C:\Temp\unnamed.png

**NAME:** STEWARD EMMANUEL ELIKANA MIGIDO

**COURSE:** POST GRADUATE DIPLOMA IN PROCUREMENT AND SUPPLY CHAIN MANAGEMENT

**CODE**: PGD008

**DURATION**: 12 MONTHS

**MODULE 7**

**1) A lot of disasters have been encountered over the last three decades. Do you believe that the aid organization have learnt how to improve logistics in disaster? How can they learn?**

Natural and man-made disaster swept through various parts of the world and received much attention over the past decade. Meanwhile, many parts of the world suffer from the lack of basic necessities, including shelter, water, food, education, access to basic health care and safety, which have been identified among “humanity’s top 10 problems over the next 50 years” [1]. Effective logistics operations are a critical component of addressing these needs.

With the objective of articulating challenges in the humanitarian logistics sector and identifying important research issues and opportunities, practitioners and researchers from around the world convened for the 2009 Humanitarian Logistics Conference (HumLog’09), held at the Georgia Institute of Technology in Atlanta. Conference participants numbering more than 180 from non-governmental organizations (NGOs), government agencies, private companies and academic institutions listened to presentations on key humanitarian logistics challenges and strategies to overcome them, focusing on disaster planning and response, long-term development, identifying important research issues and opportunities, and collaboration within and between organizations In addition to panel discussions highlighting these major themes, skill-building workshops and poster sessions allowed participants to interact with one another and share ideas to continue to improve their own organization’s efforts.

The challenges in humanitarian logistics are great and include, among others, limited availability of resources and infrastructure to address needs, high uncertainty and urgency characterizing response efforts, and the presence of multiple stakeholders who often act with different objectives.

Drawing on the outcome of the focused workshops, panel discussions and presentations, event organizers have identified the following 10 ideas that are consistently part of a strategic model for successful humanitarian relief operations.

**Demand analysis.** Develop a basic framework to model the demand based on historical data, past experiences and most likely scenarios. Start with a disaster design: type, magnitude, location characteristics and other defining attributes.

**Inventory planning and control.** Adequate inventory levels are critical given the high uncertainty of delivery lead times for relief supplies. Inventory prepositioning is a suitable strategy to face uncertainty, especially when local supply might be very limited. Inventory management systems are useful to keep track of valuable information about quantity and quality of the inventory on hand.

**Regional coordination and synergies.** Process standardization helps facilitate regional cooperation, but effort should also be placed on decentralized models of smaller coalitions among neighbouring cities or countries with similar characteristics. Economies of scope in established emergency response systems support joint operations; and partnerships with multi-location and international corporations bring flexibility, robustness and agility to the supply chain.

**In-kind donations management.** Consolidate donations so they can be classified and then redistributed, or reassign them to local organizations (e.g., churches, Salvation Army, etc.) who are equipped to deal with these donations. These organizations can either identify those items that can be used or sell some items to raise funds for relief efforts. Always enforce planning, communication and collaboration for in-kind donations processes. For example, a practice known as “donations in contract” can enable more robust supply chain processes. Rather than donors sending whatever items they have and requiring receiving organizations to sort and manage donations, “donations in contract” are only physically transferred when they are requested by the receiving organization according to the terms of the contract.

**Collaboration among organizations** Governments should play a leadership role in determining what critical resources the region needs and achieving coordination among the NGOs and all related organizations.

Alliances should be sought between for-profit and non-profit organizations and between non-profit organizations, but these partnerships should be built before a disaster occurs. Other strategies to facilitate collaboration include information sharing and organization specialization (e.g., one organization focuses on clean water distribution), which may reduce competition among organizations.

**Understanding regional political, economic and socioeconomic conditions** Awareness of the local conditions is crucial for the success of the humanitarian operations. Arrange cultural awareness training programs to create opportunities for a given organization to meet with others that have previously worked in the region.

Additionally, it is essential to involve the community in the preparedness processes and to understand their coping mechanisms before imposing other preparedness measures.

