

# CLIMATE-RELATED DISASTERS AND THE EFFECTS OF LOGISTICS TO STRENGTHEN THE RESILIENCE



Mona School of  
Business and  
Management

Business and  
Management Conference  
Kingston, Jamaica

A. Murat KÖSEOĞLU

Faculty of Economics and Administrative Sciences,  
Chair, International Logistics Department  
Okan University / Istanbul - TURKEY

[murat.koseoglu@okan.edu.tr](mailto:murat.koseoglu@okan.edu.tr)

# CLIMATE-RELATED DISASTERS AND THE EFFECTS OF LOGISTICS TO STRENGTHEN THE RESILIENCE

## AGENDA

- UNITED NATIONS' 2030 AGENDA FOR SUSTAINABLE DEVELOPMENT
- DISASTERS AND CLIMATE CHANGE
- MANAGEMENT OF DISASTER
- DISASTERS AND LOGISTICS
- DISASTER LOGISTICS' STAGES
- PROBLEMS IN DISASTER LOGISTICS
- CONCLUSION

# CLIMATE-RELATED DISASTERS AND THE EFFECTS OF LOGISTICS TO STRENGTHEN THE RESILIENCE

## UNITED NATIONS' 2030 AGENDA FOR SUSTAINABLE DEVELOPMENT

- Strengthen resilience and adaptive capacity to climate related hazards and natural disasters in all countries,
- Integrate climate change measures into national policies, strategies and planning,
- Improve education, awareness raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning,



# CLIMATE-RELATED DISASTERS AND THE EFFECTS OF LOGISTICS TO STRENGTHEN THE RESILIENCE

## UNITED NATIONS' 2030 AGENDA FOR SUSTAINABLE DEVELOPMENT

- ✓ Implement the commitment undertaken by developed country parties to the United Nations Framework Convention on Climate Change to a goal of mobilizing jointly \$100 billion annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalize the Green Climate Fund through its capitalization as soon as possible



# CLIMATE-RELATED DISASTERS AND THE EFFECTS OF LOGISTICS TO STRENGTHEN THE RESILIENCE

## UNITED NATIONS' 2030 AGENDA FOR SUSTAINABLE DEVELOPMENT

- ✓ Promote mechanisms for raising capacity for effective climate change related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities.



# CLIMATE-RELATED DISASTERS AND THE EFFECTS OF LOGISTICS TO STRENGTHEN THE RESILIENCE

## CLIMATE CHANGE AND DISASTERS

- Increased life-threatening weather events cause of climate change,
- Increased incidence of heat waves and of heavy precipitation events will be very likely to increase in the future,
- More areas affected by drought, cyclones and extremely high sea levels



# CLIMATE-RELATED DISASTERS AND THE EFFECTS OF LOGISTICS TO STRENGTHEN THE RESILIENCE

## CLIMATE CHANGE AND DISASTERS

- Disasters suspend normal life and social activities for humans and other beings.
- They cause physical, social, economic and cultural losses.
- In developing and undeveloped countries %95 of life loss take place by disasters.



# CLIMATE-RELATED DISASTERS AND THE EFFECTS OF LOGISTICS TO STRENGTHEN THE RESILIENCE

## CLIMATE CHANGE AND DISASTERS

- The climate based events accounted for 90% of the world's disaster-related mortalities between the years of 1970 and 1999 .
- “Many millions more people are projected to be flooded every year due to sea-level rise by the 2080s. In some areas heat waves are expected to increase in cruelty and occurrence, expanding drought affected areas.” (UN Intergovernmental Panel on Climate Change)





# CLIMATE-RELATED DISASTERS AND THE EFFECTS OF LOGISTICS TO STRENGTHEN THE RESILIENCE

## CLIMATE CHANGE AND DISASTERS

- Climate change based disasters are causing thousands of injuries, deaths and devastating economic damages.
- Mankind is still desperate against climate change based disasters.
- Disaster preparedness, disaster response and disaster logistics are important actions for minimizing the damage of the disasters.



