Lecture 2: Commercial vs. Humanitarian Supply Chains

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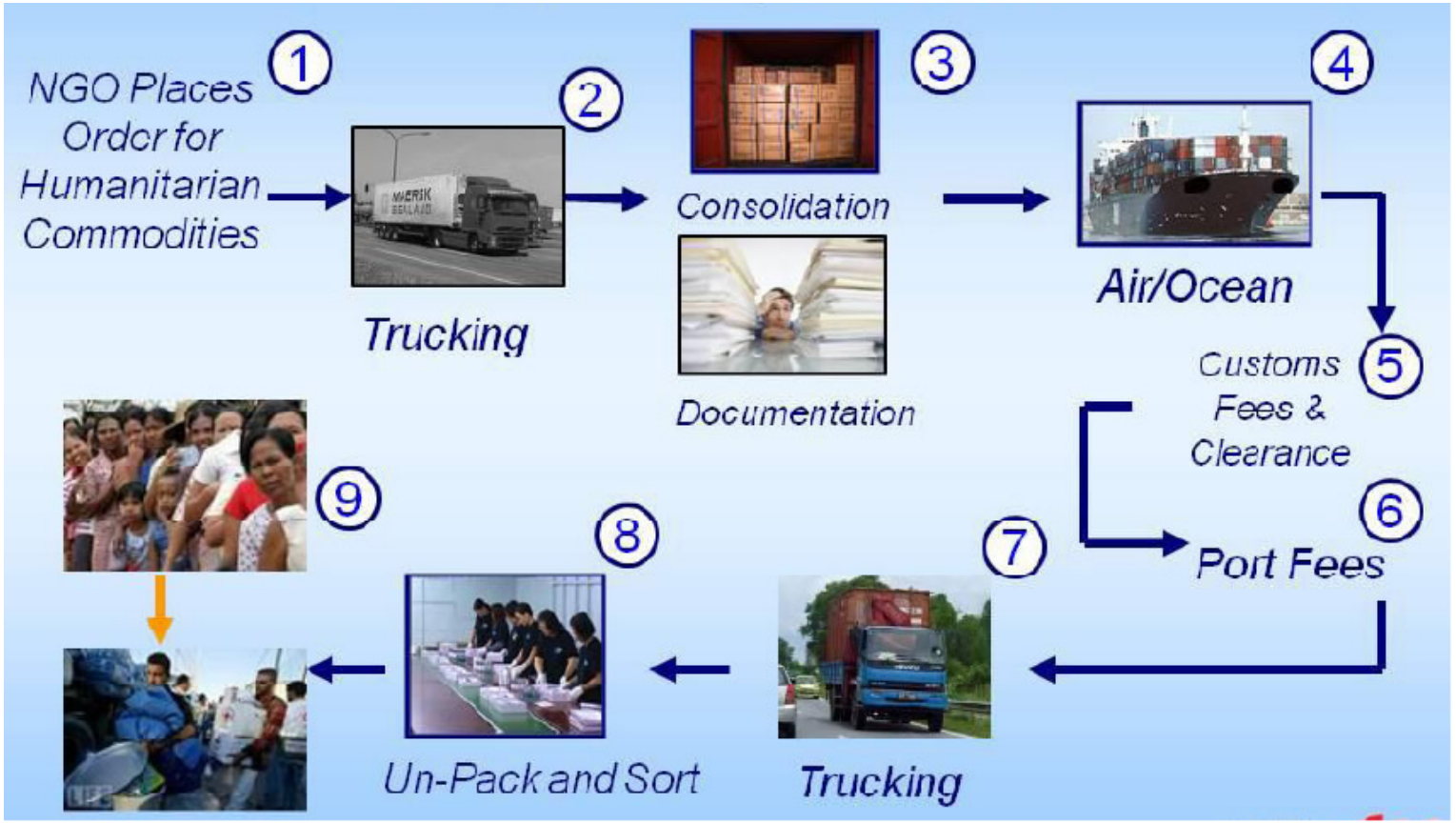
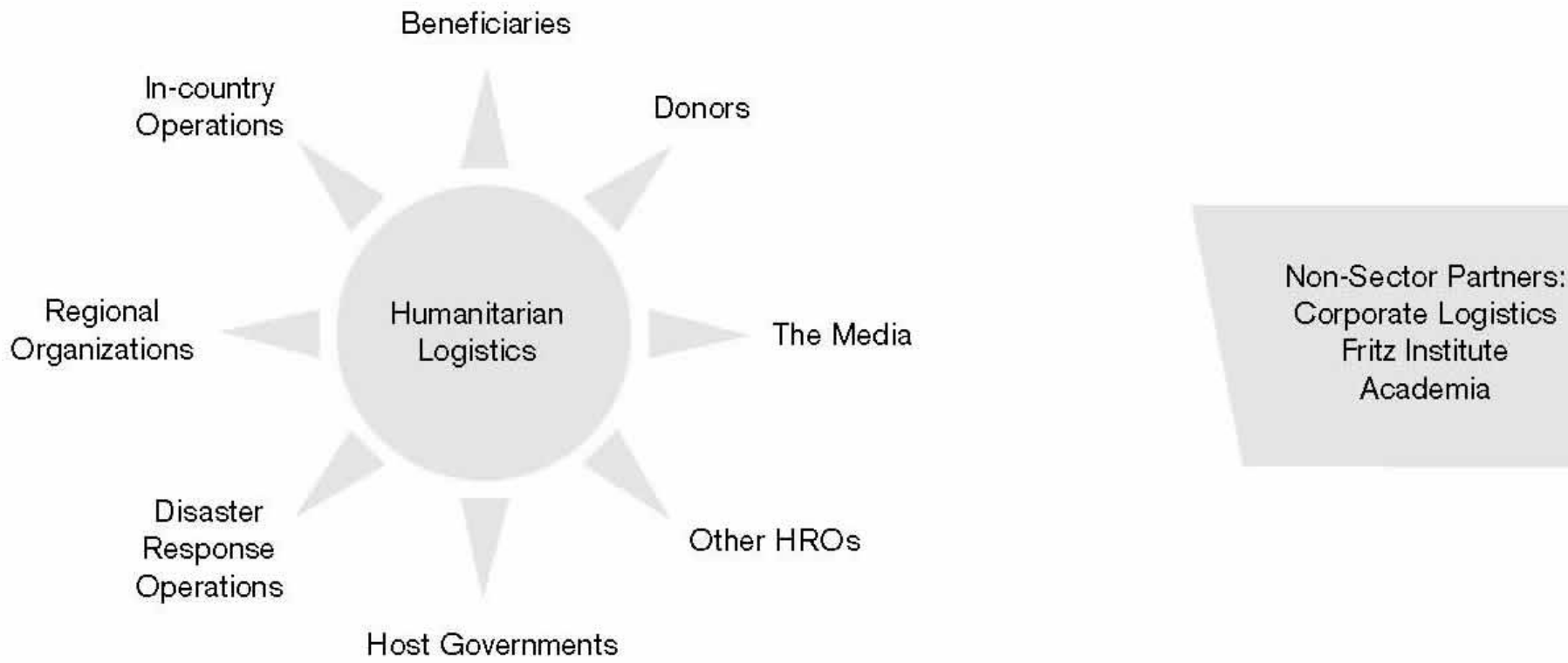
A Graphic of a Humanitarian Supply Chain