**Utilizing local capacity and capabilities** first, find out what capacity is already in place. Using local capacities and assets (e.g., local volunteers, mules, carts, etc.) offers the added benefit of giving community residents dignity and opportunities to participate in the response and recovery operations.

**Constant communication.** Information from and communication with the people in the field, right where the disaster took place, is critical. Information and communication emergency systems should be built in advance.

The use of mobile phones, when possible, has obvious advantages; moreover, telecommunications companies may see an agile disaster response as a marketing opportunity. Satellite phones might be purchased in advance in case terrestrial cellular service becomes unavailable.

Various technologies such as GIS (Geographic Information System) and GPS (Global Positioning System) are available as part of robust current information systems.

**Socioeconomic impact assessment** Potential negative socioeconomic impact of humanitarian operations is undeniable, but it could be reduced. Past experiences and information sharing could be helpful.

First, consider what is or is not likely to be needed in the affected region. Often, the economy functions such that it makes more sense for individuals to try to sell donated goods in the markets rather than using them.

Second, offer aid that is sustainable by the local communities (e.g. provide the parts needed to fix a donated water pump).

Finally, keep tradeoffs between the short-term effectiveness of the response and the long-term impacts in good balance.

**Humanitarian operations evaluation** Humanitarian operations form a continuous improvement cycle that requires measurement. After a disaster, all learned lessons should be discussed and documented. Tracking the results of the humanitarian operations is particularly important; avoid strategies such as “truck and dump” that fail to document whether the supplies reach those in need.

## Enabling Successful Humanitarian Programs

In addition to the elements described above, information technology (IT), education and research are important enablers of successful implementation of a disaster relief or developmental aid programs. IT allows collecting, storing, analysing and disseminating all the data gathered before and after a disaster hits or as long-term aid operations progress. To make adequate use of IT, first identify the questions one wants to answer, the information that is needed, how the data will be collected and codified, and by whom and how the information will be administrated.

For humanitarian logistics to be recognized as a profession, adequate education is needed. Educational programs could span structured courses, seminars, conferences and training camps; and they should focus on problem-based methods that are practical.

Training and informing the entire community is crucial, and all stakeholder organizations should take responsibility for raising public awareness.

Finally, universities have the ability to act as neutral parties and create a broad network that goes beyond borders among researchers and educators to develop new ways to improve humanitarian operations. Academicians should also be exposed to and understand the real aspects of humanitarian problems to make sure they are working to solve problems that are important in practice. Operations research and management science

(OR/MS) methodologies and tools have already been developed extensively to benefit for-profit supply chains, and they should be adapted to the particular requirements of humanitarian supply chains. Researchers should focus efforts on innovative solutions to develop radical, instead of incremental, approaches to address these pressing challenges.

HumLog’09 provided a pivotal setting for dialogue about the challenges and opportunities in humanitarian logistics.

**2) Identify and explain major steps in each phase of humanitarian logistics relief.**

Humanitarian logistics is a branch of [logistics](https://en.wikipedia.org/wiki/Logistics) which specializes in organizing the delivery and warehousing of supplies during natural disasters or complex emergencies to the affected area and people.

However*,* this definition focuses only on the physical flow of goods to final destinations, and in reality, humanitarian logistics is far more complicated and includes forecasting and optimizing resources, managing inventory, and exchanging information.

Thus, a good broader definition of humanitarian logistics is 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.

This figure presents numerous important aspects in humanitarian logistics, including transport, inventory management, infrastructure, and communications.

Humanitarian logistics is an essential element of disaster management, and it presents many challenges due to the unique disaster relief environment.

Radio-frequency identification (RFID) technology has been increasingly considered to improve the efficiency of supply chain management.

Increasing complexity of supply chains due to globalisation efforts has led to organisations having difficulties with both collaboration and agility in getting aid to individuals in need.

RBV and social capital theory are used in this research paper to clarify the positive association between RFID use and collaboration among organisations and their suppliers.

It is also discussed to demonstrate the association of inter-organisational trust and its moderating role in the relationship between RFID use and collaboration as well as collaboration and its positive association with agility.

