

Introduction to Supply Chain in Humanitarian Operations



HELP Logistics

Learning Objectives

- Understand evolution and fundamentals of logistics and supply chain management
- Recognize the difference between development and emergency relief projects in context of humanitarian logistics
- Know the different types and impact of disasters
- Know the different actors and relief items in humanitarian operation
- Understand different supply chain designs and CONOPs

Global Partners and Regional HELP Offices



Evolution of Logistics



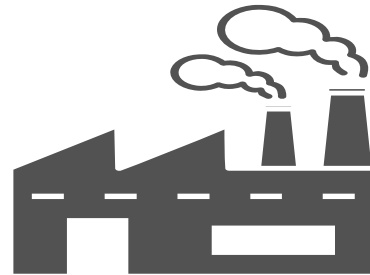
Early 19th Century
Awareness of mobility
activities to support
military operations

WW II



Military
Logistics

Early 20th Century
Awareness of activities
to replenish stocks in
mass production



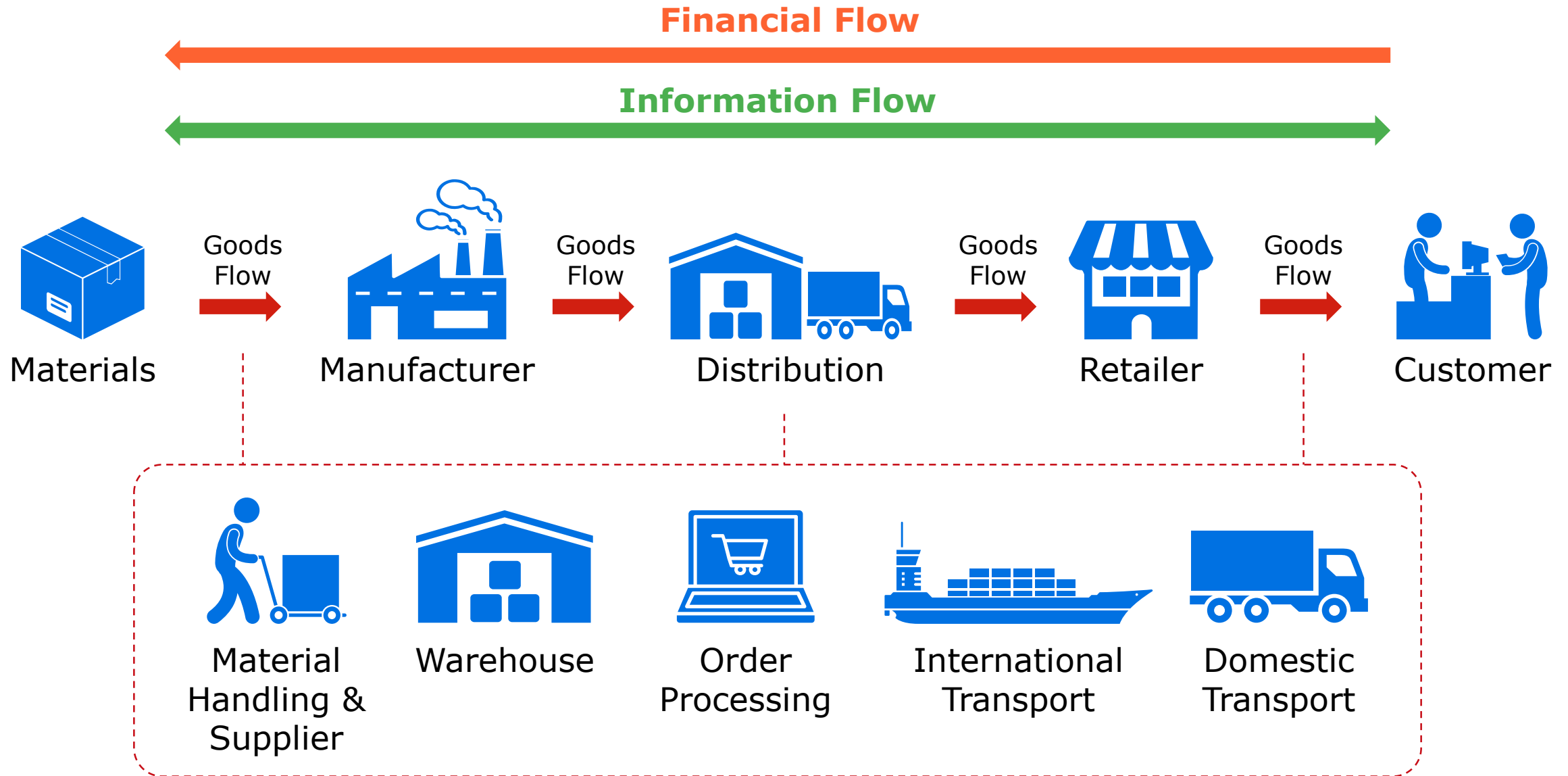
Assembly Plant
Internal Logistics

Late 20th Century
Clear awareness of
activities to deliver
goods to receivers



Last-mile
Distribution

Supply Chain Management Process Framework



Supply Chain Management in Humanitarian Operations

Humanitarian Context

Any form of assistance provided for the purpose of saving lives, alleviating suffering and maintaining human dignity

