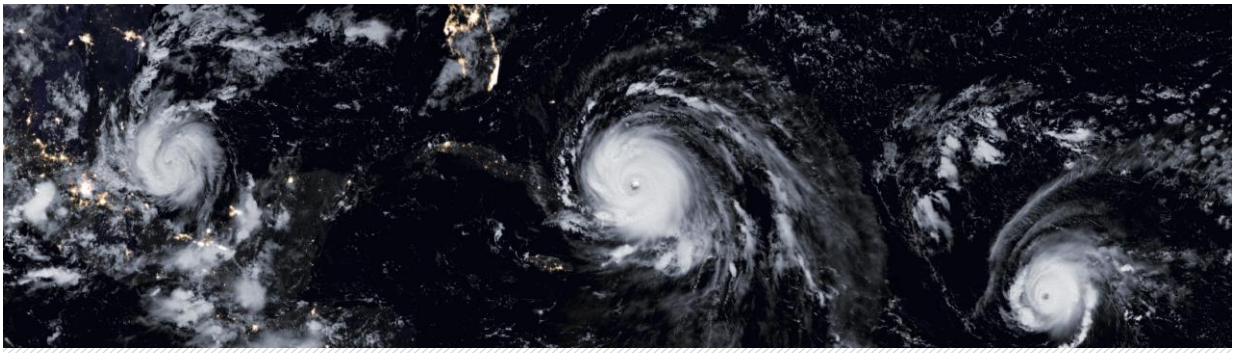

How Can Insurance Contribute to Increase Resilience of Most Vulnerable People

Prof. Dr. Peter Hoeppe,
Head Geo Risks Research/Corporate Climate Centre, Munich Re, Munich

Uniting for Climate Action, BMUB, October 20, 2017, Berlin

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Hurricane Maria (Cat 5, September 2017)

Strongest Hurricane hitting Puerto Rico since 1928

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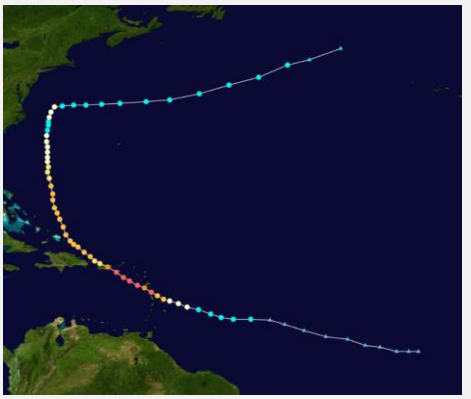

Puerto Rico

Quelle: picture alliance / David J. Phillip

Region	Total Losses	Insured Losses	Fatalities
Dominica, US Vergin Islands, **Puerto Rico**, Bahamas	External (RMS, Moodys) estimates US$ 30 to 95 bn	?	68

Income Groups
Defined by World Bank

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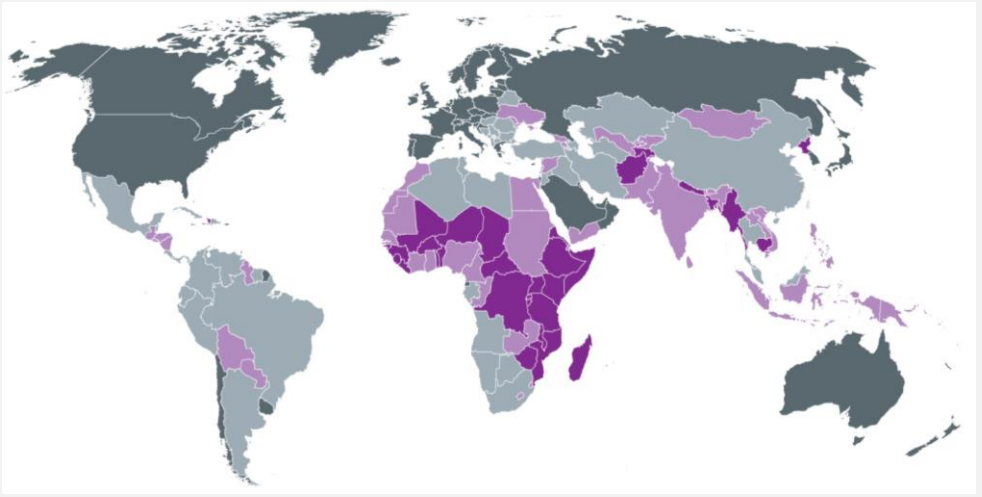

High income economies
(GNI ≥12,746 US$)

Upper middle income economies
(GNI 4,126 – 12,745 US$)

Lower middle income economies
(GNI 1,046 – 4,125 US$)

Low income economies
(GNI ≤1,045 US$)

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Weather-related loss events worldwide 1980 – 2016
Income Groups 2016 – Percentage distribution

