

# Physical Climate Change Risks Analysis

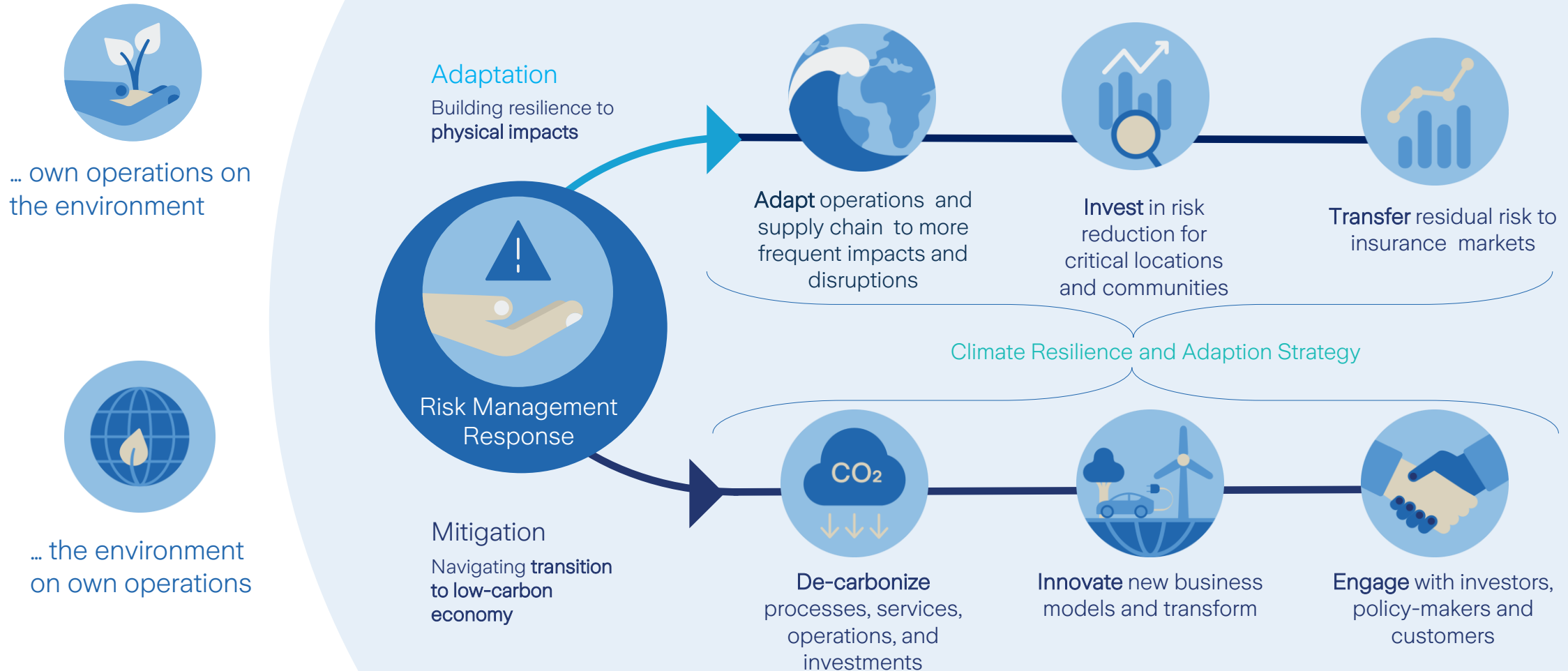
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# How we see sustainability and climate change?