A Graphic of a Humanitarian Supply Chain

Source: Emergency Relief Logistics (ERL), A.-J. Morrison, B. Forbes, and R. McPherson

The Stakeholders



The Stakeholders

Source: A. Thomas, 2003. Humanitarian logistics: Enabling disaster response, Fritz Institute.

Snapshot of Select Humanitarian Organizations

Name of Organization	Total Contributions 2000 (US$)[1]	Total Contributions[2] 2001 (US$)	Countries of Operation[3]
American Red Cross[4]	$ 738.0	$ 763.0	38
CARE USA	446.3	421.0	60
Catholic Relief Services	373.2	334.4	92
International Committee of the Red Cross	557.5	553.1	80
International Federation of Red Cross and Red Crescent Societies	223.7	189.7	178
International Rescue Committee	148.4	147.7	28
Medecins San Frontiers - Belgium	313.8	322.0	42
Oxfam UK	294.6	298.1	75
Save the Children	140.3	171.8	45
UNICEF	1139.0	1225.0	126
World Food Programme[5]	1490.0	1873.1	82
World Vision International[6]	964.2	1036.0	96
	$ **6829.0**	$ **7334.9**	

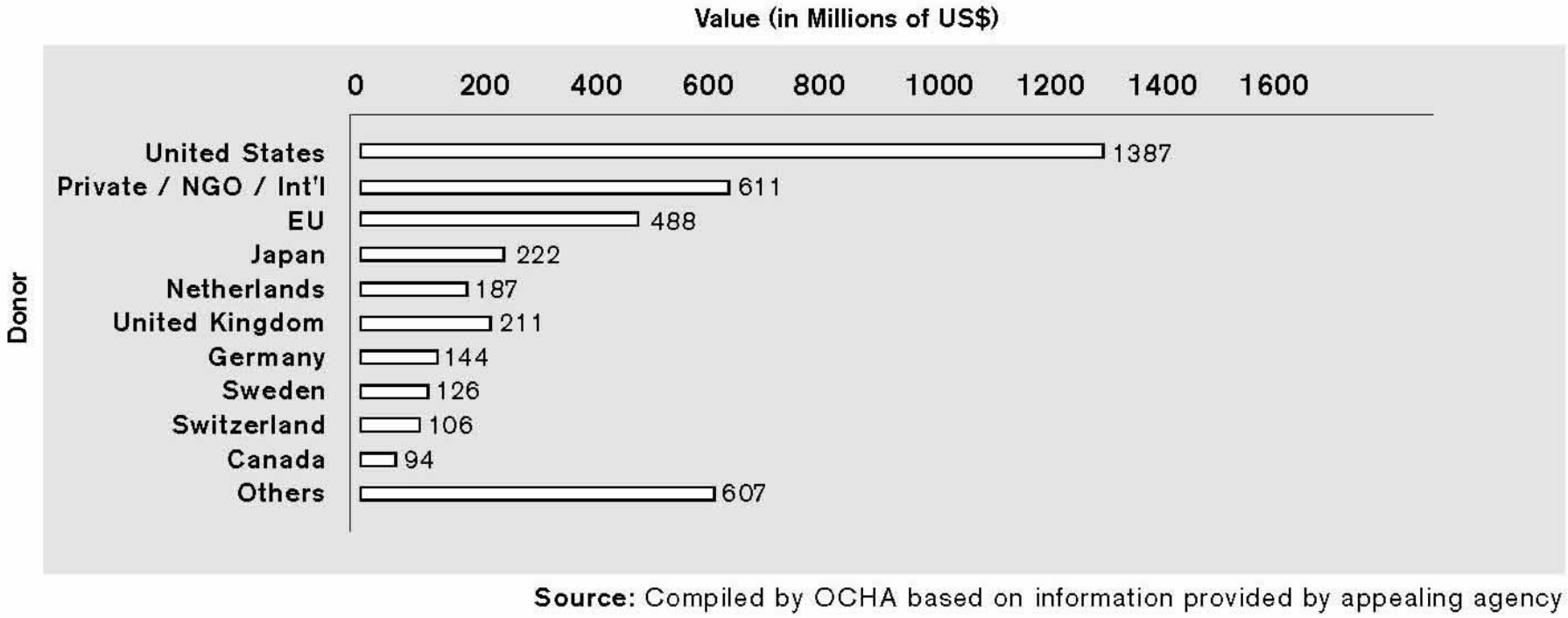
Source: A. Thomas, 2003. Humanitarian logistics: Enabling disaster response, Fritz Institute.

