not yet been vetted by the steering committee. Readers are requested to note down inconsistencies or mistakes, and feed these back to the session moderator.*
3. *The appendices "B" through "I" will **NOT** be included in the final document.*
4. *The executive summary will be written once feedback from the GLC is received.*

EMERGENCY SUPPLY CHAINS: WHAT PRICE IS RIGHT?

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List of Acronyms

ACF	Action Contre la Faim
ECHO	European Commission's Humanitarian Aid and Civil Protection Department
ERCC	Emergency Response Coordination Centre
ERP	Enterprise Resource Planning
HPC	Humanitarian Procurement Centre
HPN	Humanitarian Practice Network
HRR	Humanitarian Response Review
IASC	Inter-Agency Standing Committee
ICAO	International Civil Aviation Organisation
IFRC	International Federation of Red Cross and Red Crescent Societies
INGO	International Non-governmental Organisation
INSARAG	International Search and Rescue Advisory Group
IRC	International Rescue Committee
KACHE	Kit for Autonomous Cash Transfer in Humanitarian Emergencies
KPI	Key Performance Indicator
LCA	Logistics Capacity Assessment
LET	Logistics Emergency Teams
LRT	Logistics Response Training
MCDA	Military Civil Defence Assets
MSF	Médecins sans Frontières
NDMO	National Disaster Management Office
NGO	Non-governmental Organisation
PARCEL	Partner Capacity Enhancement in Logistics
RFI	Radio Frequency Identification
SARP	Standards and Recommended Practises
SCF	Save the Children Fund
SOP	Standard Operating Procedures
UCPM	Union Civil Protection Mechanism
UNDAC	United Nations Disaster Assessment and Coordination
UNHAS	United Nations Humanitarian Air Services
UNHRD	United Nations Humanitarian Response Depot
UNJLC	United Nations Joint Logistics Centre
UNOCHA	United Nations Office for the Coordination of Humanitarian Affairs
WHS	World Humanitarian Summit
WFP	World Food Programme

Acknowledgements & Methodology

The Humanitarian Logistics Association (HLA) considers it vital to engage with the wider humanitarian community in order to of improve the quality, timeliness and appropriateness of assistance provided to beneficiaries.

In January 2015, the HLA established a steering committee comprised of senior logistics practitioners (see "*Steering Committee and Contributing Authors*", page 34) to explore the future direction of, and challenges facing, the disaster-response supply chain. Key informants from a broad range of different stakeholder groups (covering practitioners, donors, corporate sector, INGOs, NGOs, governments and the UN) were interviewed (see "*Key Contributors*", page 34).

To develop this paper, the HLA requested the assistance of the Logistics Cluster (LC), as the principle facilitator of logistics support services during an emergency response, and comprised of representatives from a wide range of organisations, to take the lead in developing this paper. The Logistics Cluster's bi-annual meetings in May and November 2015 were used as a forum to gather feedback from participating organisations and experts in the field.

The Steering Committee and contributing authors wish to thank the sponsors who made this document possible. The kind support and contributions from ACF International, World Vision, WFP, Oxfam Intermon, Bioforce, Handicap International and Fondation Merieux will help to improve the efficiency and effectiveness of humanitarian logistics for affected populations world-wide.

This paper does not presume to speak on behalf of humanitarian organisations or individuals not represented within the HLA or the LC, as they have not had the opportunity to review this document. The opportunities, challenges and proposals discussed herein, nevertheless are applicable to the whole humanitarian logistics & supply chain sector, and should be considered by all relevant actors, in order to better serve populations affected by crises.

Executive Summary

1. Introduction

1.1 Background

With the face of humanitarian assistance rapidly changing on many fronts, the humanitarian community in general – and the disaster-response sector in particular – are under pressure to adapt and evolve: The growing frequency, duration and complexity of natural and man-made disasters is increasing demand for humanitarian assistance; competition for limited funds is intensifying; and advances in technology is generating unprecedented threats and opportunities.

The disaster-response supply chain (DRSC) is the pipeline delivering humanitarian assistance to those in need when an emergency is declared. It covers all activities from the initial forecasting of beneficiary needs through to the procurement, transportation, storage and distribution of supplies (water, food, medical goods, shelter). The DRSC is the foundation upon which the *humanitarian community* delivers assistance to countries and populations affected by crises. Positioned at the heart of humanitarian aid provision, and enabling all sectors, from health to water and sanitation to deliver life-saving assistance to beneficiaries, the DRSC constitutes around 60%[1] of the cost of a typical emergency response operation. The DRSC, like the wider humanitarian community, must adapt and evolve if it is to address the challenges facing it, and in order to exploit opportunities offered by new technologies and new development paradigms.

1.2 Defining 'Supply Chain' Vs 'Logistics'

While the terms 'logistics' and 'supply chain' are often (incorrectly) used interchangeably, this can lead to confusion about the specific *scope* of each term. This paper defines the terms as:

- **Supply Chain** is the focus of this document, and covers (1) all activities involved in the end-to-end process of forecasting (planning), sourcing (procurement) and delivery of humanitarian aid products; and (2) the provision of market analysis and pipeline information to facilitate decision making.

  This paper is concerned with supply chains within the *specific context* of a **disaster-response**, as separate from supply chains supporting *development assistance* (such as WFP's ongoing operations in Ethiopia). DRSCs have unique requirements, as they need to function at extremely short notice, in a chaotic, rapidly changeable environment, and where multiple parties are involved.

- While the exact definition in the humanitarian context is open to interpretation, **Logistics** is defined here as the '*delivery*' part of the supply chain, dealing with the physical handling, storage and movement of commodities[2].

  The term "**Logistics *Unit***" is used here to refer to the *organisational unit* responsible for carrying out the logistics functions (covering, incidentally, the management of the organisation's vehicle fleet and infrastructure).

In most organisations today, the total supply chain, as defined above, is generally managed by three separate organisational units – **Programme** (responsible for long-term planning based upon analysis of beneficiary needs); **Procurement** (responsible for purchasing commodities); and **Logistics** (responsible for the transporting, handling, storage and distribution of commodities). A later chapter discusses the limitations this creates, and offers suggestions to achieve greater synergies.

1.3 Aim of this paper

This paper is sponsored by the Humanitarian Logistics Association (HLA)[3] as a first step in socialising the challenges facing the DRSC today, the impact this has upon the ability of the humanitarian community to deliver to those in need, and to explore opportunities for improvement. It proposes ways to make the DRSC planned rather than reactive; robust, flexible and cost-effective; and better able to meet the needs of the beneficiaries while also supporting the regeneration and stability of local markets.

In the coming years, humanitarian assistance caseload is expected to grow as crises increase and extend. In order to support this caseload in the light of increasingly limited funding *per crisis*, the DSRC must evolve, making deep-seated changes. This paper proposes activities to be prioritised by the DRSC community, and identifies three critical areas where stakeholder support is needed to implement these activities.

This paper, then, aims to:

(1) familiarise the humanitarian community with the DRSC, and upon this foundation, discuss the future of the DRSC in a rapidly changing humanitarian context and technological environment;
(2) Propose a list of activities to address upcoming challenges; and
(3) Start a dialog with the key stakeholders able to support the evolutionary changes needed

The question posed in the title of the document does not refer to the monetary price-tag incurred in improving the supply chain. It refers to the price paid in lives & livelihoods of populations affected by disasters, should we not develop a disaster-response supply chain capable of meeting these challenges.

2. The Disaster-Response Supply Chain

The DRSC differs from private sector and military supply chains, as well as its humanitarian cousin, the *development-assistance* supply chain, in several important respects, impacting not only how it is implemented, but also how it is planned. The DRSC must:

- Operate in a chaotic, rapidly changing environment, where communication and physical infrastructure are compromised. Government services critical to the supply chain's operation (for example, Customs and the Civil Aviation/Port Authorities) may also be reduced, with the disaster having affected government staff and offices.
- Coordinate with diverse organisations spread across multiple categories (UN, INGO, NGO, government, military and private-sector) – each with their own mandates, priorities and timeline;
- Provide life-saving commodities to a highly vulnerable population, traumatized and disenfranchised by natural disasters, pandemics or conflict.

At the heart of the DRSC, then is the need to coordinate – across units within an organisation, between different organisations, and between organisations and the government(s) involved in the disaster response.

2.1 The Disaster-Response Supply Chain Today

2.1.1 Coordination & Cooperation is key

Disasters are seeing large numbers of organisations responding, often within a very short period. The 2004 South-East Asia Tsunami, for example, saw over 400 INGOs and 5,000 staff present in Banda Aceh,[4] and, in Sri Lanka, hundreds of INGOs, thousands of national NGOs and many other informal groups of well-wishers[5]. During the 2010 Haiti response, the UNOCHA website recorded over 900 registered NGOs in operation.

The number, and experience, of responding organisations has serious implications on the efficiency of the DRSC:

- Severe competition for scarce resources, including transport, warehouses and accommodation, both drives up prices and results in transport capacity being underutilized as it becomes fragmented across organisations.
- Uncoordinated (and, sometimes, ownerless) cargo arrivals into ports and airports can congest limited handling areas and overload Customs officials – both stopping the flow of life-saving supplies.
- Newly established, smaller organisations attending a disaster response, often with little practical experience of emergency operations, can inadvertently block critical commodity flows.
- Government officials can be overwhelmed and become frustrated at the lack of a single point of representation, hampering their ability to set operation-wide priorities.
- Duplications and gaps in coverage of relief assistance, as multiple organisation attend one area, while other areas are left untouched.
- No single point for the dissemination of trustworthy operational information (maps, road and port status, cargo-space availability).

Governments, the private sector and, to some extent, the military, are, fortunately, also becoming more involved with response efforts. An active, centralised point of coordination, tasked with setting response-wide delivery priorities, resolving bottlenecks and distributing

trustworthy, timely information is critical to a functioning DRSC, and maintaining a solid relationship with the host government.

Even following many years of experience, issues with coordination still regularly occur: During 2013 Philippines Typhoon, lives were lost due to the massive influx of insufficiently coordinated humanitarian goods; and other recent conflict (Syria) and pandemic (Ebola) responses have also highlighted the need for critical improvements in coordinating responses.

Two mechanisms currently used to facilitate supply chain coordination are the *Logistics Cluster* and the organisations providing *Common Logistics Services*.

More information on Coordination can be found in "***Appendix C - Supply Chain Coordination***", page 40.

2.1.2 The Cluster approach

Inter-agency coordination, especially in an emergency response, is overseen by OCHA. The sheer number of responders to the 2004 tsunami, however, rendered this unworkable. As a remedy, in 2005 the Inter-Agency Standing Committee devised the Cluster approach[6] as a way of improving coordination. Each Cluster is comprised of humanitarian organisations involved in emergency response. Participation in a Cluster is entirely voluntary, and does not restrict the freedom of its members to operate according to their individual mandates[7].

Each Cluster is assigned a 'lead organisation'. In the case of the Logistics Cluster, this is WFP, due to its global presence and operational focus on supply chain and logistics[8]. The lead organisation acts as a '*provider of last resort*' (in the case of WFP, this means supplying commodity procurement and handling services), and is responsible for ensuring the Cluster's emergency response is coordinated. As the Cluster is not a legal entity and cannot hold bank accounts or sign legal documents, the lead organisation also acts as the Cluster's financial and legal custodian, and, as such, plays a vital role in seeking emergency funding during a disaster response.

The Logistics Cluster acts as a mechanism to:

(1) **facilitate coordination**, ensuring that in-country transport and storage resources are managed in a way that reduces inter-organisational competition and maximises use of capacity);
(2) collate and **share information** with the humanitarian community (currently done via the Cluster's website www.logcluster.org/logistics-cluster). This is an essential prerequisite to avoiding duplication of, and gaps in beneficiary coverage.
(3) **augment logistics infrastructure**, in its role of 'provider of last resort', by offering where needed, transport and storage resources as a Common Logistics Service, available to the wider humanitarian community.

2.1.3 Common Logistics Services

Whereas the *Logistics Cluster* represents an *affiliation of multiple organisations* with a common background of humanitarian supply chain provision, a Common Logistics Services (CLS) provider, by contrast, is usually a single organisation offering a specific expertise to the whole humanitarian community – *regardless of Logistics Cluster membership*. This allows:

- **economies of scale** to be achieved, through bulk purchasing of commodities or negotiating better rates on transport or storage resources.

- **maximised use of limited resources** – multiple organisations consolidating cargo and airlifting it utilizing a single planeload can be considerably more efficient – and much cheaper – than each organisation organizing its own cargo shipment on an ad-hoc basis.
- **access to expertise** of the providing organisation – particularly valuable for smaller organisations that do not have that capacity.

CLS providers can change from emergency to emergency, depending upon the requirements dictated by the context of the disaster, the organisations responding and available funding. Some of the main providers include:

- The UN-managed Humanitarian Response Depot (**UNHRD**) network procures, manages and organizes transport for emergency supplies. UNHRD currently has depots in six locations covering Europe, Asia, Africa, the Middle East and South America, and supplies over 65 humanitarian organisations.
- Humanitarian Procurement Centres (**HPC**s) provide access to streamlined procurement services, offering cost and time savings not possible through commercial outsourcing options. HPCs are not-for-profit procurement-specialist organisations, accredited by ECHO through the Directorate General for Humanitarian Aid and Civil Protection.
- The UN Humanitarian Air Service (**UNHAS**) manages air services for humanitarian organisations, reducing the need to arrange their own costly air charters. With the establishment of UNHAS, donor resources have been better optimized and air operation safety has significantly improved. In 2014, UNHAS provided air services in 20 countries, transporting almost 241,000 passengers and over 3,930 metric tons of humanitarian cargo to 258 destinations.
- Some NGOs offer CLSs for smaller organisations, including, for example, Handicap International (covering transportation, storage, vehicle repair, mapping & workspace services), and medical logistics by Save the Children UK.

A detailed explanation of Common Logistics Services can be found in "***Appendix B - Common Logistics Services***", page 35.

2.2 Challenges for the humanitarian sector

The past decade has witnessed some of history's major crises caused either by natural disasters, pandemics or conflict. This is likely to continue with "trends in climate-related disasters, intra-state conflict, urbanization and displacement [suggesting] that the world will face an increasing number of complex and protracted crises in the coming decades."[9]. Risks likely to increase the *demand* for humanitarian aid include:

- Climate change and environmental degradation leading to more natural disasters[10] both directly impacting local populations and leading to conflicts over arable land, water access and settlement areas.
- Pandemics exacerbated by unplanned urban growth; increased exposure of populations in vulnerable areas; higher population densities; mass migrations; and volume of cross-border travel.

Risks being faced by aid organisations that *reduce their ability to respond* include:

- Conflicts where accepted rules of engagement are not respected, placing staff and resources at extreme risk;

- Insufficient funding for individual crises (while overall funding is expected to increase, the available funding *per crisis* may reduce)

With more demand than ever[11] and growing competition for limited funding[12], risk mitigation strategies must be founded upon working more effectively – doing more with fewer resources.

2.3 Issues facing the Disaster-Response Supply Chain

Responsible for providing life-saving assistance, the DRSC's first priority is to act as quickly as possible once activated – normally with very little advance notice. The chaotic, unpredictable environment that defines the DRSC's context means that once it is operational, all energy must be focused on delivering assistance, with little opportunity to consider ways to improve it. The only possibility then, is to ensure the DRSC fits its context as closely as possible *before* the disaster occurs. Once implemented, a well-designed, fit-for-context supply chain can then more easily be adjusted to suit changing conditions: the changes will be smaller, and can rely on the same solid foundation of data that informed the initial design).

As part of its primary directive to save the lives of those in need, efficiency and cost-effectiveness of the DRSC is a top priority: accelerating the speed of response saves more lives, sooner; ensuring the assistance is appropriate to beneficiary requirements reduces wastage and empowers recipients; and improving cost-efficiency means that dollars saved on the supply chain can be spent expanding beneficiary coverage. Based on 2014 UN-coordinated requirements of US$19.5bn,[13] around 60% – US$7.5bn – was spent on supply chain activities. A 1% cost saving here equates to US$ 117m.

When considering how to improve its efficiency and cost-effectiveness as part of pre-disaster planning, it is important to keep in mind that the DRSC is a cooperative effort, formed by multiple organisations. While this has the advantage of allowing organisations to contribute according to individual strengths, it does however come with the disadvantage in that there is no single point of authority responsible for instigating or directing strategic change. The first step toward addressing this was taken in 2005, with the creation of the Logistics Cluster as a formal coordination mechanism (prior to this, coordination was undertaken by the UN Joint Logistics Centre). Coordination alone, however, is not sufficient to bring about strategic change. The Logistics Cluster is mandated to respond to disasters *as they occur* – and is funded accordingly. It does not have the ability to address the increasing pressing questions around (1) ensuring adequate preparation *prior* to a response; (2) fine-tuning the supply chain so it remains appropriate to its context *during* the response; or (3) developing the skills and tools necessary for the DRSC to support the humanitarian community.

