Humanitarian Logistics

Gildas Vourc'h

1 Introduction

Long considered to be a peripheral activity by humanitarian stakeholders, logistics is now recognised as an essential activity that has great influence on a humanitarian operation's success or failure. Sometimes broadly defined as 'the processes and systems involved to mobilize people, resources, skills and knowledge to deliver assistance to vulnerable people',[1] it seems difficult to encounter a single and widely accepted definition of humanitarian logistics.[2] This is notably due to the great variety of actors within the humanitarian sector.

Despite its paramount importance to humanitarian action's effectiveness, logistics has long been regarded as a secondary support activity, and as a result logistics aspects were not taken into account in operational design and financial planning. Consequently, logistics needs were not sufficiently addressed. Beyond the obvious negative impacts of this situation on activities' quality and relevance,[3] it also generated tensions and a certain lack of understanding between logistics and operational teams.[4]

However, the development of professional humanitarian action and the determination to improve humanitarian action's quality and effectiveness pushed

[1] CARE International Emergency Toolkit, http://careemergencytoolkit.org/logistics/#a03.

[2] Van Wassenhove (2006), p. 476.

[3] Key logistics aspects – time, space, availability of goods, adequate freight means, etc. – and needs (equipment, assets, etc.) were not sufficiently taken into account.

[4] This is because operational teams could not understand delays, breakdowns, shortages, lack of adequate equipment, etc.

G. Vourc'h (✉)
Aix-Marseille University, Aix-en-Provence, France
e-mail: gildas.vourc-h@hotmail.com

H.-J. Heintze, P. Thielbörger (eds.), *International Humanitarian Action*,
DOI 10.1007/978-3-319-14454-2_22

organisations towards recognising the essence of logistics, this horizontal activity, which is *crucial to the effectiveness and speed of response for major humanitarian programs*.[5]

1.1 The Importance of Logistics for Humanitarian Action

In the eyes of humanitarian stakeholders, logistics must now be considered an essential support function, without which relief activities' implementation would not be possible. Since *disaster relief is about 80% logistics*,[6] quality and efficient humanitarian assistance delivery requires effective logistics systems,[7] providing operational teams with the means necessary to carry out humanitarian activities (for example, goods or services to be distributed/used, transportation, structural, communication and security means, etc.). If logistics is a key element for emergency relief, it must be noted that post-emergency or even development activities require efficient and sufficient logistics support as well.[8]

1.2 The Development of Logistics Principles Within the Military, Business and Humanitarian Action

Logistics principles and systems were first developed within the military. An illustration of the importance accorded to logistics since ancient times can be found in Sun Tzu's classic treatise 'The Art of War', in which he wrote, '[t]he line between order and disorder lies in logistics'.[9] A more recent example of advanced military logistics is the Allied 'Operation Overlord' of 6 June 1944, which enabled the transport, landing and deployment of considerable human and material resources to combat the Nazi Regime.

After World War II, actors and institutions from the industrial and commercial sectors understood that improvements in their logistics systems and capacities were necessary in view of developing their activities and generating more income—notably through an enhanced and more rational supply chain management. Therefore, from a business point of view, 'logistics or supply chain management is recognized as a strategic and value-producing component in the overall operation

[5]Thomas (2003), p. 3.

[6]Van Wassenhove (2006), p. 475.

[7]CARE International Emergency Toolkit, at International Emergency Toolkit, http://www.careemergencytoolkit.org/logistics/#1.1.

[8]As logistics management will have impacts on the quality and durability of post emergency and development activities.

[9]Sun Tzu, The Art of War.

of commercial organizations'.[10] More recently, notably throughout the 1990s, the approach of humanitarian stakeholders towards logistics has changed: 'It is only recently that humanitarian organizations. . .have tried to break free of the vicious circle by pin-pointing logistics and supply chain management as key to a relief operation'.[11]

The first part of this chapter focuses on the definition of *humanitarian logistics*, its components and particularities (2). The second part introduces the humanitarian supply chain with specific attention given to some of its most central parts: needs assessment and planning, procurement, transport and warehousing (3).