**3) The most effective way emergency managers can partner with private sector providers during an emergency is to share information to develop mitigations and remedies to the unique challenges in transitioning supply chains. Name and explain five major challenges faced by aid organizations during disasters.**

The current global humanitarian system is widely acknowledged as no longer being fit for purpose.

As natural disasters and internal conflicts increase over the years, there is a corresponding increase in the number of actors involved in humanitarian assistance and disaster relief [HADR].

However, the growth in the number of actors has not translated into increased effectiveness and efficiency in HADR operations.

The lack of coordination among the various actors is one of the key identified problems which have resulted in unnecessary duplicity of effort, wastage of resources, tensions among various parties involved, and delays in ensuring timely relief to affected populations.

Different actors have competing agendas and biases, despite having the stated common goal to deliver humanitarian assistance to those in need.

Information sharing among HADR stakeholders remains problematic, which leads to a lack of coordination.

Humanitarian actors may have different and even incomplete perceptions of a disaster situation which can hamper the coordination efforts.

There is a lack of trust between stakeholders which inhibits communication and the flow of information. This remains one of the main reasons behind coordination problems.

In general there is an unwillingness to share information results in the field, which results in different awareness levels of the same disaster situation, and leads to inefficient responses.

In conducting humanitarian assistance, especially in conflict-afflicted communities, the military wants that all humanitarian responders to coordinate with them to ensure their safety.

However, some organisations are wary of working with the military as they are keen to preserve their principle of neutrality and independence in conflict settings.

Regular constructive engagements between civilian organisations and the military may help the latter better secure humanitarian actors in accessing affected civilians in conflict areas, while respecting the fundamental principles of humanitarian action.

Regular dialogue among all HADR stakeholders may help them achieve common situational awareness which can lead to more coordinated, faster and better services to conflict-afflicted communities.

NGOs and militaries have different approaches when it comes to the protection of vulnerable communities. Militaries and the police tend to use armed protection to ensure the physical protection of vulnerable communities.

NGOs have a wider range of responses such as public awareness campaigns, emergency relief, psychosocial support, and advocacy measures with governments, donors, parties to conflict, community leaders, and local authorities.

It is imperative to have a much greater level of cooperation by all actors involved on multiple levels. No single agency or country can deal with the aftermath of humanitarian emergencies, including interrelated protection issues.

International organisations, governments, militaries, local communities, private sector, and academia will all need to work together and cooperate with one another.

Cooperation and partnerships can also lead to greater levels of trust, transparency, accountability and improved HADR governance structures.

Sexual and gender-based violence (SGBV) is one important protection issue that requires immediate attention of and collaboration among key actors. However, it is not often a government policy priority prior to disasters.

The unspoken nature of SGBV along with the failure of national policies, responders, and of the local communities to really understand the effects of SGBV means that it is a silent disaster.

A number of factors exacerbate risks of SGBV which include the increased number of actors involved; increased ‘chaos’ and opportunities for SGBV; increased levels of separation from family, friends and support networks; social taboos; breakdown in social protection mechanisms; and lack of state support to the victims.

In the Asia-Pacific, there are still many cases of SGBV due to deeply rooted gender inequality as well as discriminatory socio-cultural norms and practices.

To correctly address SGBV and discrimination, a change of mind set and perspective are needed as regulations and policies alone cannot change the lives of victims.

While governments often sympathize with the victims, the issue is still not considered as a major problem.

It needs to be complemented with financial support for capacity building, partnership and coordination at the local level, as well as a blueprint for development design at the district and provincial levels to help serve the needs of victims in the aftermath of a natural disaster or conflict.

Research from the academic community is an area that is going to be very important and influential in order to find ways to address challenges to HADR including delicate protection issues such SGBV; but at the same time research also should be practical and should contribute to agenda-setting.

It should also ensure that research projects make available to the humanitarian actors and practitioners the tools that they need to better empower vulnerable populations.

Any academic pursuit in the field of HADR will be meaningless if it does not generate insights and/or concrete recommendations to improve the situation on the ground.