Whether through extending the mandate of the Logistics Cluster, or through the creation of some other body, the long-term improvements needed to ensure effectiveness in today's changing humanitarian environment can only be addressed through:

- **Preparedness** (*before* a disaster response): Assesses the likelihood of an emergency occurring in a country or region, and then seek to pre-emptively put into place structures to facilitate an efficient and effective DRSC, should the disaster occur. Critical activities include targeted information gathering, institutional strengthening, and the development of coordination networks.
- **Renewal** *(before, during* and *following* a disaster response): Unlike preparedness, renewal is not a response to a specific geographical risk. Renewal seeks to anticipate and address broader challenges facing the humanitarian community. Activities include

research, developing tools and ensuring the continuous replenishment of qualified human resources.

- **Optimization** (*during* a disaster response): Improve the speed, appropriateness and cost-efficiency of the DRSC, based on information gathered during Preparedness.

To simplify discussion, the Logistics Cluster is referred to throughout the remainder of this chapter, as currently it (1) is the only entity with the mandate to carry out coordination activities; and (2) the only entity – at the moment – with sufficient breadth of scope to address preparedness and renewal. 'Logistics Cluster' can, however, be replaced with any entity with sufficient mandate and recognition.

2.3.1 Need for Resilience

A key measure of any intervention's effectiveness, when examined from a humanitarian supply-chain perspective, should be its effect in the local marketplace – from the buyers and sellers of produce, through to the organisations in the local supply chain that support them. The DRSC is in a unique position to either act as a supply chain *competitor* (through the provision of free commodities people would otherwise buy from the marketplace) or, ideally, as a supply chain *facilitator* (providing humanitarian assistance in a way that increases market activity). This places a strong duty of care on the DRSC, to ensure that assistance is not only appropriate to the needs of the beneficiaries, but it must also be appropriate to the market context.

Enhancing the resilience of the local marketplace must be a theme embedded into all DRSC activities – whether preparedness, renewal or optimization – with the intention of leaving the marketplace stronger at the end of an intervention than at the start.

Building market resilience not only benefits the affected population. Markets able to cope with shocks will have a stronger capacity to remain functional following a disaster. Building market resilience, then, whether through preparedness activities, or following previous interventions, has the potential to reduce the need for future humanitarian assistance, freeing up limited humanitarian funds to be spent elsewhere.

2.3.2 Need for Preparedness

Preparedness, seeking to assess and prepare for specific risks, is by definition a strategic exercise, requiring a long-term vision, supported by long-term funding. As the body responsible for coordinating the DRSC, the Logistics Cluster is currently the best placed to undertake preparedness activities, but is unable to do so because of limitations in funding structure. At the moment, the Logistics Cluster receives funding only once a disaster is declared, meaning that a response will be reactive, rather than proactive. This also means that no funding is available for strategically-focused initiatives. In order for the Logistics Cluster – or any other suitable positioned entity – to undertake the preparedness activities below, a necessary prerequisite is a review of the way funding is structured.

The table below lists issues identified as arising out of lack of preparedness, and suggests activities to address them:

Preparedness gap	Proposed Activity
Identify, systematically and from a supply-chain perspective, countries most at risk, and the category(s) of risk most likely to occur (pandemic, earthquake, flooding, conflict, cross-border, etc.). Develop response plans to address these.	Conduct continuous **risk analysis** and develop appropriate emergency response plans. *All remaining activities are dependent upon by the results of this risk analysis.*
While WFP's Logistics Capacity Assessments, (dlca.logcluster.org) provide infrastructure information (capacity of ports and airports, navigability of internal routes, likelihood of landslides, rainy season impact), a greater level of detail, and more frequent updates are necessary.	Gather (and maintain) detailed information on a **country's supply-chain related infrastructure**. *This activity contributes to risk analysis.*
Under-capacitated Customs and Civil Aviation Authorities can create bottlenecks, slowing (or stopping) goods arriving in country.	**Strengthen key government departments** and **Civil Protection bodies** to improve the speed of a response.
While In-country NGOs provide valuable localised information and relationships with local populations, they often have limited capacity, and limited experience working with INGOs.	**Strengthen in-country NGOs** as a critical resource during a response effort.
In addition to understanding the country's infrastructure, understanding – and utilizing – its commercial supply chain capacity can be valuable during an emergency response.	Understand the **in-country commercial supply-chain operators and marketplace**. *This activity contributes to risk analysis.*
If airport or port infrastructure has been damaged, customs services are not operational, simultaneous emergency responses are draining resources or routes into the country are blocked, relief goods can take too long to arrive.	Build, maintain, stock and staff **prepositioning staging areas** to enable rapid response (WFP's prepositioning staging area in Kathmandu, Nepal allowed emergency response to commence within 24 hours of the the 2015 earthquake)

Preparedness activities, although undertaken based on the best analysis risk available, may be never see a disaster eventuate. This should not be considered money lost, however, as preparedness activities themselves contribute to the resilience of the countries identified.

2.3.3 Need for Renewal

Like preparedness, renewal activities require funding with an eye to the future. While preparedness, though, can have an immediate impact on the effectiveness and efficiency of a DRSC, the payback for renewal activities is over a longer time-frame and is less easily measured. A continued lack of emphasis on renewal, however, poses risks to the long-term ability of the DRSC to meet the challenges ahead of it. Gaps identified in renewal include:

Renewal gap	Proposed Activity
Continuous research into risks and opportunities is needed to 1) investigate ways of overcoming inefficiencies; 2) take advantage of new technologies / assistance paradigms; 3) synthesise 'lessons-learned' to become best practice for the DRSC sector. Without a dedicated research body to house them, the activities listed below (standardised KPIs, data-exchange standards, etc.) are unlikely to materialise.	Establish a **research facility** to improve the DRSC in response to new threats, new technologies and new response contexts.

Renewal gap	Proposed Activity
The inability to quickly exchange key stock data between organisations means that information is received late (if at all), and is often erroneous. This causes a knock-on effect where planned cargo movements are delayed, or transport assets are no longer .appropriate for the cargo.	Develop **common data-exchange standards** to facilitate quick, accurate information transfer between the computer systems of organisations involved in the DRSC. *NOTE*: *this should not be confused with interconnecting computer systems from different organisations together.*
Information technology and tools evolve continuously. As the number of partners in the DRSC increase, and responses become more protracted, inability effectively share information will impact supply chain effectiveness.	Continue development of **information sharing & coordination tools** (as distinct from *common data-exchange standards*). Existing systems (include the Logistics Capacity Assessments, and the Logistics Cluster website) should be continually upgraded.
The DRSC sector has no standard industry-wide KPIs, making it difficult to conduct empirical post-intervention evaluations, or to measure the cost-effectiveness of an operation – both are key steps in learning to respond better. Well-defined KPIs allow an organisation (or an industry) to identify areas needing attention, and are a vital learning tool.	Develop **industry-wide standard Key Performance Indicators** (KPI) that are agreed to prior to an emergency; are constant across events, countries and organisations; and known to all stakeholders ahead of time.
The number and range of organisations responding to a disaster mean that time is lost and mistakes are made when supply-chain staff are unable to communicate clearly or are unused to the disaster-response context.	Develop **national & regional practical trainings** (similar to the Logistics Cluster's twice-yearly Logistics Response Training courses which offer practical disaster-response simulation to staff from all participating organisations), or the trainings provided by BioForce and the Fritz Institute.
While DRSC staff may receive training from their individual organisations, the lack of a standard industry-wide training curriculum results in (1) inconsistent terminology - staff come from different cultural, linguistic and professional backgrounds; (2) lack of understanding around alternative processes; and (3) gaps in knowledge – especially for people who have been 'trained on the job' in a single specialisation. As interventions become more complex, the skillsets needed by DRSC professionals will grow, as will the need to quickly train new staff. Smaller organisations often do not have the internal resources to conduct the necessary training. Without a formal curriculum, lessons learned from past operations may be of value to an organisation, but have no way to inform the whole industry or DRSC professionals.	Develop **standardized training curricula** to professionalize DRSC staff
Organisations can find it difficult to retain and replace qualified staff, and to entice experienced staff from the commercial sector to cross to the humanitarian sector. Barriers to movement between organisations result in staff whose skillset is restricted to a single organisation's operations, risking becoming stagnant.	**Provide accreditation of supply-chain training** as a step toward providing clear career path options and increasing mobility

Renewal gap	Proposed Activity
Given the part-time nature of emergency response work, many of the trained, qualified, accredited professionals may not be available when the emergency occurs by the organisations responding it. Without a roster, it is impossible for organisations to identify and contact staff with the skills they need: The staff remain unemployed, and the organisations remain understaffed. As disasters multiply and extend, the demand for qualified staff will increase. As this will be exacerbated further with staff fatigue, having a roster allows organisations to rotate staff in a way that provides employment without risking burn-out.	**Develop a supply chain roster** to enable the identification of suitable qualified supply-chain professionals across a range of organisations, locations and specialisations.

2.3.4 Need for Optimization

Supply chain optimization involves continually seeking improvements in the efficiency, effectiveness and appropriateness of the DRSC *once it has been activated*. Good preparedness is a prerequisite, as (1) the knowledge gathered during preparedness activities informs optimization; and (2) preparedness leads to the initial DRSC more closely aligned to the context (much more so than a DRSC set up on the basis of *no* preliminary information), resulting in much smaller changes necessary to optimize the supply chain. In other words, better initial design and a better knowledge base result in fewer, and more effective, changes.

Gaps that have been identified in the current DRSC optimization process include:

Optimization gap	Proposed Activity
The DRSC does not make the best use of available resources and is impacted by shocks. It runs the risk of interfering with local markets, and may not meet the needs of the beneficiaries in the most appropriate way possible	Continually **optimize the DRSC**, ensuring it is both fit-for-purpose and contributes to marketplace resilience
Lack of visibility leads to confusion and concern by the government and other DRSC participants, eroding confidence in the operation and trust in the lead organisation. Poor visibility makes prioritization of relief items difficult to achieve.	Ensure the **supply chain activities are visible** to all partners & the government through commodity tracking This is closely linked to the ***Renewal*** activities of "*Development of information sharing & coordination tools*" and "*Develop industry-wide standard KPIs*".
In-country NGOs, with access to populations and local context knowledge, are not being utilized in response operations. They remain in country after the international organisations leave, and have the potential to support the recovery phase. Not using local NGOs makes the disaster response less 'owned' by thepopulation, and denies the opportunity to build experience and resilience in those organisations	**Coordinate with in-country NGOs** to assist with requirement & market assessments, and commodity tracking This is the counterpart to the ***Preparedness*** activity "*Strengthening in-country NGOs*"
Not taking advantage of CLS can lead to loss of economies of scale, underutilized transport services, increased competition for local resources and slower procurement.	Encourage wider use of **Common Logistics Services** **Ensure CLSs are constantly reviewed to ensure they are fit for purpose**

Optimization gap	Proposed Activity
In-country supply chain partners are not being fully utilized, leading to response efforts duplicating existing systems, and in fact, interfering with a functioning marketplace.	Prioritize use of **in-country commercial supply chains** and private-sector partners. This is the counterpart to the ***Preparedness*** activity "*Understand the in-country commercial supply-chain operators*"
If key government departments are not central to optimization plans, bottlenecks can occur. Improving the supply chain upstream and downstream of customs, for example, will be of little value if goods cannot pass quickly through customs processes	**Work with Government decision makers and technical experts** (such as customs) to implement emergency response plan This is the counterpart to the ***Preparedness*** activity "*Strengthen key government departments*"
What is the gap that the *Market Based Responses* activity is aiming to close?	Facilitate market based responses ***More information needed***
Provision of in-kind relief can interfere with functioning marketplace, and denies beneficiaries the option to control their own purchases. When based on a solid understanding of the local marketplace, cash transfers rather than commodity-based assistance (or an appropriate mix of the two) offer many advantages.	Use of Cash Transfers (where appropriate) This is closely linked to the ***Preparedness*** activity "*Understand the in-country commercial supply-chain operators and marketplace*"

2.4 What Next

In the face of the challenges facing the humanitarian sector – climate change, pandemics, increasingly stretched funding – the DRSC must urgently address the gaps listed here. While the Logistics cluster is in an ideal position to lead many of these initiatives, it will only succeed with the cooperation of the entire humanitarian sector. The following chapter examine three prerequisites that need to be satisfied, before many of the above activities, that are further elaborated in chapter 4, can be addressed.

The final chapter brings the discussion back to the aim of the World Humanitarian Summit, and looks at how the activities can have a positive impact on populations affected by disaster.

3. Prerequisites

Before the gaps outlined in the previous chapter can be addressed, three prerequisites first need to be satisfied:

3.1 Funding Structures

The disaster-response supply chain community requires **donors to provide funding structured toward preparedness.**

DETAILS OF FUNDING STRUCTURES NEEDED.

The Logistics Cluster, is not a legal entity, and can only receive and disburse funds via WFP. Current funding structures do not provide for preparedness and capacity development activities, as cluster is only granted funds in an emergency. For example, prior to the 2015 Nepal earthquake, a prepositioning site had been prepared at Kathmandu airport. The DFID funding supporting this initiative had to be channelled through WFP.

3.2 Closer Donor & Supply Chain relationship

As 60% of a disaster-response budget is directed toward the supply chain, there needs to be a stronger relationship between the DRSC community and donors – essentially, the DRSC is the donors' biggest customer.

Strengthen the relationship between donors and key humanitarian supply chains actors. Ending the 'siloisation' between those granting funds and those using them, and more closely working together allows both sides to explore avenues for added-value and synergies that may otherwise not be visible.

MORE INFORMATION NEEDED

3.3 Tighter integration between supply-chain functions within an organisation

Transforming a donation into tangible beneficiary support involves planning, sourcing and delivering goods (or cash transfers). Within many organisations, these activities are spread across a range of internal functions: Programme looks at planning (and requirements analysis); Procurement sources and purchases the commodities; and Logistics responsible for the physical transport. Analysing beneficiary requirements lies with Programme, whereas analysing the markets that potentially support those beneficiaries lies with Logistics.

This segregation of duties, while seemingly logical, in fact results in important opportunities being missed. Planning activities, for example, suffer from not having clear visibility on infrastructure and customs constraints that may be imposed during an emergency.

Bringing Programme, Procurement and Logistics into closer alignment provides Logistics with full visibility of initial assessment and response design[14], and allows Programme to incorporate supply chain-oriented risks, constraints (infrastructure, Customs) and opportunities (around sourcing, transport and customs) – creating a supply chain that is robustness, cost-effective, effective and efficient. Considering Logistics as a programmatic function also allows opportunities for a disaster-response supply chain to 'piggy-back' onto existing structures, minimising disruption & duplication with regular programme activities.

When considering fine-tuning a supply chain to its context, tighter integration between Logistics and Programme is especially important, as *every* aspect of a supply chain may hold opportunities

for optimisation. For instance, an organisation may review its delivery networks, recalibrating more suitable locations for warehouses and optimal transport routes. This, in turn, can reduce lead times, generate cost savings and lead to a more reliable supply chain. It is only by looking end-to-end within the supply chain that true potential for optimisation can be unlocked.

A unified, coordinated and collaborative supply chain requires all participants to have a clear and complete understanding of the broader picture, with coordinated needs assessments and more effective planning.

Involving experienced supply chain staff in formulating cash/in-kind assistance offers direct benefits to the affected population, facilitating interventions that:

- are sensitive to the local context and risks
- take advantage of the local market (optimized) and are able to respond quickly to shocks (agile)
- are better for the livelihoods of the affected population – during and following an intervention.

Maintaining a monitoring presence by supply-chain staff can also provide early warning of potential risks that may not otherwise be captured

4. Proposed Activities

Chapter 2 explored how the DRSC must evolve if it is to respond to future crises and remain effective, and Chapter 3 has explained the three prerequisites that need to be met in order for the DRSC to take the next steps.

This chapter looks in detail at the activities necessary to address the gaps that have been identified, and links the activities to achieving four measurable targets:

- **Market Resilience**: Can the activity identify the tipping point (the point at which the market will collapse), and what does the activity to stop it reaching that point?
- **Effectiveness**: Does the activity improve the DRSC's ability to reach the targeted population, with aid that is appropriate to their needs, on a predictable schedule, and without interfering with the local marketplace? *To be effective, the delivered aid must also address the principles of safety and dignity for the affected population*.
- **Efficiency**: Does the activity contribute to faster distribution of assistance at the start of, and throughout an emergency response?
- **Cost-Effectiveness**: Does the activity contribute to effective and efficient aid-delivery in a way that saves money?

The final chapter looks at the five principles (dignity, safety, resilience, partnerships and finance) that have been set by the World Humanitarian Summit to guide humanitarian interventions in the future. It explores how these five principles are addressed by the activities and targets of the DRSC.