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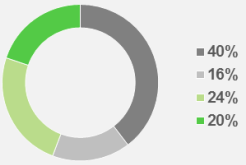
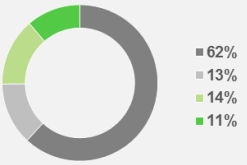
Number of relevant events: 17,400

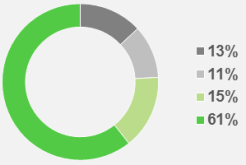


Overall losses: US$ 3,300bn



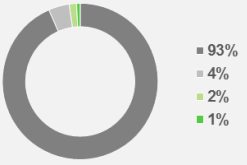
US$ 825 bn overall losses in
lower middle/low income economies

Fatalities: 870,000



76% of all fatalities in
lower middle/low income economies

Insured losses: US$ 980bn



Only 3% of overall losses insured in
lower middle/low income economies

High income economies
(GNI ≥ 12,476 US$)
Upper middle income economies
(GNI 4,036 – 12,475 US$)
Lower middle income economies
(GNI 1,026 – 4,035 US$)
Low income economies
(GNI ≤ 1,025 US$)

Accounted events have caused at least one fatality and/or produced normalized losses ≥ US$ 100k, 300k, 1m, or 3m (depending on the assigned World Bank income group of the affected country).

Inflation adjusted via country-specific consumer price index and consideration of exchange rate fluctuations between local currency and US$.

Income Groups defined by World Bank 2016

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Weather-related loss events worldwide 1980 – 2016
Trends of number of relevant events per income group

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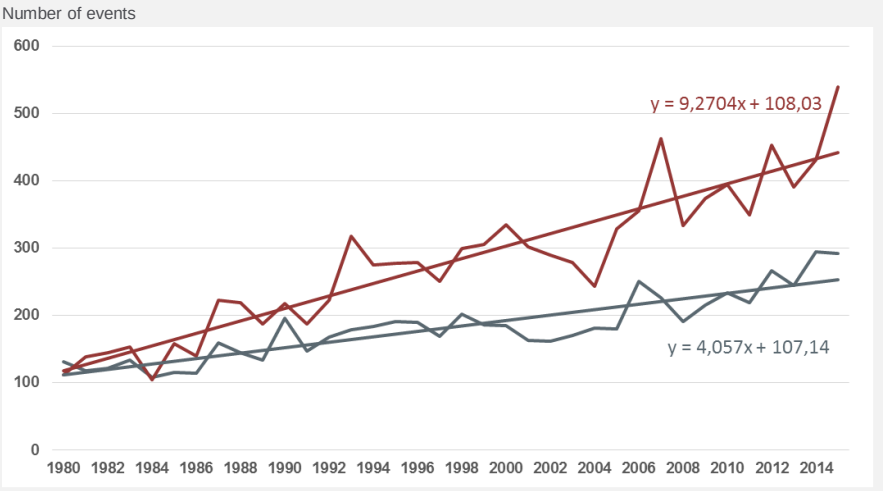

The Climate Risk Index 2017
The 10 countries most affected from 1996 to 2015

Munich RE

CRI 1996–2015 (1995–2014)	Country	CRI score	Death toll	Deaths per 100 000 inhabitants	Total losses in million US$ PPP	Losses per unit GDP in %	Number of events (total 1996–2015)
1 (1)	Honduras	11.33	301.90	4.36	568.04	2.100	61
2 (2)	Myanmar	14.17	7 145.85	14.71	1 300.74	0.737	41
3 (3)	Haiti	18.17	253.25	2.71	221.92	1.486	63
4 (4)	Nicaragua	19.17	162.90	2.94	234.79	1.197	44
5 (4)	Philippines	21.33	861.55	1.00	2 761.53	0.628	283
6 (6)	Bangladesh	25.00	679.05	0.48	2 283.38	0.732	185
7 (8)	Pakistan	30.50	504.75	0.32	3 823.17	0.647	133
8 (7)	Vietnam	31.33	339.75	0.41	2 119.37	0.621	206
9 (10)	Guatemala	33.83	97.25	0.75	401.54	0.467	75
10 (9)	Thailand	34.83	140.00	0.22	7 574.62	1.004	136

Source: Germanwatch 2016, based on data from Munich Re

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Insurance penetration worldwide
defined by Munich Re