Some of the things that business owners don’t expect in regards to natural disasters are the direct economic losses that follow an incident. These losses are multiplied for those who aren’t properly prepared. By knowing what type of problems to expect after a disaster, natural disaster recovery can be a smoother, faster and a more cost-effective process.

**Earthquakes**

Earthquakes are hard to prepare for because they happen without warning. The resulting damage depends on factors like the quake’s magnitude and extent. Problems can come in the form of:

* Hazardous waste
* Property damage
* Structural damage to buildings
* Loss of utilities like electricity and water
* Debris clean up and waste management solutions
* Infrastructure-related problems such as closed roads and communication losses

**Floods and Hurricanes**

The problems that follow events like floods and hurricanes are similar in nature and include:

* Flood waters, septic systems and wells contaminated with hazardous materials and/or raw sewage
* Water- and mold-related property and structural damage
* Taking inventory of materials and documents that are salvageable, coordinating with professionals to start the recovery process
* Waste management in regards to getting rid of disaster debris, eliminating excess water and throwing away porous materials affected by water and mold
* Road closures
* Supply chain problems such as delayed deliveries

**Wildfires**

Wildfire damage depends on the size and extent of the incident. Problems that wildfires cause include:

* Poor air quality
* Closed roads
* Delayed deliveries and other supply chain issues
* Property and structural damage, including water damage, caused by the fire and/or fire fighters
* Waste management solutions for items like ash, building rubble and charred materials
* Document recovery

**Tornadoes**

Like earthquakes, tornadoes can appear without notice. If you’re lucky, you have a couple of minutes to prepare. Tornadoes cause problems like:

* Power losses
* Structural damage
* Water contamination
* Document and property destruction
* Debris formed by the tornado
* Waste management-related problems
* Exposure to hazardous waste, hazardous building materials or chemical spills

**Snow and Ice**

Severe winter weather can lead to:

* Electricity and heating losses
* Burst pipes and flooding, which can destroy buildings, property and documents
* Ice dams
* Closed roads
* Delayed deliveries
* Springtime floods
* Parking lots, roadways and walkways that need de-icing to prevent employee and customer injury

Businesses that don’t have a disaster preparedness or natural disaster recovery plan are less likely to reopen or recover after an incident. The January 2014 Global Catastrophe Recap reported that severe weather alone caused $3 billion in damages in 2013.

When creating a disaster preparedness plan, a business should conduct a risk assessment to identify and prioritize safety concerns, at-risk assets and potential post-disaster problems. Regardless of the disaster type, businesses frequently face the following problems after an incident:

* Structural damage
* Lack of employee access to their place of work
* Interruptions in supply chains
* Losses of perishable goods
* Temporary business closures

By creating a business continuity plan, your business can address the necessary procedures to take after a disaster that outlines immediate response tactics. A disaster recovery plan in place, an organization is more likely to bounce back after an incident with minimal downtime.

While there are parts of the clean-up process that can be handled by the employees, there are some aspects that should be carried out by a property damage restoration specialist. Enlisting a professional will ensure the safety of the employees and to prevent further damage to the property and/or company assets. Such occasions include the cleaning and/or removal of:

* Hazardous materials
* Items in or affected by contaminated water
* Parts of a building that aren’t structurally sound
* Items affected by mold
* Building materials that contain hazardous materials like lead-based paint or asbestos
* Document recovery (cleaning, drying, freezing)
* Debris removal
* Water extraction
* Smoke and soot (carbon) removal

When a business knows the potential risks that it can face following a disaster, and has a plan to mitigate those risks, the natural disaster recovery process operates much smoother. To learn more about business continuity planning for your business, contact Polygon and ask about its Code Blue® program.

**4) Define the following terms used in Humanitarian Logistics**

Humanitarian logistics is a branch of [logistics](https://en.wikipedia.org/wiki/Logistics) which specializes in organizing the delivery and warehousing of supplies during natural disasters or complex emergencies to the affected area and people

Humanitarian logistics is far more complicated and includes forecasting and optimizing resources, managing inventory, and exchanging information

**a) Disaster**

Humanitarian logistics operations utilize the adaptive capacities of complex supply networks that are able to rewire their connections and meet the new, unexpected demands of emergency scenarios (Day, 2014).

