Swiss Re

Lessons learnt from Nat Cat Events for the last 40 years

International Federation of Adjusting Associations
Miami, May 19, 2015

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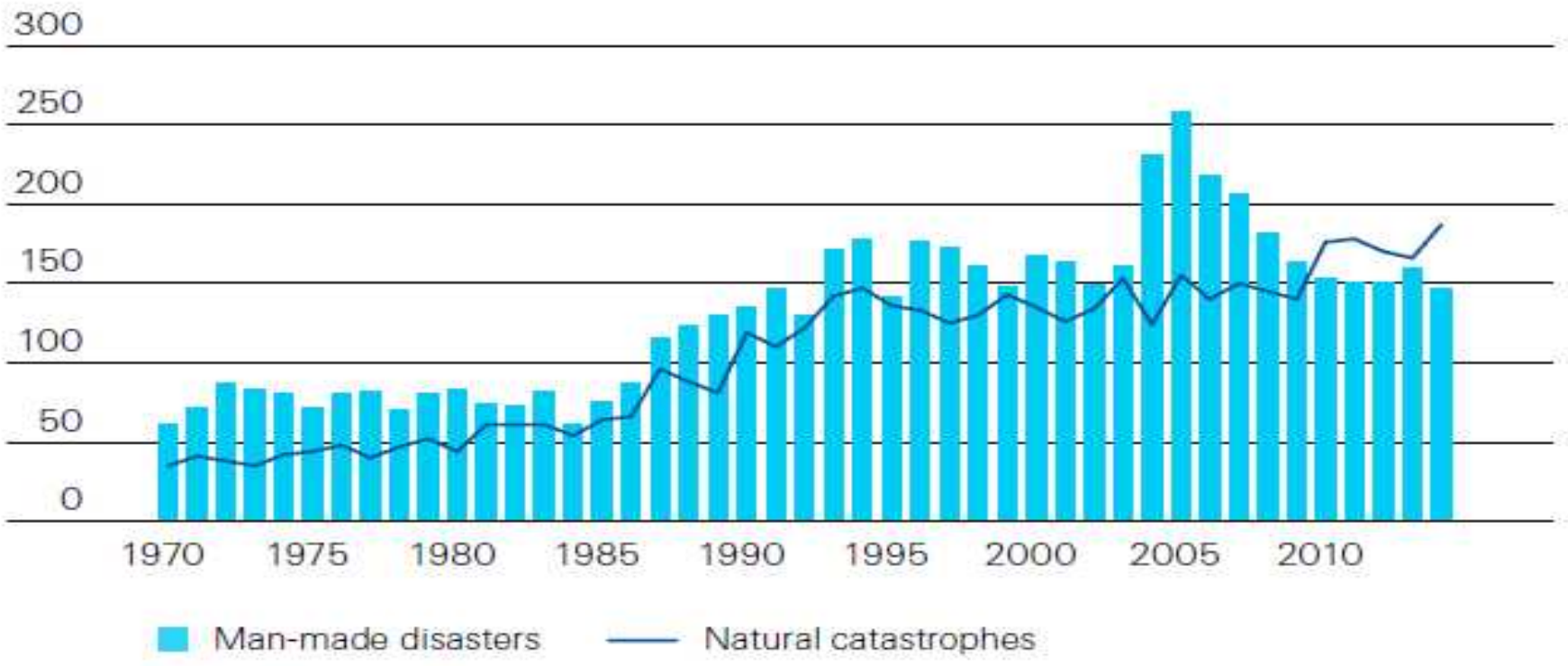
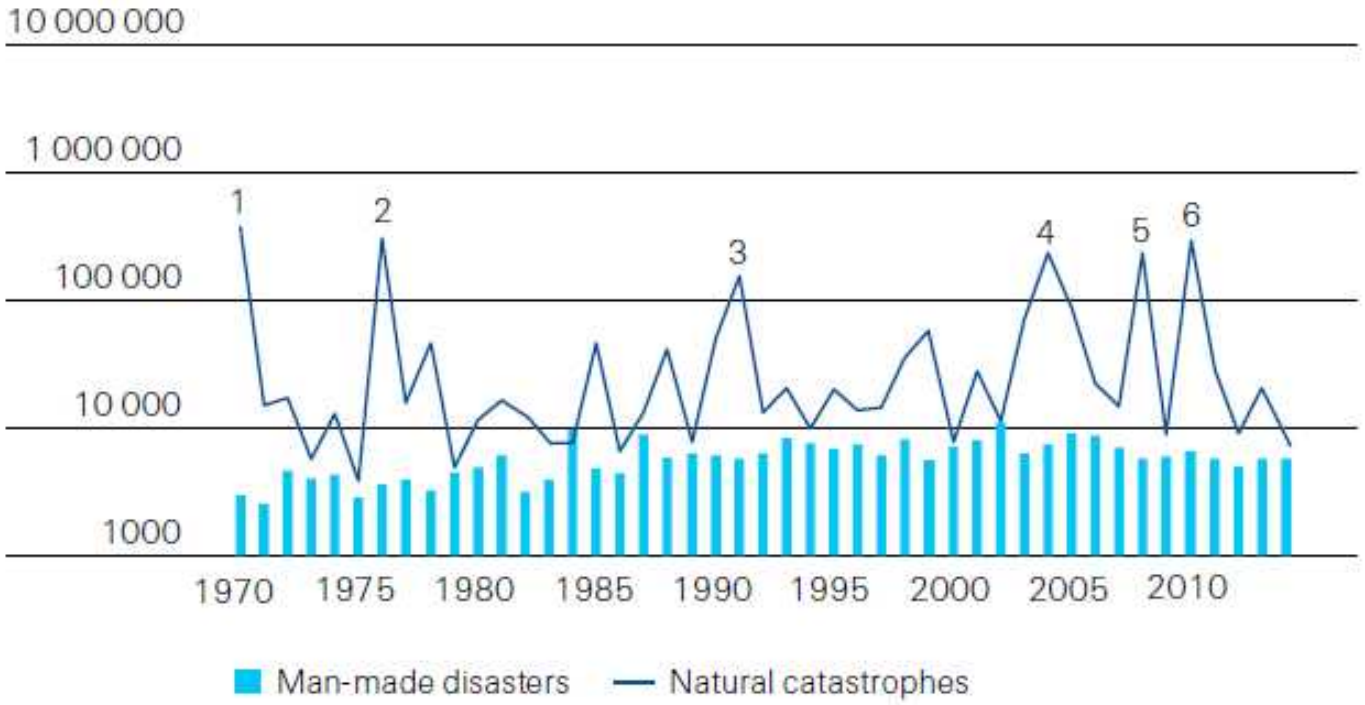
I) Historical loss Information