SCM in the Humanitarian Context

Managing tasks, flows of goods, funds, information and people to saving lives, alleviating suffering and maintaining human dignity

Role of SCM in the Humanitarian Context

External and internal support

Donor



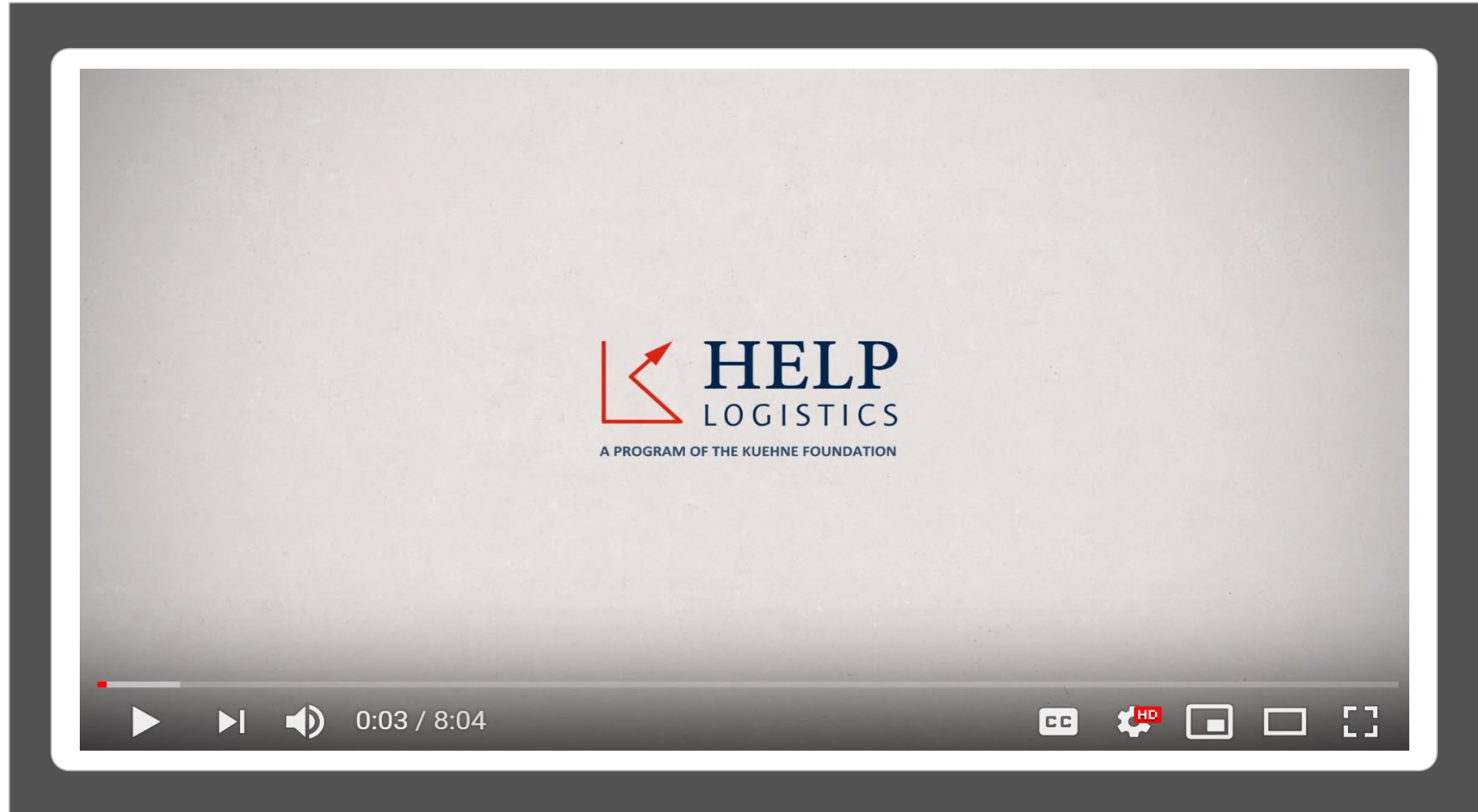
SCM