2 Definition, Scope of Application and Fundamental Specificity

2.1 A Definition 'Open to Loose Interpretation'[12]

Classically, *logistics*[13] has been defined as 'the practical arrangements that are needed in order to make a plan that involves a lot of people and equipment successful'.[14] Nevertheless, it seems that there is no clear consensus on the definition of *humanitarian logistics* within the humanitarian community.

Therefore, *to many humanitarians, the definition of logistics is open to loose interpretation*,[15] and the great variety of humanitarian stakeholders contribute to a certain diversity in terms of systems and processes. In 2005, A.S. Thomas and L.R. Kopczak proposed a definition referring to

> the process of planning, implementing and controlling the efficient, cost-effective flow and storage of goods and materials, as well as related information, from the point of origin to the point of consumption for the purpose of alleviating the suffering of vulnerable people. The function encompasses a range of activities, including preparedness, planning, procurement, transport, warehousing, tracking and tracing, and customs clearance.[16]

In fact, the range of *humanitarian logistics* seems to be wider and includes additional activities,[17] without which the quality or feasibility of humanitarian operations would be questioned, such as communication and IT management, real estate management, equipment and asset management, etc.

---

[10]Thomas (2003), p. 4.

[11]Van Wassenhove (2006), p. 476.

[12]*Ibid.*

[13]From late lat. *logisticus* of calculation, computation, from Greek *logistikos*, skilled in calculation, rational.

[14]Dictionary of Contemporary English, New edition, Pearson Education Limited, 2009.

[15]Van Wassenhove (2006).

[16]Thomas and Kopczak (2005), p. 2.

[17]The definition by A.S. Thomas and L.R. Kopczak mainly refers to supply chain management.

According to the Logistics Cluster, even if 'many terms are. . .used interchangeably, in literature and in the humanitarian world', the fact that humanitarian logistics includes supply, material management and distribution is 'one quite frequently accepted view in the humanitarian sector'.[18] A transversal definition of humanitarian logistics has been given by M. Fabrice Perrot, Head of Logistics of NGO Solidarités International: '[L]ogistics is a support service that provides operational teams with appropriate material and structural resources required for humanitarian activities' implementation'.[19]

This chapter does not address the full range of humanitarian logistics components but will focus on supply chain management as this component is of critical importance for humanitarian relief activities' effectiveness.[20]

2.2 Particularities of Humanitarian Logistics

Aside from its obvious differences with military logistics or commercial logistics (notably, among many others, in terms of finality), humanitarian logistics has its own characteristics and particularities[21]:

- Humanitarian logistics usually operates in complex environments (due to geographic constraints, accessibility issues) and/or in volatile contexts (from the security and political point of view) and as a result requires adequate context and security follow-up, as well as adapted, specific and robust materials, assets and equipment.
- Humanitarian logistics generally operates under time pressure (as efficient and effective assistance has to be delivered in a timely manner), and therefore logistics systems must be reactive, adaptable and flexible.
- Many humanitarian stakeholders are dependent on donors' financial contribution, which can be problematic since donors tend to set up specific rules (notably for procurement) and can be perceived as reluctant to fund the entirety of stakeholders' logistics needs.[22] Humanitarian action is guided by fundamental principles (humanity, neutrality, impartiality, independence), which also have to be respected in the logistics area. In addition, humanitarian logistics has its own principles[23]: transparency (in all logistics components and phases),

[18] Logistics Cluster, http://log.logcluster.org/preparedness/logistics/index.html#introduction.

[19] Perrot (2015), p. 5.

[20] However, equipment, communication, IT, security management etc. are not to be considered secondary logistics activities.

[21] See notably Van Wassenhove (2006), pp. 477–479.

[22] Donors push stakeholders to be careful in their budget proposals with the ratio between funds allowed to direct activities implementation and funds allowed to support activities.

