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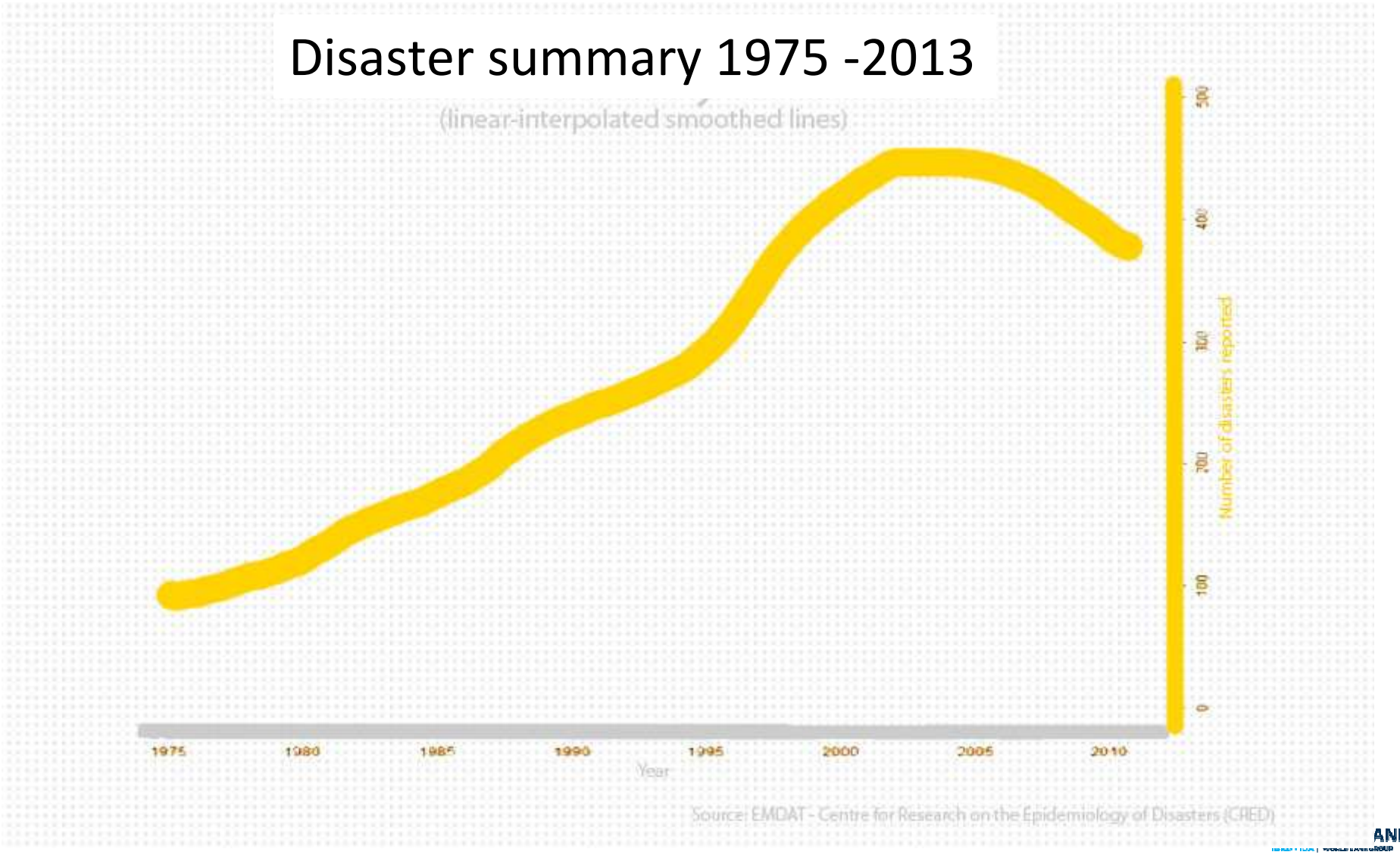
Impact of Disasters in WASH

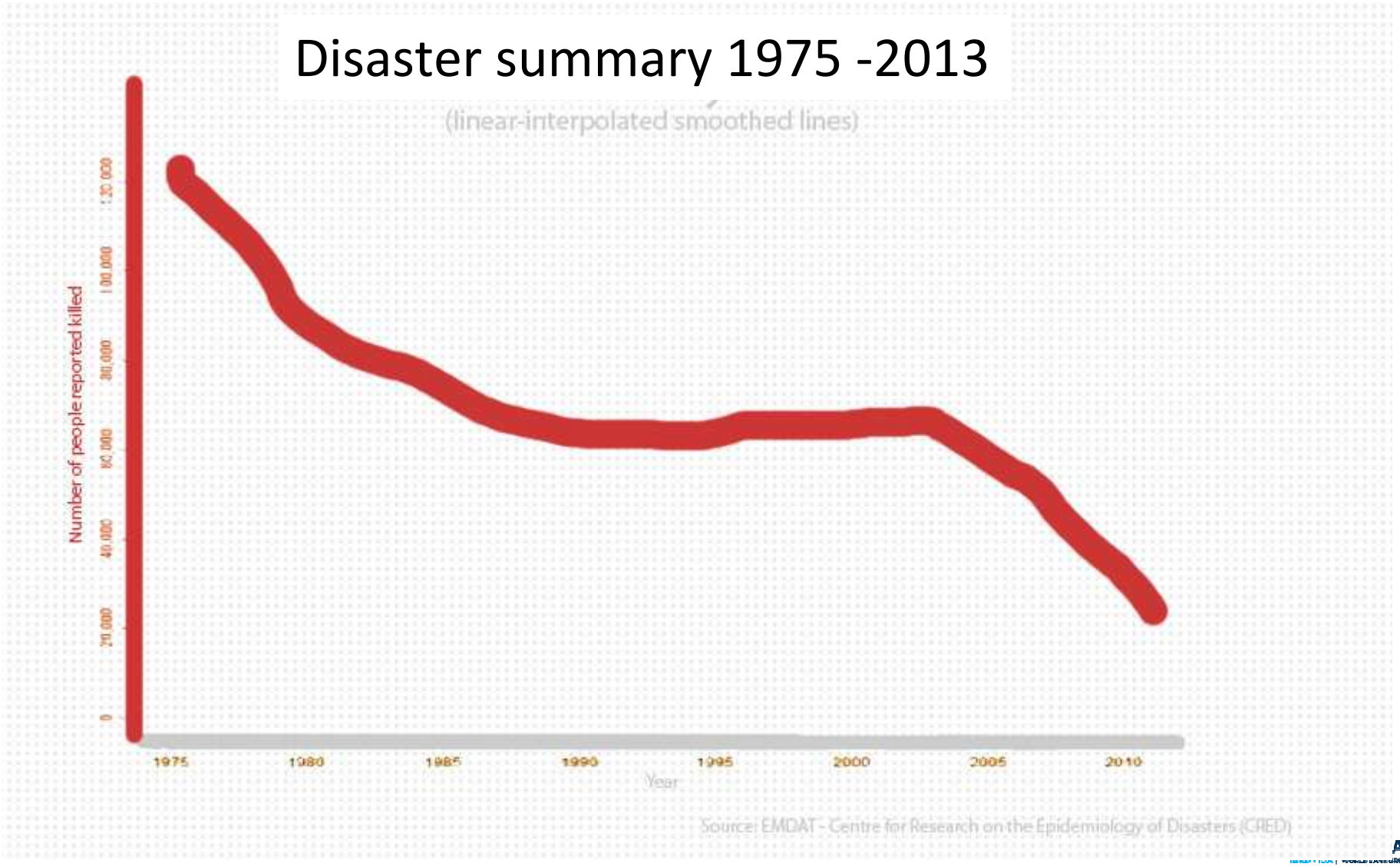
Disaster Risk Management
Europe and Central Asia
The World Bank Group

