

# NATURAL HAZARDS

Properly assessing and reducing risk potentials.

## Actively minimizing global risks.



Floods, storms and earthquakes threaten production sites and value chains of companies. Global is local – international business relations have long been part of the daily work routine of industrial enterprises. The procurement and sales markets of manufacturers, suppliers and processing plants are often located beyond German or European borders. Even production and trade locations are often located abroad. This not only increases the risk of specific locations being exposed to natural hazards to a particularly high degree, but also international value chains are at risk of breaking up following natural disasters.

The number of meteorological and hydrological natural disasters has been growing for years. This is shown by current analyses performed by various research centres as well as by the German re-insurer MunichRe (see figure). In this process, companies also see themselves increasingly exposed to the hazards of floods, heavy rain, storms and hailstorms. In the same way, earthquakes, tsunamis and forest fires can cause serious loss events worldwide. Consequently an increasing number of companies are facing the challenge of having to assess as well as evaluate their locations regarding the exposure to natural hazards and to take protective measures. HDI Risk Consulting provides support to you in this regard.

### Expert' advice

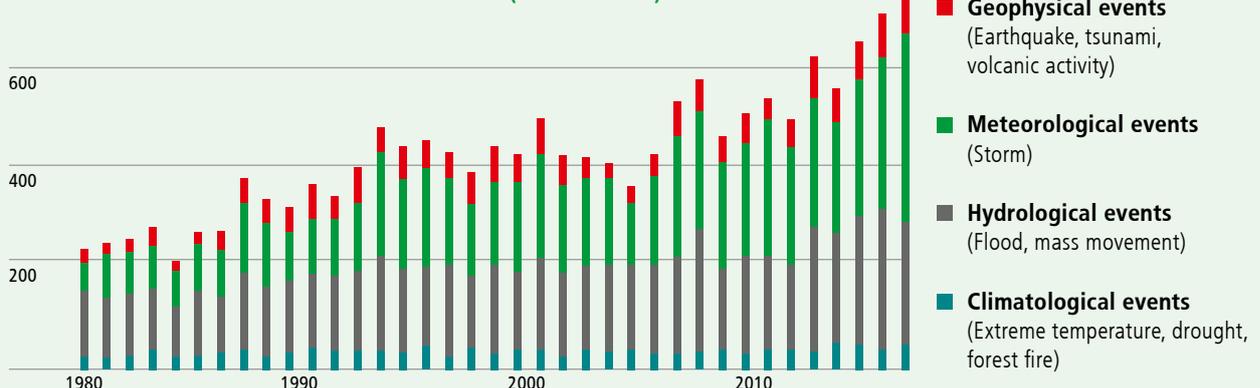
#### Implementing targeted measures

We identify the sites and specific operations in areas exposed to increased risk of natural hazards. This enables us to develop and recommend specific risk improvement measures.

The consulting concept offered by HDI Risk Consulting pursues the goal of largely minimizing the risks from natural hazards and the extent of any loss event. This is done in three steps:

1. Analysis of location regarding its exposure to natural hazards and the resulting risks.
2. Recommendation of mitigation measures by our own risk engineers.
3. Customer assistance in preparing and implementing feasible protective measures taking into account the company's economic situation and the risk situation.

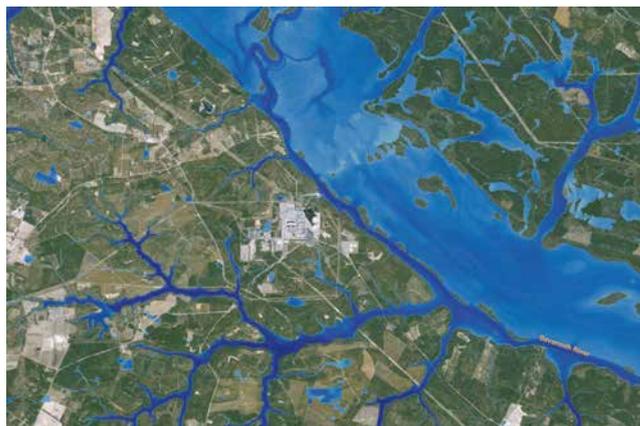
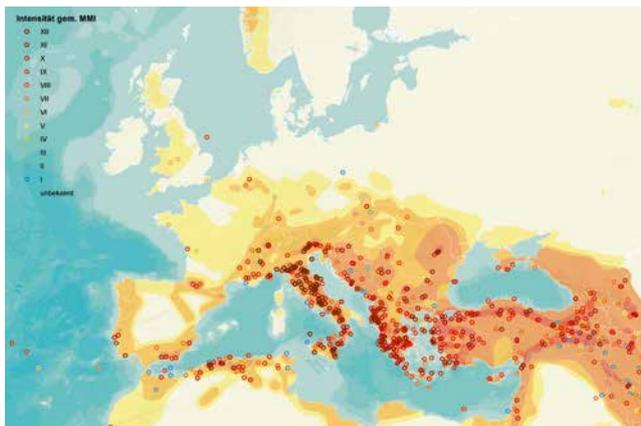
### Relevant natural loss events worldwide (1980-2016)