[23] Logistics Cluster, http://log.logcluster.org/response/procurement/index.html#procurement-in-the-humanitarian-context.

accountability (to donors and to beneficiaries) and efficiency with cost-effectiveness (assistance has to be efficient, and financial resources have to be used in a manner relevant to goals). Organisations must also keep track of ethics guidelines[24] and adhere to the 'do no harm' principle (notably through *clever* procurement, which will avoid causing disturbances in local markets).
- Humanitarian logistics operates in a crowded environment, and the great diversity of stakeholders must push them to coordinate their efforts to ensure efficient assistance delivery.

2.3 Logistics and Coordination

'Coordination saves lives.' Despite the clarity of the United Nations Office for the Coordination of Humanitarian Affairs' (OCHA) motto, humanitarian actors still have to pursue and redouble their efforts in terms of coordination, notably in order to

- enable more efficient quality assistance (as coordination allows relevant allocation, distribution and use of logistics resources); and
- respect the fundamental principles and pay attention to cost-effectiveness (coordination allows avoidance of duplication and overlaps and therefore losses of time or the misuse of resources).

The Logistics Cluster *is responsible for coordination, information management, and, where necessary, logistics service provision to ensure an effective and efficient logistics response takes place in each and every operation.*[25] It plays a key coordinating role by facilitating interagency interoperability and collaboration and, if needed, implements a set of logistics activities. Both during emergencies and post-emergency situations, it supports humanitarian organisations with (among others) coordination, information management, importation of humanitarian consignments, storage services, road and sea transport services, air transport services, purchase and distribution of fuel, cargo tracking, etc.[26] The Logistics Cluster's lead agency, the United Nations World Food Programme (WFP), developed two other logistics support network: the United Nations Humanitarian Response Depot (UNHRD) and the United Nations Humanitarian Air Service (UNHAS).

[24]For example, organisations avoid working with companies not respecting child labor prohibition, or buying raw materials of unclear or unknown origin.

[25]The Cluster Approach '*was designed to facilitate the formation of groups of organizations, organized by sector, which would work together to improve humanitarian response*'. It has been adopted in the framework of the Humanitarian Reform. Logistics Cluster, http://www.logcluster.org/logistics-cluster.

[26]Logistics services further include emergency response operations, service portfolio, coordination, information management, warehousing and transport, among others.

3 The Humanitarian Supply Chain

Supply chain management is a crucial component of humanitarian logistics. It refers to '. . .planning, implementing and controlling the efficient, cost-effective flow and storage of goods and materials, as well as related information, from the point of origin to the point of consumption for the purpose of alleviating the suffering of vulnerable people'.[27]

These networks '[consist] of suppliers, manufacturers, distributors, retailers and customers'[28] supporting three types of flows (material flows, information flows and financial flows). Due to the particularities of humanitarian logistics (which operates in complex and evolving contexts), supply chains have to work with uncertainty and risk and must be *multiple, global, dynamic and temporary*.[29] In emergencies, emphasis will be put on efficiency and time consideration, whereas organizations will focus on global quality during post-emergency phases.

This chapter focuses on the most critical steps of the humanitarian supply chain: needs assessment and planning, procurement, transport and warehousing.

3.1 Needs Assessment and Planning

Humanitarian assessments must necessarily take logistics aspects into account. Logistics assessments ensure the feasibility and effectiveness of the humanitarian response, by determining how it can be concretely implemented. *Assessing the logistics implications as early as possible in the project cycle ensures that the logistical feasibility and cost of the proposed project are fully taken into account*.[30]

A logistics assessment refers to 'the process of gathering, analysing and disseminating logistics related data and information in relation to the impact of a disaster. It determines the extent of the impact (through a situational assessment) and the logistical needs (through a capacity assessment)'.[31] All the information gathered in the logistics assessments will have direct impacts (material, financial) on the humanitarian response definition, in terms of feasibility, time efficiency and cost-effectiveness.

From the supply chain perspective, logistics assessments will notably focus on procurement, transport and warehousing (identification of needs, potential suppliers or partners, networks and infrastructures, financial aspects, etc.). Potential restrictive factors (for example, security, authorities' policies and behaviour, infrastructural condition, etc.) are also to be considered.

---

[27] Thomas and Kopczak (2005), p. 3.

[28] Van Wassenhove (2006), p. 480.