4.1 Preparedness

Adequate ***preparedness*** is the key to *improve the timeliness and appropriateness of delivery of life-saving aid to an affected population*, and offers considerable cost-saving potential, with estimates that every dollar invested in preparedness and risk reduction generates between USD 3 and USD 5 in savings.[15] Since 2005, preparedness has been the focus when identifying ways to improve a disaster response:

- The 2005 Humanitarian Response Review concluded that a shortage of logistics experts in the field, predominantly manual supply chain processes, inadequate logistics assessments and planning and limited collaboration and coordination all contributed to a less-than-satisfactory response.
- In 2014, Valerie Amos, the UN's former Under-Secretary-General and Emergency Relief Coordinator, noted that lessons yet to be implemented include "*the importance of improving emergency preparedness, disaster mitigation and early warning to save lives; the need for communities to participate fully in every stage of a response; the merit of aligning emergency humanitarian assistance with long-term recovery efforts; and the value of getting coordination and partnerships right*" [16].
  The 2014 MSF report, "Where is Everyone?"[17] identified logistical issues as one of the two[18] main factors inhibiting an efficient international response, concluding that "*greater investment needs to be made in building better (… human resource and logistical) systems for responding, in order to improve preparedness, reactivity and effectiveness*".

4.1.1 Preparedness through Information Gathering

The foundation of preparedness is information. The activities here gather and analyse, to be used both in developing response plans, to be available to inform operations should a disaster be declared:

P-1. Conduct **risk analysis** of *where* emergencies are likely to occur, and *what form(s)* it is likely to take (natural disaster, pandemic, conflict, etc.), and develop a range of response plans based upon possible disaster scenarios. As it is not possible to instantly conduct all preparedness activities in all countries, this activity (1) identifies at-risk countries or regions; and (2) allows the high-risk areas – and quick-intervention activities – to be prioritized. The priorities set out by the risk analysis drive all other preparedness activities, allowing for a more considered distribution of resources.

P-2. Collect *and maintain* information on **in-country supply chain-related infrastructure**, including mapping supply sources, transport routes, warehousing sites and potential distribution points. This information gathering feeds back into the risks analysis, and essential for the development realistic response plans.

P-3. Map **up-stream commercial supply chains and in-country marketplaces** to provide better visibility before, approaching and during a disaster. Mapping the suppliers of essential disaster-response commodities, transporter capacity, port infrastructure and key internal routes within a country allows better decision making around whether to import commodities or source locally, whether to employ cash, in-kind or mixed assistance. Risk assessments around the possibility of corruption or market-place profiteering (in response to the 'free' money suddenly available) should be conducted as part of this exercise.

Framework agreements with key vendors can be put into place at this point to ensure supply availability and lead-times. This then feeds back into the risk analysis.

P-4. Ensure optimization with the **Health supply chain**. Supply chains transporting health items, while largely similar to those transporting food and non-food items, have some critical differences (these include difficulties in transporting highly fragile equipment or vials; drugs requiring cold-chain support, with a short-shelf life, or with a high black-market street value; and complexities obtaining the necessary import permits). When examining response plans where both supply chains may be necessary, it is important to understand the overlaps and differences of the two systems, to take advantage of any synergies, and to optimize wherever possible.

4.1.2 Preparedness through Capacity Development

Developing the capacity of key partners within the government, civil protection bodies local NGOs and private supply chain operators can reduce the impact of a disaster upon in-country systems, and is essential to ensuring recovery can commence quickly:

P-5. Develop regional networks ADDITIONAL INPUT NEEDED

P-6. **Strengthen government capacity**, focusing on key departments likely to be involved in disaster response activities (Customs, Civil Aviation Authority, and the National Disaster Management Office). Assist these offices with developing of Disaster Risk Response plans and Standard Operating Procedures, providing staff training and conducting disaster simulations. The development of pre-approved customs plans is critical. An

important side-benefit from this activity is development of professional relationships between supply chain and government personnel, essential in a disaster response.

P-7. **Strengthen civil protection bodies,** as they are likely to be the first responders in an emergency, through training and disaster simulations.

P-8. Work with **in-country NGOs**, strengthening their capacity where necessary. Where an INGO has an existing relationship with the in-country NGOs, other organisations may consider working through the INGO.

P-9. Work with **in-country commercial supply chain partners**, to understand current capacity (both tonnage and staff), and the practical constraints they face – both infrastructure (to feed back into the country assessments), and government (difficulties with importing cargo, for example, to feed back into government strengthening). *This information is essential to planning disaster responses that facilitate marketplace resilience*.

More information on Institutional Preparedness can be found in "***Appendix D - Institutional Preparedness***", page 43.

4.1.3 Preparedness through Prepositioning

P-10. Build, maintain, stock and staff **prepositioning staging areas** to enable rapid response immediately following a disaster. These facilities, either built in-country or at a regional location, can be stocked with equipment and non-perishable relief items. As this activity incurs considerable expense, to be cost-effective the location and type of prepositioning site relies heavily upon accurate risk analysis results, and should be in response to a specific risk profile rather than a generalised solution.

As prepositioning is undertaken in response to a risk profile, the possibility remains that the risk will not eventuate, and the prepositioning site and equipment will not be used in an emergency response. For this reason, is is important to consider ways to make a prepositioning worthwhile, even in the event no disaster is ever declared. For example, it offers the opportunity to strengthen government and NGOs through on-site training and simulation exercises.

4.1.4 Achieving the DRSC Targets through Preparedness

These activities …	… improve the supply chain by …	… benefiting aid-recipients by …
Market Resilience		
P-1) Risk analysis P-2) Map infrastructure P-3) Map commercial supply chains & markets	Response plans can be developed based a deep understanding of the potential needs of a population at risk, their local marketplace and its supporting supply chains.	More appropriate aid
P-9) Strengthen commercial supply chain	reduces the impact of shocks should a disaster occurs.	Less need for an emergency intervention, or less widespread
P-3) Map commercial supply chains & markets	An appropriate mix of in-kind and cash donations is provided, and that local supply chains are utilized for response activities.	Aid more suited to needs Aid more suited to market conditions Support job & livelihood creation

These activities …	… improve the supply chain by …	… benefiting aid-recipients by …
Effectiveness		
P-1) Risk analysis P-2) Map infrastructure P-10) Prepositioning	Understand risk profile of type of disaster likely to occur can mean that more appropriate equipment and relief goods are prepositioned or are quickly available	Aid arrives faster Aid is cheaper (not paying for unnecessary airlift)
P-2) Map infrastructure P-3) Map commercial supply chains & markets	understanding of in-country infrastructure allows appropriate transportation means for distribution to be determined	Faster aid delivery Better use of in-country resources
P-2) Map infrastructure P-3) Map commercial supply chains & markets	Determine appropriate aid modality based on market capacity	Appropriate aid
P-7) Strengthen civil protection bodies, P-8) Strengthen NGOs	aid reached the populations most in need, regional differences are understood, assistance is appropriate	Faster aid delivery Lesser sense of foreigners taking over
Efficiency		
P-6) Strengthen government capacity	remove bottlenecks, allowing incoming cargo to be processed far more quickly.	Faster aid delivery
P-2) Map infrastructure P-3) Map commercial supply chains & markets	understanding the country's infrastructure – airports, ports and roads – results in goods arriving in country faster, from a wider range of ports. Distribution routes pre-designed	Faster aid delivery
P-4) Optimization with the Health supply chain	Less duplication of resources	Faster aid delivery
P-10) Prepositioning	Stocks are on hand, even if port infrastructure has been compromised	Faster aid delivery More reliable delivery
Cost-Effectiveness		
P-1) Risk analysis P-2) Map infrastructure P-3) Map commercial supply chains & markets	The development of response plans well before a disaster strikes means that the initial response can be highly targeted in the skills and equipment needed, rather than taking an 'all-bases-covered' approach.	Savings can be allocated elsewhere
P-10) Prepositioning	Prepositioned goods can result in transport saving, avoiding the need for expensive airlifts	Savings can be allocated elsewhere

4.2 Renewal

While preparedness targets specific disaster risks before they happen, **renewal** takes a longer, broader viewpoint, aiming to prepares the DRSC for challenges facing the humanitarian community as a whole. Renewal can be broken into two subcategories – Information Resources and Human Resources:

4.2.1 Renewal of Information Resources

Information is highly dependant upon technology. To keep pace with changes, continuous development of standards and tools is needed.

R-1. Establish a **DRSC research facility**: Increasingly complex disaster responses requires increasingly innovative approaches. A dedicated DRSC research facility can accelerate the exploration of new practices, technologies and paradigms, with the aim of (1) seeking improvements in the four DRSC criteria, and (2) improving ways of *measuring these criteria* (see KPIs below). To be effective, the research facility will need to mainstream successful research results into the mainstream DRSC through training and through direct interaction with relevant stakeholders – whether aid agencies, donors, governments or others.

Many of the renewal activities listed below would benefit from being housed in a research facility. Other examples, not listed below, include: incorporating best practices

from the private or military sectors; investigate "lessons learned" documents from previous operations; undertake operations research (a discipline dealing with the application of advanced analytical methods to help make better decisions); harnessing new technologies; assess the impact of new humanitarian paradigms upon the supply chain (i.e., the advent of cash transfers); develop contingency plans to address potential threats (the risk of hacking attacks interrupting communication systems, for example); and explore ways to better forecast beneficiary numbers through enhancing existing techniques (vulnerability assessment and mapping, historical data) and investigating newer technological options (big data analysis, mobile telephony metadata).

R-2. Define **industry-wide standardised Key Performance Indicators** (KPIs) to facilitate consistent performance measurements allowing quantitative performance comparisons (between organisations, between interventions, and between geographical areas), and through this, identifying areas for improvement. To be of use, the KPIs must be (1) agreed to prior to an emergency (and cannot be changed to 'hide' poor performance) and known to all stakeholders ahead of time; and (2) constant across events, countries and organisations.

The KPIs should indicate progress (or regression) in areas where the DRSC wishes to seek improvements. For example, in the four criteria of Market Resilience, Effectiveness, Efficiency and Cost-Effectiveness.

Research into potential KPIs, and seeking consensus seeking around their implementation through an independent research facility removes the risk that the KPIs favour one stakeholder over others. Placing this task within the Logistics Cluster, for example, leaves the KPIs exposed to accusations that they favour the lead agency.

R-3. Define and develop **common data-exchange standards**, to facilitate direct communication between the electronic commodity management systems of different organisations. *This should not this should not be confused with connecting the computer systems of different organisations together*: common data-exchange standards allows the exchange of discreet files (by email, for example), that can then be read and understood by the other organisation's computers – they *do not* rely upon two computer systems 'talking' to each other.

At its most basic level, common data-exchange standards involves, for example, clearly defining the units of measure to be used - ensuring all organisations report *volume* in cubic centimetres, say, rather than cubic metres or cubic inches.

Housing the study and definition of common data-exchange standards in a research facility, and seeking expertise from the International Standards Organisation (ISO), ensures that standards are independent of individual organisations, and are not dependant upon a single organisation continually funding the activity (data-exchange standards will evolve as technologies and tools change).

More information on standardised KPIs and common data-exchange standards can be found in "***Appendix H - Implementing Industry Standards***", page 59.

R-4. Develop and maintain **Information Sharing & Coordination tools** to simplify the communication of information between individuals. Information management is the lifeblood of an efficient emergency response (the Logistics Capacity Assessments and the Logistics Cluster website are current examples). Coordination tools require

continuous development if they are to remain effective in a changing technological and disaster-response environment.

Information Sharing & Coordination tools should not be confused with common data-exchange standards: the former facilitates people communicating, and the latter facilitates computer communication. Defining and enforcing common data-exchange standards*, however, does strongly contribute to* Information Sharing & Coordination tools *publishing clear, unambiguous, timely material.*

There are strong advantages to individual organisations developing and maintaining their own tools – *provided they are based on the* standardised KPIs *and* common data-exchange standards *outlined above*. These tools usually require significant software development – an expensive and time-consuming process. As the primary means of communication with the humanitarian community, these tools are highly visibility, and closely tied to the organisation producing them (as per the Logistics Cluster website).

4.2.2 Renewal of Human Resources

As disasters occur at unpredictable intervals – there could be six in a year, or none – it is not possible for organisations to continually maintain the high levels of staff needed to respond to an emergency. DRSC staffing, then, is characterised by the rapid hiring of large numbers of staff at the outset, to be released once the intervention is completed. Large numbers of people must (1) quickly come together; (2) have compatible skillsets; and (3) be able to communicate clearly – all within the midst of chaos and confusion.

This creates a unique problem for the DRSC. The complexity and breadth of the tasks supply chain professionals need to undertake during a disaster response, combined with the lack of a clear career-path can make it difficult to train, retain (across emergencies) and locate (at the start of an emergency) staff. The activities below target supply-chain staff in permanent employment, those employed on a per-emergency basis, and those coming from the private sector.

R-5. Develop a **standardised training curriculum**, accepted and used industry-wide. As interventions become more complex, the demands upon DRSC professionals is extending beyond simple transportation of commodities. Market analysis skills, for example, are needed to ensure aid delivery is appropriate, and to design supply chains that facilitate market resilience. While practical training (see below) and on-the-job experience will always be essential, these increasingly need to be supported by formal training.

While a number of institutions currently offer their own highly respected training programmes – including the Fritz Institute / CILT(UK), INSEAD (UK), Georgia Tech (US), Lugano (Switzerland) and the Kuehne Foundation (Germany) – there is value in developing a training curriculum that is standardised across the industry. Reflecting the large number and diversity of organisations involved in an emergency response, supply chain staff hail from many different cultural, linguistic and professional backgrounds. A common training curriculum ensures *sector-wide competencies and standard [technical] language*[19] are used by staff, ensuring that they are better equipped as supply chain professionals[20]. Standardised training also provides a way for new practices and tools – possibly developed by the research facility – to become embedded in daily practice.

Expand upon the commercially backed initiatives like the Logistics Emergencies Team (LET)[21] programme that enables commercial[22] logisticians to gain disaster-response

experience through company-backed secondments.

R-6. Develop **practical national & regional training** to complement the theoretical standardised training (above). The Logistics Cluster's *Logistics Response Training* offers practical disaster-response simulations, bringing together participants from diverse organisations. BioForce and the Fritz Institute also provide training. In addition to the training content, the professional networks developed by participants have proved invaluable in later emergency-response operations, with greater cohesion across organisations, and compatible SOPs and standardized framework.

R-7. Establish **formal certification for supply-chain professionals** (*is this certification for training courses take, or for on-the-job experiences or both?*): The lack of a career path can be a disincentive for commercial supply-chain mangers wishing to join the humanitarian community, and can make retention of experienced humanitarian supply chain managers difficult. Formulating a standard accreditation system, accepted industry wide gives staff the ability to move between the commercial and humanitarian sectors, providing valuable 'cross-pollination', and simplifies employers' search for suitable qualified staff.

R-8. Develop and maintain **a supply chain roster**: The development, and maintenance, of a roster of qualified supply-chain professionals across a range of organisations, locations and specialisations is an important step toward maximising this limited resource. Given the part-time nature of emergency response work, many of the trained, qualified professionals may not be employed by responding organisations at the outset of the emergency. Maintaining a roster allows staff with the desired specialisations to be quickly identified, contacted and deployed. A roster can also contribute to alleviating staff fatigue, as new human resources, beyond those known to an organisation, can be deployed.

More information on Human Resource Renewal can be found in "***Appendix E - Professionalization of the Supply Chain***", page 47.

4.2.3 Achieving the DRSC Targets through Renewal

- *The advantages to the DRSC from* establishing a research facility *are not listed against the parameters below, as the benefit afforded and parameter targeted will depend upon the specific research being undertaken.*
- *The indicators developed in the "*industry-wide standardised KPIs*" activity should contribute the the measurement of the parameters below. The advantages shown below indicate how the supply chain can be improved if the KPIs are used effectively.*

These activities …	… improve the supply chain by …	… benefiting aid-recipients by …
Market Resilience		
R-2) KPIs	Marketplace activity KPIs can highlight areas where an intervention is interfering with market activity.	Less risk of market interference
R-5) Standardised training	A standardised training curriculum, with a strong focus on market resilience ensures that DRSC staff provide marketplace-friendly assistance	Better market resilience

These activities …	… improve the supply chain by …	… benefiting aid-recipients by …
Effectiveness		
R-2) KPIs	Effectiveness KPIs can indicate if a targeted population is receiving too much or too little assistance, or if the mode of assistance is incorrect.	Better coverage More appropriate aid
R-2) KPIs	Knowing from the outset that actions will be measured (through KPIs) can encourage better processes	Better service
R-2) KPIs	Empirical measurements (KPIs) can quickly highlight areas for improvement	Faster resolution of problems
R-2) KPIs	Encourages donors to focus funding on those organisations that have a better track-record (based on the KPIs)	Receive aid from proven aid organisations
R-4) Information Sharing & Coordination tools	Information Sharing & Coordination tools are key to ensuring populations do not receive duplicated support, and in ensuring no gaps in coverage occur	Better coverage Faster identification of problem areas
R-5) Standardised training R-6) Practical training R-7) Formal certification	Better trained staff, both through theoretical and practical coursework, will be better positioned to ensure DRSC effectiveness.	Better service
R-6) Practical training	Staff from different organisations (and from government) that have received practical training together can make use of training content and professional networks	Faster response Faster resolution of problems
R-7) Formal certification	Staff certification helps attract and retain qualified staff, capable of running a better operation	Faster response Faster resolution of problems
Efficiency		
R-2) KPIs	Efficiency KPIs can track the speed with which commodities are reaching beneficiaries. Examples include measuring the throughput of a port, comparing volume entering at a warehouse to volume exiting	Faster identification & resolution of problems
R-2) KPIs R-3) Common data-exchange standards R-4) Information Sharing & Coordination tools R-5) Standardised training	Common data-exchange standards can speed the movement of commodities by reducing the time lost in missing, incorrect or misunderstood data. A common occurrence in emergencies is individuals submitting transport requests in cubic inches rather than cubic metres. These take time to trace and resolve, impacting transport queues	Faster aid delivery Fewer mistakes
R-4) Information Sharing & Coordination tools	Information Sharing can highlight areas that have not received aid, enabling this to be increased in priority	Faster identification & resolution of problems
R-5) Standardised training R-6) Practical training R-7) Formal certification	Better trained staff means less mistakes and faster response times	Faster aid delivery Fewer mistakes
R-6) Practical training	The networks and common technical language developed through joint practical training can ensure miscommunication is minimised and personalities do not interfere with service provision	Faster service
R-7) Formal certification	Staff certification helps attract and retain qualified staff, capable of running a more efficient operation	Faster response Faster resolution of problems
R-8) Roster	Maintaining a supply chain roster helps identify key staff and have them on the ground sooner	Faster response
Cost-Effectiveness		
R-2) KPIs	KPIs to measure cost-effectiveness will need to first determine an appropriate 'measuring post'.	Faster identification & resolution of problems

These activities …	… improve the supply chain by …	… benefiting aid-recipients by …
R-3) Common data-exchange standards R-4) Information Sharing & Coordination tools	Information Sharing assists cost-effectiveness by making sure transport and storage resources are being fully utilised. Under-utilized assets can be moved to locations more in need	
R-5) Standardised training R-6) Practical training	Better trained staff making less mistakes means a more efficient use of resources	

4.3 Optimization

A planned, rather than reactive, supply chain will save money & time, cope better with shocks, and be more appropriate to the needs of the population. Planning it requires gathering quality information. Executing it in a way that builds market resilience and embeds recovery from the very start requires having in place government, civil protection, NGO and commercial actors of sufficient capacity and preparation.