Joaquin Toro
Regional DRM Coordinator

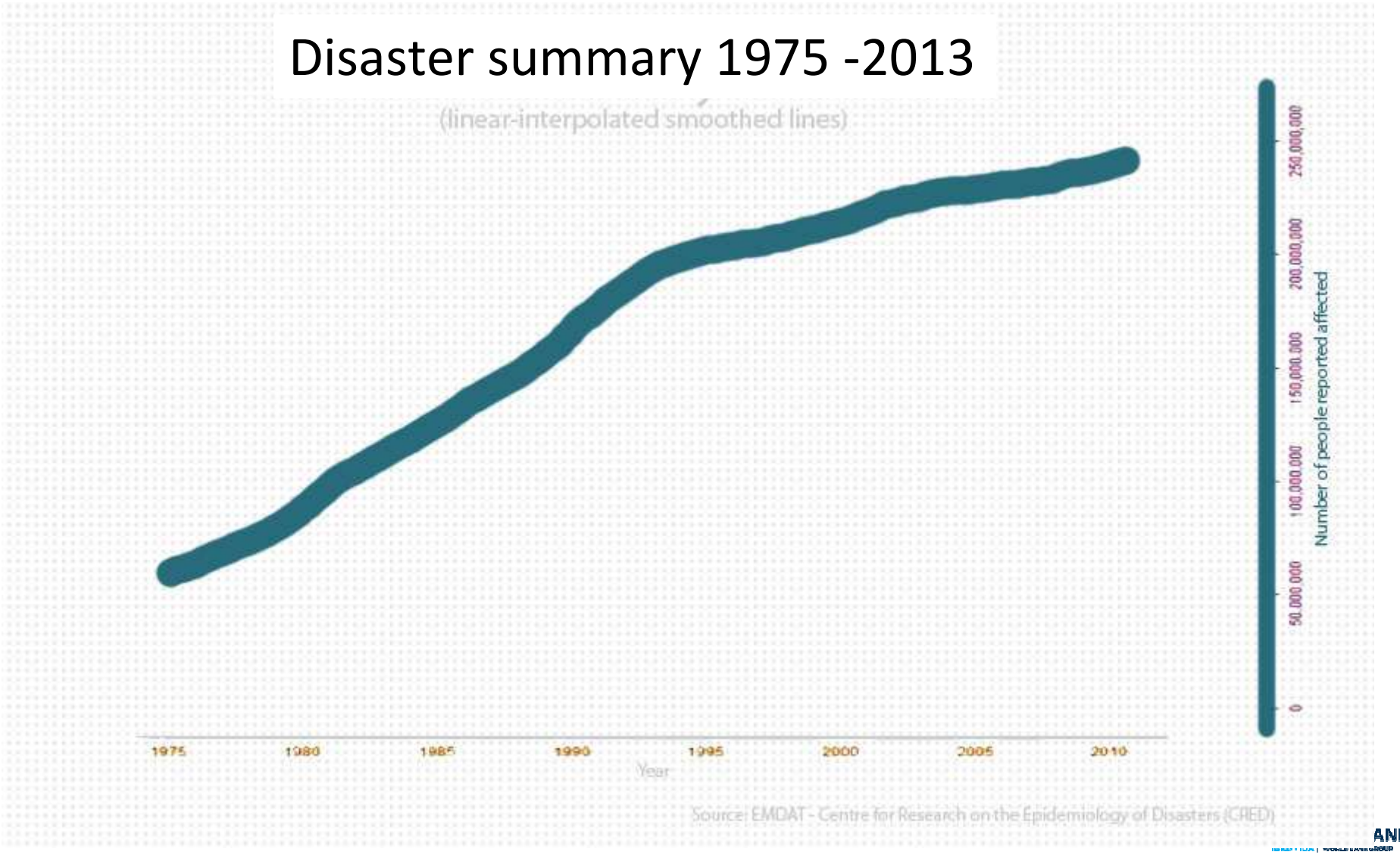
Disasters Reported



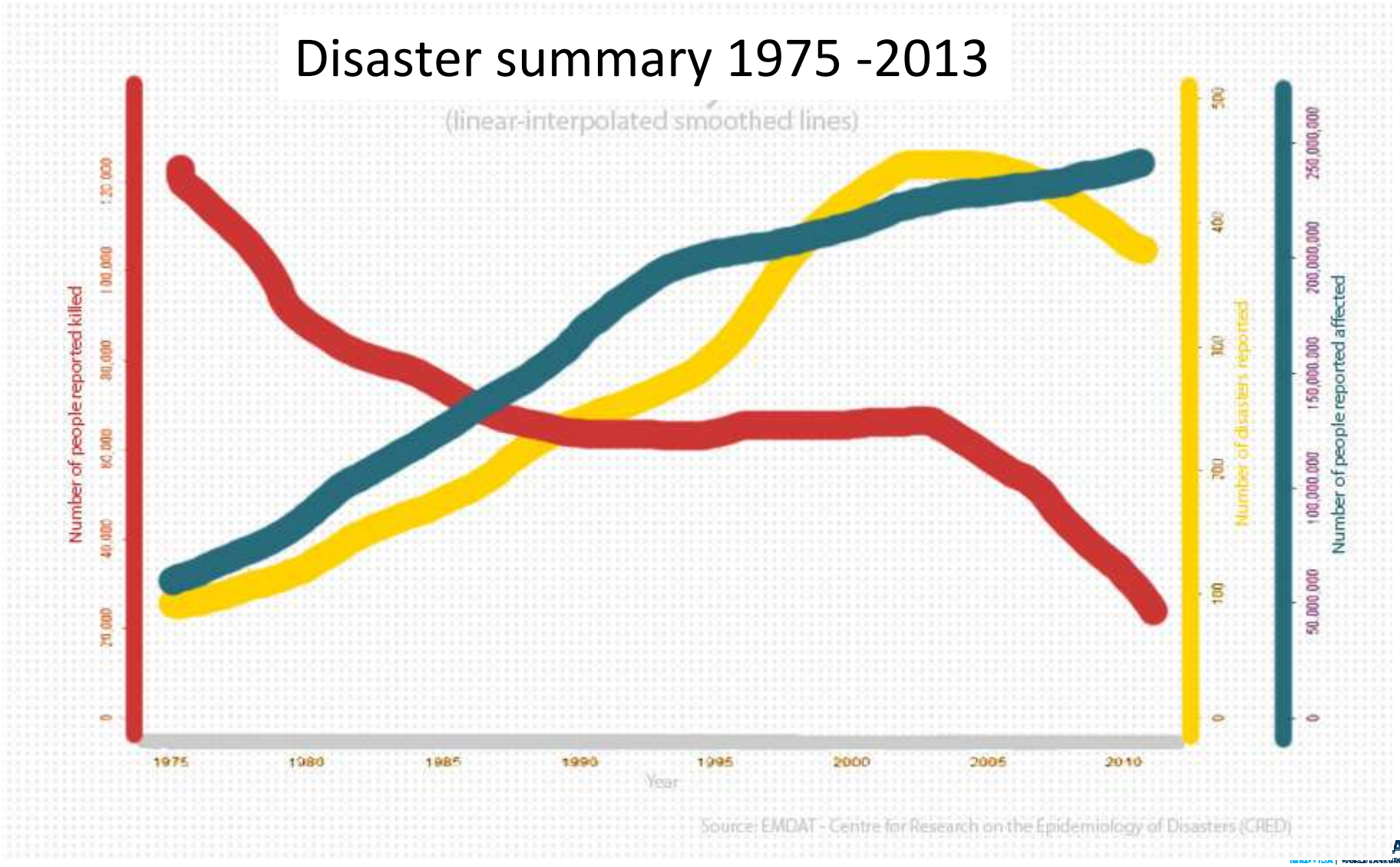
Fatalities


Disaster summary 1975 -2013
(linear-interpolated smoothed lines)
Number of people reported killed
0
20,000
40,000
60,000
80,000
100,000
120,000
1975
1980
1985
1990
1995
2000
2005
2010
Year
Source: EMDAT - Centre for Research on the Epidemiology of Disasters (CRED)