Historical number of events



Source: Swiss Re Economic Research & Consulting and Cat Perils.

Number of victims

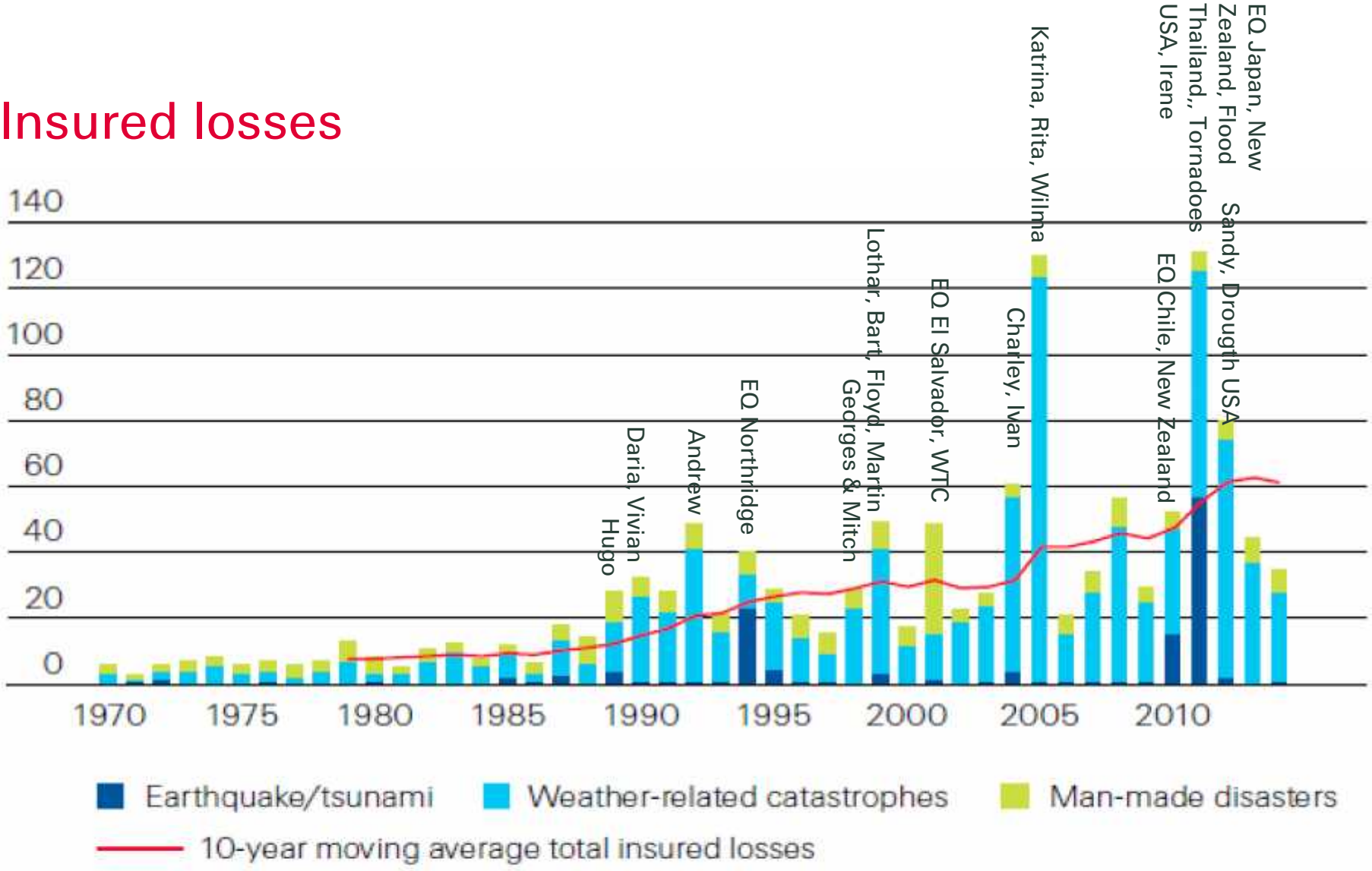


Number of victims, 1970–2014

1 1970: Bangladesh storm
2 1976: Tangshan earthquake, China
3 1991: Cyclone Gorky, Bangladesh
4 2004: Indian Ocean earthquake and tsunami
5 2008: Cyclone Nargis, Myanmar
6 2010: Haiti earthquake

Note: Scale is logarithmic: number of victims increases tenfold per band.
Source: Swiss Re Economic Research & Consulting and Cat Perils.