4.3.1 Optimization Activities

O-1. Implement **DRSC that are fit-for-purpose** by being fine-tuned to known market conditions (*optimised*), able to respond quickly to shocks (*agile*); and adapted of the needs of the beneficiaries and the ability of the local supply chain (*appropriate*).

More information on supply chain optimization can be found in "***Appendix F - Agile, Optimised Supply-chains***", page 51.

*This activity is supported through activities **P-2** (information gathering), **P-3** (mapping up-stream supply chains), **P-4** (optimizing with health supply chains) and **P-9** (working with in-country supply chain partners). KPIs (activity **R-2**) can help identify shortcomings in the supply chain, to be addressed by suitable qualified staff (activities **R-5** and **R-6**).*

O-2. Where appropriate, implementing **Cash Transfers** offers significant advantages over in-kind assistance to both beneficiaries and the the organisations supporting them. Cash transfers provide recipients with greater autonomy and can be 'delivered' quickly and on-time. For aid organisations, cash transfers are much cheaper to handle, incurring minimal transaction costs and requiring no investment in transport infrastructure/services. Cash transfers also play a vital role in fostering market resilience, with recipients spending the money in local markets, increasing economic activity and employment, feeding into the local supply chain. This is known as the *multiplier effect*.[23]

To be useful to recipients and viable in the markets, however, it is essential that the market and supply chain's ability to absorb[24] the extra demand is continuously monitored both before and during the crisis. It may be necessary, for example, to commence support with commodity-based support, before gradually shifting to cash-based support as markets heal.

A more detailed discussion around the opportunities and risks posed by cash transfers is in "***Appendix G - Provision of Cash Vs In-Kind Assistance***", page 54.

*This activity is supported through activities **P-3** (mapping up-stream supply chains) and **P-9** (working with in-country supply chain partners).*

O-3. Ensure the **supply chain activities are visible to all partners & the government** through commodity tracking and reporting local vs global procurement. This builds trust with the government, and between organisations responding to an organisation.

*This activity is supported through activity **R-4** (information sharing & coordination), which is assisted, in turn by **R-3** (common data-exchange standards).*

O-4. Improve coordination with those **in-country NGOs** to assist with downstream requirement and market assessments, and the tracking of relief commodities.

*This activity is supported through activities **P-8** (strengthen in-country NGOs), **P-3** (mapping up-stream supply chains) and **P-9** (working with in-country supply chain partners).*

O-5. Encourage the use of **Common Logistics Services** wherever appropriate, to achieve economies of scale, expedite procurement, and reduce competition for local resources.

*Determining appropriateness is supported through activities **P-2** (information gathering), **P-3** (mapping up-stream supply chains) and **P-9** (working with in-country supply chain partners).*

O-6. Prioritize **in-country commercial supply chains** and private-sector partners, where appropriate, to promote local market resilience. Appropriate use of local resources is an essential element in (re)developing local supply chain resilience, and will depend heavily upon accurate resource-mapping information, gathered before and during the disaster response, as well as the partnerships developed as part of institutional strengthening.

*Determining appropriateness is supported through activities **P-2** (information gathering), **P-3** (mapping up-stream supply chains) and **P-9** (working with in-country supply chain partners).*

O-7. Building upon the preparedness activities, **work with Customs** to implement the agreed-to emergency response plan, and to enact standard import-export and duty agreements.

*This activity is supported through activity **P-6** (strengthen government).*

4.3.2 Achieving the DRSC Targets through Optimization

These activities …	… improve the supply chain by …	… benefiting aid-recipients by …
Market Resilience		
	Use of appropriate interventions can avoid overstressing distressed markets through the distribution of in-kind commodities, or can encourage economic activity in markets that can support it through cash assistance	
	'Leading by example' can build capacity of local supply chain actors to withstand shocks	
Effectiveness		
	Pre-disaster planning and constant attention to changes that may impact the supply chain allow	
Efficiency		
	Efficiency KPIs can track the speed with which commodities are reaching beneficiaries. Examples include measuring the throughput of a port, comparing volume entering at a warehouse to volume exiting	

These activities …	… improve the supply chain by …	… benefiting aid-recipients by …
Cost-Effectiveness		
	Better trained staff making less mistakes means a more efficient use of resources	

5. What Price is Right: How does this benefit the affected population?

The World Humanitarian Summit defined principles to guide humanitarian intervention: Dignity, Safety, Resilience, Partnerships and Finance. This chapter takes the activities and the DRSC Targets, and links them to the WHS principles to explore they might benefit affected populations.

It is important to first understand how, in the specific context of supply chains within a disaster –response context, the linkage between the DRSC Targets (and the underlying activities that contribute them) and the five principles for humanitarian development:

- Ensuring the **dignity** and **safety** of the affected population is the raison d'être of the humanitarian sector. Dignity and safety are addressed in the DRSC through the provision of efficient (fast and timely), effective (appropriate and useful) and cost-effective (cost savings allow greater beneficiary coverage).
- **Resilience** has been singled out as a DRSC Target, as it requires (1) revising the current approach to DRSC implementation; and (2) developing and applying deliberate actions and methodologies.
- **Partnerships** – specifically localization – is addressed by the DRSC through activities that make greater use of local supply-chain partners, and through provision of aid in a way that encourages market activity. Unlike *resilience*, *partnerships*, within the context of the DRSC, is a means through which *resilience* can be achieved.
- The activities outlined in this paper address two aspects of the **finance** principle – *transaction costs* (through seeking out cost-efficiencies) and direct funding to local organizations (through employing the use of local supply chain partners wherever possible). As with partnerships, the final aim of the DRSC is not to finance local organisations. It does, however, use finance as a preferred tool, to help achieve resilience.

  Note: It is possible, however, that these two aspects may come into conflict: Transaction costs may be higher, for example, when using local partners rather, say, importing supplies through UNHRD. In this example, a decision will have to be made, then whether to foster resilience thorough the use of local suppliers, or to save costs (and possibly increase beneficiary coverage) and import through UNHRD.

THIS SECTION IS STILL IN PROGRESS, AND IS PENDING LINKING TO THE TABLES IN CHAPTER 4

5.1 Dignity

People at the centre of humanitarian action, increased cash-based assistance, and accountability to affected people

- Provision of aid that is appropriate to the recipient needs and market conditions
  - Implementing cash payments where sufficient and appropriate items are available at reasonable prices, gives the recipient volition and autonomy
  - Providing in-kind assistance when essential commodities not available on the market ensures recipients do not need to barter household items
  - Providing assistance on a regular schedule allows recipients to budget their requirements, and no not need to sell household assets to bridge the gap

- Assistance reaching the recipient sooner after first onset avoids the need to sell household goods (or worse) to survive
- Providing assistance in manner that encourages market activity and uses local supply chain partners creates jobs and livelihoods
- Achieving DRSC cost-savings allows more people to receive assistance, or provides for more frequent deliveries, or funds a larger basket of relief items

5.2 Safety

Protection and International Humanitarian Law

- Supply chains prepared ahead of time allow faster response after first onset, providing critical health, shelter, water and food in the early days of a crisis
- Knowledge of in-country provides for more appropriate relief items; distribution is organised in such a way that people, esp. women and children need not walk long distances with heavy weight; no fighting or attacks possible during distributions; etc.
- ADDITIONAL BENEFITS?
- Safety is addressed through rapid response at the emergency outset by suitably trained supply-chain professionals, ensuring urgent provisions, appropriate to culture and context are supplied in a manner appropriate to context.
-

5.3 Resilience

Protracted crises, bridging the humanitarian-development gap, DRR, social protection, refugee hosting deal, durable solutions; Response must feed into resilience of the country

- Household resilience through not having to sell household items.
- Economic resilience through (1) reducing impact upon local supply chain when providing in-kind; and (2) building up local supply chain through cash (& multiplier effect); (3) use of local assets when responding
- Livelihoods quickly restored by providing appropriate and timely items
- ADDITIONAL BENEFITS?

5.4 Partnerships

Humanitarian principles, localization, subsidiarity, and innovation

- ADDITIONAL BENEFITS?

5.5 Finance

Closing the funding gap, transaction costs, direct funding to local organizations

- ADDITIONAL BENEFITS?

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Appendix B - Common Logistics Services

B.1 Benefits & importance to emergencies

A coordinated response maximises the use of available assets; reduces competition for scarce assets; avoids duplication of work; avoids affected countries being overwhelmed by a high number of actors and uncoordinated relief items arriving to their countries; and enables impartial prioritization of which relief items are called forward first.

Common Logistics Services (CLS) improves the effectiveness and efficiency of the humanitarian response in emergencies through:

1. Increased coordination and collaboration among actors and their individual responses in emergencies. The mere sharing of available resources can enhance coordination between humanitarian actors during the response and if one or a few entities takes responsibility for some of the key common logistics services, the government and relevant disaster management authority in the affected country have a clear point of liaison in the humanitarian community for logistics. This has the potential for improved relationships, partnerships and cooperation, and enables prioritization of the most urgent relief items first, thereby improving the operation and response.
2. Avoid duplication of efforts and unnecessary competition between relief actors. Through acting jointly humanitarian actors can improve the utilisation of scarce logistics assets and reduce the risk of driving up the costs of the response due to competition for scarce resources. Improved utilisation of assets can again reduce the burden and improve efficiency in existing infrastructure of the affected country.
3. strengthen the core work of humanitarian organisations, in particular smaller organisations that do not have the capacity or resources to respond to the scale required by the context. The financial implications of an emergency can be vast and with an increasing number of emergencies and funding is often limited or delayed. By enabling an increasing number of members of the humanitarian community to deliver lifesaving cargo, implementing common logistics services plays a vital role in a humanitarian response to an emergency. This can have the most impact for those especially hard to reach affected populations at risk of not being reached due the extremely high costs of logistics operations to reach these places, e.g. the need to deploy air assets to access pockets cut off due to bad or damage infrastructure or fighting. The cost of logistics to reach these vulnerable people would normally be too high for most organizations to do alone and only through common services providing support for multiple mission statements and commodity types would goods and support be able to reach these areas. At the same time, common logistics services can free financial and human resources for user organizations to focus on their main area of competence. Common services is not only about sharing assets but also about sharing staff. This is not only to avoid overlapping, but in many humanitarian contexts, security concerns make it desirable to reduce the number of staff in certain locations.

Every response is context specific, so too is the Common Logistics Service in an operation. There will not be a “one solution fits all.” The humanitarian community needs to focus on what can be influenced and changed, e.g. preparedness, standards, improved inter-operability. While we cannot control the nature of emergencies, we can control preparedness, having assets or systems for deployment of assets on stand-by, training, awareness, and partnerships.

B.2 Services & actors

Governments of affected countries should be the main responders in emergencies and meet the needs of their population. Many countries have set up strong systems to deal with emergencies through National Disaster Management Authorities that prepare and respond when an emergency strikes. In recent years, there has also been a strengthening of regional bodies[25] looking at how cooperation and response across borders can be improved. The international community's role is to support these governmental bodies. For large scale[26] emergencies, though, the international community of humanitarian responders may need to play a stronger role.

Examples of governments setting up common logistics services to ensure rapid and effective management of incoming relief items include:

- The Philippines government (Haiyan 2013) set up a customs and clearance one-stop-shop, where all national authorities involved in clearing incoming cargo work together in one common clearing house to speed up the through put at entry points, both reducing the risk of congestion at the airport and ensuring rapid onward delivery to people in need.
- The Nepalese government (prior to the 2015 earthquake), worked with WFP and the logistics cluster on a preparedness project, installing a humanitarian staging area at Kathmandu airport. When the 2015 earthquake struck, the hub was fully operational within 24 hours, receiving large amount of incoming relief items.

International organisations have established several common services, including:

- United Nations Joint Logistics Centre (UNJLC), later replaced with the Logistics Cluster for coordination, information exchange and provision of common services for its members. While the lead agency (WFP) is the Provider of Last Resort, responsible for overcoming jointly identified logistics bottlenecks, cluster partners may also provide common logistics services – World Vision(?) and Handicap International for example, established common storage hubs during the 2015 Vanuatu and Nepal responses.
- The United Nations Humanitarian Response Depot (UNHRD) offers a cost-effective way for organizations to preposition relief items in 6 depots around the world, and also facilitates joint charter flights in the beginning of an emergency.
- The United Nations Humanitarian Air Service (UNHAS) offers passenger service to humanitarian staff in areas when no reliable commercial alternative exists, enabling humanitarian actors to access people in need. Investing in a single common passenger service, through the UN, rather than multiple actors, also enables the investment in a core unit of experts that monitors and controls safety and security.
- Humanitarian Procurement Centres (HPC) are not-for-profit organisations that are specialised in the technical and commercial management of supplies and services, and offer this expertise to other organizations. This includes technical assistance in procurement or supply pre-established stocks, as well as purchasing or logistics capacity. IFRC Global Logistics Service, MSF Logistique, MSF Supply, OXFAM, UNHRD, UNICEF Supply Division and UNOPS are some examples of recognized HPCs.
- Bioport[27] offers humanitarian logistics support to NGOs, covering warehousing, kitting[28] and reconditioning. Bioport also offers multi-modal transport services.
- Handicap International offers its Logistics Platform project[29] which includes fleet management, warehousing, technical services and training.

The case study below illustrates how common logistics services can contribute towards a more effective and cost-efficient humanitarian response:

Case study:

In 2014, when Ebola-affected countries were at risk of isolation as commercial air and shipping companies altered or ceased their operation to the countries, the humanitarian community urgently needed to identify available air cargo capacity. Frequent air cargo transport to all the countries was required for small shipment of supplies and vaccines as soon as they became available. Few agencies had sufficient cargo to charger flights on a weekly basis, as most were sending shipments of less than 5 mt once or twice a week.

To support the humanitarian community in identifying available air cargo transport, the Air Coordination Cell (ACC) was established, hosted by UNICEF and supported by WFP staff for the Logistics Cluster. The ACC facilitated air-cargo consolidation through information sharing on available air capacity, by distributing daily updates to 171 humanitarian staff from 42 agencies. Three consolidation initiatives were shared with partners leading to total of 1144 mt of cargo being consolidated on UNICEF, Airlink and WFP flights.

To further facilitate common air transport, a Staging Area was established in Cologne, supported by UPS and the Cologne-Bonn airport, and staffed by the Logistics Cluster. The most important air consolidation opportunities were 10 flights offered by WFP as a Common Logistics Service and availed to the humanitarian community from Cologne. At least USD1.5m was saved, compared to the best commercial rates provided to the partner organisations. 40 organisations sent 932mt of relief materials with the flights, ranging from 49 kg to 36mt. More than half of the shipments weighed less than 5 mt and would have been at great risk for significant delay being delivered.

The potential of increased effectiveness and efficiency in air transport is even more evident considering that the 10 flights made up a very small portion of the total air transport to the Ebola affected countries.

Figure 1 – CLS (Air Transport) in the Ebola Response

B.2.1 ECHO

The European Commission's Humanitarian Aid and Civil Protection department (ECHO) funds logistics needs during emergencies to facilitate humanitarian relief reaching more people in need through partners. ECHO is a key funding partner in providing Common Logistics Services air transport services and directly provides transport service in certain regions through the ECHO Flight program. ECHO also builds logistics capacity for partners by funding initiatives such as warehouses, and guarantees logistics both indirectly in any funded action and directly through enhanced capacity funds, including projects oriented towards the professionalization of humanitarian logistics.