[29] *Ibid.*

[30] CARE International Emergency Toolkit, http://careemergencytoolkit.org/logistics/#4.2.

[31] *Ibid.*

Moreover, these assessments are great opportunities to receive important information about the beneficiary population's social, environmental and cultural habits, which must be taken into account to ensure an adapted response (for example, population's dietary habits, ways of using or consuming the goods, social structures, gender roles and norms, minorities' specific needs, etc.).[32]

3.2 Procurement of Relief Goods and Services

Procurement aims at ensuring that relief goods and services *are of the right quality, from the right source, are at the right cost and can be delivered in the right quantities, to the right place, at the right time*.[33] It plays a key role within the supply chain since poor procurement performance can delay or even jeopardise relief operations.[34] Thus, procurement needs anticipation and pushes humanitarian stakeholders to work on their emergency preparedness by taking various actions,[35] which aim at improving their capacity to mobilise quickly and efficiently.

The Logistics Cluster defines procurement as 'the process of identifying and obtaining goods and services. It includes sourcing and purchasing and covers all activities from identifying potential suppliers through to delivery to the users or beneficiaries'.[36]

The main steps of the humanitarian procurement process are sourcing, supplier selection and contracting. Humanitarian stakeholders must have clearly defined procurement rules and policies (defining how purchases, relationships with external actors or internal control has to be managed, among others) in order to ensure the delivery of the needed assistance in compliance with the six rights and with donor requirements.[37] Simplified emergency procedures should be enacted to ensure fast-enough procurement, meeting emergency needs and, in the meantime, ensuring sufficient levels of accountability.[38]

[32] CARE International Emergency Toolkit, http://careemergencytoolkit.org/logistics/#4.1.

[33] Logistics Cluster, http://log.logcluster.org/response/procurement/index.html#procurement-objectives.

[34] CARE International Emergency Toolkit, http://careemergencytoolkit.org/procurement/#a03.

[35] For example, organisations can (among many others): establish and update suppliers lists for emergency relief items; establish and update price list for '*classical*' relief items (ex. hygiene kits items—soap, water purification tablets, etc.; reinforce their knowledge of import and customs procedures; etc.

[36] Logistics Cluster, http://log.logcluster.org/response/procurement/index.html#definition.

[37] As not respecting donor requirements may generate financial liabilities for organisations (since irregular purchases may be disallowed by donors).

[38] CARE International Emergency Toolkit, http://careemergencytoolkit.org/procurement/#a08.

3.3 Transport of Humanitarian Supplies

In the humanitarian logistics scope, transport can be defined as 'the activities involved in moving supplies from point of origin to internal customers or beneficiaries'.[39] Transport planning and management can be quite complex—particularly in emergency situations or volatile contexts—as it relies on existing infrastructures, must be safe and secured, needs to be adapted to the nature of the transported goods and may have to be fast and efficient (notably in emergency situations).

Efficient humanitarian transport requires proper management of transport documents in order to ensure quality and transparent management and, ultimately, efficient and timely relief assistance delivery. Where international movements are required, organisations must pay particular attention to customs procedures and possible import restrictions.[40] Organisations must anticipate customs procedures (through an accurate knowledge and a continued follow-up of documentation, rules and procedure requirements in their potential intervention zones) in order to avoid major delays or additional and unplanned costs.[41] Transport is mainly conducted by air, road, sea and rail (Table 1).

The choice of transport modes depends on many factors, and contextual specificities[42] must absolutely be considered. As it can be difficult for one transport mode to meet all the requirements of humanitarian operations, organisations often chose multi-modal solutions (for example, consignments transported by air to main airports and by road from airports to field distribution sites).

3.4 Warehousing

Warehouses are crucial spaces in the procurement framework. Before being distributed or used, relief goods, materials and equipment must be properly stored and handled in specific and planned space. *In general, warehouses are focal points for product and information flow between sources of supply and beneficiaries. However, in humanitarian supply chains, warehouses vary greatly in terms of their role and their characteristics.*[43]

[39] Logistics Cluster, http://log.logcluster.org/response/transport/index.html#definition.