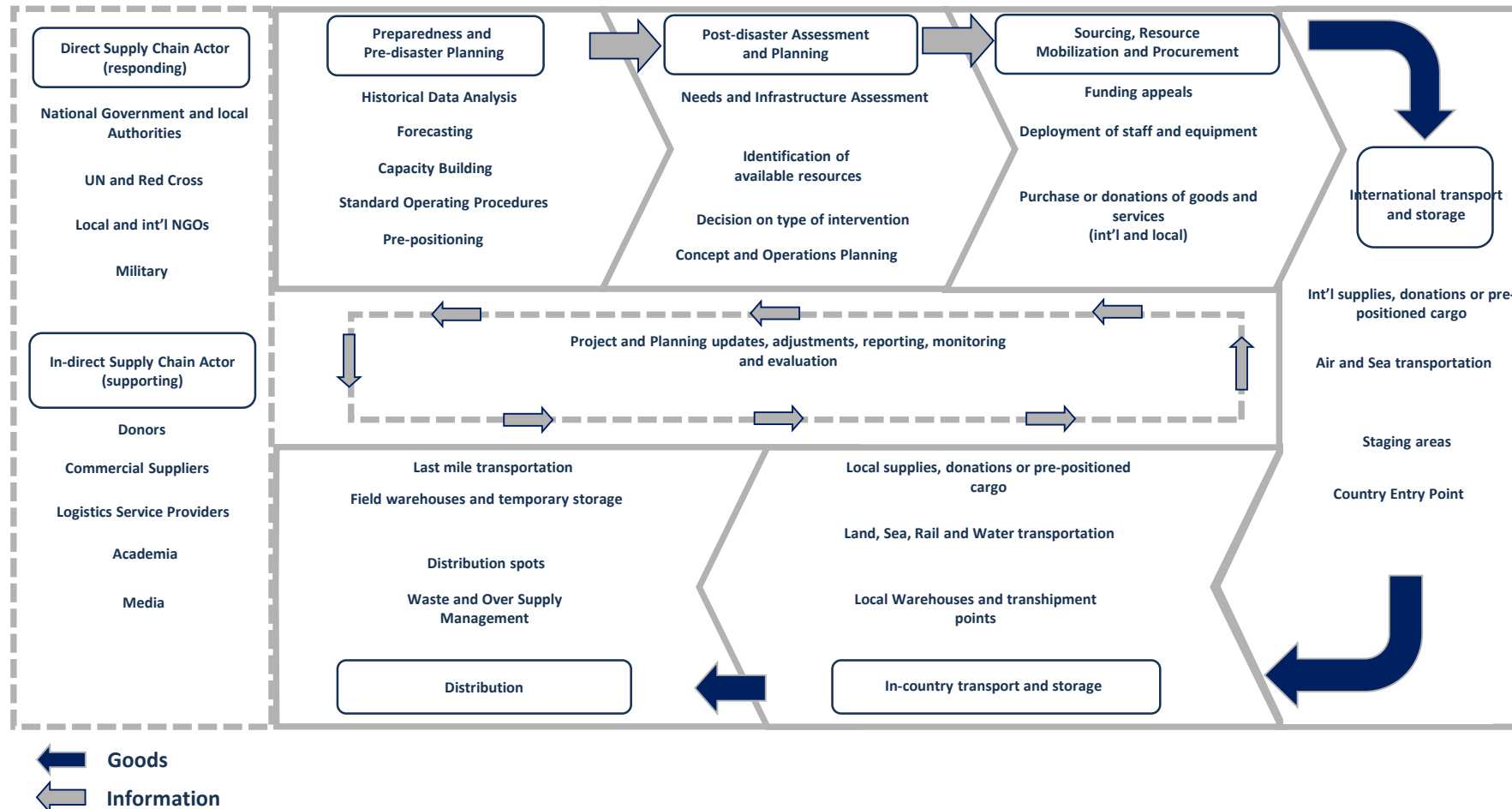
Beneficiary



Humanitarian Supply Chain – An Interconnected System



Humanitarian Supply Chain: An interconnected system involving flows of goods, funds and data



Source : Stumpf (2014)

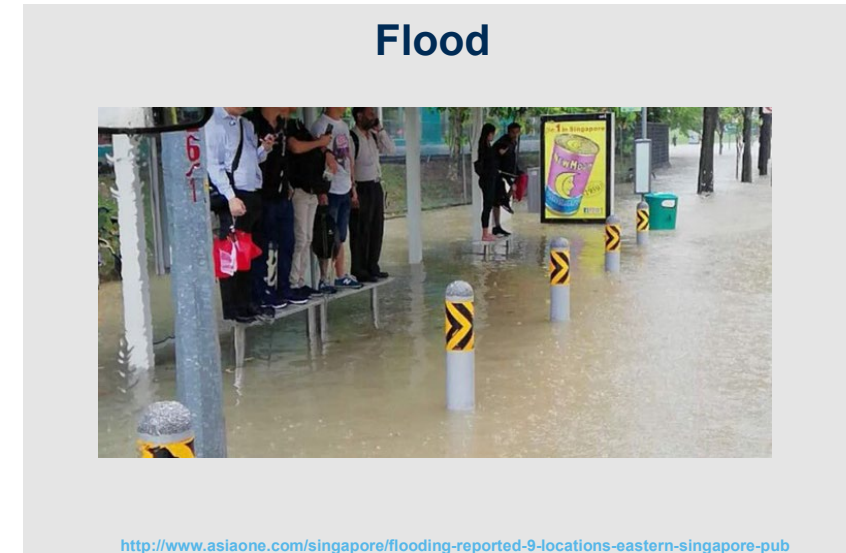
Humanitarian vs. Commercial Supply Chains