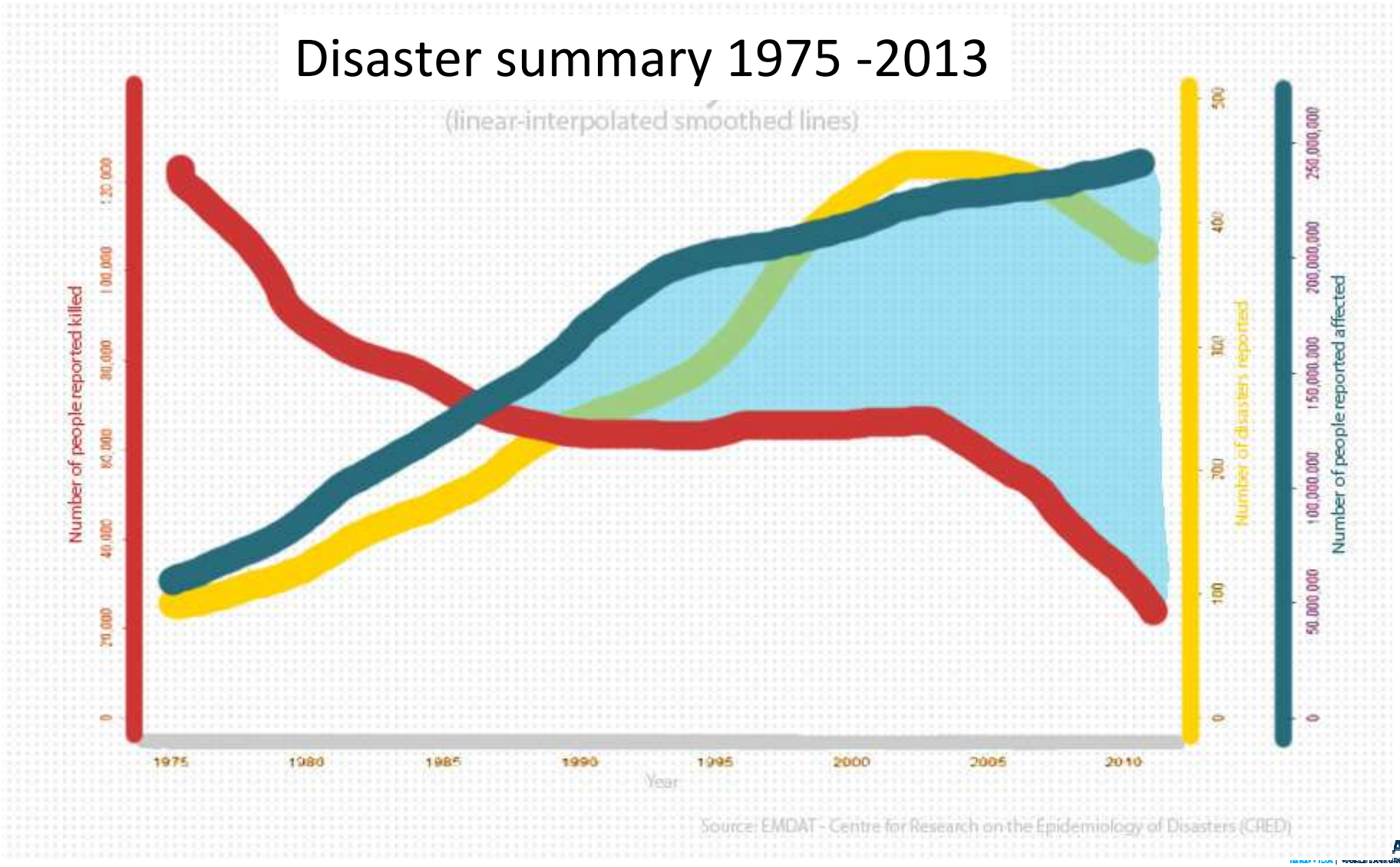
People Affected

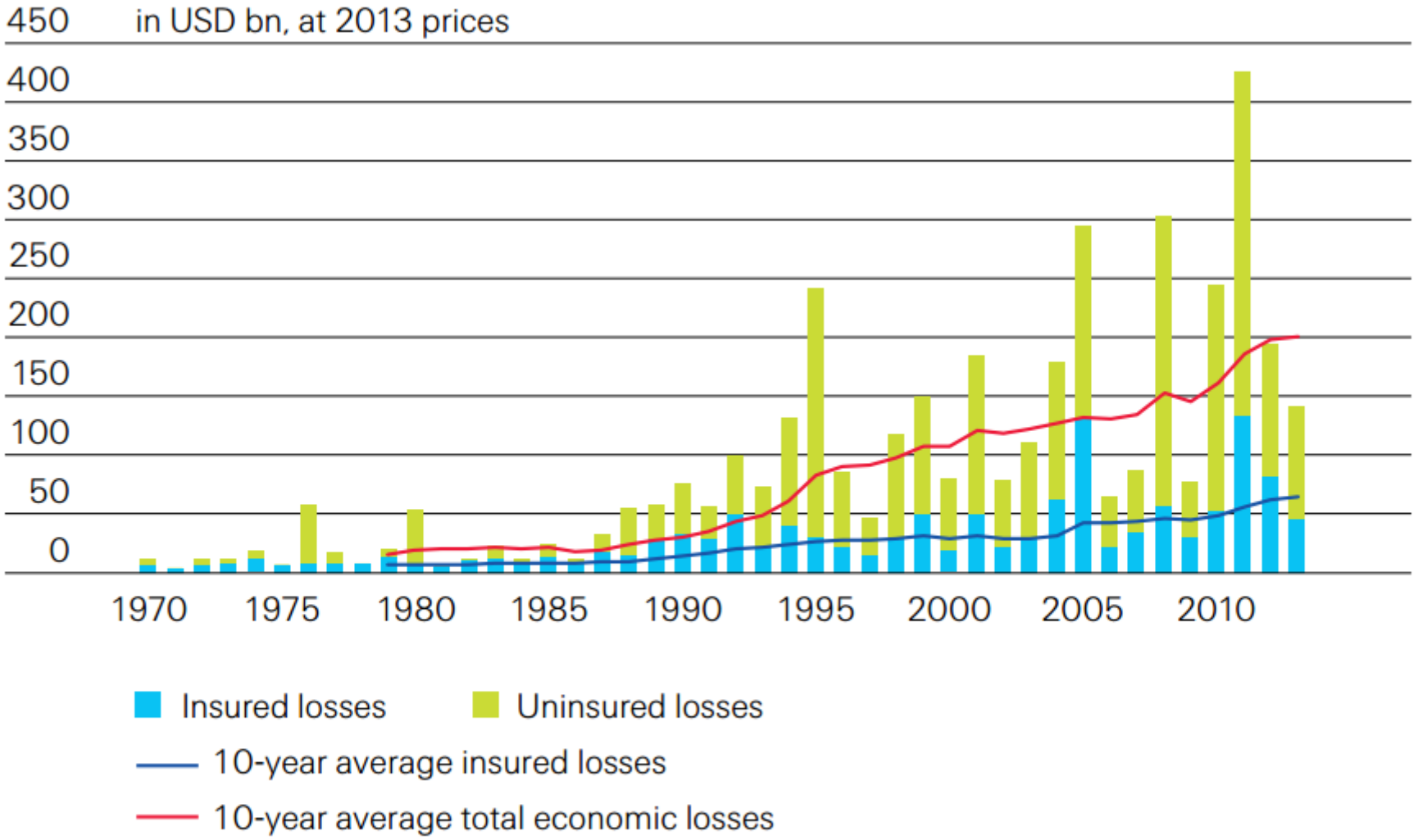


Disaster summary 1975 -2013



Disaster summary 1975 -2013





Economic loss = insured + uninsured losses

Source: Swiss Re Economic Research & Consulting

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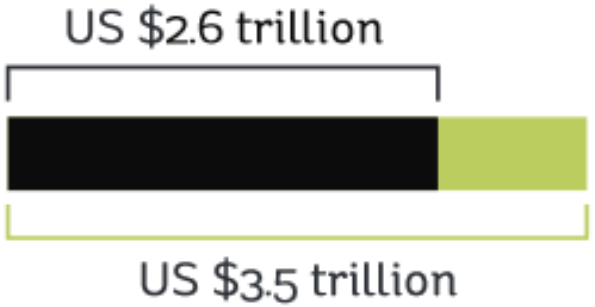
OF THE 22,200 EXTREME EVENTS RECORDED BETWEEN 1980 AND 2011, 17,400 WERE CAUSED BY WEATHER EXTREMES.

WEATHER-RELATED DISASTERS

ACCOUNT FOR US $2.6 TRILLION OF THE US $3.5 TRILLION ECONOMIC LOSSES RECORDED BETWEEN 1980 AND 2011.



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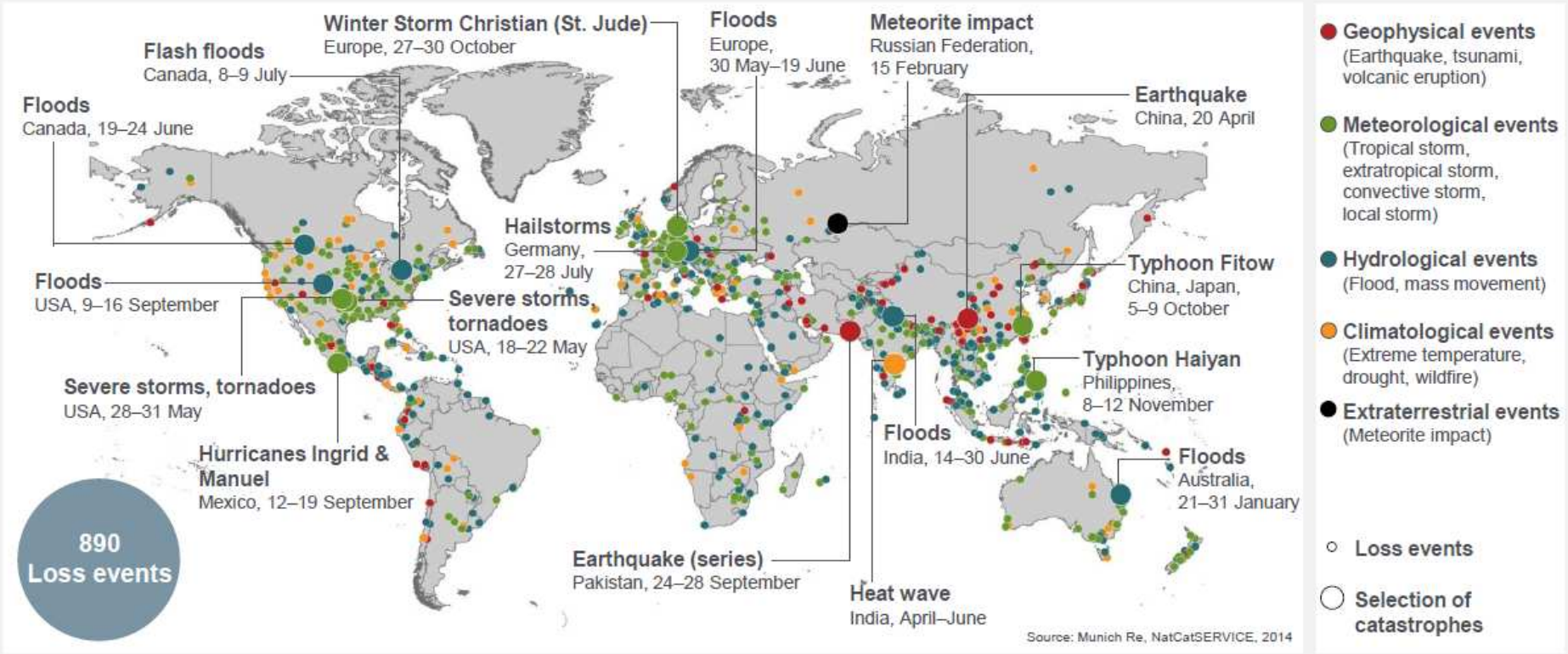
NatCatSERVICE

Loss events worldwide 2013

Geographical overview

Munich RE



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Impacts of Disasters in WASH

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Hurricane Katrina 2005

More than 1,000 drinking water systems and 172 sewage treatment plants were damaged, leaving 2.4 million people without access to safe drinking water.

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Haiti Earthquake 2010

A cholera outbreak affected more than 470,000 Haitians and killed 7,000. It marked the first cholera outbreak in that country in more than a century.

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Peru Earthquake 2007

Damages to the water and sanitation systems with a total amount of US$ 30 million. This money could have been used to install over 8,183 water connections and 7,925 drainage systems to benefit 160,888 inhabitants.

Japan Earthquake 2011

An estimated 1.4 million households in 14 Prefectures have no access to water.