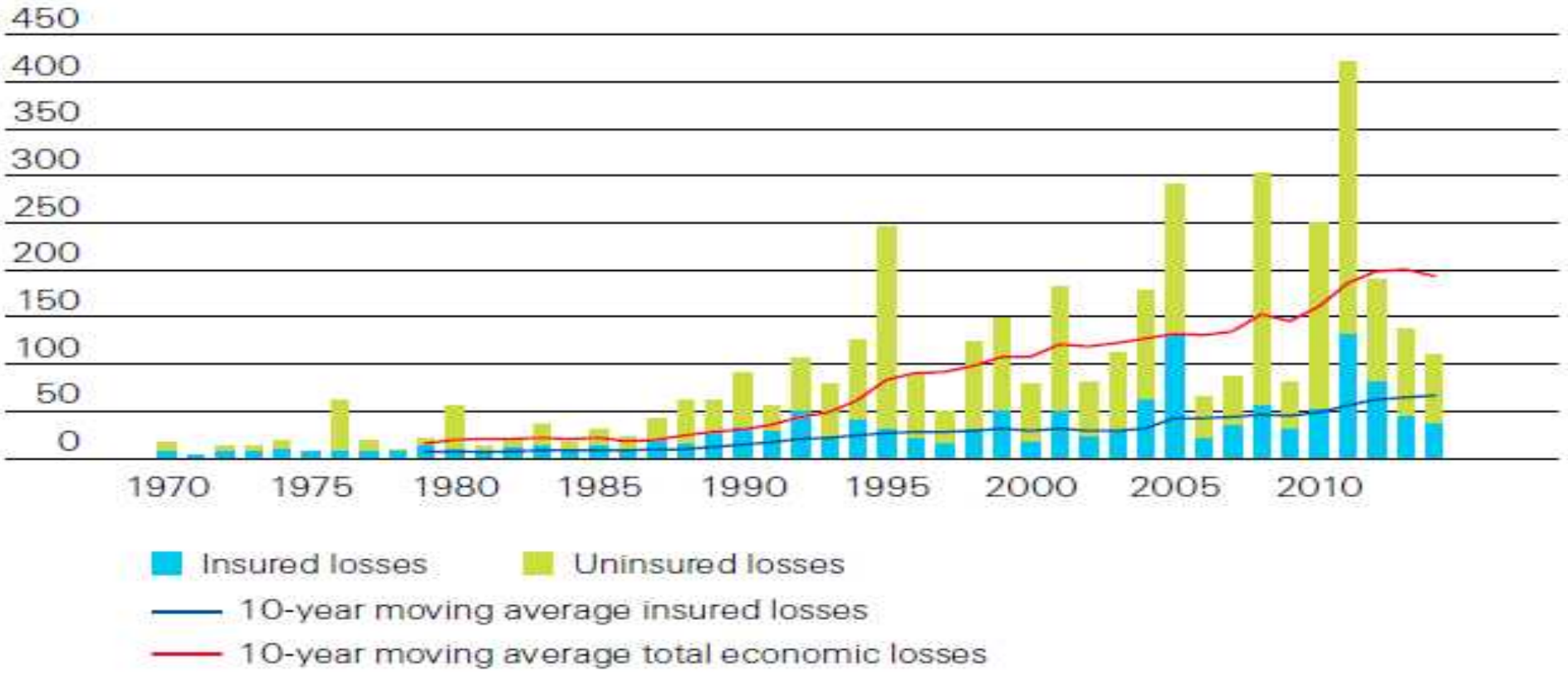
Insured losses



Source: Swiss Re Economic Research & Consulting and Cat Perils.

Insured catastrophe losses,
1970–2014, in USD billion
at 2014 prices

Insured losses vs. uninsured losses



Total losses = insured + uninsured losses
Source: Swiss Re Economic Research & Consulting and Cat Perils.