ECHO also supports operational areas, including:

- The Field Network whereby ECHO-hired logisticians facilitate ECHO wide logistics but support humanitarian logistics as well. Most recently visible during the Ebola Response.
- The European Union Civil Protection Mechanism (UCPM), which co-finances, together with participating states[30], the costs for transporting in-kind assistance provided by those states, upon the request of any country in the world. The UCPM legislation that came into effect at the beginning of 2014 also provides for the assistance requested by the United Nations and its agencies, or a relevant international organisation.

B.2.2 Emergency Response Coordination Centre (ERCC)

ECHO also set up the Emergency Response Coordination Centre (ERCC), designed to facilitate the coordination and quick response to disasters across the world using the resources of the UCPM. The ERCC enables the UCPM to avoid duplication in the response, and to coordinate financial and in-kind assistance from the UCPM's participating states. A logistics component, strongly related to civil protection actions, is facilitated through the efficient flow of information within the UCPM for the purpose of responding to requests for assistance.

The role of the ERCC has recently been enlarged. While civil protection activities remain under the UCPM, the ERCC has evolved to become a coordination hub, facilitating a cohesive European

response to emergencies across the world by promoting cooperation between civil protection and humanitarian aid. The ERCC has established links with a broad range of stakeholders both inside and outside the European Commission, including: the European External Action Service (EEAS), Commission services and crisis centres, the EU Military staff, OCHA, IHP, the Logistics Cluster and Civil Protection National Authorities.

The ERCC is responsible for:

- Collecting real-time information on disasters, monitors hazards and preparing plans for the deployment of resources, including experts, teams and equipment
- Working with member states to locate assets and coordinate the European disaster response efforts.
- The planning and implementation of civil protection and its logistics provision results in resource supply to disaster areas, in closer collaboration with other partners to ensure common logistics services and complete supply chain management

B.2.3 Military & Private sectors

Through the common logistics service actors, it is also possible to 'plug in' support from the private sector and, where appropriate, military logistics assets. The Logistics Cluster has formed a partnership with key logistics companies around the world, through the Logistics Emergency Teams[31] (LET). These companies contribute to the technical expertise to the Logistics Cluster members, as well as providing direct logistical support covering: shipping, air transport, customs assistance, warehousing, transport and technical personnel. DHL has a partnership with OCHA, outside the LET, that deploys Disaster Response Teams tasked with decongesting airports during the initial phase of an emergency.

At the start of a sudden-onset *natural* disaster, the Logistics Cluster will coordinate with military actors[32] to cover operational gaps.

B.3 Risks and challenges for CLS

A increasing reliance on common logistics services requires increasing investment if existing services are to be maintained and new services are to be added. Organisations providing services will need to increase both staff and staff capacities, and their systems will need to manage larger tasks. Funding modalities must be structured to avoid operations coming to halt because (1) common logistics services are insufficiently funded, and (2) organizations have relied too heavily on CLS and have not set aside enough funds for their own logistics.

Users of CLS must also be sure that prioritization is impartial and that all users have a voice.

B.4 What next for common services?

Familiarise the humanitarian community with concept of CLS and the benefits that can be gained from using shared services. Without awareness, organisations may be sceptical of allowing other agencies to transport/store their items, or may not know how to properly access the services available. It is vital to discuss and share information on Common Services available at humanitarian forums, bilaterally, and through greater information-sharing.

Emphasise provision of **Information Sharing** as a priority function: it is only through information sharing that resources can be effectively pooled, shared and coordinated. As CLSs play a role in **coordination** (as well facilitating the services they are providing) they should be open to the whole humanitarian community, adequately funded and needs to keep partners in good standing.

Familiarize government counterparts[33] with CLSs and to train them in the basics of humanitarian logistics, *as part of preparedness exercises*. **Engaging national and local networks** further is also needed to achieve the full potential of CLS.

Increase cooperative inter-organisational preparedness efforts, establish staging areas and pre-define potential coordination cells. International actors should increase **engagement with national governments** on preparedness measures, in order to develop a better understanding of what each party can contribute to emergency response, and to establish mechanisms to be quickly activated in emergencies. While the Logistics Capacity Assessments are a useful, existing tool, there is a need to go beyond assessment of logistics infrastructure and service providers, and move toward more joint planning and training.

Where limited logistics assets are available there needs to be a strong **confidence in the mechanisms for prioritizing**[34] the movement of relief items. The existing arrangement – where priorities are set by the Humanitarian Country Team and the Logistics Cluster – needs maintenance and strengthening to ensure Common Services are are neutral, aiming only to maximize the impact for affected population.

Existing internationally established services – including UNHAS, UNHRD and other Logistics Cluster CLSs, whether offered by WFP (as cluster lead) or cluster partners – should explore synergies and harmonise processes to **improve "customer service"** and lower barriers to accessing to these services.

Strengthening of **Global Humanitarian Logistics Fora**[35] as important vehicles for *strategic* thinking and learning, promoting the sharing of pooled resources, as well as developing awareness, coordination and partnerships at the Global and field levels. While the Logistics Cluster has a solid, established network of partnerships, its mandate is operational, rather than strategic, focus..

Developing the concept of **Common Services as a one-stop-shop**, especially in the case of critical government legislated areas – as is being explored for Customs for emergency preparedness – offers enormous opportunity for improving responsiveness in a disaster.

To prepare and scale common services for the upstream pipeline has always been challenging and a strong focus should be placed on **predicting demand** to be able to adequately respond.

The potential benefits of **joint contracting and procurement,** where actors could utilize framework agreement negotiated jointly with service providers – both internationally and domestically – requires further investigation. For example, further coordination of joint procurement, as a form of 'Humanitarian Amazon' for services and procurement may offer scope to reduce procurement and contracting inefficiencies.

Appendix C - Supply Chain Coordination

C.1 Logistics actors and coordination

So the question that emerges is how can humanitarian logistics coordination be improved – and, indeed, expanded to incorporate national and local engagement – given the reality outlined above, and what models exist that might be cloned in order to deliver such improvements? In short, given that logistics as a core business process and operational requirement for NGOs, INGOs, IOs, Governmental organizations, UN, how can any organisation make good on the delivery of a commodity as part of their programme work without investing in logistics? And if an investment should be made, should we not, as humanitarian actors, work to minimize the duplication around commodity procurement, warehousing, and delivery?

In responding to these questions, we look first at the coordination between humanitarian agencies and actors and the requirement for the integration of multi-agency efforts. In doing so, it is important to recognise that this is not solely the province of the humanitarian logistician and so it is instructive to consider how the inter-agency coordination challenge has been overcome in other contexts.

C.2 Coordination with military

Where there is a military peace-keeping force present, typically under a UN mandate requiring them to support humanitarian assistance, there are some potential benefits in requesting their participation in a post-disaster/emergency operation either to provide security or to lend resources such as transport assets. That said, some agencies such as the Red Cross family and several NGOs will not accept such engagement in conflict settings for a number of reasons, most notably the principle of neutrality. Indeed, the very presence of military personnel at Cluster meetings may be contentious for other members. The use of the military by UN agencies (and thus the Cluster) is in any case governed by the IASC 'Oslo' guidelines, which restricts the use of military assets to being a "last resort".

That said, there is some discretion left to the agency heads in-country and there are a number of examples where military assistance has proved invaluable such as in the case of Typhoon Haiyan where many nations provided military assets. However, even where it is deemed appropriate to request military assistance, military resources cannot be guaranteed to be available in a timely way. For example, in the recent earthquakes in Nepal, the delay between the request for, and arrival of, military aircraft from a relatively few Western member states clearly increased the challenge of logistics operations in the immediate aftermath of this disaster. As humanitarian logisticians, we have learned the importance of considering non-traditional military actors, especially when these are located in relatively close proximity to the disaster. However, this in turn, requires preparedness and access, and this implies the need for greater coordination and training exercises – not least with the military where staff turnover is so high. In short, we must learn how to work better together.

In OCHA, within the Consultative Group on Humanitarian Civil-Military Coordination, a Logistics Working Group was formed in 2011 as a response to the overwhelming military relief provided in the aftermath of the Haiti earthquake. This is aiming to achieve a better understanding of what military assets are likely to be available under the 'last resort' heading in certain scenarios, whether or not they are unique, and the probability of their use. The findings of this group were key in guiding the CMCoord community towards a better planning of the likely needs, forming

the basis of policy decisions and developing military training courses. The overall objective is to provide logisticians in the field with operational guidance to support the working relationship between the military and the humanitarian logisticians. This would help to minimise delays by retaining a practical and coordinated approach to working alongside the military. A wiki-based platform that can be used as a step-by-step manual for requesting and using military assets is only available currently with WFP, but this has the potential to be developed and used more broadly.

Aside from asset sharing, civil-military coordination (CMCoord) has important implications for civil protection. When a disaster strikes, local and national authorities are the first responders. Local Emergency Management (LEMA) and National Emergency Management Authorities (NEMA) are responsible for life saving measures.

When a country is overwhelmed by a disaster, authorities might call for international assistance. In that case, rapid response mechanisms of the humanitarian and emergency response community are immediately implemented. A high number of relief and humanitarian workers are coming into the country and implement their operations – often without properly liaising with Disaster Management Authorities, which are still in charge of the response. National Civil Protection (CP) is the key player in the disaster response mechanism.

The classical humanitarian assistance did not work with Civil Protection in-country in the past but now, units from other states' Civil Protection increasingly are involved in the international disaster response. This engagement could either be based on a bilateral or regional agreement, or embedded in a transnational response mechanism.

Experiences derived from emergencies over the last years indicate that there is a gap and potential friction between the international humanitarian and disaster response community and disaster management authorities of an affected country. Missing or poor coordination with national CP might hamper rescue and relief efforts.

#Role of UNDAC (UN), UCPM (ECHO) & civil protection

A tool for the coordination and interaction between the international humanitarian community and international and national civil protection is actually in place: United Nations Disaster Assessment and Coordination (UNDAC). UNDAC is part of the international emergency response system for sudden-onset emergencies. UNDAC was created in 1993. It is designed to help the United Nations and governments of disaster-affected countries during the first phase of a sudden-onset emergency. UNDAC also assists in the coordination of incoming international relief at national level and/or at the site of the emergency. Assessment, coordination and information management are UNDAC's core mandates in an emergency response mission. Specifically in response to earthquakes, UNDAC teams set up and manage the On-Site Operations Coordination Centre (OSOCC) to help coordinate international Urban Search and Rescue (USAR) teams responding to the disaster - essential if USAR assistance is to function effectively. Also, the European Union has a good example on how it could work: UCPM, The Union Civil Protection Mechanism, shall aim to strengthen the cooperation between the Union and the Member States and to facilitate coordination in the field of civil protection in order to improve the effectiveness of systems for preventing, preparing for and responding to natural and man-made disasters" and "promote solidarity between the Member States through practical cooperation and coordination, without prejudice to the Member States' primary responsibility to protect people, the environment, and property, including cultural heritage, on their territory against disasters and to provide their disaster-management systems

with sufficient capabilities to enable them to cope adequately and in a consistent manner with disasters of a nature and magnitude that can reasonably be expected and prepared for." The coordination role of the UCPM is to provide consistency to the EU civil protection response but such response goes under the overall coordination of the country affected and UN OCHA respecting its role as lead.

#Role of CP

CP is important for response as a) access to infrastructure and community b) use of assets, equipment and tools c) good network. International actors often ignore civil protection. Preparedness needed for training of national CP on international response mechanisms and training of international humanitarian community on the work of civil protection. Furthermore such interaction and coordination bodies like UNDAC should be more promoted and reinforced. Also through training and awareness raising.

Overall, the international humanitarian community needs to revise its opinion on Civil Protection which is often not considered as a key partner – but, in fact, is an extremely essential actor!

Appendix D - Institutional Preparedness

A key area of emphasis for the humanitarian supply chain must be to focus on "the critical roles of the private sector, government and, above all, local actors and communities [which] should be viewed as integral to responding to humanitarian needs"[36]. As an example, the PARCEL project[37] is aimed at increasing the capacity and independence of local NGO partners to respond to humanitarian emergencies.

As it is not possible for the humanitarian community to be available everywhere, all the time, an essential prerequisite to institutional preparedness is to regularly conduct risk assessments to identify locations that may potentially require an emergency response effort. The sections below are predicated on this assumption.

D.1 Strengthening the capacity of national government

!!RAISED IN 14-OCT MEETING. INPUT REQUIRED FROM CONTRIBUTING AUTHORS

Ensuring the response preparedness of national government is of paramount importance in developing a sustainable, long-term capacity to both respond to crises and to reduce – or better yet, proactively prevent – the worst of the impact. Utilizing country-led systems, including the civil-protection entities[38], is essential to the government maintaining ownership of the process, which can often be further advanced through south-south cooperation.

During a disaster response, the Logistics Cluster has traditionally focused on coordinating UN Agencies and international NGOs, leaving a gap when it comes to greater coordination between nation states and with civil society actors. This gap can be addressed through supporting increased interaction between highly-placed supply chain mangers and select departments within targeted governments – for example, Civil Aviation Authorities, Customs (see box below), Border authorities – has the potential to greatly ease these functions in the event of an emergency. Operational planning – such as Logistics Capacity Assessments[39], scenario-based logistics response plans and the establishment of Staging Areas[40] – have been successfully utilized – particularly in Asia - to support National Disaster Management Organizations (NDMOs) for their national emergency response plans.

For example, including key government officials from relevant departments in joint training programmes (above) can generate a number of benefits:

- Development of professional networks: Should a disaster be declared, the government officials included in the training are already familiar with their counterparts in neighbouring countries (assuming they have also participated in training), as well as key humanitarian supply-chain professionals responding to the emergency.
- Propagating a standard, core body of knowledge: Having disaster-response supply chain personnel and government officials working from the same body of knowledge can simplify interactions and reduce misunderstandings

In addition to joint trainings, having supply chain professionals working with selected government departments *prior* to an emergency being declared:

- As with training, the value of developing professional networks cannot be understated
- Provides the humanitarian community with an understanding of the (1) constraints faced by the departments, and (2) the bureaucratic processes

- Is an opportunity to socialise humanitarian supply chain SOPs and industry best practice (in the event the government officials have not attended trainings). At best, the procedures used by the government department and those recommended by the humanitarian community can be more closely aligned. At the very minimum, socialising humanitarian emergency response SOPs within each department *prior* to a disaster being declared, can reassure the government officials that their role is not being usurped, *should* a disaster be declared.

The focus box below shows, in the example of the Customs Department, some of the concrete strengthening activities that could be considered:

Focus: Customs

Customs bottlenecks are frequently experienced in the humanitarian supply chain, with few governments having adequate people or systems in place to facilitate and regulate the arrival of outside relief. This is exacerbated by the lack of procedures that have been simplified and appropriately adapted to facilitate incoming aid, as well as a lack of knowledge of, or preparation around, the procedures available from humanitarian operators. ***QUESTION: Are the government ever suspicious of the procedures being offered by the humanitarian operators?***

From the perspective of the customs department official, a number of important risks need to be addressed: The sheer number – and variety – of international responders (each with their own documentation), inappropriate emergency goods, poor quality goods, poor documentation and abuse of relaxed procedures are all major issues.

An emphasis on building greater capacity within local government could significantly improve customs procedures at the time of a disaster. These steps include:

1. Sign Customs Agreements between the United Nations and the government concerning measures to expedite the import, export and transit of relief consignments and possessions of relief personnel in the event of disasters and emergencies.
2. Include relief-aid specific customs procedures into national legislation and national emergency response plans.
3. Develop systems and procedures, pre-disaster. This includes: management of unsolicited in-kind relief aid by easy identification; prioritization and processing of humanitarian relief; and expediting clearance and release of relief consignments at borders
4. Include Customs officials in disaster simulation exercises & LRT to better understanding of the role of each key player and of test the capacity to manage emergency situations.

Figure 2 - Addressing Customs Bottlenecks

D.2 Utilizing existing in-country NGO partnerships

!!RAISED IN 14-OCT MEETING. INPUT REQUIRED FROM CONTRIBUTING AUTHORS

The humanitarian landscape is changing and emergency response is increasingly tackled at a national rather than international level, with greater emphasis on supporting the disaster resilience of vulnerable people. This process can be facilitated, and assisted, by INGOs building strong links to in-country NGOs. That INGO ideally will become the focal point for interactions for other international organisations should an emergency be declared. **EXAMPLE NEEDED**

A preparedness strategy ideally would be developed around these other international organisations working with, and supporting, the focal-point organisation, to strengthen its local partners, ensuring they are ready to take a leading role in emergency response activities.