“Fully restoring water and sewer services to the town of Sendai will take three to five years”

Water contamination – Complex Disasters

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Balkans
May 2014 floods

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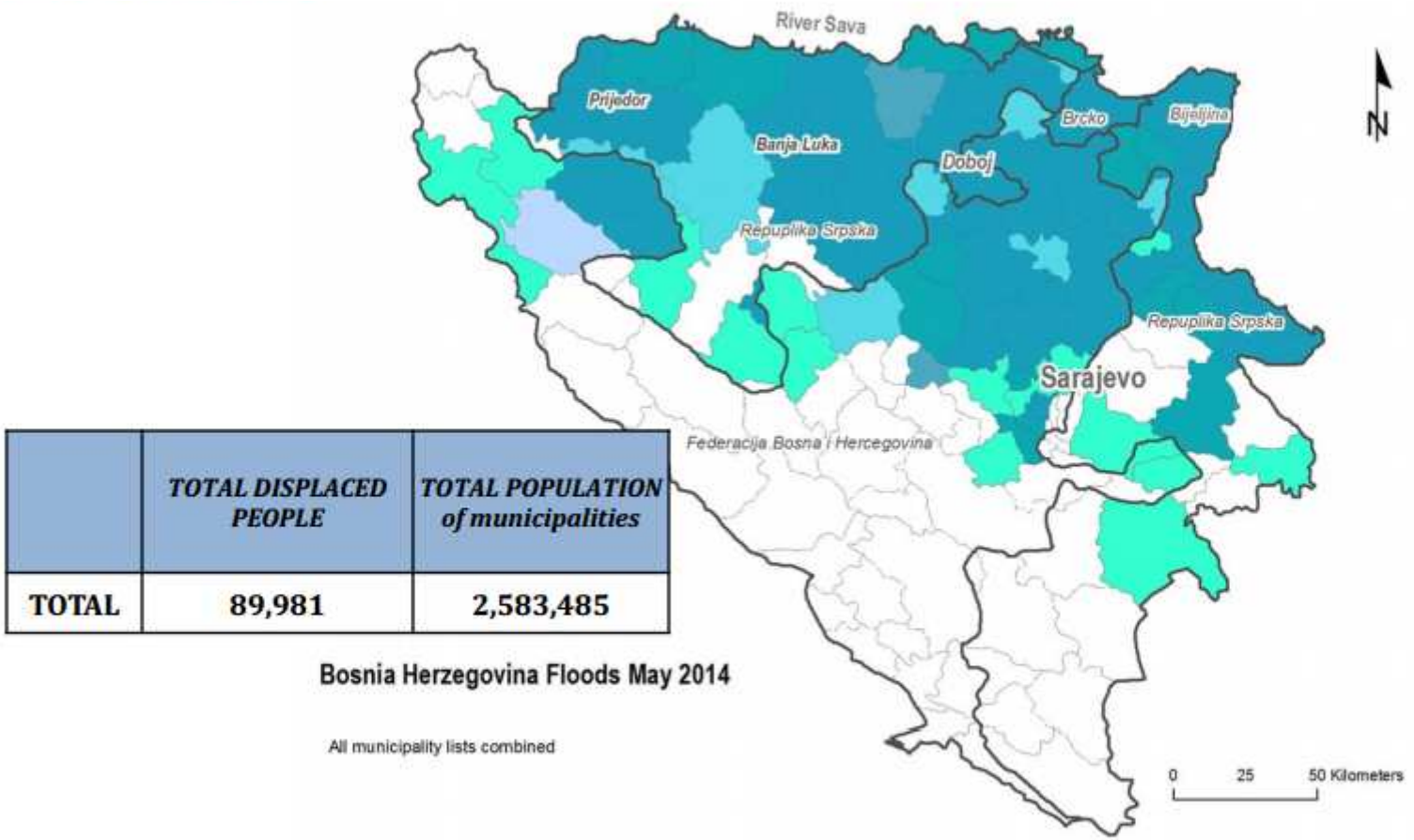
DISASTER IMPACT
BiH – 15% of GDP
Between 0.4 and 1.8 %
points increase in poverty
Serbia – ~5% of GDP
(HDI) would decline in 2014

Maximum number of Municipalities affected in BiH



	TOTAL DISPLACED PEOPLE	TOTAL POPULATION of municipalities
TOTAL	89,981	2,583,485

Bosnia Herzegovina Floods May 2014

All municipality lists combined

Municipalities that declared state of emergency (darker blue colour)

Municipalities recorded by UN as of 5 June 2014 (light blue colour)

Municipalities communicated to the European Union Delegation as of 2 June (previous ones plus light green colour ones)

Summary of disaster effects BiH

Sectors	Damages	Losses	BiH TOTAL	Public	Private
Agriculture, livestock, fisheries, and forestry,	204.090.000	162.070.000	366.160.000	10.640.000	355.520.000
Education	15.720.000	1.300.000	17.020.000	17.020.000	-
Energy, electricity	97.140.000	102.280.000	199.420.000	198.190.000	1.230.000
Flood protection	96.300.000	-	96.300.000	96.300.000	-
Gender	-	16.550.000	16.550.000	-	16.550.000
Health	11.330.000	92.180.000	103.510.000	103.510.000	-
Housing and household items	830.800.000	55.600.000	886.400.000	18.200.000	868.200.000
Livelihoods and employment in relevant productive sectors and commerce	677.800.000	873.260.000	1.551.060.000	-	1.551.060.000
Public Facilities and services (municipal and higher)	35.920.000	17.700.000	53.620.000	53.620.000	-
Transport and communications,	511.960.000	168.080.000	680.040.000	511.960.000	168.080.000
Water and sanitation	10.640.000	4.050.000	14.690.000	14.690.000	-
TOTAL	2.491.700.000	1.493.070.000	3.984.770.000	1.024.130.000	2.960.640.000

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Flood-related damage to the water supply and sanitation infrastructure in affected area was relatively limited. In the case of water supply systems, physical damage was mainly limited to

- electrical components and equipment in pumping stations or water treatment plants;
- administrative and laboratory buildings, and office equipment, records and laboratory equipment and
- motor vehicles, that were exposed to the water over an extended period of time.

In the case of wastewater structures, damage was linked to

- electrical components in pumping stations,
- administrative buildings and
- manhole covers, waste containers and similar elements.