# Assessing climate risks

# Holistic view of risk assessment

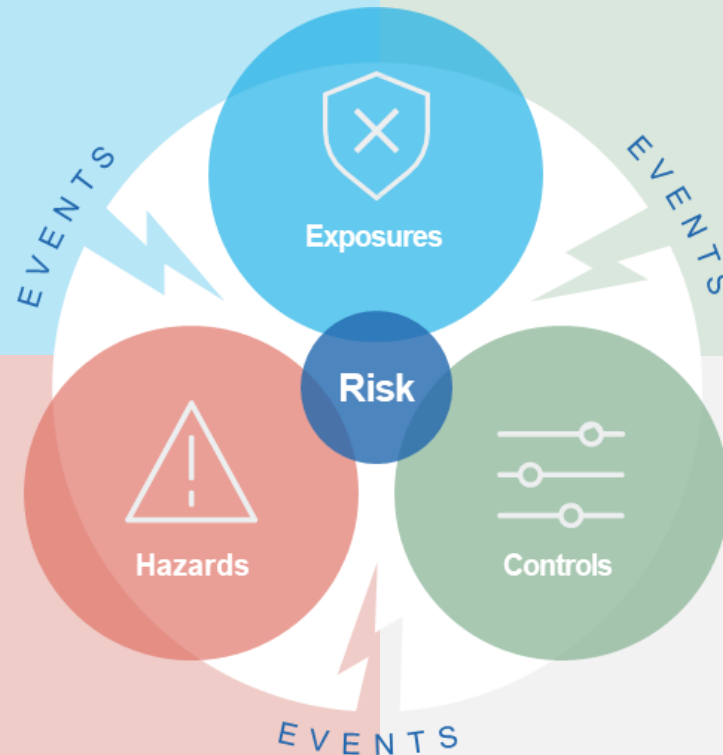
## 1. Exposures

We identify the values or processes that are at risk of disruptions, or the people who could be injured by hazards.

## 2. Hazards

The potential sources of damage are identified, based on the available information. For example, for flood we'll consider:

All potential flood sources, topography, possible contamination sources released by a flood event.



## 3. Controls

We assess the quality of the controls and identify any weaknesses, whether in terms of physical protection, organizational measures, or related to the coverage.

## 4. Event

The events that trigger a potential disruption are defined and, considering the other three dimensions of risk, a scenario is developed and quantified in terms of potential financial losses.

# Overview of natural hazards (current risk) and climate change (future risk) assessment

Recommended modular approach for assessing natural hazards and climate risks

Options for carrying out a comprehensive assessment process

**1. Review data**  
Test all available climate data for accuracy and quality. Benchmark global data against alternative local sources where available.

**2. Define scope**  
Define business-relevant criticalities based on the organization's value chain. Include hazard parameters defined by time horizons, multiple climate change scenarios, or specific perils.

**3. Undertake a Global Exposure Analysis**  
This provides an overview of site and infrastructure exposure to natural hazards at global and regional levels. The output can be used in setting strategy, planning resources and the supply chain, or identifying locations that should be assessed in more detail.

**4. Account loss modeling**  
Scenario-based estimates can be applied to quantify losses in extreme events adjusted for future climate change. This provides a view on the adequacy of the insurance structure, as well as an alternative method to identify high-risk sites.

## Necessary initial steps

1



Data quality review



2



Definition of scope

**5. Desktop study of key sites**  
This is a site-specific high-level scenario analysis of potential losses informed by global climate projections and local hazard data, using details of buildings and the value chain. This allows for an estimate of the potential property damage or business interruption.

**6. On-site visit for key sites**  
Assess the quality of controls of selected sites with risk engineering specialists. This should cover physical controls (i.e., engineered protection measures) and organizational controls (e.g., emergency response planning) during a plausible future loss scenario.

**7. Resilience solutions**  
Install engineered protection measures that are designed, planned, implemented, and maintained according to the specific requirements of each site. Continually test them to ensure they remain available, reliable, and fit for purpose.

These steps can be stand-alone analyses or a sequence of progressively more detailed assessments