# CLIMATE-RELATED DISASTERS AND THE EFFECTS OF LOGISTICS TO STRENGTHEN THE RESILIENCE

## DISASTER MANAGEMENT

- Aim: reducing the damage of disasters.
- Includes planning and coordination of all practices in damage reduction, preparedness, response and first aid, restoration-restructuring processes.
- Planning, coordination and management of all phases of disasters.
- Includes; reducing or preventing the humane, phsyical, economic losses in affected country, decreasing the suffering of affected community and accelerating the reconstruction process.



# CLIMATE-RELATED DISASTERS AND THE EFFECTS OF LOGISTICS TO STRENGTHEN THE RESILIENCE

## DISASTER LOGISTICS

- DL: Planning, implementation and management of storage and flow of aid materials and all necessary information
- Efficiency and the costs are important
- Disaster logistics functions: Preparedness, procurement, transportation, tracing, storing, inventory management and customs clearance



# CLIMATE-RELATED DISASTERS AND THE EFFECTS OF LOGISTICS TO STRENGTHEN THE RESILIENCE

## STAGES OF DISASTER LOGISTICS

- Phases; preparedness, response and reconstruction-restoration.
- **Preparedness** includes assessment of the vulnerabilities, making of emergency situation planning, construction of coordination structure, the mobilization of response mechanisms, education and drills.
- Procurement, storage and early warning systems are also parts of the preparedness stage



# CLIMATE-RELATED DISASTERS AND THE EFFECTS OF LOGISTICS TO STRENGTHEN THE RESILIENCE

## STAGES OF DISASTER LOGISTICS - Preparedness

- Pre-positioning of the aid materials is important in preparedness stage.
- Pre-positioned goods: Basic humanitarian aid supplies (food, water, medical supplies, house kits and shelters.)
- Makes standardization of aid supplies easier.





# CLIMATE-RELATED DISASTERS AND THE EFFECTS OF LOGISTICS TO STRENGTHEN THE RESILIENCE

## STAGES OF DISASTER LOGISTICS - Response Phase

- Logistics activities are mostly used in response stage.
- Quick response after big disasters is important for saving lives and damage reduction.
- Effectiveness of the rescue efforts depends on the right distribution of aid materials and sufficient aid personnel.
- The success in these efforts limits the casualties.



# CLIMATE-RELATED DISASTERS AND THE EFFECTS OF LOGISTICS TO STRENGTHEN THE RESILIENCE

## STAGES OF DISASTER LOGISTICS - Reconstruction And Restoration Phase

- Takes long time.
- Aims the normalization of lives in disaster hit communities.
- Reconstruction of infrastructure and devastated buildings, provision of jobs and education efforts take place in this stage.
- May take years to complete.



# CLIMATE-RELATED DISASTERS AND THE EFFECTS OF LOGISTICS TO STRENGTHEN THE RESILIENCE

## RELATIONSHIP BETWEEN CC, D AND L

Trends of extreme weather events predicted to occur as a result of climate change (%)

Phenomenon and direction of trend	Likelihood that the trend occurred in the late 20th century	Likelihood of human contribution to trend	Likelihood of future trends based on projections for 21st century
Increased incidence of heatwaves	66–90 (likely)	51–66 (more likely than not)	90–99 (very likely)
Increased incidence of heavy precipitation events	66–90	51–66	90–99
More areas affected by drought	66–90	51–66	66–90
Increased incidence and severity of cyclones	66–90	51–66	66–90
Increased incidence of extremely high sea levels	66–90	66–90	66–90



# CLIMATE-RELATED DISASTERS AND THE EFFECTS OF LOGISTICS TO STRENGTHEN THE RESILIENCE

## RELATIONSHIP BETWEEN CC, D AND L

The relative public health impact of the natural disasters expected to worsen with climate change

Public health impact	High-precipitation events		
	Storms	Floods	Landslides
Number of deaths	Few, but can be many in low-income countries	Few, but can be many in flash floods	Few to moderate
Risk of an associated epidemic	Unlikely	Unlikely, except for low-income countries	Unlikely
Severe injuries	Few	Few	Few to moderate
Loss of clean water	Widespread	Focal to widespread	Focal
Loss of shelter	Widespread	Focal to widespread	Focal
Loss of personal and household goods	Widespread	Focal to widespread	Focal
Permanent migration	Unlikely	Unlikely	Unlikely

Luber G, McGeehin M. Climate change and extreme heat events. Am J Prev Med 2008;35:429 –35.