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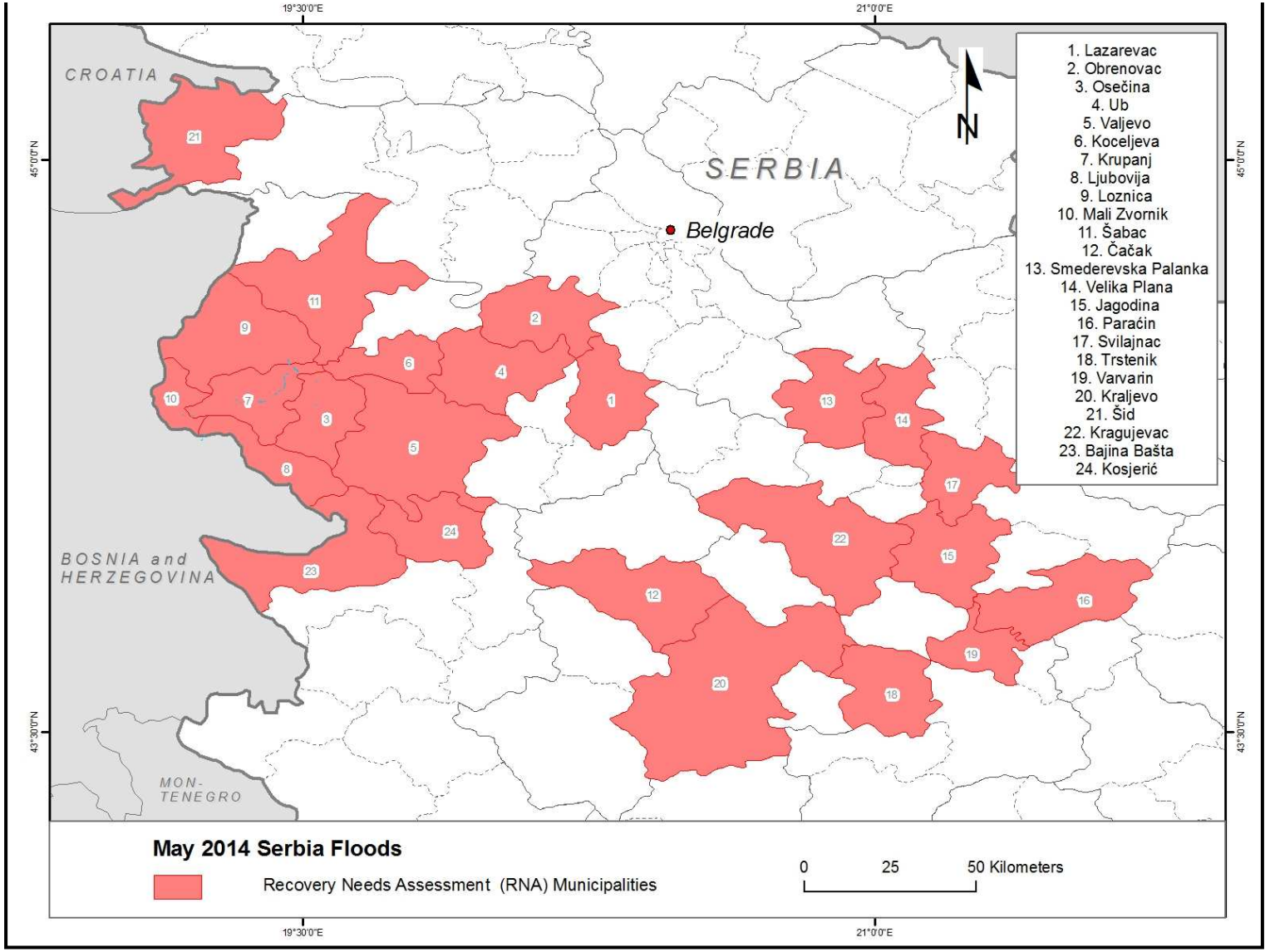
Serbia-affected municipalities



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Summary of disaster effects Serbia

		Disaster Effects, million EUR		
		Damage	Losses	Total
Social		**234.6**	**7.1**	**241.7**
	Housing	227.3	3.7	230.9
	Education	3.4	0.1	3.5
	Health	3.0	2.7	5.7
	Culture	1.0	0.6	1.6
Productive		**501.0**	**569.4**	**1,070.3**
	Agriculture	107.9	120.1	228.0
	Manufacturing	56.1	64.9	121.0
	Trade	169.6	55.2	224.8
	Tourism	0.6	1.6	2.2
	Mining and energy	166.8	327.6	494.4
Infrastructure		**117.3**	**74.8**	**192.1**
	Transport	96.0	70.4	166.5
	Communications	8.9	1.1	10.0
	Water and sanitation	12.4	3.2	15.7
Cross cutting		**17.2**	**10.6**	**27.9**
	Environment	10.6	10.1	20.6
	Governance	6.7	0.6	7.2
Total		**870.1**	**661.9**	**1,532.0**

The main damages to water supply and waste water disposal systems were:

- the piped network for both water and sewerage, including blockage of the sewerage system;
- electrical components of pumping systems, especially at water sources such as well fields;
- wells in urban areas, which were destroyed;
- wells and intakes in rural and urban areas were clogged with sediment for the floods water;
- One lagoon for sewage treatment was flooded and filled with sediment.

The main damages within the solid waste management systems comprise:

- damages and destruction of waste containers;
- damages to the waste collection vehicles;
- damages sustained at the solid waste disposal sites.

Exposed to most natural hazards and with accumulated vulnerability

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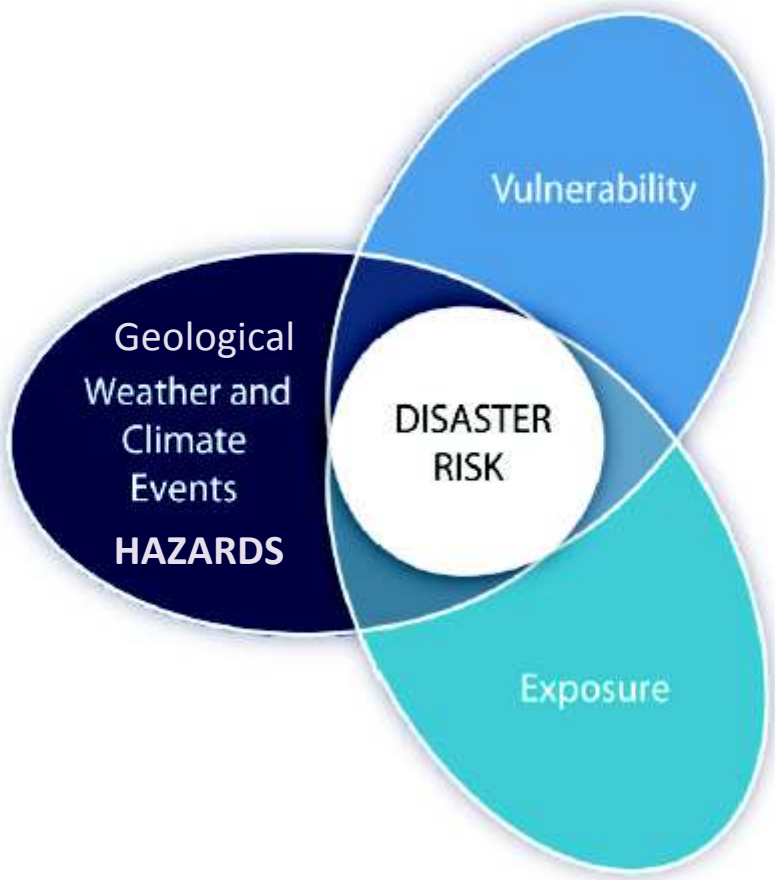
What is Risk?