[40] Even if States may implement simplified customs procedures for specific items in case of emergency. These simplified procedures are notably recommended by the International Disaster Relief Law of the International Federation of Red Cross and Red Crescent (IFRC).

[41] CARE International Emergency Toolkit, http://careemergencytoolkit.org/logistics/#5.9.

[42] Time pressure, financial aspects, distance, nature of shipment, network and infrastructure, geographical, seasonal or security aspects, etc.

[43] Logistics Cluster, http://log.logcluster.org/response/warehouse-management/index.html#definition.

Table 1 Criteria of different modes of transport

Criteria	Mode			
	Road	Rail	Sea	Air
Relative speed	Moderate	Moderate	Slow	Very high
Reliability	Good	Good	Limited	Very good
Cost per tonne/km	Medium	Low/medium	Low/very low	High
Flexibility	High	Low	Low	Medium
Other considerations	Extensive network	Limited and fixed infrastructure	Restricted network	Limited network
	Short and medium distances e.g. Europe/Middle East. From a neighbouring country to operation site Internal transport; Short/medium distance.	Large consignments. From port of discharge to inland operation site (warehouse). Ecological.	Large quantities; Less urgent; Pre positioning phase; Second phase; Long distance with no time constraint.	Emergency phase; Expensive goods; Fragile or perishable goods; Cold chain; No alternative option; Small shipments; e.g. diplomatic pouch; Long distance with time constraint.
Advantages	Relatively fast; No transhipment; Direct delivery; Flexible; Cost.	Economical; Large loading capacity; Range and speed (in most countries).	Economical: Large loading capacity; No restriction on loading capacity; Cheap.	Fast; Reliable; Limited losses; Direct; Easy tracking and tracing.
Disadvantages	Roads may be dangerous (land mines) or blocked (rainy season); Sometimes, driver's nationality or vehicle registration not acceptable.	Difficulty finding freight cars; Delays; Transhipment Inflexible; Tracking.	Slow: Transhipments at ports; Use as a second means of transport for large volumes; Higher theft risk in the port; Not flexible.	Expensive; Restricted to journeys between airports: Restricted loading capacity (dangerous goods, size of shipment, weight, fuel, size of packages, etc.).

Reproduced by kind permission of The Fritz Institute, Chartered Institute of Logistics and Transport (CILT) and The Certification Advisory Group (Unit 4, Transport 20/2) from Certification in Humanitarian Logistics

Global warehouses are generally facilities specifically built and designed and managed by permanent teams (pre-positioning of key relief resources might allow for more efficient and timely humanitarian response),[44] whereas field warehouses are usually temporary warehouses. The types of structures vary (tents, rub halls,

[44]Logistics Cluster, http://log.logcluster.org/response/warehouse-management/index.html#global-warehouses.

local or modern concrete buildings—adapted or, less often, built on purpose by organisations).[45]

Proper management (and therefore proper human resources training and follow-up) is required as urgent humanitarian needs cannot afford chaotic or discrepant warehousing—which may lead to losses, shortages and thus delays. Proper warehousing has to be *practical and action oriented with a focus on making the humanitarian goods available as quickly and efficiently as possible, but yet at the same time accountable*.[46]

In this respect, organisations must set up efficient, transparent and meticulous stock management rules[47] in order to ensure the timely and sufficient availability of the requested items, also with respect to transparency and accountability. Nevertheless, a certain level of flexibility needs to be maintained as logistics teams must be able to efficiently address unplanned or time-pressed demands.

Various criteria have to be taken into account for warehouse identification and selection. Generally, organisations will have a specific focus on, among others:

- *basic storage needs*: nature and volume of goods to be stored, handling equipment needed, and other services required (transit, sorting or packing zones, etc.);
- *infrastructure condition and characteristics*: accessibility, size, security, proximity from other logistics infrastructures, ventilation, security.