Insured vs uninsured losses,
1970–2014, in USD billion
in 2014 prices

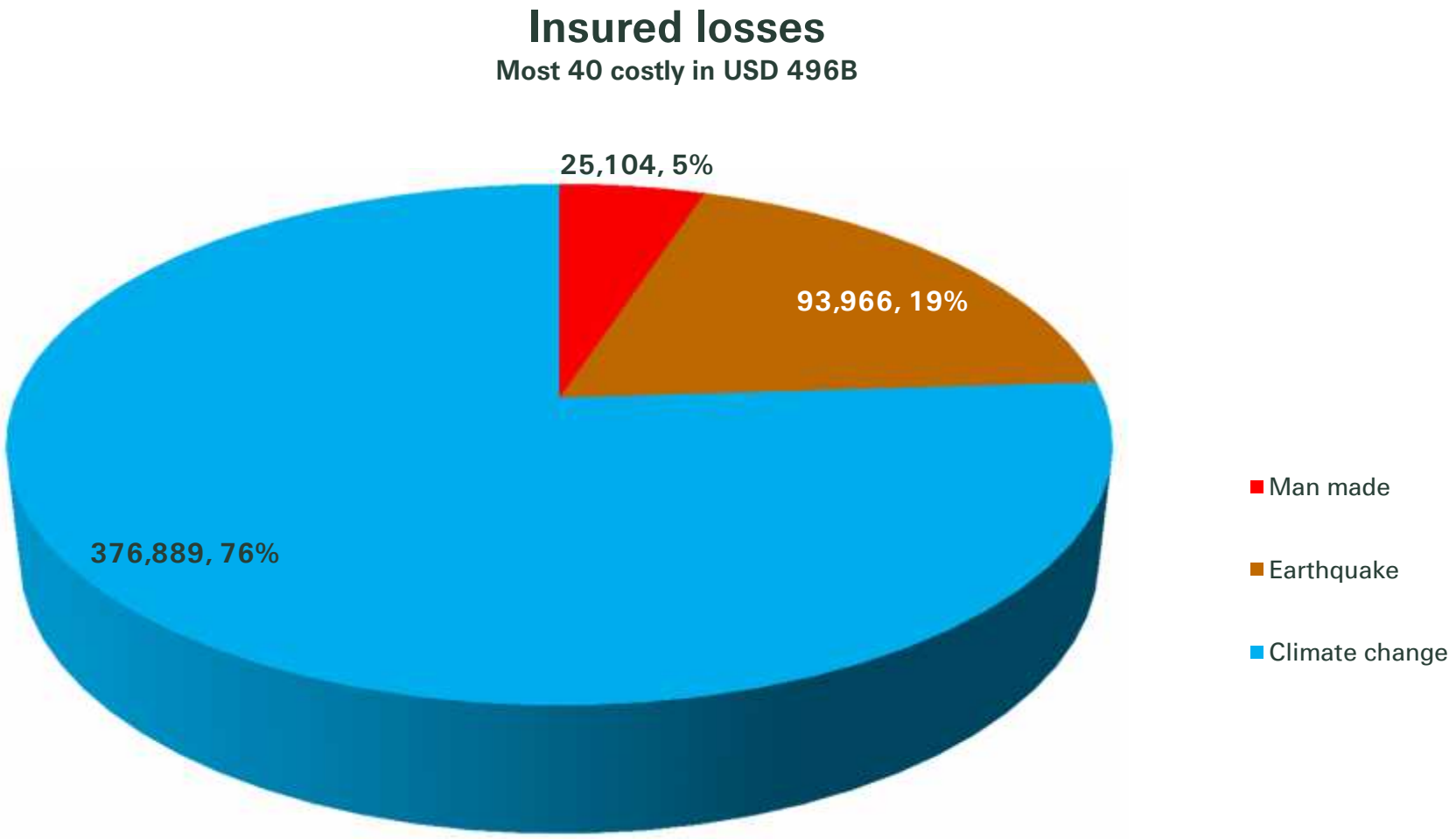
12 LA losses: 30%
USD 220B = 44%

The 40 most costly insured losses (1970 – 2014)

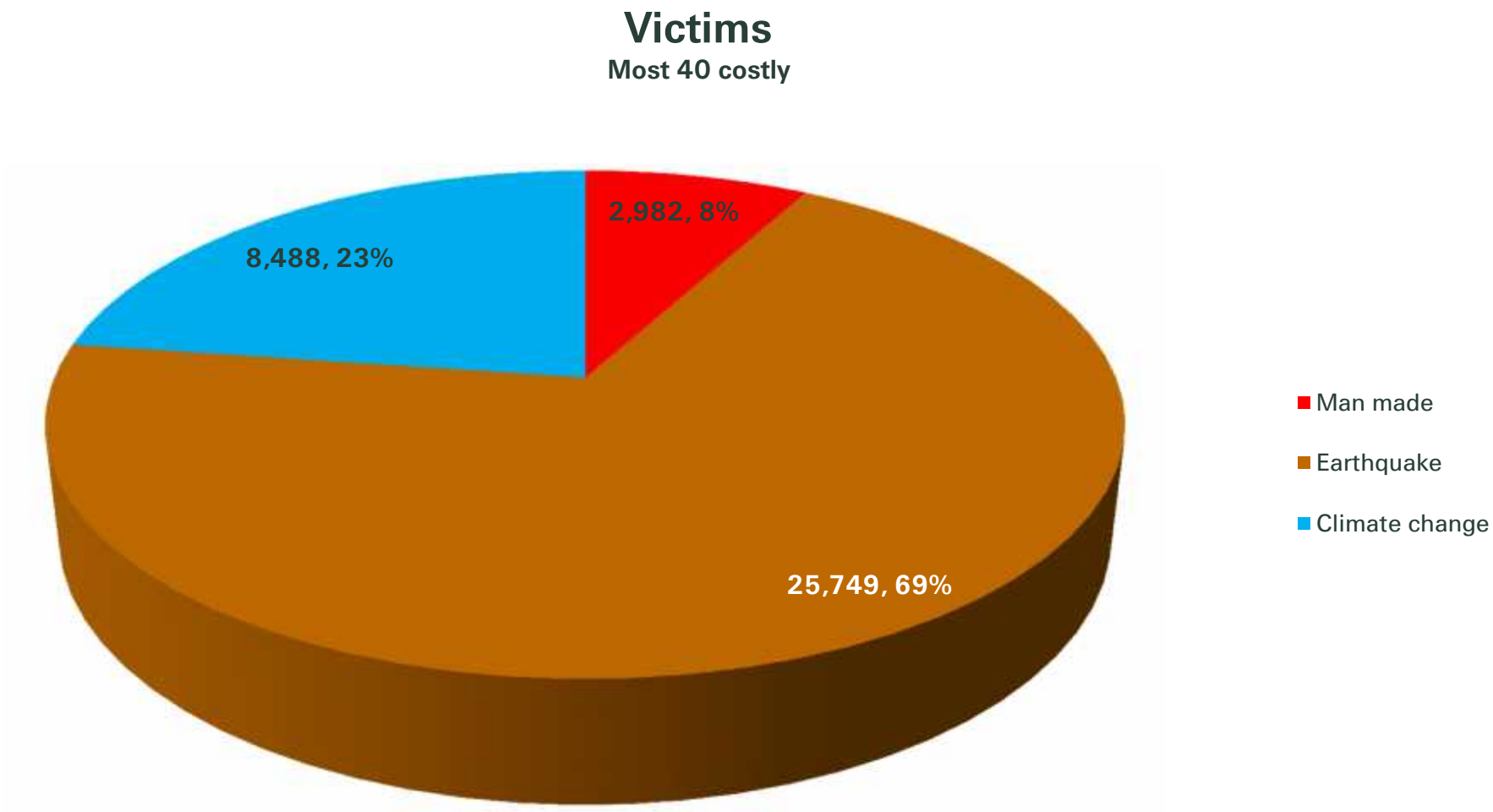
The 40 most costly insurance losses (1970 - 2014)