	Commercial Supply Chain (Most industries)	Humanitarian Supply Chain
Goal	<ul style="list-style-type: none"> Maximizing profit, lowest cost (efficiency) Optimization of resource utility (efficiency) Maximizing customer satisfaction (effectiveness) 	<ul style="list-style-type: none"> Saving lives, alleviating suffering Maintaining human dignity
Customer	<ul style="list-style-type: none"> Consumer is paying to consume 	<ul style="list-style-type: none"> Beneficiary is consuming Donors are paying
Stakeholder	<ul style="list-style-type: none"> Typically more homogenous type with common goals (profit, shareholder value) 	<ul style="list-style-type: none"> Multiple stakeholders like donors, Governments, commercial, etc. with different interests
Investments/ Capacity Building	<ul style="list-style-type: none"> Clear investment/innovation strategies 	<ul style="list-style-type: none"> Return on investment hard to quantify Depends on donor support which is hard to get prior to disaster has happened
Market entry strategy / Risk tolerance	<ul style="list-style-type: none"> Strategic Risk - Profit analysis 	<ul style="list-style-type: none"> High risk tolerance to achieve ultimate goal Not really a choice whether to respond to humanitarian crisis or not
Information systems	<ul style="list-style-type: none"> Available Proper information technology seen as key for success in almost every sector 	<ul style="list-style-type: none"> Often weak, not complete, or not adequate Sources are not reliable Many different systems in place
Environment	<ul style="list-style-type: none"> Certain environment with the seasoning fluctuation Collaborative and integrated in most situations for the benefit of economic development 	<ul style="list-style-type: none"> Uncertain (political, health, environmental social stability)
Human Resource Management	<ul style="list-style-type: none"> Highly experienced professionals 	<ul style="list-style-type: none"> Lack of experienced professionals and staff development paths

Disaster Classifications

	Natural	Man-made
Sudden-onset	Earthquake	Terrorist Attack
	Hurricane	Armed Conflict
	Landslide	Chemical leak
Slow-onset	Famine	Political Agenda
	Disease	Refugee/IDP

Hybrid Disaster:
A combination of 2 or more of the above



Different Supply Chain Characteristics in Humanitarian Context

	Emergency Response Supply Chain	Development Project Supply Chain
Needs Assessment	Quick and estimated	Accurate
Information	Information in most cases unreliable, incomplete or non-existent	Available if properly collected and documented and IT system in place
Demand Pattern	Demand generated from random events that are not predictable in terms of timing, location, type and size. Demand requirements are estimated after they are needed based on initial assessments	Relatively stable and predictable. Demand occurs from fixed locations in set quantities
Sourcing/Procurement	Long term agreements difficult due to high demand uncertainty → Availability often an issue. A lot of in-kind donations to be handled.	Long term agreements can be arranged easier. Procurement of big quantities/lots an option
Types of products/Items	Live saving items such as water, food, shelter and medical	Livelihood items
International Media Attention	High attention during the first days after the disaster	Low attention
Funding situation	Generally a lot of funding in particular after major disasters	Often difficult for long-term projects
Infrastructure	In most cases severely damaged in particular last mile	Infrastructure exists but difficult and partially inaccessible during rainy seasons

Different Supply Chain Characteristics in Humanitarian Context

	Emergency Response Supply Chain	Development Project Supply Chain
Pricing/Costs	Typically high costs due to time pressure, competition and lack of resources/capacities	Cost reduction should play a central role
Lead Time Strategy	Zero lead time → Aggressively reduce even if costs are significant	Lead time to be based on procurement-transport-distribution characteristics and requirements
Planning	Difficult due to unknowns If no preparedness plans exist	Long term planning possible if funding available
Distribution Network Configuration	Challenging due to the nature of the unknowns	Can be well-defined; number and locations can be determined
Inventory Strategy	Buffer / Pre-positioning / Limited storage space can lead to high competition & price	Minimize Inventory
Transport Modes	Speed and availability	Greater reliance on low cost modes Big quantities and bundling options to be considered
Strategic Goals	Minimize loss of life and suffering → Effective Response	Deliver high quality products at minimal costs and achieve high beneficiaries satisfaction → Efficient Response

Supply Chain Development Project

School Feeding Programmes

UNWFP are scaling down implementation in Asia and are handing over activities to the respective Governments. UNWFP are assuming a technical and advisory role to the respective Governments.