D.3 Strengthening in-country private sector partnerships

!!RAISED IN 14-OCT MEETING. INPUT REQUIRED FROM CONTRIBUTING AUTHORS

Market preparedness is another beneficial investment that can enable all-modality assistance if disaster strikes (cash based intervention, in-kind donations, etc). Focusing on critical markets that need 'bolstering' before the next emergency would improve response for future emergencies. A key element is the support, and development if necessary, of existing commercial in-country supply chain providers. The benefits from this include:

- Building a more resilient in-country supply chain, more resistant to shocks. As access to dependable logistics networks plays a key role in economic development, funds spent on developing the capacity of logistics suppliers not only aids preparedness, but contributes to the overall development of the country
- Building a network of suppliers, and developing relationships with key organisations
- Developing a deeper knowledge of the local market context, providing a better basis for developing disaster-response strategies.
- Developing strategies for 'sharing' the limited resources (transportation, storage, etc.) of the private partners in the event of an emergency, both to (1) reduce inter-agency competition for the resources; and (2) to be aware of gaps in resources (lack of sea-going vessels, say)
- Establishment of fair pricing for services, to (1) avoid the potential for 'price-gouging' once an emergency strikes[41]; and (2) to allow contingency planners to build budget estimates into plans.

In the event that an emergency is declared, the use of local suppliers, if preparedness strategies have been enacted, include:

- Access to an 'instant' network of service providers, fully cognizant of local languages, cultures and market conditions
- The 'multiplier effect' means that every dollar spent on supply-chain local providers will benefit the local economy – rather than just staying within the international community

More work also needs to be done around the rules of engagement for humanitarian logistics with the private sector. There has been limited progress in this area notwithstanding the willingness of commercial logistics companies to engage.

The main opportunities to date have been the partnerships of the LET (Logistics Emergency Teams) with WFP as well as the OCHA/UNDP/DPDHL agreement, but the learning from these ventures need to be extracted and publicised across the community as a whole. In short, whilst some might say humanitarian actors are lacking in coordination amongst themselves, this is no longer enough – we must also make ourselves relevant when it comes to engaging and not competing with the private sector.

D.4 Refining Aid-Agency Response through research

!!NEW SECTION. CONFIRMATION & ADDITIONAL INPUT REQUIRED FROM CONTRIBUTING AUTHORS

In addition to training staff (see "***Error! Reference source not found.***", p**Error! Bookmark not defined.**) the involvement of tertiary-education institutions opens the possibility for the development of Operations Research (OR) facilities, with research affecting every aspect of the supply chains. Some examples include:

- Lessons learned from previous operations, as well as being fed back into training curricula, can also become the basis for further research ('lessons learned' become 'lessons implemented'). This is especially relevant with the geopolitical changes likely to be brought about by climate change
- Study and incorporate best practices from the private sector where organisations face similar challenges while being in a more favourable position to invest and innovate in their supply chains - although the humanitarian sector clearly has its specifics, the private sector is often far more advanced in managing and optimising its supply chains..
- Actively study commercial and military supply chain operations
- As the technology advances and the humanitarian context evolves, supply chains will need to adapt. Cash, voucher and in-kind transfers to beneficiaries, and the management of the resultant hybrid supply chains.
- Supply chain optimisation (see later chapter) will similarly evolve, and research into advanced analytics, operations research[42] and innovation are needed.
- *Research ways to better forecast beneficiary numbers, developing existing techniques (vulnerability assessment and mapping, historical data) as well as investigating newer technological options (mobile phone metadata, etc.).*
-

INSEAD's Humanitarian Research Group, Georgia Tech's Health and Humanitarian Logistics Centre, and Lugano's Advanced Studies in Humanitarian Operations and Supply Chain Management are developing the science of humanitarian logistics. The Kuehne Foundation has also been at the forefront of initiatives to improve humanitarian logistics effectiveness through the establishment of the Kuehne logistics university in Hamburg and via their 'H.E.L.P.' division that supports humanitarian organisations to better configure their supply chains.

The Global Health Cluster recently emulated the long standing model of the International Search and Rescue Advisory Group (INSARAG) and published their "*Classification and minimum standards for Foreign Medical Teams in sudden onset disasters*"[43], developed with the cooperation of over 30 NGOs who are partners of the Global Health Cluster[44] . The establishment of research facilities and dedicated training institutions can similarly help the humanitarian supply chain develop and publish minimum operating standards as an important building block for progress.

Appendix E - Professionalization of the Supply Chain

E.1 Human Resource Preparedness

As in any industry, the humanitarian supply chain can only be improved if people at the heart of the process are recruited and trained appropriately. The specific nature of emergency response work, where experience and pre-existing networks of contacts can make a huge difference in the speed and efficacy of an intervention, the *retention* of these individuals is of critical importance, as is their ongoing professional development – in conjunction with professionals from other humanitarian organisations. Whereas previously a logistician might have been a former commercial truck driver, today s/he is required to undertake market assessments and cash & voucher distribution, as well as the more typical procurement, transport, tracking and tracing, customs clearance, and warehouse management functions.

Following the 2004 tsunami, commercial logistics has been used as the main reference for professionalization, with the private sector offering valuable examples of agile, lean and flexible logistics deployment networks. While a useful guide, many aspects of the emergency humanitarian supply chain are, however, distinct from their commercial cousin[45], instead bearing a closer relationship to military logistics, covering a diverse – and changeable – range of logistical, geographic, climatic, political and cultural environments (indeed, many humanitarian logisticians have a military background, their previous training and experience helping to effectively improvise in highly complex, dynamic and constrained disaster contexts). In yet other key respects, the humanitarian emergency-response supply-chain is unique: disaster response supply chains, for example, require professionals from a disparate range of organisations to work together in chaotic situations[46]. Also unlike commercial and military supply chains, the emergency supply chain, must, wherever possible, make itself obsolete through empowering local organisations to undertake the work.

In short, there is a need for the increased professionalisation of the humanitarian supply chain sector. Within the humanitarian logistics community, there is an increasing appetite for certification, with the 2012 Fritz Institute-sponsored Humanitarian Logistics Conference highlighting "*…the call to instil sector-wide competencies and standard language, and provide recognized training*", and concluding that "*A certification process for Humanitarian Logistics is required*"[47]. Not only would this help to provide a more concrete career path for supply chain professionals, with benefits for recruitment and retention, it would also help ensure that they are better equipped – both as supply chain professionals[48] and as humanitarian professionals[49]. – to play a more integral role in analysis and decision-making, and thereby inform programme strategy.

There are a number of challenges that need to be addressed:

1. The lack of a career path can be a disincentive for commercial supply-chain mangers wishing to join the humanitarian community, and can make retention of experienced humanitarian supply chain managers difficult. How can a formal career path be developed, so that aid organisations can attract and retain skilled supply chain professionals?

2. How can the lessons learned and knowledge gained from previous operations be incorporated into a formal body of knowledge to improve the skills of existing humanitarian supply chain professionals and inform newcomers to the field?

3. Emergency response operations require supply-chain professionals from different organisations to work together effectively in chaotic circumstances. How can this inter-organisational cooperation and information-sharing be made more effective?

4. To quote a logistics director from a large INGO, "In emergency, I spend most of my time explaining what I am doing, justifying the work of my teams instead of thinking how to do it well". How can the role of the supply chain, the constraints it faces and opportunities it offers, be more widely understood within the humanitarian community?

E.2 Industry Accreditation

The Humanitarian Logistics Association (HLA) serves as a catalyst to enhance the professionalization of the humanitarian supply chain, and to promote its strategic role in the effective and efficient provision of emergency assistance. The association supports training initiatives, best practice exchange, and representation for a growing worldwide community[50] of practice. Concrete efforts include work to define a career pathway for logistics and supply chain specialists to indicate how to move more easily between humanitarian organisations, and between the private, military and humanitarian sectors.

As an industry body, with a strategic (rather than operational) focus, and not being affiliated with any particular organisations, the HLA also provides an ideal home to support other strategic initiatives outlined in this paper:

- Develop standardised curricula and training programmes (in conjunction with suitable training organisations). Standardised training:
    - aids in building a career path by (1) allowing employers to empirically assess the skill-level of potential recruits; and (2) enabling individuals to proactively build their skill-set;
    - provides a formal way of incorporating lessons from previous disasters and other organisations into coursework for later generations of supply-chain professionals - the exchange of skills and the means to foster new ideas and innovations will make a dramatic difference to the availability of future capacity;
    - allows gaps in knowledge to be systematically addressed
- Expand upon the commercially backed initiatives like the Logistics Emergencies Team (LET)[51] programme that enables commercial[52] logisticians to gain disaster-response experience through company-backed secondments.
- Push for the development of information and data-exchange standards for the industry
- Encourage the development of key-performance indicators that can be compared across organisations

This issue is related partly to challenges regarding data visibility but also to out-dated business practices. If agencies do not adapt to better metrics, dashboards, reporting and accountability, the gap will continue to widen. Furthermore, logisticians wishing to transition from the aid to the private sector may not have the right skills.

To broaden global humanitarian response capability and capacity, and to allow for 'cross-pollenation' of ideas, it is important that supply-chain professionals be able to move easily between the private and aid sectors. An essential prerequisite is the development of an accreditation system for supply chain competencies and training history. The HLA is supporting the creation of such an accreditation system to recognise and certify skills, training and experience. The HLA is also launching a career pathway project to help describe career trajectories for humanitarian supply chain professionals, and to guide training service providers.

E.3 Standardised Training

In order to cope with the growing complexity of humanitarian deployments, training for supply chain professionals does exist but is generally either organisation specific[53] or sector specific.[54] The Fritz Institute / CILT(UK) humanitarian logistics certification programme offers a highly regarded package of entry-level qualifications[55], and INSEAD's Humanitarian Research Group, Georgia Tech's Health and Humanitarian Logistics Centre, and Lugano's Advanced Studies in Humanitarian Operations and Supply Chain Management are developing the science of humanitarian logistics. The Kuehne Foundation has also been at the forefront of initiatives to improve humanitarian logistics effectiveness through the establishment of the Kuehne logistics university in Hamburg and via their 'H.E.L.P.' division that supports humanitarian organisations to better configure their supply chains.

Standardised, formal training provides a way for the investigation – and incorporation – of lessons identified in previous operations to be assimilated into the body of knowledge, creating a learning cycle. It is an essential element in supporting many of the initiatives discussed in later chapters:

- Supply chain optimisation requires staff with both practical and theoretical background in a wide range of disciplines, including transportation, programme, procurement, risk analysis, operations research and market analysis to name a few.
- Generalised, 'softer' skillsets, not traditionally in the portfolio of a logistician are also becoming increasingly important, including those necessary to support National Governments to develop emergency response procedures, and advising local partners on operations management.

An obvious benefit accruing from standardized training is the common body of knowledge[56] that professionals from across organisational, cultural and linguistic backgrounds can draw upon to work together more efficiently. There is, however, another, less obvious benefit to cross-organizational training, that can be valuable during an emergency response: the development of professional networks – if we can improve our understanding of how to work better with each other pre-crisis, we will inevitably do a better job during the crisis.

The Logistics Cluster's bi-annual Logistics Response Training (LRT) courses offer practical disaster-response simulations, bringing together participants from a wide range of organisations. The professional networks developed by participants have proved invaluable in later emergency-response operations, with greater cohesion across organisations, and compatible SOPs and standardized frameworks.

Training and innovation centres fully dedicated to the humanitarian supply chain are still drastically lacking.

Developing standardised training curricula around *supply chains in emergency response* that are specifically tailored for governments, local humanitarian organizations, militaries and relevant

external stakeholders is critical if the humanitarian community is to be able to respond to increasing demand. In addition to both classroom lessons and hands-on training (located in geographically strategic locations[57]), Training-of-Trainers (ToT) programmes will help ensure the sustainability and future relevance of the training.

Appendix F - Agile, Optimised Supply-chains

A supply chain that is both optimized (fine-tuned to known market conditions) and agile (responds quickly to shocks) is necessary to respond effectively and appropriately to programme needs, and to make most efficient use of scarce resources. It requires a deep knowledge of the local context, and constant analysis & monitoring of the market and its supporting supply chain. The preparedness activities already discussed – staff training, government partnerships, partnerships with in-country NGOs and partnerships with commercial supply-chain operators – are critical components in achieving supply chain agility and optimisation, as is closer integration with Programme.

F.1 Supply Chain Optimization

An ***optimized*** **supply chain** uses forward planning and market knowledge to take advantage of external factors to achieve efficiencies and cost savings, including seasonal availability of foodstuffs, seasonal transport options (wet/dry periods), anticipated price-fluctuation cycles, amongst others. Although a disaster-response supply chain is initially optimised as a preparedness activity, the optimization process should continue throughout the life of the supply chain

Given the sudden, often unexpected nature of disaster-response, it is no surprise that supply chain planning has traditionally been a blind spot. However, moving from a (still largely) reactive to a proactive plan-based supply chain management offers significant opportunities to improve the quality and speed of service delivery. Improved collection and analysis of market and supply chain intelligence, for example, aids better sourcing and logistics network design. Other factors previously covered in this paper, but which have special application to supply chain optimization are:

- **Integration with Programme**: In addition to understanding Programme activities underway pre-emergency, closer integration of programme and supply chain also allows opportunities for a disaster-response supply chain to 'piggy-back' onto existing structures, minimising disruption & duplication with regular programme activities
- **Training**: The provision of staff suitable trained in aspects related to optimisation, including risk management and market analysis
- **Partnerships with national governments**: Establishment of professional relationships, understanding and alignment of government SOPs, understanding of legal constraints to aid provision in an emergency
- **In-country NGO partnerships**: Better understanding of markets, cultural context, seasonal variations in demand, (potentially) affected populations
- **In-country commercial supply-chain providers**: plan to make use of commercial suppliers wherever possible, understand constraints

Other initiatives that can contribute to a well optimized disaster-response supply chain include:

- Use of **Common Logistics Service**: As with the UNHRD network, CLS are a key element in optimising today's disaster-response supply chain, centralising the procurement and

storage of disaster-relied commodities. UNHRD localities allow for upstream growth, and supply delivery by sea or air. In addition to providing a 'one-stop-shop' for procurement, UNHRD partners also benefit from cargo-transportation optimisation through shared services[58].

- The use of CLS is not without disadvantages, however, with a considerable cost and time overhead imposed for the convenience it affords. Sourcing relief items closer to a potential event offers a way to reduce the cost, import restrictions and lead time, while encouraging resilience in the local economy.[59]
- Prepositioning of appropriate relief commodities[60] in, or near, the country being targeted
- Collaborative planning with vendors can facilitate supply guarantees and improve lead-times through framework agreements and Vendor Managed Inventory.

To be effective, supply-chain optimisation initiatives need to be holistic in nature, with a focus on strengthening communication across functional boundaries, such as demand forecasting, supply chain planning, and performance management. Supply chain optimisation requires coordination (at minimum), collaboration (preferably) or integration (ideally) between an organisation's core and enabling functions[61], between its headquarters and field levels, and, particularly in disaster response, between different partners in the humanitarian ecosystem[62]. Larger organisations will also need to balance between locally managed operations and global strategic supply chain coherence: decentralization can increase flexibility, while centralization can improve cost efficiencies.

Demand forecasting, for example, is a critical step in an efficient supply chain is – and a particularly difficult task in disaster-response planning[63]. Demand forecasting requires the relevant core functions (logistics, procurement and programme) to coordinate and reach agreement on a *demand plan* that accounts for financial and operational constraints, and any risks likely to disrupt sourcing.

A necessary prerequisite to supply chain optimization is to ensure performance objectives are clearly defined, understood and most importantly, measurable[64]: it is only through measurement and comparison that supply chain improvement can be claimed. The development of industry-standard supply-chain KPIs is necessary for organisations operating in similar environments are to compare performance, and therefore relative efficiency.

F.2 Supply Chain Agility

Following well established industry standards[65], a high performing supply chain should be responsive, reliable, cost efficient and, perhaps most importantly in humanitarian responses, agile. A **responsive** supply chain delivers quickly to new needs and plans ahead to minimise lead times. A **reliable** supply chain predictably delivers in accordance with time, location and quality requirements. A **cost efficient** supply chain maximises the use of available resources including assets.

An ***agile*** **supply chain**, through the pre-emptive development of contingency plans, is able to respond quickly to unexpected changes in conditions that impact the sourcing or delivery of commodities, including switching suppliers, changing transport modalities, and the erection, closure or relocation of temporary storage sites. In this case, while the *contingency plans* will *initially* be developed during the preparedness phase (and then continually revised throughout the life of the supply chain), they will only be enacted as needed during the response (and

recovery) phases of the operation. The need to swiftly move between in-kind, cash and vouchers makes agility an ever more critical attribute.

Appendix G - Provision of Cash Vs In-Kind Assistance

Electronic cash (e-cash) offers the humanitarian community a rare opportunity to simultaneously reduce costs, increase coverage and empower beneficiaries. E-cash typically comes in three forms – that of a smart voucher (type of debit card) that is topped up regularly either with points or currency value, in the form of mobile cash (essentially SMS credits) [66] or via a financial services provider (bank, remittance agent etc.). Cash in hand is also provided either unconditionally or as cash (payment) for work.

While in-kind aid meets the primary aim of keeping people alive, it does so with considerable costs:

- It has long lead-times (procurement, transport, handling and only then distribution)
- it is expensive to handle (transportation, storage, loading & unloading, spoilage)
- it removes beneficiary dignity and choice (eg. for basket contents[67], distribution timing or location, no alternative if inappropriate foodstuffs are provided)
- it can disrupt local markets
- in the case of commodities donated by third parties (a frequent occurrence in high-profile disasters), there is a risk of scarce supply chain resources being used to transport, store, and often, dispose[68] of inappropriate, unwanted or dangerous goods.