Kovács & Spens (2007) point out that large-scale emergencies demands an immediate response, making it necessary to deploy existing supply chain resources at once, even though knowledge of the situation may be very limited. Similarly, Oloruntoba & Gray (2006) argue that agility (the ability to change fast) must be a key property in humanitarian relief operations, due to the need to swiftly adjust to meeting the right demand. ...

The impact of the research on non-governmental organizations was discussed in the introduction of the thesis, exemplified by the use of commercial assets in disaster relief. The use of commercial assets like offshore support vessels or roll-on, roll-off carriers in humanitarian relief operations is well-documented ( , and reflects an increasing interest in humanitarian logistics (Jahre & Fabbe-Costes, 2015;Kovács & Spens, 2007;Oloruntoba & Gray, 2006;Van Wassenhove, 2006; .

As humanitarian organizations regularly piggyback off of resources normally part of commercial supply chains, these organizations exemplify a sector that can extract useful insight from this thesis.

The trend of disaster and rate of their occurrences have been positive in recent years and vulnerability is increasing due to increased population and ill-defined disaster response infrastructure (Apte et al., 2016; Soneye, 2014). The number of disasters is forecasted to be fivefold within 15 years ( Thomas and Kopczak, 2005) and this has made governments have more emphasis on disaster management in their agenda ( Kovács and Spens, 2007).

Humanitarian logistics operations can be placed in the disaster management cycle between disaster preparedness and disaster response. Historically, logistics has always been a central element in humanitarian aid, seeing that efforts linked to transportation and other logistics services or operations make up a majority of activities involved in disaster relief (Kovács & Spens, 2007). ...

Humanitarian logistics plays an integral role in disaster relief for several reasons. First, humanitarian logistics contributes immensely to mitigating the negative impact of natural disasters in terms of loss of life and economic costs. These losses occur in four different ways:

* Losses of buildings, highways and other infrastructure;
* Losses in output and reductions in employment and tax receipts;
* Losses due to the increase in the price of consumable and construction materials; and
* Losses of millions of lives because of the scarcity of food and accidents.

Second, humanitarian logistics is considered the repository of data that can be analysed to provide post-event learning. Logistics data reflects all aspects, from the effectiveness of suppliers and transportation providers, to the cost and timeliness of response, to the appropriateness of donated goods and the management of information. Thus, it is critical to the performance of both current and future operations and programs. Organizing emergency response plans will help preparation and consequently mobilization in times of disasters.

**The process of humanitarian logistics**

As can be seen in the above Figure, the process is complicated with the involvement of various actors in different locations. To be more specific, the process connects various actors, including, donors, local/international aid organizations, local governments, and beneficiaries. There are three fundamental flows in this process: the flow of material, the flow of money, and the flow of information.

* The flow of material: the flow of products from donors to beneficiaries, including food, blankets, medicines, and water, and the reverse flow of returned products after disasters.
* The flow of information: includes demand forecasts, order transmissions, and order status reports, to ensure preparedness and communications.
* The flow of money: includes checks, cash, and payment documents such as [Letters of credit](https://en.wikipedia.org/wiki/Letter_of_credit), [invoice](https://en.wikipedia.org/wiki/Invoice), and commercial contracts.

**Differences between commercial logistics and humanitarian logistics**

There are several discrepancies between commercial logistics and humanitarian logistics. Recognizing the differences can help improve the efficiency of humanitarian logistics as well as understand humanitarian logistics as a separate field.

**Storage**

Developing logistics warehousing to store all essential goods plays a crucial role in disaster response planning. [Warehouses](https://en.wikipedia.org/wiki/Warehouses) should be designed by taking precautions for contamination or waste of materials and organized in order to facilitate deliveries to the desired area at the desired time and quantities.

In addition, responsible authorities aim at maximizing responsiveness and minimizing distribution times, total costs, and the number of distribution centres.

