

## Humanitarian Logistics

**No of Sessions-** (20)-30 hours course || 4 Modules

### Introduction

Humanitarian Logistics is very central in disaster and emergency operations. It relates to the relocation of affected communities, movement of relief supplies and emergency transfer of casualties and relief workers involved in the operations. In every humanitarian action, logistics take the biggest budget and effort confirming the need for supporting efficient systems to ensure emergency supplies reach those in need in the most effective way. With increasing emergency situations around the world humanitarian logistics has a big demand hence the need for career development in the sector. Data-driven decision-making using ML, AI, and deep learning will immensely help in efficient operations.

### Objectives-

- To examine the logistics system including planning the activities required in a humanitarian and emergency situation.
- To understand logistics planning and implementation processes.
- To understand information needs during emergency situations especially the need for situation analysis, resources mobilization and networking with partners humanitarian organizations ensure operations are successful.

### Pedagogy/Teaching Method:

Lectures, Case Studies, Modeling & Simulations, and Discussions in the class

### Reading material:

- Humanitarian Logistics: Meeting the Challenge of Preparing for and Responding to Disasters 3rd Edition.
- Özdamar, L., & Ertem, M. A. (2015). Models, solutions and enabling technologies in humanitarian logistics. *European Journal of Operational Research*, 244(1), 55-65.
- Nagendra, N. P., Narayanamurthy, G., & Moser, R. (2020). Management of humanitarian relief operations using satellite big data analytics: The case of Kerala floods. *Annals of operations research*, 1-26.

### Application of Geospatial Technologies in humanitarian logistics:

- **Cartography and Humanitarian Intelligence:** Rapid Assessment, Presentation of information, visualization, land use, infrastructure and facility mapping, remote sensing for monitoring and evaluation.
- **Crisis Simulation and Impact Models:** Analyzing what if scenarios and consequences of disaster, incident modeling, forecasting.
- **Risk Assessment:** Identification of “hot spots,” combination of vulnerability and hazard assessment to evaluate at risk populations.
- **Vulnerability Assessment:** The integration of socio-economic and environmental data to serve as an early warning alert.
- **Decision making support:** network and location analysis for resource allocation and optimization.

### Session Plan:

Unit	Title	Case Study
1	Logistics Planning for Emergency Supplies	Lima, F. S., Dávalos, R. V., Campos, L., & Trierweiller, A. C. (2022). Framework proposal to support the suppliers' selection of Humanitarian assistance items: a Flood Case Study in Brazil. <i>Annals of Operations Research</i> , 1-24. Olanrewaju, O. G., Dong, Z. S., & Hu, S. (2020). Supplier selection decision making in disaster response. <i>Computers &amp; Industrial Engineering</i> , 143, 106412.
2	Information and Communication Protocols for Emergency Situations	Stute, M., Maass, M., Schons, T., Kaufhold, M. A., Reuter, C., & Hollick, M. (2020). Empirical insights for designing information and communication technology for international disaster response. <i>International journal of disaster risk reduction</i> , 47, 101598.
3	Humanitarian Partners, Cooperation and Management	Nurmala, N., de Leeuw, S., & Dullaert, W. (2017). Humanitarian–business partnerships in managing humanitarian logistics. <i>Supply Chain Management: An International Journal</i> . Ergun, Ö., Gui, L., Heier Stamm, J. L., Keskinocak, P., & Swann, J. (2014). Improving humanitarian operations through technology-enabled collaboration. <i>Production and Operations Management</i> , 23(6), 1002-1014.

		Nurmala, N., de Vries, J., & de Leeuw, S. (2018). Cross-sector humanitarian–business partnerships in managing humanitarian logistics: an empirical verification. <i>International Journal of Production Research</i> , 56(21), 6842-6858.
4	Emerging and Global Trends in Humanitarian Logistics	<p>Kovács, G., &amp; Spens, K. M. (2011). Trends and developments in humanitarian logistics—a gap analysis. <i>International journal of physical distribution &amp; logistics management</i>, 41(1), 32-45.</p> <p>Chiappetta Jabbour, C. J., Sobreiro, V. A., Lopes de Sousa Jabbour, A. B., de Souza Campos, L. M., Mariano, E. B., &amp; Renwick, D. W. S. (2019). An analysis of the literature on humanitarian logistics and supply chain management: paving the way for future studies. <i>Annals of Operations Research</i>, 283(1), 289-307.</p>

### Learning Outcomes:

- Outline the humanitarian supply chain actors, and describe the interactions between them,
- Describe the concepts of crisis management and humanitarian aid in the context of logistics and supply chain management,
- Evaluate and interpret logistics and supply chain management practices in different phases of disaster management cycle,
- Explain the concept of disaster threat,
- Outline the types and effects of disasters.