The ability to cheaply and easily transfer cash to beneficiaries – especially in a disaster response – offers considerable advantages to both the affected population and to the aid agencies supporting them. When combined with the added benefits that accrue due to the multiplier effect[69], and the degree to which this can assist the recovery phase, it is no surprise that the transfer of e-cash is enthusiastically promoted amongst the humanitarian and donor communities.

In order to be a feasible option, however, two essential caveats exist:

- First: there must actually be something to buy (that is appropriate to beneficiary needs, is available predictably, in sufficient quantity and at a reasonable price[70]); and
- Second: the vendors must accept the relevant form of e-cash.

The humanitarian supply chain plays a critical role in (1) analysing the local marketplace to determine if the two criteria can be met, assessing the risk of shocks to the marketplace, and determining whether the marketplace can support the additional demand; and (4) supporting the marketplace and its supply chain, to ensure essential items remain available during and after the disaster response effort.

G.1 A mixed approach

While "cash and associated transfer technologies provide a significant opportunity for innovation and [to] facilitate new and diverse partnerships, including with the private sector … [it should be recognised] that cash-based transfers are not a panacea and that certain contexts may require the provision of in-kind assistance. It is critical for the choice of transfer modality to be determined by context and not supply-driven"[71]

It is important to acknowledge the limits of cash programming in circumstances where local markets are unable to support demand. If there is market or supply chain fragility, a mixed approach (a combination of cash and goods) can help to improve supply chain efficiency through

reduced volumes and associated costs, while increasing programme flexibility. Gradually increasing the portion allocated as cash can assist market recovery, allowing it to support additional demand. Once the market is able to fully support cash transfers, in-kind assistance should discontinue[72].

Taking a market-appropriate approach to *cash* versus *in-kind* versus *mixed* assistance is important, as it addresses immediate need as well as opportunities for economic recovery and livelihood creation: Humanitarian crisis response is first about meeting the basic needs of the population while laying the foundations *whenever possible* for improved conditions compared to the situation prior to the disaster.

It is important to note here that, regardless whether cash or in-kind assistance, the beneficiary continues to bear all the risk:

- *In the case of in-kind aid, if purchase or handling costs increase, beneficiaries will receive less food as aid agencies meet higher costs against fixed budgets.*
- *In the case of cash, if prices in the local market spike, the same amount of cash will have a lower purchasing power*

In markets that can support beneficiary demand for essential commodities, the use of a mix of in-kind[73] and cash can mitigate the risk to some degree, but requires constant monitoring and intervention.

G.2 Role of the supply chain in market analysis

Typically, supply chain (specifically, logistics) personnel have only been responsible for ensuring the delivery of commodities to crisis-affected people. With the advent of cash transfers, supply chain has moved from an execution role to a planning role during preparedness, and holds a strong monitoring focus during emergency response. Supply chain is responsible for:

- Analysing the capacity of the local market to support cash-based interventions
- Analysing the risks to the supply chain that supports the local market
- Developing contingency plans and alternative supply chain options should the local supply chain fail

Supporting this changed, and more complex, role, depends heavily on other areas discussed earlier:

- Greater **integration between programme and supply chain** is critical for end-to-end market analysis and the preparation of contingency plans
- **Research** into the impact of cash upon disaster-struck markets & their supply chains to develop more appropriate interventions: Tools for analysing markets in disaster-response contexts have only been developed relatively recently, and are often not systematically used at the needs assessment and monitoring stages of an intervention. In deciding upon cash, in-kind or mixed assistance, better mechanisms to understand the functioning of local markets both before and during a crisis are needed. Although guidance is being developed[74] for the humanitarian supply chain, more work is needed.
- **Training** of supply chain professionals to facilitate market-based programming and economic recovery activities, as well as assessing the impact of an emergency on local market conditions, understanding the connections of a 'target market' to national and international supply chains, and monitoring commodity variations and market triggers to be prepared for a large range of response scenarios.

G.3 Role of the supply chain in market support

The local procurement of services will help to strengthen service provision within a given market environment thereby maximizing the positive impact of humanitarian operations to the local economy inasmuch that by using local suppliers, the local structures end up being reinforced and will be better prepared to supply services to their community. In this case, logistics and supply chain expertise is needed to assess and contract with vendors and suppliers of goods and services.

G.4 Monitoring usage of cash transfers

The move to cash transfers does not remove the need for monitoring. A challenge is how to monitor the use of unrestricted cash transfers, as cash-based interventions move from small scale, low impact, 'monitorable' level to larger scale projects. It is important to reassess what really needs to be monitored, and at what level of detail. In particular, current modes of monitoring cannot measure the benefits to a community that come from the cash-based multiplier effect.

One potential solution is to measure the impact upon the local market (in addition to existing standard programme measures). This approach could assess, for example, whether there a different mix of cash and other forms of assistance could create positive synergies, what mix of cash and in-kind aid are most effective, and how can other forms of assistance be combined with cash most effectively.

The case study below, although not based on cash-transfers, provides an example of in-kind to cash mix, and illustrates how monitoring market impact (in addition to individual benefit) leads to a more sustainable intervention.

Case Study: The case of water filters in Colombia: ACF-Spain market support strategy

ACF-Spain implemented an innovative market support project in Colombia to ensure the availability of water filters in poor rural communities with high incidences of diarrheal diseases, infant mortality and chronic malnutrition.

Initially, ACF-Spain distributed filters with two preinstalled ceramic candles and two spares, guaranteeing safe drinking water for 16-20 months. After that period, however, the filters became unusable because no spare ceramic candles were available in local markets. The filters were manufactured in Brazil but ACF-Spain was buying them in small quantities in Bogota for short-term projects in rural communities. ACF-Spain took responsibility for the whole supply chain from the capital, to regional municipality and up to the final point of distribution. The costs to ACF-Spain were very high compared to the real cost of production: the final cost of one candle was USD20-30, whereas the cost to the Bogota-based distributor was around USD2.The limited, expensive supply of spares from Bogota had a major effect on the sustainability and impact of the intervention.

To overcome the problem, ACF-Spain developed a market based supply chain management strategy to generate a sustainable end-to-end commercial supply chain. First, they developed a partnership agreement with the national importer of filter candles to expand distributions to regional suppliers with good market coverage; second, they identified potential distributors in local areas where public health projects had been implemented and finally, communicated to all commercial actors the purpose and benefits of broadening the scale of the market support strategy. An end-to-end price model was formulated, identifying reasonable profit margins while also ensuring final cost would not be a barrier to the poorest and most vulnerable communities.

A communication plan was then developed for the communities, featuring existing beneficiaries to demonstrate the availability of spare filter candles. ACF-Spain donated filter units to local suppliers to be exhibited in their shops and published posters and leaflets to identify points of sale. ACF-Spain visited the worst affected communities to spread the message. The news also reached other communities, where ACF-Spain did not have interventions, and these have since shown increasing interest in setting up points of sale for filters in their villages.

By promoting a market shift from small single agents, that added high cost to limited sale transactions, to suppliers interested in large volumes and strategic positioning, prices at the point of sale went down by at least five fold to around US$5. Therefore, through experience of previous activities and by linking supply chain innovations to programme design, very few resources were required to dramatically increase market coverage to address public health need.

It should be noted that ACF-Spain did not commercialize any product; instead, by liaising with all market stakeholders and monitoring pricing within the supply chain, they assured both availability and affordability of the product thereby benefitting from market efficiency. As a result, communities affected could finally find an affordable means to access safe drinking water. (Currently this approach has been successful in the departments of Putumayo and Nariño and ACF-Spain is looking into implementing the same programme in Cordoba).

Figure 3 - ACF Filters

The use of technology is impacting the way in which monitoring can be carried out. There are several initiatives underway to develop information system platforms for e-transfer programs. For example, the Kit for Autonomous Cash Transfer in Humanitarian Emergencies (KACHE), is an ACF project supported by the WFP that seeks to utilise electronic cash payments in previously inaccessible areas, whether due to isolation, insecurity or limited infrastructure. The product is a self-contained kit that can be shipped to any location where an emergency occurs.[75] The features of such products focus not only on tracking, but also on providing strong, rapid analysis capability for programme managers. There is significant potential for a coordinated approach and the creation of a platform where agencies could share and consolidate programme data. There has been discussion around the feasibility for beneficiaries to hold one identification card instead of one card per organization. This requirement is being further strengthened by the need for the creation of a common humanitarian identification (and other financial data) standard, without which it is impossible for millions of people in the developing world to become financially included. Furthermore, it would give greater consideration to the dignity of

beneficiaries and would prevent a duplication of work among agencies collecting data to associate and generate ID cards and smart vouchers. However, there are numerous issues related to this idea, not the least of which related to data privacy, database management and security. To help address such issues, World Vision has been working with the Governorate of Duhok in Northern Iraq to enable them to 'own' and manage data captured via LMMS (last mile mobile solutions – a well regarded beneficiary registration and item tracking tool)[76]. Several agencies are also working on mechanisms to permit more effective system interoperability in order to maintain beneficiary protection while maximizing knowledge sharing. Harnessing the potential for effective, secure, data management within and among aid organisations and their partners is no longer a choice, but an obligation.

Case Study: WFP E-Cards in Lebanon

WFP has been delivering assistance to Syrian refugees in Lebanon using e-cards since October 2013. The innovative e-card programme was chosen over traditional forms of food assistance because it allows beneficiaries to choose their own food in a country where strong markets exist.

As part of its approach to responsible programming WFP and its partners — including UNHCR — conducted a thorough e-card validation exercise. The e-card holders were informed about the exercise one month in advance by SMS, through posters and by word of mouth in WFP-contracted shops and other key locations. Some 177,231 households (857,495 individuals) were part of the validation exercise.

E-cards validated during the mid-April exercise will be uploaded rapidly to allow households to buy their April commodities.

Source: Validation Report, WFP Lebanon, March 2015

Figure 4 - E-cards in Lebanon

Appendix H - Implementing Industry Standards

H.1 Performance Measurement (KPI) Standards

!!MORE INFORMATION REQUIRED

Currently the majority of aid organisations have no key performance indicators (KPIs) in place [to measure their supply-chain operations]. Critically, many larger organisations are hindered by their inability to gauge their own performance against others, which therefore impedes their capacity to measure efficiency. (*Mizushima 2013*). To address the issue, the Fritz Institute has initiated an interagency project[77] to create a set of standard KPIs (due to conclude by end 2015) that will help to establish professional best practice and a supply-chain model related specifically to effective disaster-response interventions.

Having standard KPIs supports post-crises evaluations. A more systematic first responders' evaluation process would reflect the activities of INGOs during emergency responses. The Fritz Institute has supported organisations such as the British Red Cross Society, USAID/OFDA, the International Rescue Committee and UNHCR to conduct supply chain assessments. These have demonstrated the importance of sector-wide humanitarian supply chain management performance measures to the improved long-term effectiveness of humanitarian action.

Use of common KPIs allows donors to better understand the value of supply-chain operations, and allows organisations to target areas to improve supply-chain efficiency.

Sharing common practices between the aid and private sectors would bring numerous benefits to humanitarian planning and operations yet aid agencies tend to create unnecessary administrative workloads for themselves when they use their own metrics; reporting against these is not helpful for the wider community.

Understanding the impact of any disaster response and the associated cost effectiveness remains a clear measurement challenge[78], with a paucity of available standards, benchmarks and indices, the absence of which makes both assessment and the ability to learn from experience more difficult. *This lack of standards extends to training with, at present, no clear way to assess the abilities and competencies of the organisations and people who volunteer to help an affected population*. Whilst many organisations are working to overcome this challenge, it was noted in the discussion at the 2012 Humanitarian Logistics Conference, further work is needed to develop simple, universal, KPIs[15].

Standardising KPIs, in addition to benefiting to operations management, can also reduce spending on tailored audits. As organisations move toward cash transfers, clear service definitions are needed so that requests can be properly understood and delivery performance measured.

H.2 Common data-exchange Standards

!!MORE INFORMATION REQUIRED

Clear communication, especially during an emergency response and where multiple organisations are involved, about the types and quantities of volumes moving through the supply chain, continues to be a major problem. Data about these commodities, in a form that can be shared in a consistent manner between organisations, will go a long way to resolving this. Consistent, unambiguous information about commodities moving through the humanitarian pipeline allows for better, more cost effective planning for onward transport, handling and storage, allowing the commodities to reach their destination faster.

NOTE: Use of the research facilities, along with the ISO to work on standards? The HLA/LC will need to first determine though WHICH of the many communication channels/data streams it wishes to standardise.

Build a framework for greater interoperability without implying an absolute commonality of processes – for example, a number of UN Agencies/NGOs (a 'coalition of the willing') agree to cooperate on a voluntary basis to explore common training regimes, common capability standards, common commodity catalogues and common IT systems, and associated processes, and through this mechanism develop a road map to achieve a significantly greater level of interoperability highlighting the efficiency and effectiveness benefits that would ensue.

Appendix I - Technological Developments

Recommend that this chapter be removed

I.1 Logistics Information Technologies

Extremely ambitious. The RITA experience should be a reminder how incredibly this will be to achieve.

Most of the transactions and humanitarian logistics reports are still paper-based or handled in spreadsheets reducing transparency and reducing the ability to have a real-time understanding of operations. the ability to see a real-time dashboard KPIs allows decision makers to make better informed decisions and develop evidence based strategies instead of rash reactions..

I.2 Delivery by Drone

An internal project? Is the WHS interested in this level of detail?

New air operations technologies are also emerging that can reduce costs. For example the use of UAVs (unmanned aerial vehicles, or drones) or the innovative means to safely and accurately drop emergency supplies from aircraft are being tested with the UN by 'Skylife' which has developed an aerial delivery system that can be used in complex emergencies such as South Sudan

I.3 Enterprise Resource Planning Systems

Extremely ambitious. Would remove this and instead bulk up the data interchange section.

Seamless synchronization throughout the end-to-end disaster-response supply chain process can only happen when all stakeholders have full visibility at all times. An ERP[79] systems allow companies to track and trace physical, financial and information flows, providing a single repository to record and consult data. While most humanitarian organizations have implemented such tools, critical last mile supply chain operations are often only loosely covered and require more attention as this is the piece of the supply chain where the goods actually reach those in need and alleviate human suffering.

Virtual supply chain management for rapid response mobilisation should be our longer term vision. For that to happen, we need extensive supply chain visibility, more information sharing, and collaboration among humanitarian actors and suppliers. Virtual supply chains enabled by an online platform[80] for quick mobilization of relief goods and associated services by qualified suppliers would likely lead to more responsive and transparent humanitarian supply chains. Virtual supply chain capabilities would improve the management of upstream supply chains, while full coordination, transparency, collaboration and asset sharing would be required for an optimal management of downstream supply chains.

There are also opportunities to integrate main partners onto companies' systems in order to guarantee supply chain visibility where operations are outsourced.

I.4 Traceability technology

An internal project? Is the WHS interested in this level of detail?

Traceability technologies common in the industry, such as barcoding and RFID[81], should be adopted by humanitarian organizations while sector wide efforts are needed to further standardize relief items.

I.5 Access to commercial data

Extremely ambitious. This might seem more realistic if a concrete path could be stated.

Preparedness efforts will increasingly need to understand markets before a crisis and how they might change if affected. The challenge with the current pre and post crisis market assessment tools is that they are labour intensive and therefore potentially expensive to implement. Global, regional, national and local market information and data is scattered among many disparate sources. For relief commodities and services, the ability to monitor prices, trade flows and availability is something that humanitarian aid managers should analyse on an on-going basis.

However, data like commodities price index, volumes of the supply chain, fuel rates, average enterprise size, existing infrastructures, and relationships between the different market stakeholders is not readily accessible via a user-friendly platform. Information is limited and access to reliable economic indicators that would facilitate the understanding of market systems is difficult to obtain. Overall, humanitarian practitioners must be better equipped to handle market volatility and working with a broader range of suppliers to maximize positive impact to vulnerable people. Having the right information can bridge knowledge gaps to empower better informed decisions about whether or not, and how, to intervene to ensure that vulnerable people are assisted. Market features and beneficiary needs change over time, often quite rapidly. The speed of data collection and ability to generate real time context analysis will strengthen agencies' capacity to quickly adapt their activities.

Humanitarian logisticians and programme planners should exploit the untapped potential to use global data sources of market information in a semi or fully automated manner. This would support existing early warning and early action systems, pre-crises market assessment and analysis, as well as market and programme monitoring and evaluation, and could help to communicate the macro-economic picture of disaster prone areas. By partnering with the private sector, a suitable market information platform could be formed for use by humanitarian agencies. To accomplish this, an analysis of what currently exists among a variety of Government, commercial and open source platforms would be necessary. There is an urgent need to create an interface that gathers, aggregates and reports on real time market information for food or other important goods and services from micro to macro levels. This approach should offer better value for money at the assessment, delivery and monitoring stages of a crisis response operation due to potential economies of scale and better information sharing. While this may result in improved decision-making on the type of assistance provided, whether directly to beneficiaries or to support local markets, it will require greater collaboration.