The entire storage process is of key importance for preserving emergency supplies until they can be delivered to recipients.

**Types of** [**warehouse**](https://en.wikipedia.org/wiki/Warehouse)

Warehouses **can be** categorized into four main types, depending on their functions and locations.

**General Delivery Warehouses**: where products are stored for a long time (e.g., months or quarters) or until they are sent to secondary warehouses or distributed in the field. General delivery warehouses are more common in the capital of beneficiary or donor countries or at strategic points of a given region (based on forecasts).

**Slow Rotation Warehouses**: where non-urgent or reserve stockpiles are kept, including goods that are not in frequent demand such as [spare parts](https://en.wikipedia.org/wiki/Spare_part), equipment, and tools.

**Quick Rotation Warehouses**: where emergency supplies quickly move in and out, on a daily or at most weekly basis. Such warehouses are situated near the heart of affected zones and hold items that require prompt distribution among the affected population, including food, blankets, and hygiene items.

**Temporary Collection Sites**: where incoming supplies are stored until a more appropriate space can be found. Temporary collection sites include yards, offices, meeting rooms, and garages of disaster relief organizations.

**A temporary collection site**

Warehouses can also be classified as perishables warehouses or 3PL warehouses. However, it is common in humanitarian logistics to have four types of warehouses as mentioned above. Depending on the magnitude of disasters and the urgency, a certain type of warehouses is needed.

For example, for unexpected disasters, temporary warehouses are more common than others. In contrast, for planned disasters, general delivery warehouses are needed to store products in beneficiary countries.

**Choices of warehouses**

When selecting an appropriate site to store goods, two considerations are important:

Type of supplies: Pharmaceutical products and foods require a well-ventilated, cool, dry place. Some of these products may even need temperature control. Other items, such as clothing or equipment, have more flexible requirements.

Size and access to warehouses: the size of the storage site is significantly important. One must take into account not just its current capacity but also the potential for expansion of the storage area. Accessibility is another key issue, particularly for large vehicles.

**Inventory management**

A logistical technique which can improve responsiveness is inventory pre-positioning. This technique is used for estimating item quantities required according to specific safety stock levels and order frequency, or for searching optimal locations for warehouses using [facility location](https://en.wikipedia.org/wiki/Facility_location).

Logistics is one of the major tools of disaster preparedness, among surveillance, rehearsal, warning, and [hazard analysis](https://en.wikipedia.org/wiki/Hazard_analysis). There are four primary types of inventory planning:

* Single-period inventory model/[News-vendor model](https://en.wikipedia.org/wiki/Newsvendor_model)
* [Base-stock model](https://en.wikipedia.org/wiki/Base_stock_model)
* [Periodic review model](https://en.wikipedia.org/wiki/Periodic_inventory)
* [Dynamic lot-size model](https://en.wikipedia.org/wiki/Dynamic_lot-size_model)

Each model has different advantages and disadvantages; therefore, it is important for inventory planners to consider all aspects, including total [holding cost](https://en.wikipedia.org/wiki/Carrying_cost)s, [service level](https://en.wikipedia.org/wiki/Service_level), and demand variability, to have an efficient strategy.

1. **Disaster Resilience**

Disaster resilience is the ability of individuals, communities, organisations and states to adapt to and recover from hazards, shocks or stresses without compromising long-term prospects for development. According to the Hyogo Framework for Action ([UNISDR, 2005](https://gsdrc.org/topic-guides/disaster-resilience/concepts/what-is-disaster-resilience/#unisdr-2005b)), disaster resilience is determined by the degree to which individuals, communities and public and private organisations are capable of organising themselves to learn from past disasters and reduce their risks to future ones, at international, regional, national and local levels.

### Definitions of disaster resilience

[DFID (2011a, 6)](https://gsdrc.org/topic-guides/disaster-resilience/concepts/what-is-disaster-resilience/#dfid-2011a): ‘the ability of countries, communities and households to manage change, by maintaining or transforming living standards in the face of shocks or stresses – such as earthquakes, drought or violent conflict – without compromising their long-term prospects’.