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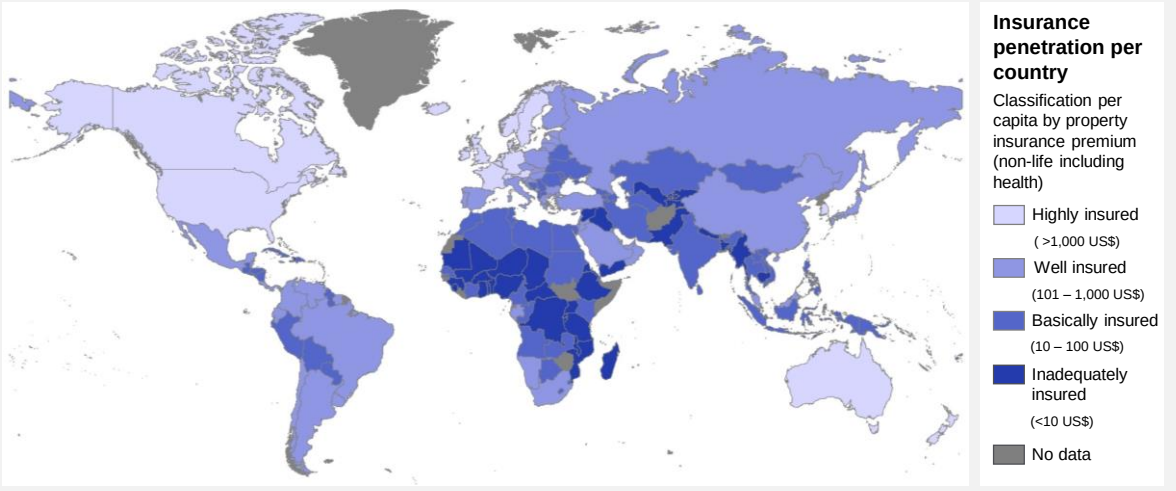

Cumulative Development of a Country's Gross Domestic Product Following a Major Natural Disaster

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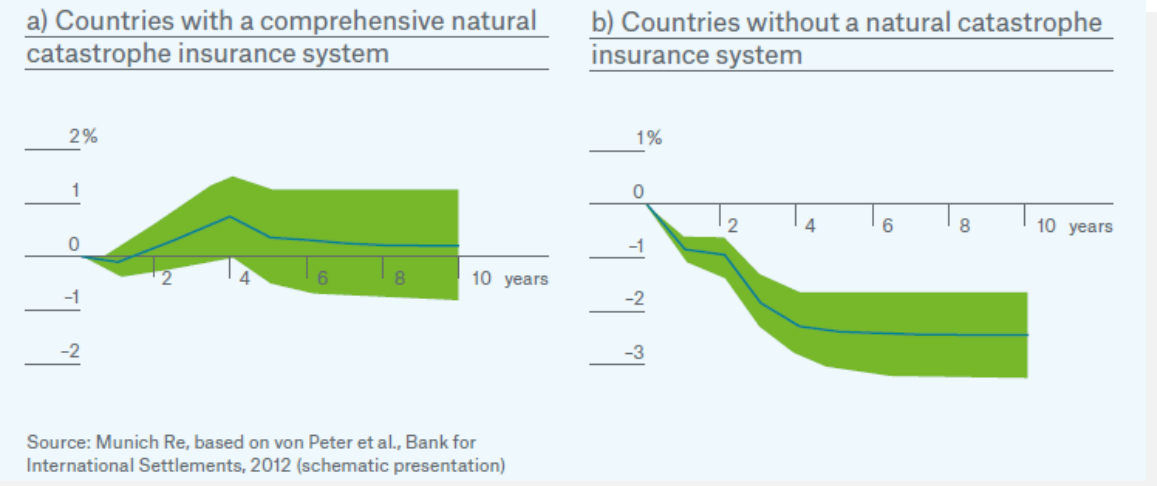

Source: Munich Re, based on von Peter et al., Bank for International Settlements, 2012 (schematic presentation)

The role of the insurance sector

Providing recovery financing and thus increasing resilience

Munich RE

Insurance cover significantly helps economic recovery following a natural catastrophe:

- Academic studies show that a higher level of insurance cover is accompanied by significantly better economic performance following a catastrophe.
- Depending on the type of catastrophe and the level of economic development, insurance cover can even offset the negative indirect effects of natural catastrophes on national economies

- **Martin Melecky and Claudio Raddatz, World Bank (2011):** Higher insurance penetration at an equivalent level of prosperity leads to lower GDP losses and less government debt after natural catastrophes
- **Goetz von Peter, Sebastian von Dahlen and Sweta Saxena (2012):** The higher the share of insured losses to total losses, the more positive GDP performance is following a catastrophe
- **Florian Englmaier, Till Stowasser (2013):** The effect of insurance markets on countries' resilience: particularly in emerging economies, more insurance cover (i.e. increasing the insurance penetration rate) can mitigate the negative economic effects of natural catastrophes

Start managing climate risks comprehensively

Munich RE

Insurance should **not be treated in isolation to other risk management tools**

A range of different tools can be used to manage climate risk:

- Risk prevention/reduction (early warning, building codes, improved agri-cultural practices, …)
- Other mechanisms such as setting up funds for flood protection and investing in alternative irrigation technology
- Risk transfer tools and insurance (e.g., traditional, index based products, etc.).

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Thanks and **congratulations** to BMZ and BMUB for their initiatives to support poor people in their adaptation to the unavoidable consequences of global warming by insurance related solutions.

We have been and will be happy to work together with you on solutions.