Insured loss (In USD M 2014 prices)	Victims	Date	Year	Event: Type	Event: Name	Event: Additional damages	Contine	Country
6,456	22	15/10/1987	1987	Storm		Floods	Europe	France, UK, et al.
8,730	71	15/09/1989	1989	Hurricane	Hugo		American	US, Puerto Rico, et al.
8,458	95	25/01/1990	1990	Winter Storm	Daria		Europe	France, UK,, et al.
5,780	64	25/02/1990	1990	Winter Storm	Vivian		Europe	Switzerland, UK, Germany
9,813	51	27/09/1991	1991	Typhoon	Mireille		Asia	Japan
26,990	43	23/08/1992	1992	Hurricane	Andrew	Floods	American	US Bahamas
22,355	61	17/01/1994	1994	Earthquake	Northridge M* 6.6		American	US
3,882	59	01/10/1995	1995	Hurricane	Opal	Floods	American	US, Mexico, Gulf of Mexico, et al.
3,839	6,425	17/01/1995	1995	Earthquake	Hanshin M 7.2 in Kobe		Asia	Japan
5,125	600	20/09/1998	1998	Hurricane	Georges	Floods	American	US, Caribbean
8,241	110	25/12/1999	1999	Winter Storm	Lothar		Europe	Switzerland, UK, France, et al.
5,740	26	22/09/1999	1999	Typhoon	Bart		Asia	Japan
4,010	70	10/09/1999	1999	Hurricane	Floyd	Heavy rains, , floods	American	US, Bahamas
3,410	57	27/12/1999	1999	Winter Storm	Martin		Europe	Spain, France, Switzerland, Italy
25,104	2,982	11/09/2001	2001	Man Made	WTC	Terror attack on WTC, Pentagon, other buidings	American	US
4,818	41	05/06/2001	2001	Storm	Allison	Heavy rains, floods	American	US
4,123	51	02/05/2003	2003	Storm	Thunderstorms	tornadoes, hail, flash floods	American	US
16,157	119	02/09/2004	2004	Hurricane	Ivan	Damage to oil rigs	American	US, Caribbean, Barbados, et al.
10,087	24	11/08/2004	2004	Hurricane	Charley		American	US, Cuba, Jamaica, et al.
6,449	38	26/08/2004	2004	Hurricane	Frances		American	US, Bahamas
4,765	3,034	13/09/2004	2004	Hurricane	Jane	Floods, lindslides	American	US, Caribbean, Haiti, et al
4,492	45	06/09/2004	2004	Typhoon	Songda		Asia	Japan, South Korea
76,638	1,836	25/08/2005	2005	Hurricane	Katrina	Storm surge, damage to oil rigs	American	US, Gulf of Mexico, Bahamas
15,234	35	10/10/2005	2005	Hurricane	Wilma	Torrential rain, floods	American	US, Mexico, Jamaica, Haiti, et al.
12,240	34	20/09/2005	2005	Hurricane	Rita	Floods, damage to oil rigs	American	US, Gulf of Mexico, Cuba
6,959	54	18/01/2007	2007	Winter Storm	Kyrill	Floods	Europe	Germany, UK, et al.
22,258	136	06/09/2008	2008	Hurricane	Ike		American	US, Gulf of Mexico, Caribbean, et al.
3,501	25	24/01/2009	2009	Winter Storm	Klaus		Europe	France, Spain
8,682	562	27/02/2010	2010	Earthquake	Mw 8.8	Triggers tsunami	American	Chile
5,426	0	04/09/2010	2010	Earthquake	Mw 7.0	Over 300 aftershocks	Asia	new Zealand
36,828	18,520	11/03/2011	2011	Earthquake	Mw 9.0	Triggers tsunami	Asia	Japan
16,836	181	22/02/2011	2011	Earthquake	Mw 6.3	Aftershocks	Asia	new Zealand
15,783	815	27/07/2011	2011	Floods	Monsoon	Heavy monsoon rains	Asia	Thailand
7,681	321	22/04/2011	2011	Tournadoe	Major tournadoe outbreak	343 tournadoes, hail	American	US
7,418	177	20/05/2011	2011	Tournadoe	Major tournadoe outbreak	180 tournadoes	American	US
6,134	50	22/08/2011	2011	Hurricane	Irene	Torrential rainfall, flooding	American	US, Canada, Bahamas, et al.
36,079	237	24/10/2012	2012	Hurricane	Sandy	Massive storm surge	American	US Caribean
11,339	123	15/07/2012	2012	Drougth		In the corn belt	American	US
4,200	25	27/05/2013	2013	Winter Storm		Floods	Europe	Germany, Czech Republic, et al.
3,899	0	27/07/2013	2013	Hailstorms			Europe	Germany, France

The most 40 costly insured losses - USD
From 1970 - 2014



The most 40 costly insured losses - Victims
From 1970 - 2014



II) Losses in 2014

Number of events, victims, economic and insured losses by region, 2014

				Insured losses		Total loss	
Region	Number	Victims	in %	in USD bn	in %	in USD bn	in %
North America	51	206	1.6%	17.5	50.4%	28.6	26.0%
Latin America & Caribbean	31	883	6.9%	2.3	6.5%	8.2	7.4%
Europe	37	763	6.0%	6.6	19.1%	15.9	14.5%
Africa	47	2506	19.6%	0.8	2.3%	1.5	1.3%
Asia	130	7093	55.5%	5.2	15.0%	51.7	47.0%
Oceania/Australia	7	206	1.6%	1.0	2.9%	2.3	2.1%
Seas / space	33	1120	8.8%	1.3	3.8%	1.7	1.5%
World	336	12 777	100.0%	34.7	100.0%	109.9	100.0%

Source: Swiss Re Economic Research & Consulting and Cat Perils.