3



Global exposure analysis



4



Account loss modelling



5



Desktop study of key sites



6



On-site visit for key sites



## Outcome and follow-up

7



Resilience solutions

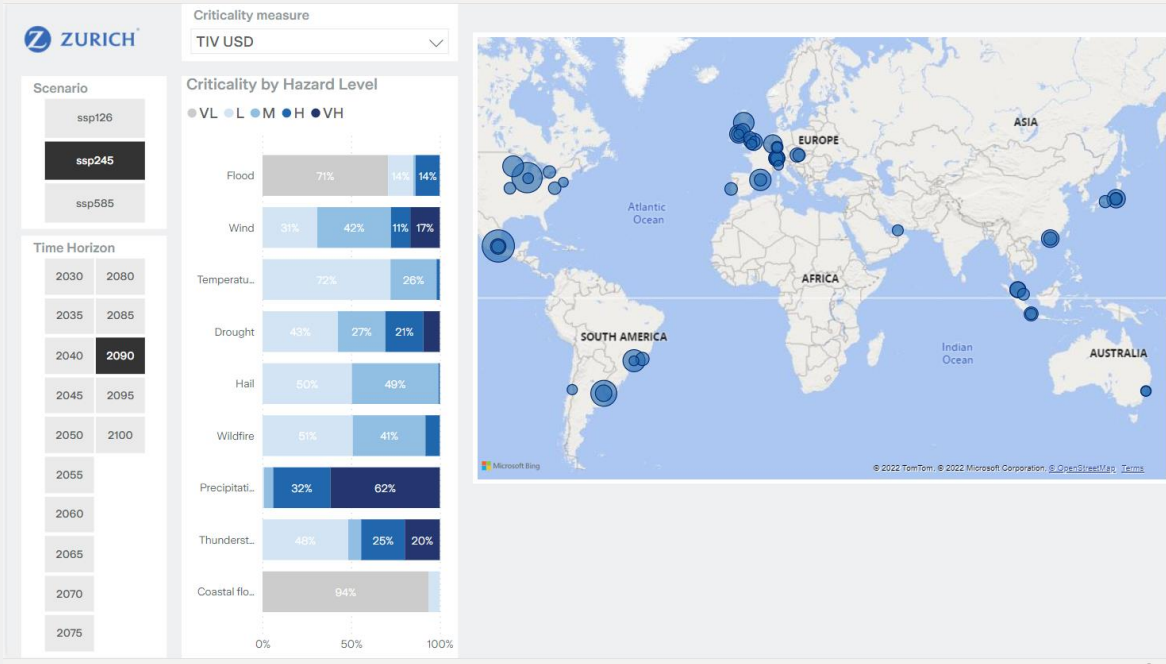


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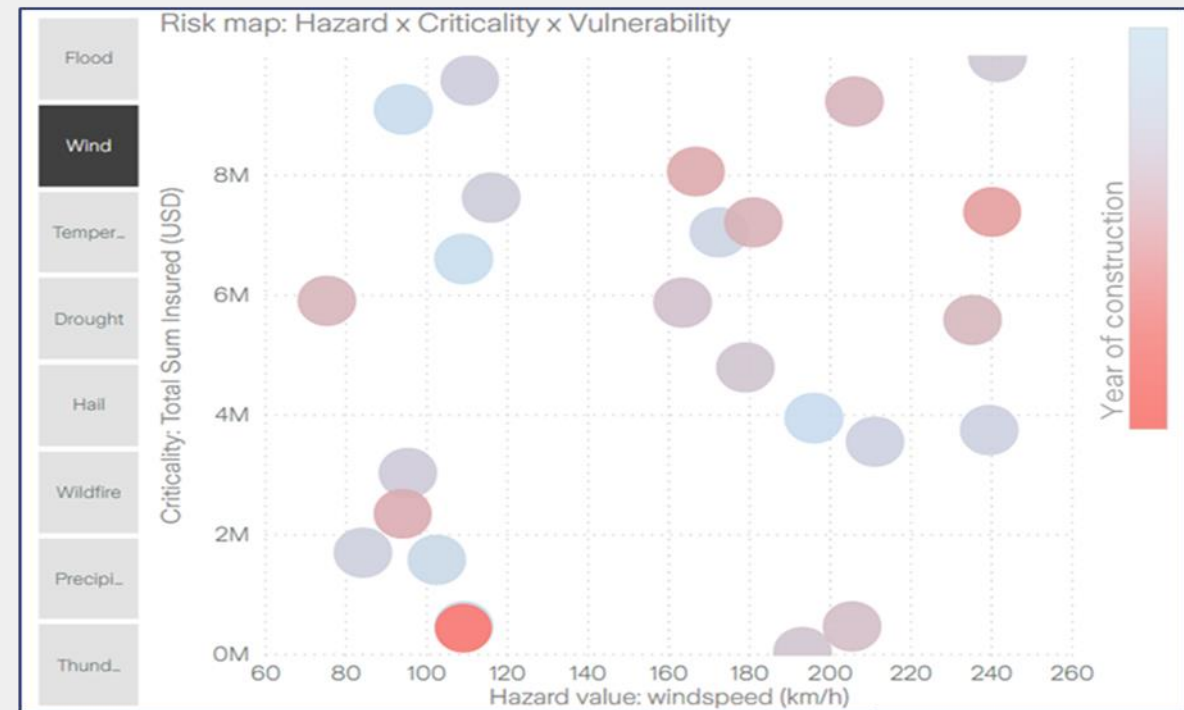
Additional related services

# Global Exposure Analysis – Sample Output



The proportion of total insured values for each peril at RCP 4.5 (SSP2-4.5) at 2090, within very high, high, medium, and low hazard levels. The size of the bubble represents the relative insured value at each site

Visualization of a method for risk ranking of assets in terms of hazard (x axis), criticality (y axis) and vulnerability



# Responding to climate risks

# Adaptation - another half of the resilience puzzle

- Understanding risks posed by climate change to a business is only half the resilience puzzle. Designing and deploying effective adaptation measures is the other key piece.
- Why? Reduce the frequency or the severity of a disrupting event

## Example 1

A facility that has well-designed and maintained flood protections that are properly deployed during flood warnings is likely to be flooded less often than a facility without such protections.