Notes:

(1) Shown in U.S. dollars. Exchange rates from US$ to Euros as of year-end for 2000 is $1 = 1.0747 Euros, and for 2001 is $1 = 1.1047 Euros. Source: IMF
(2) Contributions refers to donations to humanitarian organizations by governments, foundations, other humanitarian organizations, individuals, and the private sector
(3) As per most recent annual report
(4) American Red Cross total contributions exclude revenue from products and services
(5) World Food Programme receives 54% of food contributions in the form of GIK

(6) World Vision International's 2000 financial statements are not available online. WV USA's contributions for 2000 totaled $469.1M

Top 10 Donors in 2002



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Commercial versus Humanitarian Supply Chains

Table: Characteristics of Commercial versus Humanitarian Supply Chains

	Commercial Supply Chain	Humanitarian Supply Chain
What is "Demand?"	Products.	Supplies and People.
Demand Pattern	Relatively stable, predictable. Demands occur at fixed locations in set quantities.	Demand is generated from random events that are unpredictable in terms of timing, type, and size. Demands are estimated after they are needed, based on an assessment of disaster characteristics.
Inventory Control	Uses well-defined methods for determining inventory levels based on lead time, demand and target customer service levels.	Inventory control is challenging due to high variations in lead times, demands, and demand locations.
Lead Time	Lead time determined by the Supplier-Manufacturer-DC-Retailer-chain.	Zero time between the occurrence of the demand and the need for it, nut the actual lead time is determined by the chain. of material flow.

Commercial versus Humanitarian Supply Chains

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	Commercial Supply Chain	Humanitarian Supply Chain
Network Configuration	There exist methods for supply chain network design.	Challenging due to the nature of unknowns (locations, type and size of events, politics, culture) and "last mile" considerations.
Information Systems	Typically, well-defined, making use of advanced technology	Information is often unreliable, incomplete, or non-existent.
Performance Measurement System	Historically, focused on resource performance measures, such as maximizing profit or minimizing costs.	Primary focus on output performance measures, such as the time required to respond to a disaster or ability to meet the needs of the disaster victins.

Commercial versus Humanitarian Supply Chains

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	Commercial Supply Chain	Humanitarian Supply Chain
Strategic Goals	Usually, to produce high quality products at low cost in order to maximize profitability and achieve customer satisfaction.	Minimize the loss of life and alleviate suffering.

B. M. Beamon, 2004. Humanitarian relief chains, issues and challenges, *Proceedings of the 34th International Conference on Computers & Industrial Engineering*, pp. 77-82.

The Disaster Management Cycle Phases

Disaster management can be depicted as a cycle with several phases:

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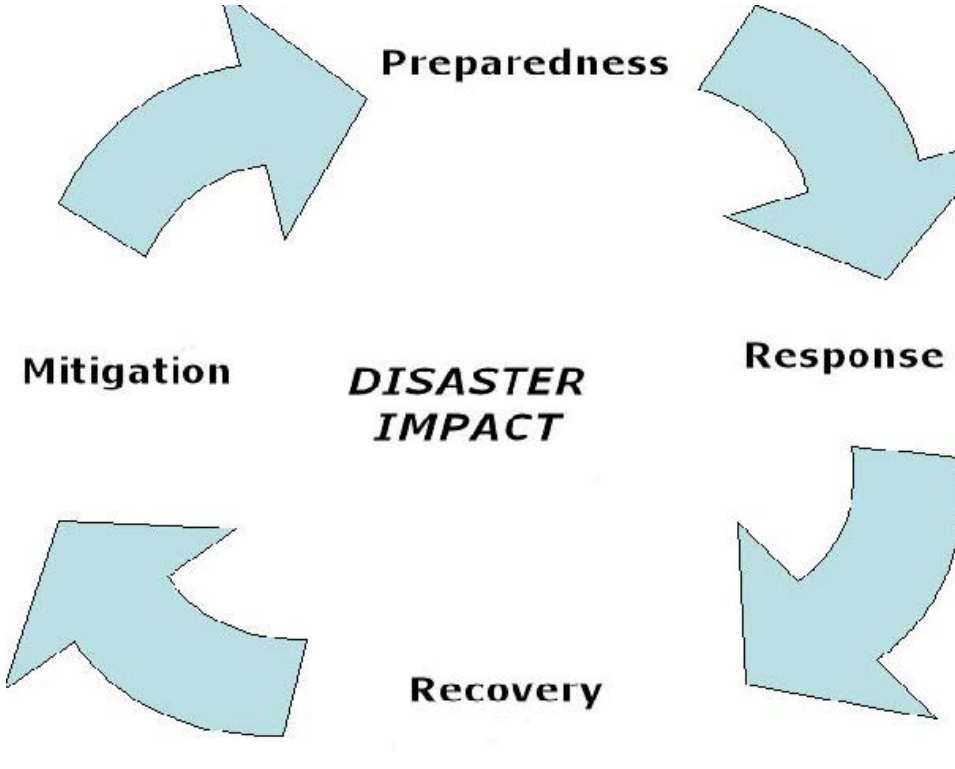
- Pre-disaster, we concentrate on **mitigation and preparedness**.
- During the Disaster phase we are concerned with the **response**.
- During the Post-disaster phase we focus on the **recovery**.



Pre-Disaster Phase: Mitigation and Preparedness

Assessment:

- Identify risk factors.
- Assess vulnerabilities.

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Planning:

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Training and Education:

- Make sure that those who need to know – know.

Disaster Phase: Response

Relief Operations:

- **First Phase:** medicines, water, food, shelter

Disaster Phase: Response

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- **Second Phase:** housing, restoring food supply chains, construction

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Stages of Logistics Operations:

- Mobilization and procurement
- Long haul
- The last mile

Disaster Preparedness and Response Video UCTV

URL is `http://www.youtube.com/watch?v=sg8-0uxu-2o`

Click on underlined text:
Disaster Preparedness and Response Video UCTV

Post-Disaster Phase: Recovery

Reconstruction:

- Cleaning up of debris
- Rebuilding of infrastructure
- Re-establishing communities

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Evaluation:

- Measuring the effects of disaster on:
- • planning, response, and infrastructure

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Identifying lessons learned:

- Providing feedback to planning and response authorities.

Humanitarian Logistics Specific Challenges Today

Specific Challenges:

- Climate change
- Urbanization trends – now more than half of the world's population lives in cities
- Diseases are spreading at increasing speeds because of global air travel and increased population densities

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Effects on Disasters

- Increasing severity
- Increasing frequency – It is estimated that over the next 50 years natural and man-made disasters will increase **five-fold** (Thomas and Kopczak (2007)).
- Complexity