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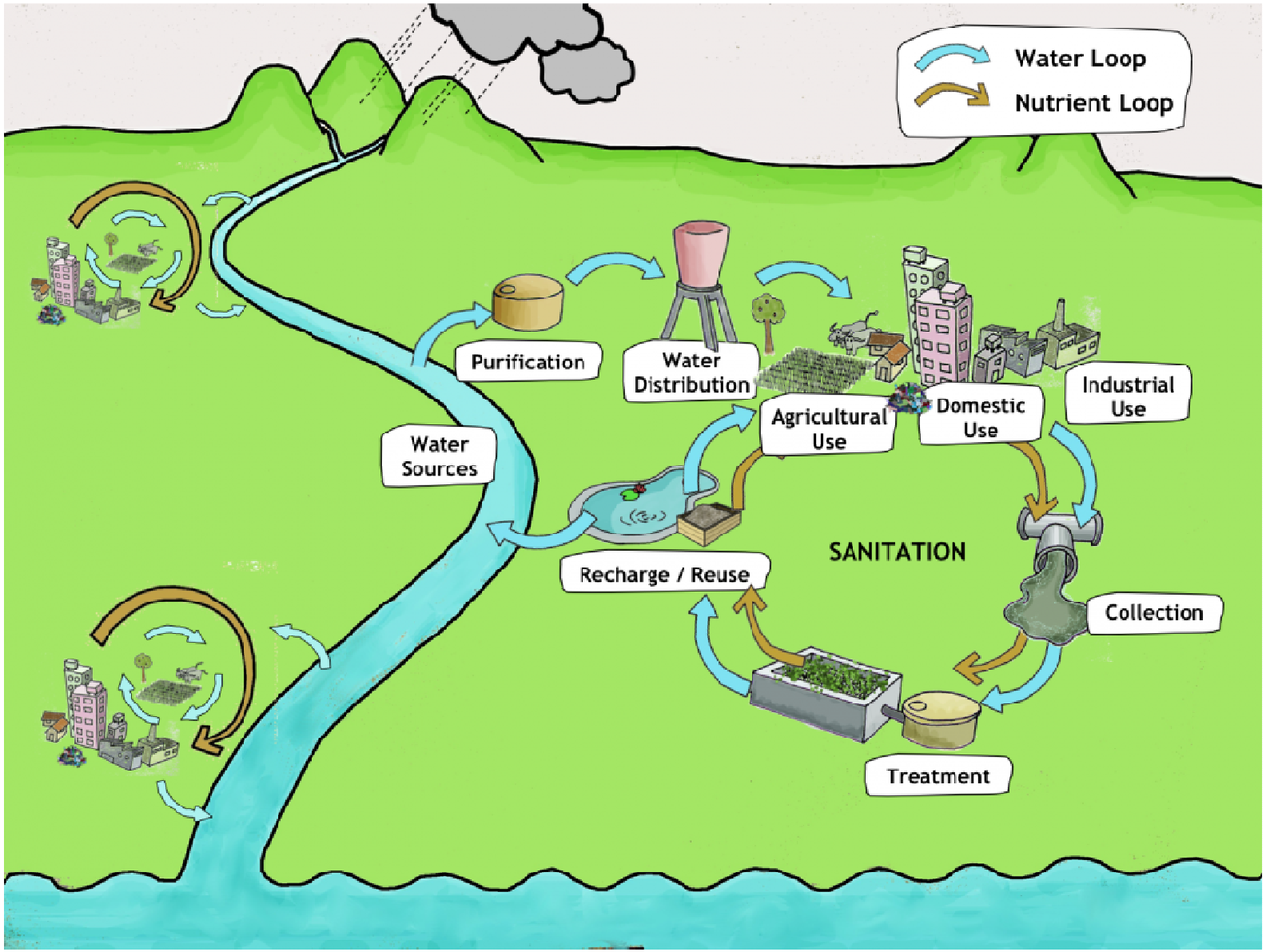
Understanding the risk of your system/network



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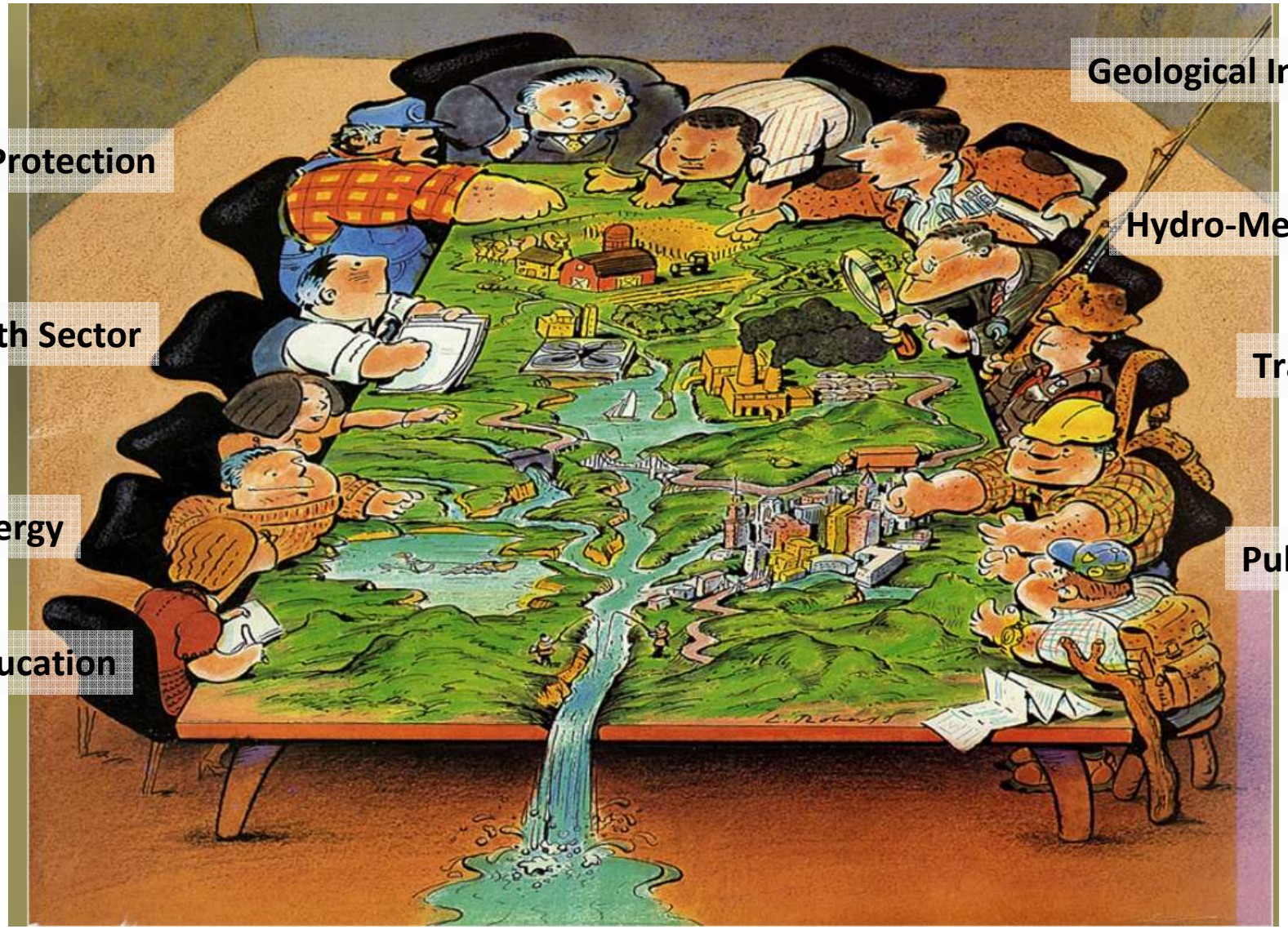
Linkages with other sectors