## Example 2

A company with good emergency response and business continuity plans may still be impacted by a flood, but is likely to suffer lower losses if critical equipment and stock can be protected in advance and the business can get back up and running quickly after the event.



Building resilience to physical climate risks involves a range of measures – both physical and organizational – that will be different across industries and activities and geographies.

	Physical (engineered) solutions	Organizational Measures
Characteristics	<ul style="list-style-type: none"> <li>Require more upfront investment</li> </ul>	<ul style="list-style-type: none"> <li>Require less upfront investment, but require time, training, and cultural change.</li> </ul>
Examples	<ul style="list-style-type: none"> <li>structures, building envelop design</li> </ul>	<ul style="list-style-type: none"> <li>emergency response management measures</li> <li>business continuity plan</li> <li>training to sites managers</li> </ul>

## Risk transfer: the role of insurance

Insurance is the third pillar of a comprehensive risk management strategy. The three pillars together will support an organization to reduce the impact during an event and in the recovery phase.

Incorporating the other two pillars – physical and organizational protection measures – will help make insurance affordable and will work together towards loss reduction

# Want to learn more?

## Climate change

Climate change is perhaps the most complex risk facing society today. It is intergenerational, international, and interdependent. Zurich strives to be a leader in helping the world better manage climate risk and improve resilience against it: we aim to help prevent risks before they can have an impact.



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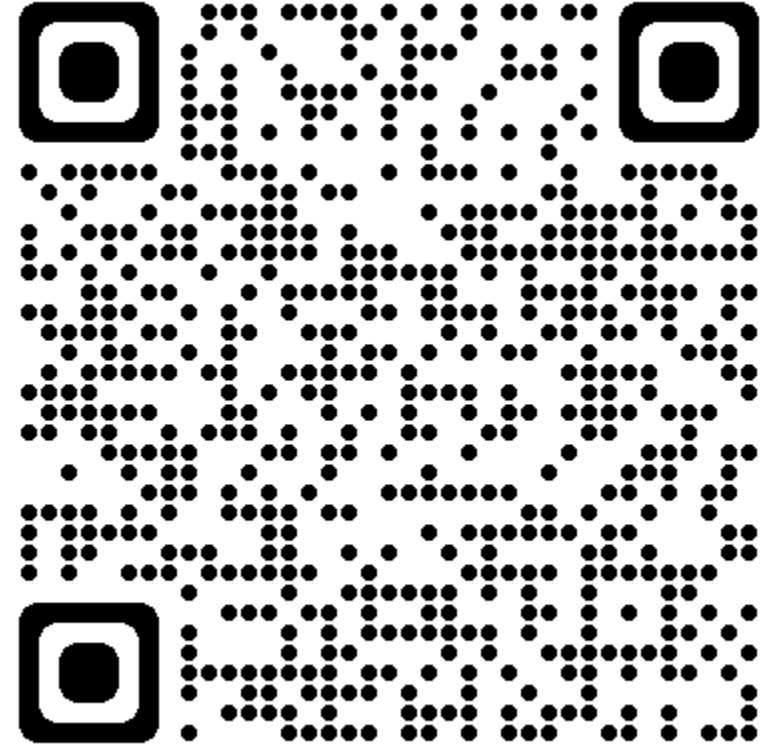
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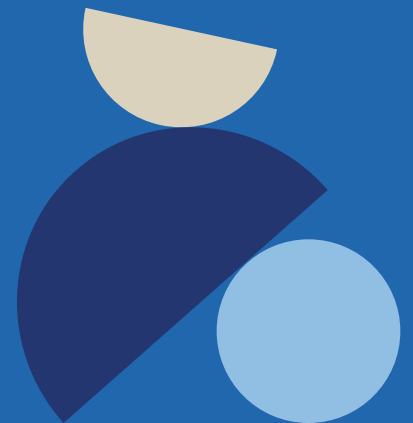
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