- More than 300 Schools and 8,273 MT of Non-perishables
- RGoB is taking over implementation from UNWFP
- HELP Logistics sought to optimise their (MoE) transport and warehousing



- More than 2,000 Schools country wide, some in difficult terrain
- GoN has restructured to decentralised approach
- HELP Logistics to develop a supply chain decision framework



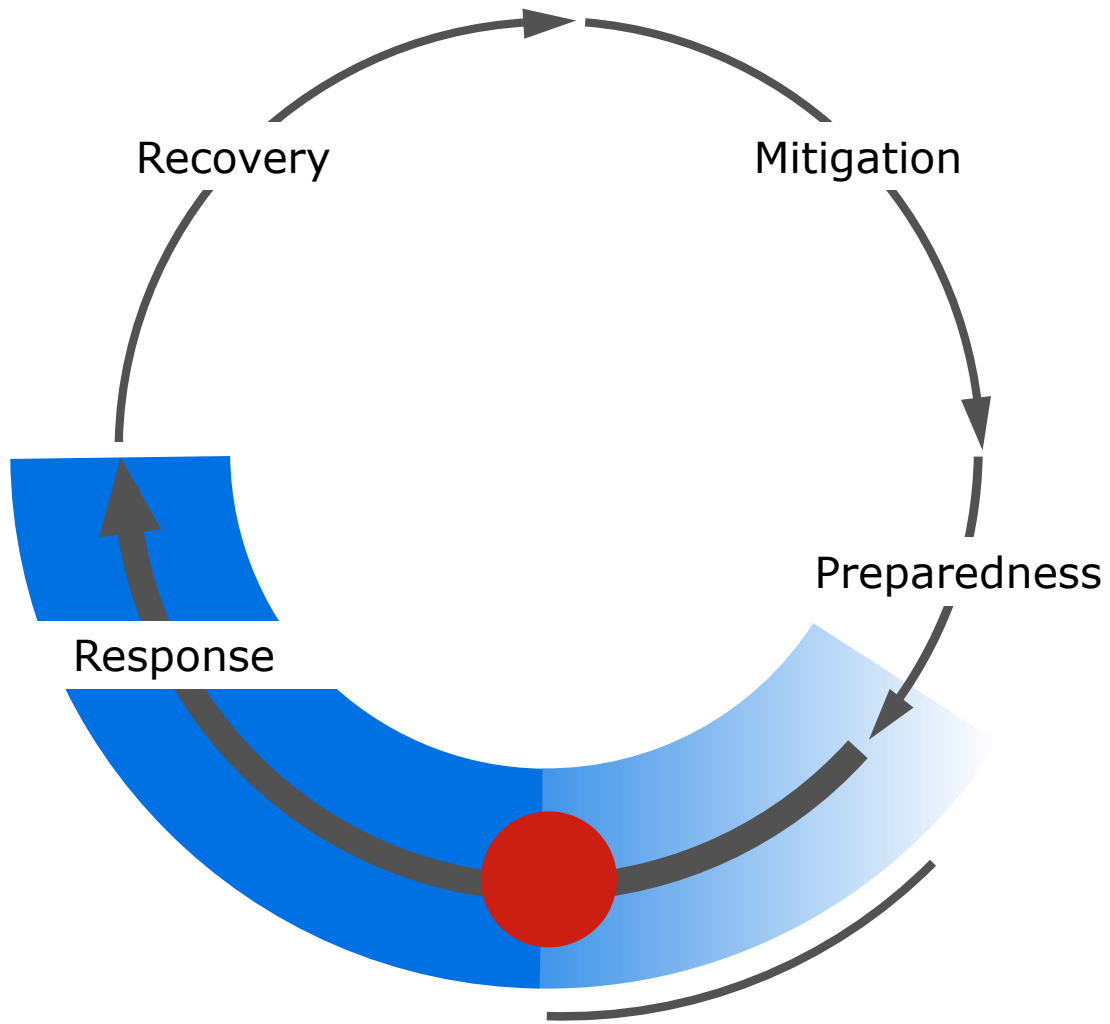
- Targeting 1,189 schools (approximately 276,000 students)
- Transition to decentralized approach
- HELP Logistics to streamline commodities and cash flows



KEY HIGHLIGHTS

- Enhance School Meal Modalities
- Develop Strategic Grain reserve strategy
- Improve inclusion of Small-Holder Farmers
- Strengthen National Logistics Agencies