Accounted events have caused at least one fatality and/or produced normalised losses  $\geq$  US\$ 100k, 300k, 1m, or 3m (depending on the assigned World Bank income group of the affected country). © 2017 Münchener Rückversicherungs-Gesellschaft, Geo Risks Research, NatCatSERVICE – As at May 2017

## Exposure to natural hazards: Earthquakes and floods

Source: Screenshots Argos, HDI



**A practical example:** A medium-sized company has been producing prefabricated concrete parts in its locations in Germany, the Czech Republic and Poland for several decades. In 2005, heavy rain in the Alps area resulted in a flood disaster, among others in the South of Germany. The Inn River, a tributary to the Danube River, also overflowed its banks massively. Although the company had its own active flood emergency plan, this proved to be insufficient and the premises were flooded to a large degree. As a result, HRC performed a detailed flood hazard analysis, defined protection targets and implemented flood mitigation measures jointly with the customer. In this process, the assumptions made in the existing emergency plan regarding the flood hazard were verified and the plan was updated with additional emergency mitigation measures. Since then, there have been no further impairments due to flooding. All in all, not only material losses, but also business interruption losses could be successfully prevented.

### The natural hazard-specific services offered by HDI Risk Consulting:

#### 1) Desktop analysis of natural hazard and risk exposure

- Location analysis regarding natural hazard exposure
- Study of vulnerabilities at the location (depending on information available)
- Summary of hazard and risk situation, short overview of possible and/or usual protective measures
- Option: summary and presentation of information in individual report formats

#### 2) Location surveys where known natural hazard exposures exist

- Surveys of locations with a high exposure to one or more natural hazards
- Identification of vulnerabilities as well as financial and BI-critical areas
- Recording of existing mitigation measures
- Assessment of appropriateness of existing mitigation measures
- Estimation of probable maximum loss and normal loss expectancy
- Recommendation of alternative and/or additional mitigation measures if applicable

#### 3) Maturity Review of existing mitigation measures

- Providing detailed documentation is available: Review the effectiveness and appropriateness of mitigation measures
- Recommend alternative and/or additional mitigation measures if applicable

#### 4) Customer support in risk-reducing projects

- Analysis of planned location regarding natural hazard exposure
- General recommendation of possible and/or usual mitigation measures for different natural hazards
- Information about applicable construction codes to be followed (e.g. for wind, snow and seismic loads)
- Customer assistance in new constructions and conversions or with mobile mitigation measures

The use of the HDI-internal tool ARGOS, which is employed for determining the natural hazard exposure of locations, together with the support of our risk engineers can lead to substantial reduction of the loss potential from natural disasters at all locations of a company. This also applies to the protection of vitally important global value chains. Benefit from the know-how of HDI Risk Consulting! ARGOS provides global high resolution and consistent hazard maps for various natural hazards among others continuously updated and detailed flood maps.

Please contact your HDI customer contact if you have any questions or request further information.

#### Benefits of HDI Risk Consulting

- Risk Engineering expertise in the field of natural hazards in teams of specialists located at the Hanover headquarters and in worldwide locations.
- Qualified international Risk Engineering network offers clients worldwide multi-discipline support in Risk Engineering.
- HDI Risk Consulting is a wholly owned subsidiary of HDI Global SE and thus a part of the Talanx Group, one of the largest insurance groups in Germany and Europe.