Hyogo Framework of Action ([UNISDR, 2005b, 4](https://gsdrc.org/topic-guides/disaster-resilience/concepts/what-is-disaster-resilience/#unisdr-2005b)): ‘the capacity of a system, community or society potentially exposed to hazards to adapt, by resisting or changing in order to reach and maintain an acceptable level of functioning and structure’.

Disaster resilience is part of the broader concept of resilience – ‘the ability of individuals, communities and states and their institutions to absorb and recover from shocks, whilst positively adapting and transforming their structures and means for living in the face of long-term changes and uncertainty’ ([OECD, 2013b, 1](https://gsdrc.org/topic-guides/disaster-resilience/concepts/what-is-disaster-resilience/#oecd-2013b)).

In conceptual terms, vulnerability and disaster resilienceare closely related. Some authors see vulnerability as the opposite of disaster resilience, while others view vulnerability as a risk factor and disaster resilience as the capacity to respond ([Manyena, 2006, 436, 439-443](https://gsdrc.org/topic-guides/disaster-resilience/concepts/what-is-disaster-resilience/#manyena-2006)).

In practice, DFID’s framework ([DFID, 2011a, 6-7](https://gsdrc.org/topic-guides/disaster-resilience/concepts/what-is-disaster-resilience/#dfid-2011a); diagram below) depicts the **core elements of disaster resilience** as follows:

**Context**: Whose resilience is being built – such as a social group, socio-economic or political system, environmental context or institution?

**Disturbance**: What shocks (sudden events like conflict or disasters) and/or stresses (long-term trends like resource degradation, urbanization, or climate change) the group aims to be resilient to.

**Capacity to respond**: The ability of a system or process to deal with a shock or stress depends on exposure (the magnitude of the shock or stress), sensitivity (the degree to which a system will be affected by, or will respond to, a given shock or stress), and adaptive capacity (how well it can adjust to a disturbance or moderate damage, take advantage of opportunities and cope with the consequences of a transformation).

**Reaction**: A range of responses are possible, including: bounce back better, where capacities are enhanced, exposures are reduced, and the system is more able to deal with future shocks and stresses; bounce back, where pre-existing conditions prevail; or recover, but worse than before, meaning capacities are reduced.

In the worst-case scenario, the system collapses, leading to a catastrophic reduction in capacity to cope with the future.

Disaster resilience has been described as both **an outcome and a proce**ss ([Manyena, 2006, 436-439](https://gsdrc.org/topic-guides/disaster-resilience/concepts/what-is-disaster-resilience/" \l "manyena-2006)). Practices focused on **outcome** have tended to adopt top-down reactive approaches which can favour the status quo and take attention away from inequalities resulting from insecurity and disaster ([Manyena, 2006, 438](https://gsdrc.org/topic-guides/disaster-resilience/concepts/what-is-disaster-resilience/" \l "manyena-2006)).

As a **process**, building disaster resilience involves supporting the capacity of individuals, communities and states to adapt through assets and resources relevant to their context ([Manyena, 2006, 439](https://gsdrc.org/topic-guides/disaster-resilience/concepts/what-is-disaster-resilience/" \l "manyena-2006)).

For some, this implies enhancing peoples’ rights and addressing socio-economic, gender and environmental inequalities that exacerbate vulnerability ([Andharia et al., 2010, 11](https://gsdrc.org/topic-guides/disaster-resilience/concepts/what-is-disaster-resilience/" \l "andharia-et-al-2010); [Oxfam, 2013](https://gsdrc.org/topic-guides/disaster-resilience/concepts/what-is-disaster-resilience/#oxfam-2013)).

1. **Mitigation**

Mitigation is the effort to reduce loss of life and property by lessening the impact of disasters. In order for mitigation to be effective we need to take action now before the next disaster to reduce human and financial consequences later (analysing risk, reducing risk, and insuring against risk).

It is important to know that disasters can happen at any time and any place and if we are not prepared, consequences can be fatal.

Effective mitigation requires that we allunderstand local risks, address the hard choices, and invest in long-term community well-being. Without mitigation actions, we jeopardize our safety, financial security and self-reliance.