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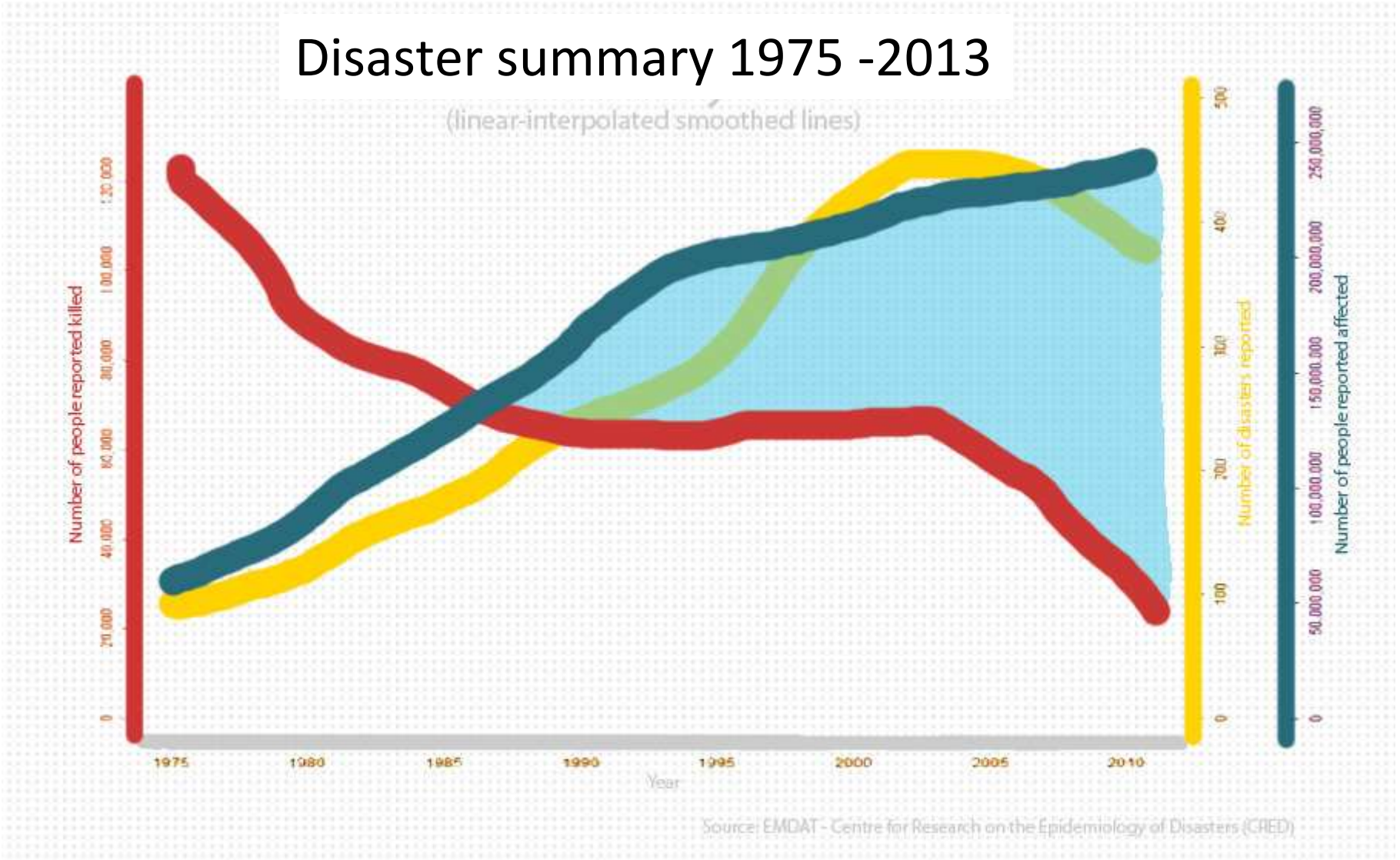

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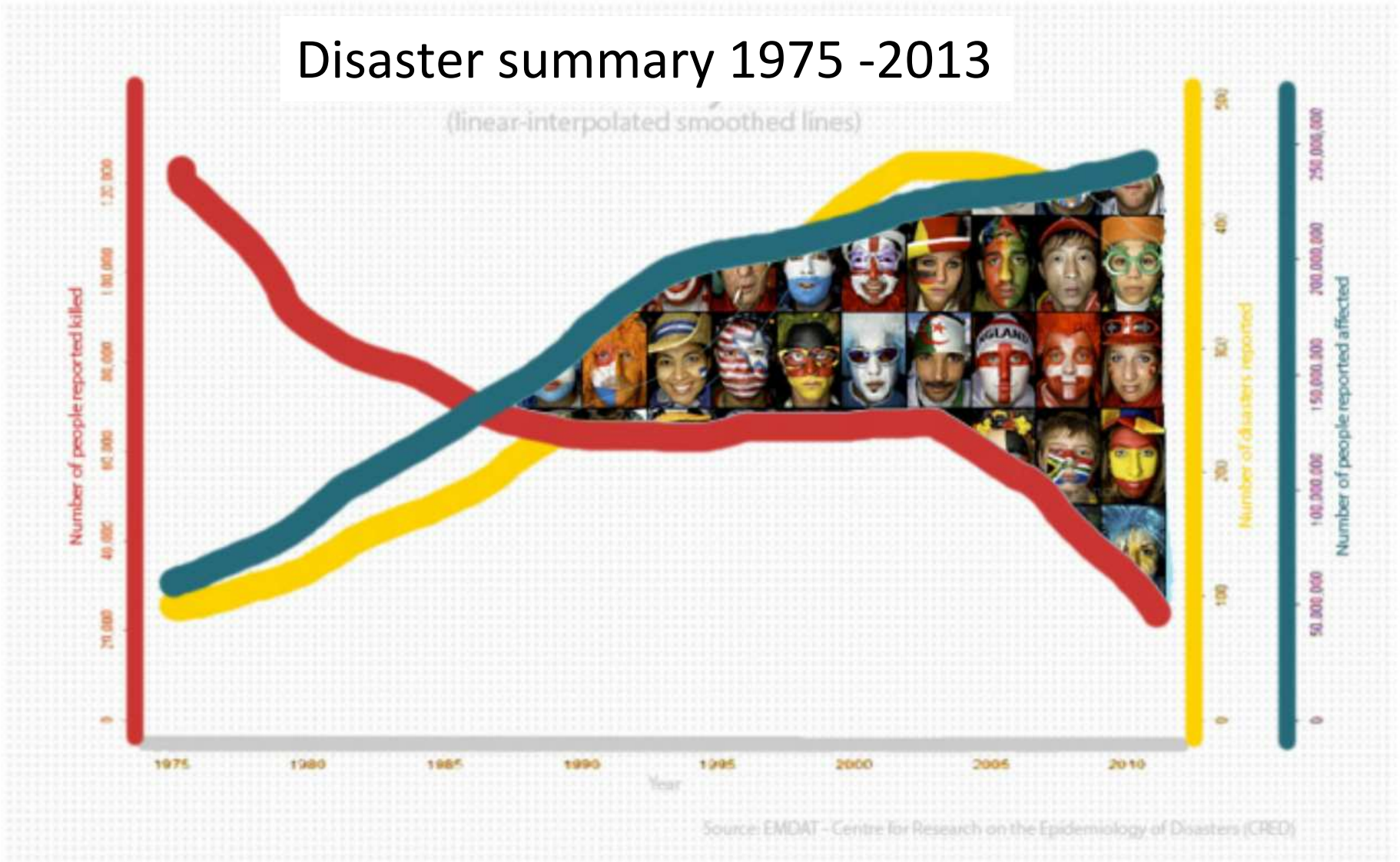

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