# CLIMATE-RELATED DISASTERS AND THE EFFECTS OF LOGISTICS TO STRENGTHEN THE RESILIENCE

## RELATIONSHIP BETWEEN CC, D AND L

The relative public health impact of the natural disasters expected to worsen with climate change

Public health impact	Low-precipitation events		
	Heat	Drought	Wildfire
Number of deaths	Moderate to many in high-income countries	Few, but can be many in low-income countries	Few to moderate
Risk of an associated epidemic	Unlikely	Unlikely, except for low-income countries	Unlikely
Severe injuries	Moderate to many cases of heat stroke	Unlikely	Few to moderate
Loss of clean water	Unlikely	Widespread	Focal
Loss of shelter	Focal to widespread	Focal to widespread	Focal
Loss of personal and household goods	None	Unlikely among displaced populations	Likely among displaced populations
Permanent migration	Unlikely	Likely	Unlikely

Luber G, McGeehin M. Climate change and extreme heat events. Am J Prev Med 2008;35:429 –35.

# CLIMATE-RELATED DISASTERS AND THE EFFECTS OF LOGISTICS TO STRENGTHEN THE RESILIENCE

## PROBLEMS IN DISASTER LOGISTICS

- The underdeveloped economies and inadequate infrastructure
- Insufficient capacities of airports and ports, insecure storage areas, lack of loading equipment
- Bad conditions of railroads and highways, freightage and height limitations of tunnels and bridges, inadequate signal systems of roads decrease the efficiency of logistics activities.



# CLIMATE-RELATED DISASTERS AND THE EFFECTS OF LOGISTICS TO STRENGTHEN THE RESILIENCE

## PROBLEMS IN DISASTER LOGISTICS

- Insufficient stocks
- Lack of coordination between organizations and poor information flow
- Damaged infrastructure, communication failures, unsecure environment, presence of many actors in the field, tough field conditions complicate the logistics activities in disaster areas.



# CLIMATE-RELATED DISASTERS AND THE EFFECTS OF LOGISTICS TO STRENGTHEN THE RESILIENCE

## PROBLEMS IN DISASTER LOGISTICS

- Personnel shortcomings,
- Insufficient funds for logistics systems and other support systems for strategic disaster preparations.
- Investments for the disaster operations infrastructure such as information technologies are not adequate





# CLIMATE-RELATED DISASTERS AND THE EFFECTS OF LOGISTICS TO STRENGTHEN THE RESILIENCE

## PROBLEMS IN DISASTER LOGISTICS

- Bureaucratic problems about the donations
- The processes about the incoming humanitarian aid and the personnel should be eased.
- Complex processes, especially for the support equipment such as computers, communication equipment and vehicles.
- Considered as potential security risks so customs processes for this equipment take long time.



# CLIMATE-RELATED DISASTERS AND THE EFFECTS OF LOGISTICS TO STRENGTHEN THE RESILIENCE

## CONCLUSION

- The efficient implementation of the disaster logistics is very important in disaster areas.
- Every aid material and service in the disaster areas could save or enhance lives.
- Logistics play an important role in disaster preparedness, response and reconstruction stages.



**For successful disaster management,  
successful disaster logistics is a must.**

# CLIMATE-RELATED DISASTERS AND THE EFFECTS OF LOGISTICS TO STRENGTHEN THE RESILIENCE



for your attention..

A. Murat KÖSEOĞLU

Faculty of Economics and Administrative Sciences,  
Chair, International Logistics Department  
Okan University / Istanbul - TURKEY

[murat.koseoglu@okan.edu.tr](mailto:murat.koseoglu@okan.edu.tr)