* Disasters can happen at anytime and anyplace; their human and financial consequences are hard to predict.
* The number of disasters each year is increasing but only 50% of events trigger Federal assistance.
* FEMA's mitigation programs help reduces the impact of events—and our dependence on taxpayers and the Treasury for disaster relief.

FEMA's Federal Insurance and Mitigation Administration (FIMA) manages the National Flood Insurance Program (NFIP) and implements a variety of programs authorized by Congress to reduce losses that may result from natural disasters.

Effective mitigation efforts can break the cycle of disaster damage, reconstruction, and repeated damage.

FEMA's mitigation and insurance efforts are organized into three primary activities that help states, tribes, territories and localities achieve the highest level of mitigation: Risk Analysis, Risk Reduction, and Risk Insurance.

Through these activities and FEMA's day-to-day work across the country, communities are able to make better mitigation decisions before, during, and after disasters.

REFERENCE

* Overstreet, Robert E.; Hall, Dianne; Hanna, Joe B.; Kelly Rainer, R. (2011-10-21). "Research in humanitarian logistics". Journal of Humanitarian Logistics and Supply Chain Management. **1** (2): 114–131. [doi](https://en.wikipedia.org/wiki/Digital_object_identifier):[10.1108/20426741111158421](https://doi.org/10.1108%2F20426741111158421). [ISSN](https://en.wikipedia.org/wiki/International_Standard_Serial_Number) [2042-6747](https://www.worldcat.org/issn/2042-6747).
* Thomas, Anisya (2005). From Logistics to Supply Chain Management: The Path Forward in the Humanitarian Sector. USA: Fritz Institute.
* Alexander, David (1993). Natural disasters. London: UCL Press. [ISBN](https://en.wikipedia.org/wiki/International_Standard_Book_Number) [1857280938](https://en.wikipedia.org/wiki/Special:BookSources/1857280938). [OCLC](https://en.wikipedia.org/wiki/OCLC) [30508919](https://www.worldcat.org/oclc/30508919).
* Gupta, Shivam; Altay, Nezih; Luo, Zongwei (2017-11-16). "Big data in humanitarian supply chain management: a review and further research directions". Annals of Operations Research. [doi](https://en.wikipedia.org/wiki/Digital_object_identifier):[10.1007/s10479-017-2671-4](https://doi.org/10.1007%2Fs10479-017-2671-4). [ISSN](https://en.wikipedia.org/wiki/International_Standard_Serial_Number) [0254-5330](https://www.worldcat.org/issn/0254-5330).
* Monaghan, Asmat; Lycett, Mark (16 January 2014). "Big data and humanitarian supply networks: Can Big Data give voice to the voiceless?". 2013 IEEE Global Humanitarian Technology Conference (GHTC). 2013 IEEE Global Humanitarian Technology Conference (GHTC) – 20-23 Oct 2013 – San Jose, CA. IEEE. [doi](https://en.wikipedia.org/wiki/Digital_object_identifier):[10.1109/ghtc.2013.6713725](https://doi.org/10.1109%2Fghtc.2013.6713725).
* 1. Smalley, R., 2003, “Top Ten Problems of Humanity for the Next 50 Years,” Energy and Nanotechnology: Strategy for the Future Conference, Rice University, May 2003; <http://cnst.rice.edu/content.aspx?id=246> .
* 2. Christopher, B., 2009, “Global Response to Humanitarian Logistics Conference 2009”; <http://tli.isye.gatech.edu/news-events/release.php?id=2645> .
* 3. Ergun, Ö., Keskinocak, P., Swann, J., Villarreal, M., 2009, “Humanitarian Logistics: uncertainty, damaged infrastructure, politics highlight top-10 challenges facing analysts during disasters,” *Analytics,* Spring 2009, p. 31-33; <http://viewer.zmags.com/publication/7c795aa6#/7c795aa6/33> .
* 4. [www.scl.gatech.edu/research/humanitarian/](http://www.scl.gatech.edu/research/humanitarian/)