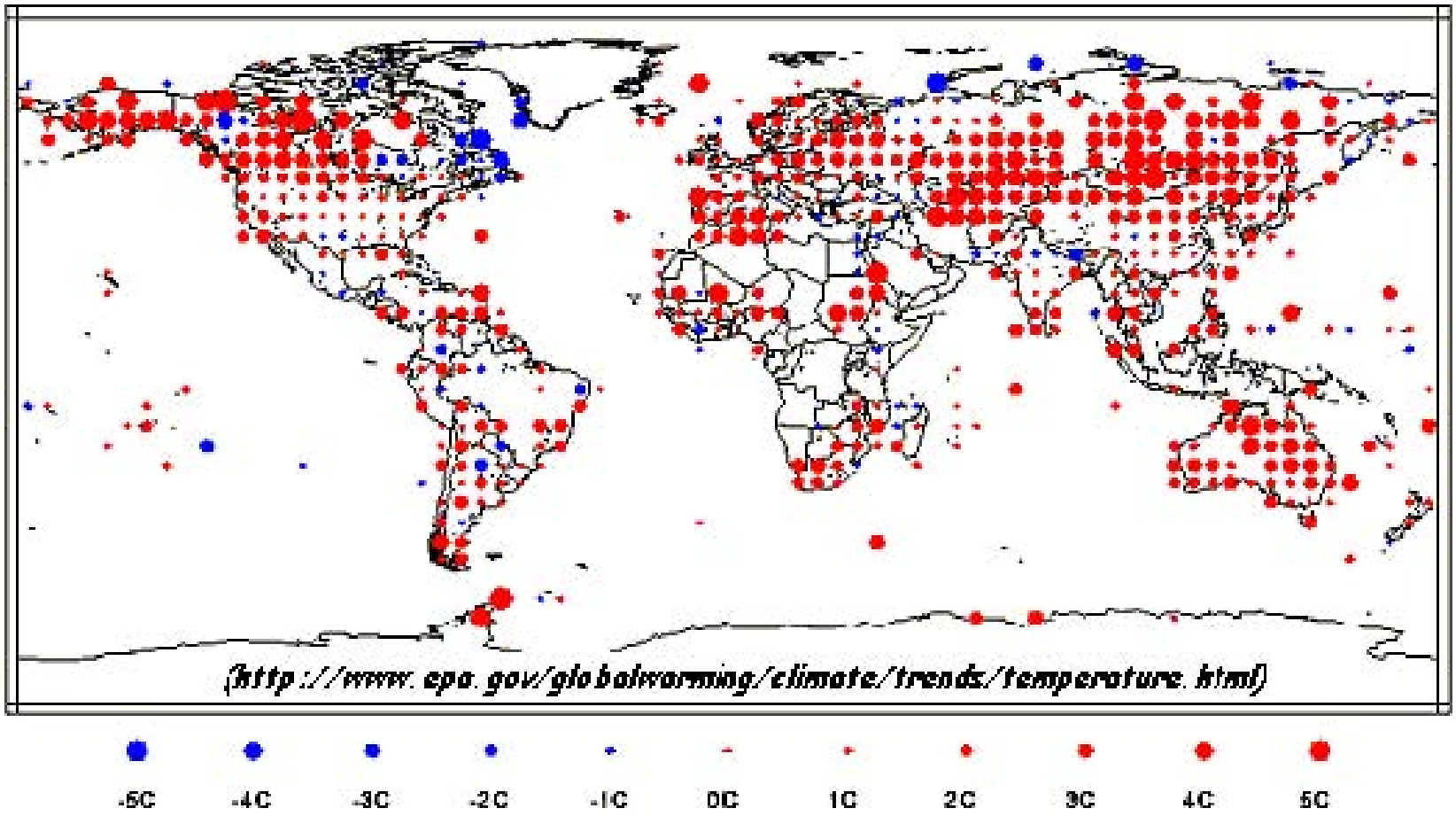
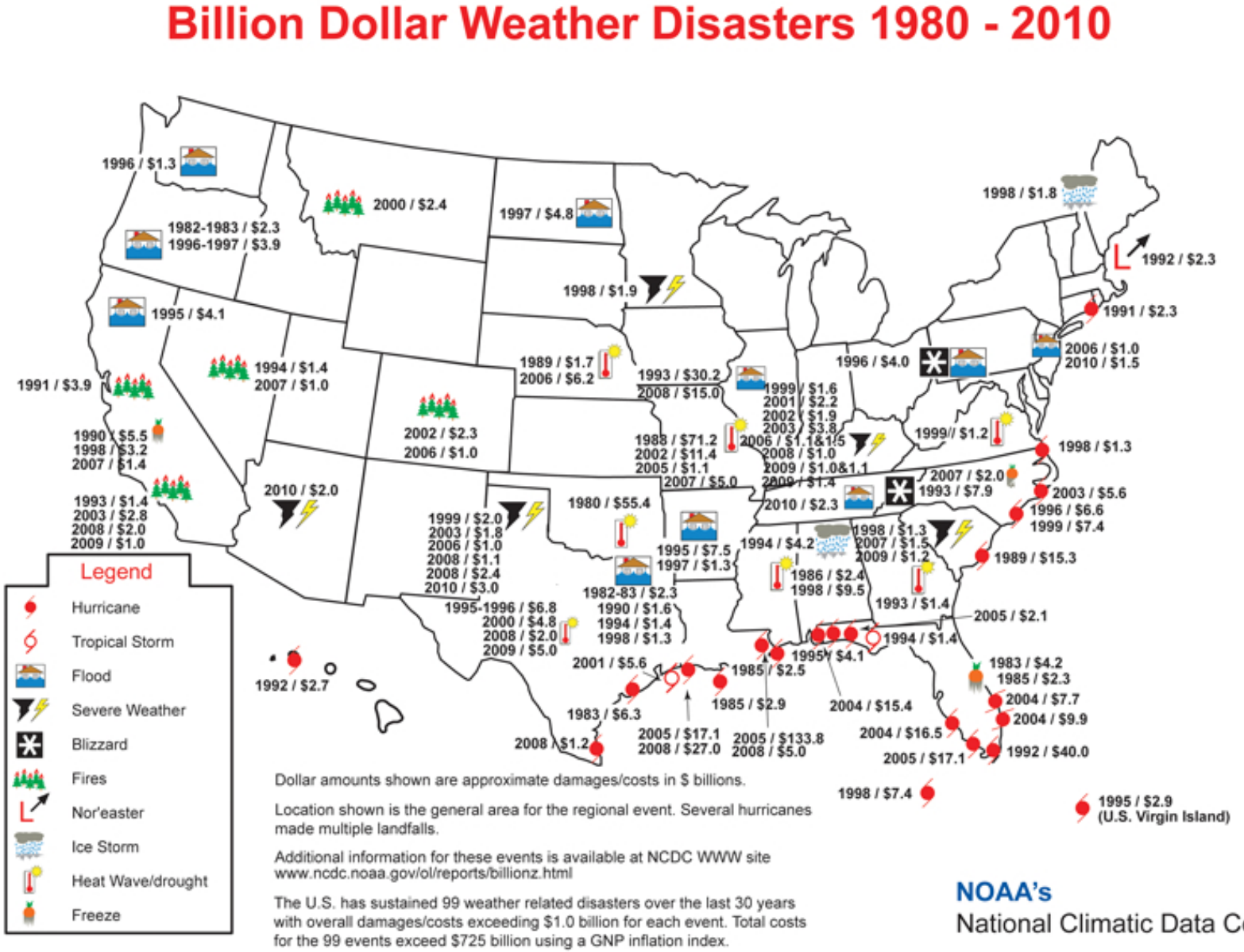


Figure: Global Annual Mean Temperature Trend 1950–1999

Figure: Impacts of climate change on transportation infrastructure

Recent Billion Dollar US Weather Disasters



U.S. Natural Disasters in 2012

As reported in the USA Today, the U.S. had the world's top two costliest natural disasters in 2012, according to a report released by global reinsurance firm Aon Benfield, based in London.

The largest global disasters of 2012 were Hurricane Sandy (with a cost of $65 billion) and the year-long Midwest/Plains drought ($35 billion), according to the company's Annual Global Climate and Catastrophe Report, which was prepared by Aon Benfield's Impact Forecasting division.

U.S. Natural Disasters in 2012

Sandy and the drought accounted for nearly half of the world's economic losses but, owing to higher levels of insurance coverage in the U.S., 67% of insured losses globally, the report states. Total economic losses include the entire cost of an event, while insured losses are the amount of economic losses that are covered by insurance.

The U.S. alone accounted for nearly 90% of all the world's insured losses in 2012. In addition to the drought and Sandy, several severe weather events and Hurricane Isaac contributed to this total.

References

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