The Disaster Cycle



Preparedness

Planning how to respond

Response

Efforts to minimize hazards created by the disaster

Recovery

Returning the community to normal

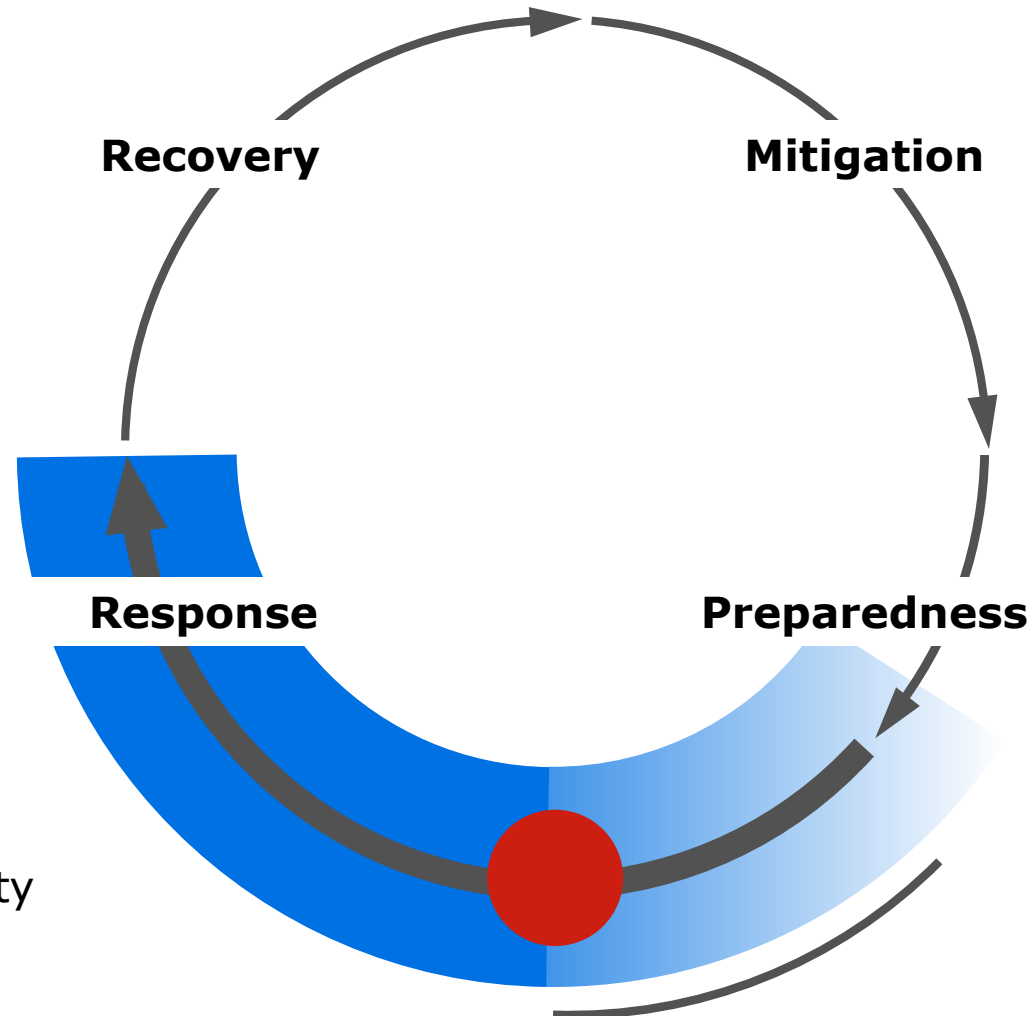
Mitigation

Minimizing the effects of disaster

Role of Supply Chain in Disaster Management

- Rebuilding
- Reconstruction

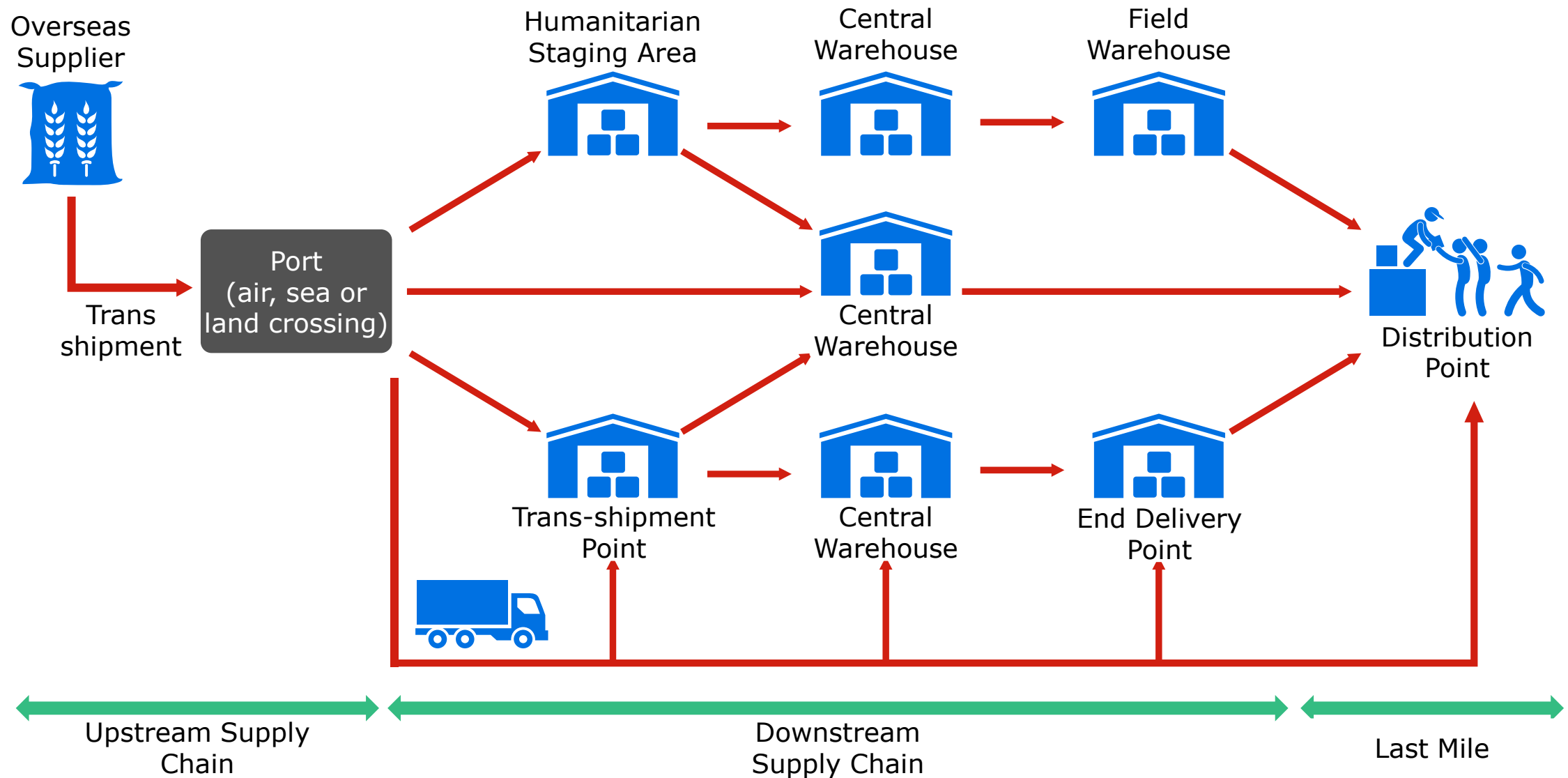
- Resource Mobilization
- **Relief distribution Design**
- Short lead-times
- Supply & demand uncertainty
- Agile Operations



- Resource allocation
- Infrastructure building
- Preventative health-care

- Preparedness Training
- Contingency Planning
- Forecast & Inventory Planning

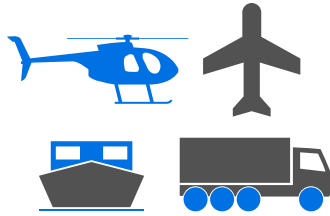
Supply Chain Design in Humanitarian Operations



Supply Chain Design Principles

Criterion	Efficient	Responsive
Primary Goal	Lowest cost	Quick response
Product Design Strategy	Integral design to minimize product cost	Modular design to allow postponement
Pricing Strategy	Lower margins	Higher margins
Manufacturing Strategy	High utilization	Capacity flexibility
Inventory Strategy	Minimize inventory	Buffer inventory
Lead-time Strategy	Reduce but not at expense of greater cost	Aggressively reduce even if costs are significant
Supplier Selection Strategy	"Sufficient" quality and cost	Speed, flexibility, quality
Transportation Strategy	Greater reliance on low cost modes	Greater reliance on responsive (fast) modes