I.6 Remote Operations

What is it that we want the WHS to help us with here?

Increasingly, there are changes in the context of emergency operations with significant needs emerging in urban and conflict environments. Due to insecurity, organisations must often manage the movement of goods, cash or vouchers remotely. In settings like Syria, Iraq and the Central African Republic, delivering any kind of assistance is particularly challenging. In these settings, cash can offer advantages yet there are significant concerns regarding the potential for diversion. There are increasingly innovative ways in which these concerns can be overcome.

Biometric data recognition and data analysis can facilitate the management of remotely located staff and operations through check-ins, finger printing, and card chips with photo recognition. Technology is now making this possible, although there is still considerable unexploited potential. Take the work of IRC in "deploying a unique SMS voucher system in non-government controlled areas (NGCA) of Eastern Ukraine. The solution, called TalonSMS, generates unique confirmation codes for vendors during each transaction, enrols and' said Emergency ERD Coordinator Alan Grundy, 'this is a new and better way to implement voucher programs.'"[82]

[1] Some 60% of the income of aid agencies and non-government organisations (NGOs) is spent on procurement, transport, warehousing and last mile distribution activities. *Tatham, P.H., and Pettit, S.J. (2010), "Transforming humanitarian logistics: the journey to supply network management", International Journal of Physical Distribution and Logistics Management, Vol. 40 No. 8/9, pp. 609-622*

[2] "To many humanitarians, the definition of logistics is open to loose interpretation … The Fritz Institute defined logistics as 'the process of planning, implementing and controlling the efficient, cost-effective flow of and storage of goods and materials as well as related information, from point of origin to point of consumption for the purpose of meeting the end beneficiary's requirements' (Thomas and Mizushima,2005)" - *Van Wassenhove, L. N. (2006). "Blackett Memorial Lecture - Humanitarian aid logistics: supply chain management in high gear.", Journal of the Operational Research Society 57(5) p475.*

[3] The HLA was registered in 2009 as a professional association within the aid sector. It aims to enhance the professionalism of humanitarian logistics, and to take a strategic view of supply-chain's role in the delivery of relief assistance.

[4] Völz, Carsten (2005) "Humanitarian Coordination in Indonesia: An NGO Viewpoint", Forced Migration Review, July, pp. 26-27

[5] Hundreds of international NGOs, thousands of national NGOs and many informal groups of well-wishers were registered in Sri Lanka alone, let alone Thailand and Indonesia.

[6] As of 2015, the different clusters are: Camp Coordination& Management, Early Recovery, Education, Emergency Shelter and NFI, Emergency Telecommunications, Food Security, Health, Logistics, Nutrition, Protection and Water Sanitation Hygiene (WASH) (*Source: www.humanitarianresponse.info/en/coordination/clusters/global*)

[7] In 2012, an evaluation, jointly commissioned by WFP, the Netherlands Ministry of Foreign Affairs and UNICEF, analysed the Global Logistics Cluster's (GLC's) performance and found that partners were generally very satisfied with its operations. *Source: reliefweb.int/sites/reliefweb.int/files/resources/wfp251521.pdf*

[8] Some NGOs remain uncomfortable with having too close a relationship with the UN. This challenge should be addressed through improved dialogue to address these concerns, and work towards sensible and pragmatic solutions.

[9] WFP Position Paper for the WHS, August 2015, p1

[10] "Climate change affects the frequency, intensity, spatial extent, duration and timing of extreme weather…" leading to "increased disaster frequency and impact, conflict and internal displacement, compound crises and chronic vulnerability" (*OCHA Position Paper, Climate Change – version 4, 29 April 2014*), www.humanitarianresponse.info/en/topics/environment/document/ocha-position-paper-climate-change

[11] "… people affected … has almost doubled over the past decade and is expected to keep rising. In early 2014, international aid organizations aimed to assist 52 million people in crisis, …. [and] The cost of international humanitarian aid has more than trebled in the last 10 years" (*OCHA "Saving Lives Today and Tomorrow", 2014*) docs.unocha.org/sites/dms/Documents/OCHA SLTT Web Final Single.PDF

[12] In 2014, a record US$24.5b in humanitarian funding was provided, a 19% increase over 2013, the previous record high. Funding to the UN-coordinated appeals also increased, up by 41% from US$12b from US$8.5b in 2013. However, even this 41% rise failed meet increased requirements of US$19.5b, due to the number, size, complexity and duration of crises being attended. *Source: "Global Humanitarian Assistance Report 2015", p19, www.globalhumanitarianassistance.org/wp-content/uploads/2015/06/GHA-Report-2015_-Interactive_Online.pdf*

[13] The *Global Humanitarian Assistance Report 2015* puts total 2014 UN-coordinated requirements at US$19.5bn, of which US$7.5bn is for supply chain activities (using the 60% estimate). A 1% saving equates to US$ 117m

[14] For example, accounting for logistical components such as: sourcing lead-time, transport considerations, storage requirements and constraints, etc.).

[15] Cabot et al in 'Dare to Prepare: Taking Risk Seriously. Financing Emergency Preparedness'. ODI. 2014

[16] *10 years on what have we learnt in disaster response? – Development Progress website – Dec. 2014*

[17] "Where is everyone? Responding to emergencies in the most difficult places", July 2014, Médecins Sans

Frontières

18 The other factor mentioned in the report was security

19 Fritz Institute (2012), "Humanitarian Logistics Conference 2012: The Changing face of logistics within the Humanitarian Sector", Fritz Institute, available at: www.fritzinstitute.org/prgSC-HLC2012-proceedings.htm (accessed 3 Feb 2015)

20 Kovács, G., and Tatham, P.H. (2010), 'What is Special About a Humanitarian Logistician? A Survey of Logistic Skills and Performance', Supply Chain Forum: An International Journal, Vol. 11 No. 2, pp. 32-41.

21 To complement the corporate social responsibility (CSR) initiative 'Moving the World' started by TNT, the World Economic Forum at Davos in 2005 supported the creation of the *Logistics Emergency Teams* (logcluster.org/logistics-emergency-teams) as a partnership between leading logistics companies (Agility, UPS, Maersk) and the Logistics Cluster, to provide surge capacity during interventions in disaster-stricken areas. See weforum.org/videos/logistics-emergency-teams

22 The HLA is currently considering a similar programme for military logisticians

23 Animated examples of the multiplier effect can be seen at www.logcluster.org/cashandmarkets

24 There must be (1) appropriate goods available for purchase at a price that remains reasonable; and (2) an ability for vendors to accept the form of cash (e.g. e-money) that is being transferred to the recipients

25 For exampls: Emergency Response Coordination Centre (ERCC) of ECHO; the ASEAN Coordinating Centre For Humanitarian Assistance; and Centro de Coordinación para la Prevención de los Desastres Naturales en América Central (CEPREDENAC)

26 for example, large scale sudden onset disasters or widespread pandemics. Contexts where the government is unwilling or unable to respond (in conflict situations where government will not or cannot access part of its territory)

27 BioPort was created in 1994 by former humanitarian logisticians. It is located near Lyon international Airport, France.

28 Kitting is the process of assembling of separate components or parts into a single package, for easy deployment in the field. Health kits, comprising of hundreds of separate medical items, are a common example.

29 First developed by Atlas Logistique which merged in 2006 with Handicap International

30 The Mechanism currently includes all 28 EU Member States, with the addition of Iceland, Montenegro, Norway, Serbia, and the former Yugoslav Republic of Macedonia. Turkey has recently signed the agreements to join the Mechanism. *See ec.europa.eu/echo/what/civil-protection/mechanism_en*

31 At the time of writing, the LET consisted of Agility, Maersk and UPS.

32 During a natural disaster, where the humanitarian community decides it is appropriate, and as last resort in accordance with the Oslo Guidelines.

33 NDMOs and other agencies

34 In the instance that there are 277 requirements to move cargo and only availability for 75, the humanitarian community needs to have faith in the method of prioritization to select which 75 are moved

35 Including the Logistics Cluster, HLA and Fleet Forum

36 WFP Position Paper for the WHS, August 2015, p3.

37 PARCEL = Partner Capacity Enhancement in Logistics; see parcelproject.org

38 Developing stronger partnerships between humanitarian and civil protection capacities is essential to the security and protection of both civilians and humanitarian workers. Developing this relationship is outside the scope of this paper, as it does not involve the disaster-response supply-chain.

39 Logistics Capacity Assessments (LCAs) contain "… information related to the logistics infrastructure and services in a given country [organised] … in a standard way across multiple countries [shared] … both within WFP and with the humanitarian community globally". See *dlca.logcluster.org/display/public/DLCA/LCA+Homepage* See *dlca.logcluster.org/display/public/DLCA/LCA+Homepage*

[40] As an example, response to the 2015 Nepal earthquake was hugely advantaged by the pre-disaster establishment of a Humanitarian Staging Area next to Kathmandu airport.

[41] The 2015 Vanuatu response was an example of how local suppliers of sea-vessels were able to take advantage of limited (sea-worthy) capacity and inter-agency competition to charge exorbitant rates.

[42] Operations research is a discipline that deals with the application of advanced analytical methods to help make better decisions. Institute for Operations Research and the Management Sciences (INFORMS)

[43] Norton, I., Von Schreeb, J., Aitken, P., Herard, P., and Lajolo, C. (2013), "Technical criteria for classification and minimum standards for foreign medical teams (FMTs)", *Global Health Cluster*, available at: www.who.int/hac/global_health_cluster/list_of_guidelines_for_emergency_response.pdf (accessed 3 Feb 2015).

[44] GHC [Global Health Cluster] (2013), "Global Health Cluster Partners", available at: www.who.int/hac/global_health_cluster/about/partners/en/index.html (accessed 3 Feb 2015).

[45] Humanitarian are often in "…particularly unique and highly variable events, often in resource-poor and limited infrastructure environments, with multiple organizations trying to work together in response activities simultaneously… increase[ing] the complexity of responding to these events." – Georgia Institute of Technology (2009), "*Humanitarian Supply Chain Management – An Overview*", at: drops.dagstuhl.de/volltexte/2009/2181/pdf/09261.ErgunOzlem.ExtAbstract.2181.pdf

[46] It is "last mile" delivery (actually delivering into the hands of those in most need) that continues to present a big challenge, and differentiates humanitarian logistics from its commercial and military counterparts. Urban contexts and conflict such as in the Middle East are examples of *last mile* delivery where supply chains need to be more agile, more flexible and better able to respond to frequent but smaller distribution needs. The Syrian crisis has demonstrated that a more decentralised model is needed where organisations cannot operate on the frontlines of response in highly insecure situations.

[47] Fritz Institute (2012), "Humanitarian Logistics Conference 2012: The Changing face of logistics within the Humanitarian Sector", Fritz Institute, available at: www.fritzinstitute.org/prgSC-HLC2012-proceedings.htm (accessed 3 Feb 2015)

[48] Kovács, G., and Tatham, P.H. (2010), 'What is Special About a Humanitarian Logistician? A Survey of Logistic Skills and Performance', Supply Chain Forum: An International Journal, Vol. 11 No. 2, pp. 32-41.

[49] According to the Consortium of British Humanitarian Agencies (now the START Network) Core Humanitarian Competency Framework, humanitarian workers need to demonstrate competence in a range of generic non-technical skills

[50] As of 2015, the HLA has nearly 3,000 members in 106 countries

[51] To complement the corporate social responsibility (CSR) initiative 'Moving the World' started by TNT, the World Economic Forum at Davos in 2005 supported the creation of the *Logistics Emergency Teams* (logcluster.org/logistics-emergency-teams) as a partnership between leading logistics companies (Agility, UPS, Maersk) and the Logistics Cluster, to provide surge capacity during interventions in disaster-stricken areas. See weforum.org/videos/logistics-emergency-teams

[52] The HLA is currently considering a similar programme for military logisticians

[53] Responsive aid agencies such as MSF, Oxfam and Save the Children International are retaining professionals responsible for supporting and training field logisticians

[54] The Bioforce Institute (bioforce.asso.fr) aims to "increase the impact and the relevance of emergency action and development programmes by training and providing support to those involved", but is, at present, focused mainly on the health supply chain.

[55] The Certificate in Humanitarian Logistics course was launched in September 2006 and teaches the base principles of logistics and supply chain operations in the humanitarian context. 1,200 students have so far enrolled (fritzinstitute.org/prgsc-cert_main.htm)

[56] From the basic (common industry jargon, standards of measure, constraints of different transport modes, etc) through to detailed (customs procedures, common data-exchange standards). For newcomers, such training also means basics of emergency work are covered prior to 'being thrown into the deep end': while there is no substitute for 'learning on the job', coming into an emergency situation with a solid foundation of knowledge enables (1) the new supply chain professional to become effective more quickly, *with less mistakes*; and (2)

means that they can focus on the unique aspects of the particular disaster response, rather than 'the basics'.

[57] Bioforce Institute, for example, has deployed a training centre in Burkina Faso

[58] For example, in the 2013 Philippines response, each UNHRD-originating flight carried goods from multiple organizations, rather than organisations arranging separate flights, and having many planes partially empty. In addition to the cost of transport, this is also an important consideration in reducing airport congestion.

[59] Taylor 2012. 'The Application of Value Chain Analysis for the Evaluation of Alternative Supply Chain Strategies'

[60] The pre-positioning process has had beneficial side effects, such as the detailed specification of relief items, allowing logisticians to choose the most appropriate products. There is a danger, however, that as specifications become more rigid, sourcing options will become less flexible, and fewer vendors can compete to provide supplies. The over-specification of emergency items can also result in an imposition of 'western' standards rather than an acceptance of locally sourced products

[61] Corporate functions include both *core* functions (fund raising, programme design, procurement, logistics, and money management) and *enabling* functions (human resources and information technology)

[62] Considerable progress has been made by the Logistics Cluster in ensuring logistics coordination among key humanitarian stakeholders.

[63] As technology improves, mobile phone surveys and digital beneficiary cards provide examples of how beneficiaries can be directly involved in shaping demand forecasts, with some humanitarian organizations having already implemented innovative solutions to integrate beneficiary intelligence into their demand forecasts and supply chain design. See section *"**Error! Reference source not found.**- **Error! Reference source not found.***", page 38 for more information.

[64] Operations research is the use of advanced analytics, based on quantitative inputs, to support decision making and continuous improvement - 52necessary to demonstrate the efficiency and effectiveness of operations through evidence-based decisions and rigorous performance management.

[65] SCOR (Supply Chain Operations Reference) model: *www.apics.org/sites/apics-supply-chain-council/frameworks/scor*

[66] Mobile coverage is rapidly spreading in most disaster-prone countries, both geographically (the areas in which mobile phones can be used), as well as socioeconomically (simple cheap handsets becoming available, and essential to the very poor). Mobile phones allow users to conduct micro-transfers, without the need for bank accounts. Cheap handsets enabling people to 'plug into' a funds-transfer network with almost zero barriers to entry, offers enormous potential for empowerment.

[67] It is important to note that in-kind relief goods are not restricted to foodstuffs – they may also include non-food items for shelter, WASH, etc.

[68] The 2015 Vanuatu response saw many metric tons of mold-infected rice being shipped into the country. The not inconsiderable costs associated with unloading, storing, transporting and disposing of the inedible rice could have been better spent on other assistance.

[69] A good introduction to cash and markets and the multiplier effect can be seen at www.logcluster.org/cashandmarkets

[70] Assessing the price prior to starting the cash transfers is one aspect. The other is assessing the impact of the cash transfer upon process: it is possible that interventions may quickly exhaust supplies in local markets, and at that point vendors may increase prices as supply increasingly cannot meet demand.

[71] WFP Position Paper for the WHS, August 2015, p3.

[72] (1) When in-kind assistance continues for too long and there is no clear exit strategy, moving from response to recovery can be slowed; (2) The cost savings inherent in moving from in-kind to cash, particularly where goods would be sourced internationally, can be used, for example, to increase either the amount paid to each beneficiary, or the number of beneficiaries served.

[73] A major constraint is the lead times involved in procuring, transporting, importing and handling in-kind commodities. In an emergency response this process can be expedited, but doing so usually occurs cost penalties in procurement (e.g. less competitive bids, prefer closer vendor over cheaper but more distant vendor, etc.) and transport (air vs sea)

[74] The logistics cluster is working closely with responders on this - see www.logcluster.org/cashandmarkets.

[75] Electronic Cash Transfer Learning Action Network Newsletter, May Update 2015.

[76] http://odihpn.org/magazine/lmms-going-the-extra-mile-in-duhok-kri/

[77] See www.fritzinstitute.org

[78] Tatham, P.H. and Hughes, K. (2011), "Humanitarian logistics metrics: where we are, and how we might improve", Christopher, M.G., and Tatham, P.H. (eds), Humanitarian Logistics: Meeting the Challenge of Preparing for and Responding to Disasters (Ed 1), Kogan Page, London

[79] Enterprise Resources Planning

[80] Similar to platforms used by companies such as Amazon

[81] Radio Frequency Identification

[82] Electronic Cash Transfer Learning Action Network Newsletter, April Update 2015.