32%

Major losses in 2014

List of major losses in 2014 according to loss category

	Number	in %	Victims[30]	in %	Insured loss[31] (in USD m)	in %
Natural catastrophes	**189**	**56.3%**	**7066**	**55.3%**	**27749**	**80.0%**
Floods	61		3064		2162	
Storms	85		1195		18397	
Earthquakes	15		897		313	
Droughts, bush fires, heat waves	10		335		150	
Cold, frost	6		745		53	
Hail	5		7		6641	
Other natural catastrophes	7		823		34	
Man-made disasters	**147**	**43.8%**	**5711**	**44.7%**	**6958**	**20.0%**
Major fires, explosions	**43**	**12.8%**	**490**	**3.8%**	**4257**	**12.3%**
Industry, warehouses	12		152		1278	
Oil, gas	18		40		2928	
Other buildings	9		296		50	
Other fires, explosions	4		2			
Aviation disasters	**12**	**3.6%**	**960**	**7.5%**	**916**	**2.6%**
Crashes	7		940		337	
Explosions, fires	1		20			
Space	4				579	
Maritime disasters	**39**	**11.6%**	**2118**	**16.6%**	**783**	**2.3%**
Freighters	3		8		156	
Passenger ships	28		2000		231	
Drilling platforms	4				326	
Other maritime accidents	4		110		70	
Rail disasters (incl. cableways)	**5**	**1.5%**	**127**	**1.0%**		**0.0%**
Mining accidents	**7**	**2.1%**	**400**	**3.1%**	**110**	**0.3%**
Collapse of buildings/bridges	**3**	**0.9%**	**42**	**0.3%**		**0.0%**
Miscellaneous	**38**	**11.3%**	**1574**	**12.3%**	**893**	**2.6%**
Social unrest	1		21		350	
Terrorism	28		1361		543	
Other miscellaneous losses	9		192			
Total	**336**	**100.0%**	**12777**	**100.0%**	**34708**	**100.0%**

Source: Swiss Re Economic Research & Consulting and Cat Perils

The 20 most costly insurance losses in 2014

The 20 most costly insurance losses in 2014

Insured loss[1] (in USD m)	Victims[2]	Date (start)	Event	Country
2935	–	18.05.2014	Severe thunderstorms, large hail	US
2502	26	08.02.2014	Snow storm	Japan
2190	6	08.06.2014	Wind and hail storm Ela	France, Germany, Belgium
1700	6	14.09.2014	Hurricane Odile	Mexico
1669	21	05.01.2014	Winter storm	US
1269	2	03.06.2014	Severe thunderstorms, large hail, tornadoes	US
1220	33	27.04.2014	Thunderstorms, large hail, 83 tornadoes, severe flash floods	US
1084	–	02.04.2014	Severe storms, large hail, tornadoes	US
ns	7	15.06.2014	Major fire and explosion at oil refinery	Russia
906	–	27.09.2014	Thunderstorms with winds up to 108 km/67 miles per hour, hail, flash floods	US
852	–	30.11.2014	Hailstorm	Australia
678	–	12.04.2014	Thunderstorms, large hail, tornadoes	US
ns	–	07.07.2014	Fire at petrochemical plant	US
635	–	10.05.2014	Thunderstorms, hail, tornadoes, flash floods	US
632	68	12.10.2014	Cyclone Hudhud	India
592	–	27.03.2014	Thunderstorms, winds up to 129 km/80 miles per hour, large hail, tornadoes	US
545	3	14.06.2014	Thunderstorms, >100 tornadoes, hail	US
539	2	11.08.2014	Torrential rains trigger severe floods	US
ns*	47	13.07.2014	Fighting at airport destroys aircrafts	Libyan Arab Jamahiriya
530	–	01.01.2014	Floods	UK

*Not shown.