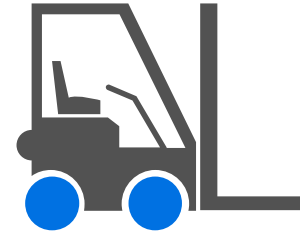
Supply Chain Constraints and Challenges



**Transport
Capacity**



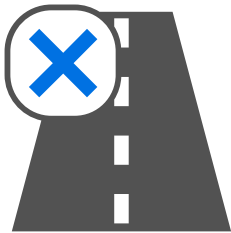
**Storage
Capacity**



**Equipment
Availability**



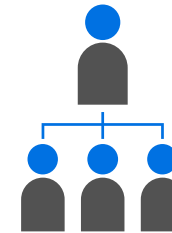
**Fuel
Availability**



**Infrastructure
Damage**



**Weather
Conditions**

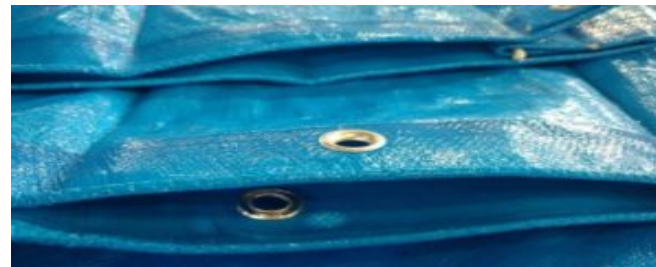
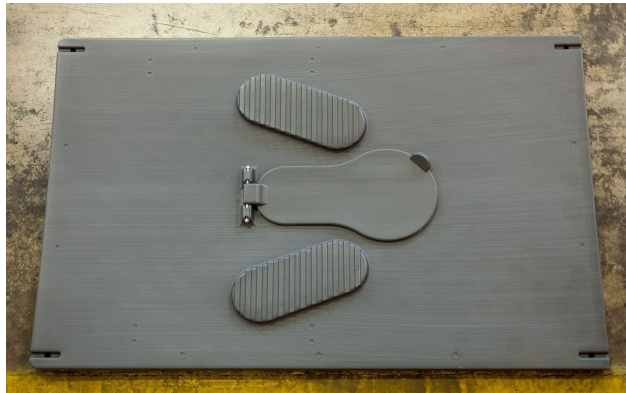


Skilled Staff



**Security
Concerns**

Emergency Needs and Requirements



Supply Chain Design for Relief Distribution Response

Case Study on Humanitarian Supply Chain Management

January 2017 Singapore Earthquake¹

On 2 January 2017 at 03:36am Singapore Time (GMT+8) a devastating earthquake hit Singapore that measured 7.7 on the Richter scale.

It is 4 January 2017 now: A new Emergency Operation for Relief Assistance to the affected population in Singapore has been launched. At that stage, the intervention is planned for 3 months (January 2017 – March 2017). You are part of a consortium of Supply Chain Experts from a Local Disaster Management Agency, a small local NGO “LONGO” and an international NGO “INGO” with the task to secure the supply for the worst affected population in and around Singapore.

Your consortium is supposed to plan and design a coordinated and uninterrupted supply chain of life saving relief items to the affected areas (starting 5 January 2017) including cargo and information flows starting from **assessment**, **sourcing** (stocks and procurement), **transportation**, **warehousing** up to final **distribution**. Taking into consideration external environmental factors, internal operational requirements and the local transport market, the following deliverables need to be presented to a committee of ministers and donors:

- **Fulfillment plan** (outline demand and how you will meet the demand)
- **Cost of the total operation** (including procurement, transport, storage, human resources, administration, etc.)
- **List of realistic assumptions** for the feasibility of your operation;

Humanitarian Supply Chain Case Study

Please work in groups (5-6 people) and present:

- **List of constraints**/challenges/areas of concern and impacts on planned operation;
- **Fulfillment plan and assumptions** showing estimated monthly requirements, procurement plan, arrivals from the different origin points and transport plan with estimated required transport and storage capacity on a (weekly) monthly basis;
- **Budget overview** (Procurement, transport and warehousing costs);
- **Overall visual operations map**

Humanitarian Supply Chain Case Study

1) List of facts

- Demand requirements by family/population
- Sourcing of kits (both free and purchasing), transport provided or not provided, cost
- Road availability (what can be used/cannot be used)
- Major transport infrastructure (what can be used/cannot be used), capacity, cost
- Warehouse (what can be used and at what cost)
- Trucks, air, sea (what can be used and at what cost), capacity of vehicles
- Operating hours

2) Fulfilment plan

- Where are your distribution sites?
- What warehouses do you use?
- What sources of kits do you choose and how do you bring kits to Singapore?
- How often do you source? By week, by day or by month?
- How do you manage the movement of kits within Singapore?
- What is your distribution plan? On which day and what time the first set of kits is supplied to beneficiary? And how much?
- How many trips and by which modes do you employ?
- What are stock levels at warehouses?

Humanitarian Supply Chain Case Study

3) Budget Overview

- Sourcing costs
- Operating costs = transport + warehouse costs
- Total costs = sourcing costs + operating costs
- Ratio % = Sourcing costs/ Total costs

4) Web Interactive Operations Room (Crown Agents)

- In the ops room you'll grapple with the difficult decisions faced by those responding to humanitarian crisis worldwide. Taking you from briefings in central HQ to responders the field, you are asked to make vital calls on the people, supplies and transport needed to effectively respond to a rapidly escalating crisis which threatens the lives of millions. This unique virtual reality tool will bring to life the realities of humanitarian response and holds potential to be developed into a training tool for those entering into emergency relief teams.

Click here: <https://mfcd.app.link/PKKUpEZtnP>

<https://tinyurl.com/helplogistics>