4 Conclusion

Growing awareness of logistics' capital importance for an operations' success within the humanitarian community has led to serious and substantial improvements of humanitarian logistics systems and processes over the last two decades. Nevertheless, due to the complexity of humanitarian contexts, logistics' quality and efficiency often remain a challenge. Therefore, organisations must pursue their work in terms of preparedness, proper processes and policy implementation and search for quality and efficiency and cost-effectiveness while continuing to respect humanitarian principles and ethics.

This persistent need for improved logistics systems has become apparent through criticisms[48] of the World Health Organization's (WHO's) response to the vertiginous Ebola outbreak in West Africa, which pushed the agency to rethink its

[45] Logistics Cluster, http://log.logcluster.org/response/warehouse-management/index.html#field-warehouses.

[46] *Ibid.*

[47] For inventory control, stock movements controls, etc. (waybills, stock request forms, release orders, stack cards, stock reports, etc.).

[48] WHO has been criticised for its '*late*' response by a UN-commissioned panel of outside independent experts: WHO, Ebola Interim Assessment Panel, Report by the Secretariat, A68/25, 8 May 2015.

operational and logistics capacities. Thus, WHO *is right now working with the World Food Programme to establish a common operational platform, especially for the provision of logistical support*.[49]

Coordination is one of the key challenges, but despite the Logistics Cluster and organisational efforts, its importance still has to be re-emphasised.

Fabrice Perrot has stated in his lecture that

> humanitarian actors should continue their reflection upon logistics improvements. The support given by the Logistics Cluster is highly appreciable, but NGOs need to find diverse ways of improving their capacities. Logistics pooling should be more often considered as an option in order to improve effectiveness of our humanitarian responses.[50]

In addition, collaboration and coordination with other agencies (United Nations, international or national humanitarian organisations)

> [allows] NGOs [to increase] their deployment capacity, and facilitates program funding since donors carefully watch the financial ratio between logistics and operational costs. Sharing resources or using Logistics Cluster's common services allows reducing the program budget allocated to logistics.[51]

Frédéric Urlep, WHO Senior Logistics Officer, once told me that he believes

> humanitarian stakeholders must maintain their own capacities at a sufficient level, particularly during and after post-emergency phases. Organizations (and most particularly NGOs) have to seek and find diverse partners able to bring them logistics support. UNICEF for example can be a partner of choice, by bringing substantial logistics support through the PCA[52] system.

Since adequate logistics systems and effective coordination are key elements of successful humanitarian operations, continuing improvement efforts are fundamental.

References

CARE International Emergency Toolkit. http://careemergencytoolkit.org/logistics/#5.9

Logistics Cluster, Logistics Operational Guide, http://dlca.logcluster.org/display/LOG/Logistics+Operational+Guide+(LOG)+Home

[49]Report by the Director-General to the Special Session of the Executive Board on Ebola, Special Session of the Executive Board on Ebola, Geneva, Switzerland, 25 January 2015.

[50]Perrot (2015).

[51]*Ibid.*

[52]Programme Cooperation Agreement, referring to a collaborative implementation of a jointly—developed programme or humanitarian intervention, within the framework of a UNICEF Country Programme of Cooperation. PCAs allow UNICEF to provide key logistics services (procurement, storage, etc.) to partner organisations.

Perrot F "La logistique humanitaire", teaching module of a lecture given on the 22nd of January 2015 at Institut d'Etudes Humanitaires Internationales, Aix-en-Provence, p. 5, https://facdedroit.univ-amu.fr/iehi
Sun Tzu, The Art of War
Thomas AS, Kopczak LR (2005) From logistics to supply chain management. The path forward in the humanitarian sector. Fritz Institute
Van Wassenhove LN (2006) Blackett memorial lecture - humanitarian aid logistics: supply chain management in high gear. J Oper Res Soc 57:476

Further Reading

Thomas A (2003a) Humanitarian logistics: enabling disaster response. Fritz Institute
Thomas A (2003b) Why logistics? Forced Migr Rev 18:4

Gildas Vourc'h is a Lecturer at the Institut d'Études Humanitaires Internationales of Aix-Marseille University, France. He has worked as Programme Manager, Logistician, Field Coordinator and Country Director in the humanitarian sector in many parts of the world.