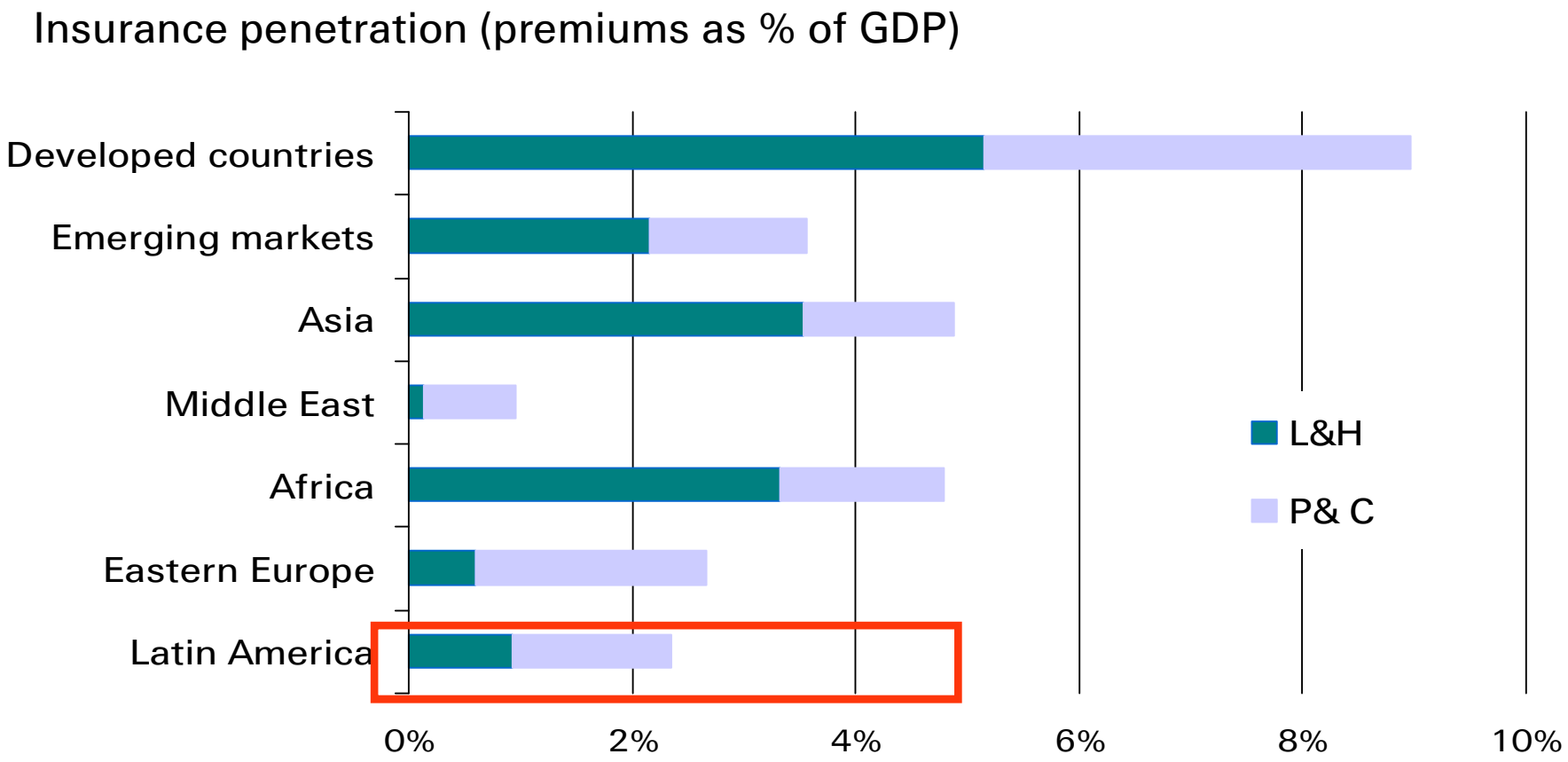
Source: Swiss Re Economic Research & Consulting and Cat Perils.

III) Some Lessons learnt

Some conclusions

- As a result of climate change the natural disasters related to meteorological phenomena are increasing on the last 30 years but seriously in the last 15 years.
- In the last 30 years 75% of global losses come from climate change and 25% from earthquake and man made losses.
- It is expected that the average land temperature increase between 1.1 ° and 6.4 °C by the end of the century, sea levels to rise by up to 1.5m. (Recently groundswell).
- The most vulnerable regions are developing countries and a large proportion is in Latin America.
- Government suffers lack of organization, infrastructure, economic resources to confront the emergency and reconstruction.
- Economic setback in poor countries up to 30 years and the cost of reconstruction can be up to 15% of GDP
- Not all Governments have insurance coverage against natural disasters.
- Our main challenge: to increase insurance penetration

The insurance industry does not reach everywhere



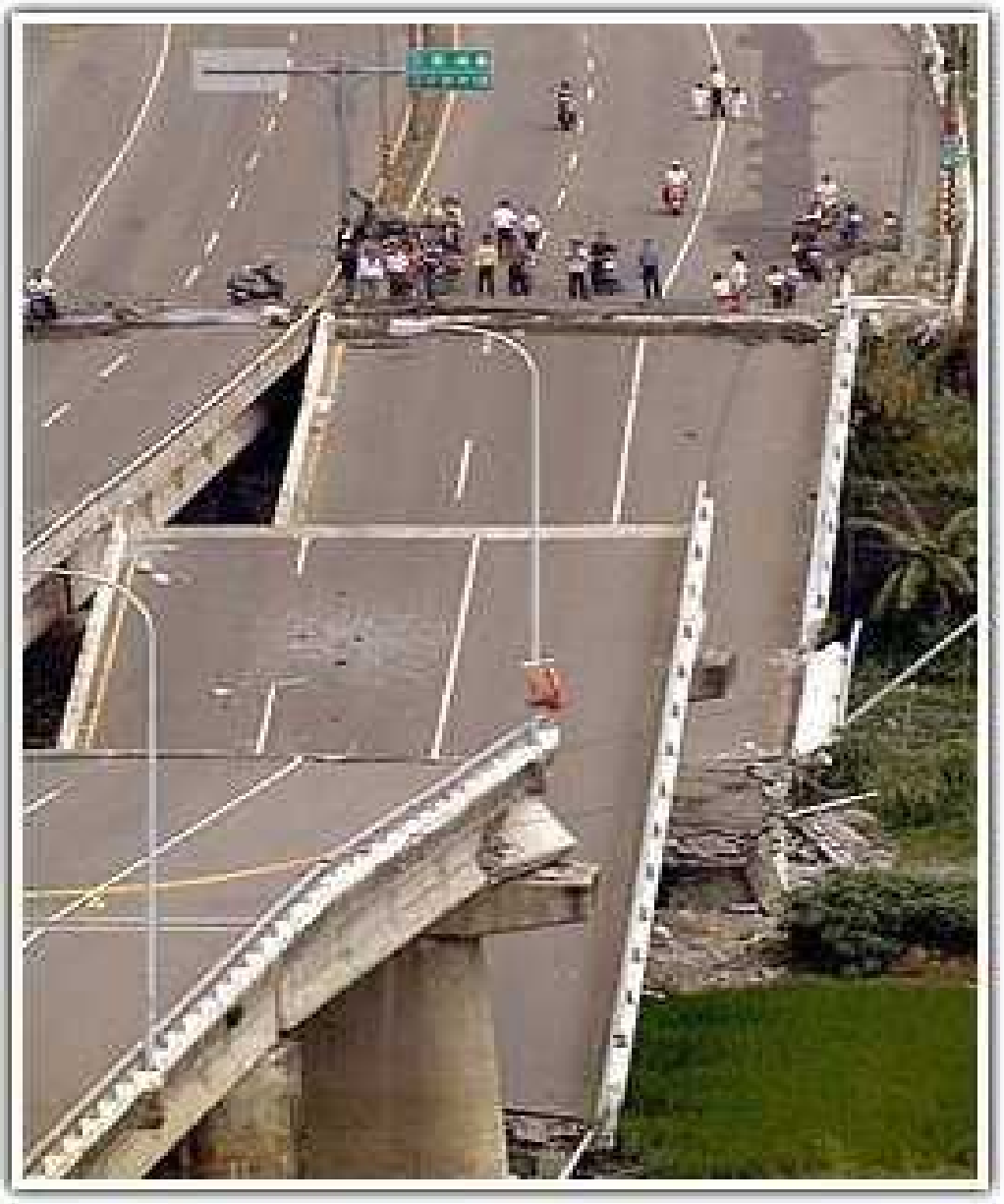
Source: Swiss Re Economic Research & Consulting

The risk transfer of the insurance industry in Latin America is much lower than other regions

Effects after a Nat Cat Event

- The poorest population is the most vulnerable and live near of rivers, lakes, dams, mountains.
- Critical risks:
  - **Earthquake:** Damage in general infrastructure, communications, services
  - **Wind speed and climate affects**: Communication, electricity and oil infrastructure
  - **Water**: Overflow of rivers, floods, landslides with rocks, trees and mud.
- Consequences:
  - **Infrastructure**: Disappear entire communities, bridges, roads, highways, drainage collapse because excess of waste and water, damaged to airports, hospitals, schools, etc.
  - **Communications**: Collapse and isolation.
  - **Scarcity**: Water, food, gas and fuel, services.
  - **Sanitation**: Cholera, leptospirosis, dengue poisonous snakes, crocodiles.
  - **Social security**: Looting, riots, arson
  - **Agriculture and livestock**: General damages to agriculture, land and animals dying

Earthquakes



Some lessons learnt by earthquake

- **Building codes** are vital, Examples: Chile 2010 - 8.8 Mw, Japan 2011- 9.0Mw worked and resisted however was critical in Haiti 2010 – 7.5Mw & Christchurch Nueva Zealand 2011- 6.3 Mw.
- **Amplification of loss**:
  - Inflation as a consequence of scarcity and demand
  - Loss of habitability without pecuniary damage
- **Liquefaction**
- **Tsunami** (Chile 2010, Japan 2011)
- **After shakes vs. Event Clause definition of 72 Hrs.**
- **Loopholes**: Looting and riots, arson
- **Maximum expected loss**
- **Limits & sub-limits** on policy vs. umbrella reinsurance coverage
- **Business interruption**, CBI, Contingency and /or interdependency business

"EQ do not kill people, buildings do"
New York Times 5.5.15

Climate change

Some lessons learnt by flood

- Lack of appropriate technical assessment, evaluation and inspection, efforts are focus only on fire risk
- Lack of specific pricing to flood risk
- Limits insufficient
- Underinsurance
- Need for higher deductibles
- No risk assessment models that are adequate to evaluate potential losses
- The magnitude of the flood and the long period of stay of water impede access to mitigate the damage and make repairs first.

Some lessons learnt to the insurance industry

- **Loss Adjustment**: Very critical due to the number of claims and overload on loss adjusters, lack of adjusters infrastructure, professionals and experts in insurance, lack of responsiveness and service in a timely manner.
- **Public loss adjusters**: Generate incorrect policyholders expectations and take advantage of gray areas in the policy and gaps in local laws
- **Lack of adequate contingency plans**.
- **Media** Pressure, press and social networks
- **Local laws**: Strict time to respond to the insured
- **After shakes** vs. Event Clause definition
- **Tsunami** and water damages
- **Loopholes**: Looting and riots, arson
- **Limits & sub-limits** on policy vs. umbrella reinsurance coverage
- **Business interruption**, CBI, Contingency business - Underestimation of lost profits
- **Underinsurance** in commercial and industrial risks
- **Unclear coverage** contracted: Insured disappointed
- **Lack of information** to the reinsurance market
- **Low insurance penetration** in personal lines.

IV) Some recommendations for loss adjusters

Some recommendations for loss adjusters

1. **Define and be prepare with an adequate contingency plan.**
2. **Provide ongoing training to staff.**
3. **Clearly define the questionnaires with minimum requirements and necessary documentation.**
4. **No compromise with workloads beyond what can be resolved.**
5. **Define and enforce in a timely and appropriate manner a communication plan and reporting information to the insurance company and reinsurers.**
6. **Implement a quality review s and continuous improvement in adjustment reports.**
7. **In the proof of loss for large claims:**
   - Proper handling the expectation of the insured with proactivity and assertiveness
   - Specialization by type of loss, activity of the insured and the affected line of business
   - Demonstrate reliability in determining reserves and damage assessment
   - Coverage analysis according policy wording and clarify issues with the insurance company & reinsurers
   - Discipline in issuing timely reports, in-depth analysis, supported by facts
   - Protect interests of the insurer and its reinsurers, taking action to reduce the loss and support a possible subrogation actions

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