



# Key lecture

## Adaptation planning: Challenges and chances

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*Managing director, Adelphi*



Cambiamenti climatici,  
territorio e industria



**LIFE IRIS**  
per un'industria resiliente  
al cambiamento climatico



# Climate Change Adaptation: Challenges and Chances

Walter Kahlenborn, Managing Director, adelphi

- Established in 2001
- adelphi has implemented over 1,000 projects on behalf of around 100 clients
- Interdisciplinary team of experts with over 200 staff members
- Our topics include:



Energy



Green Economy



International  
Cooperation



Resources



Urban Transformation



Peace and Security



Green Finance



**Climate**

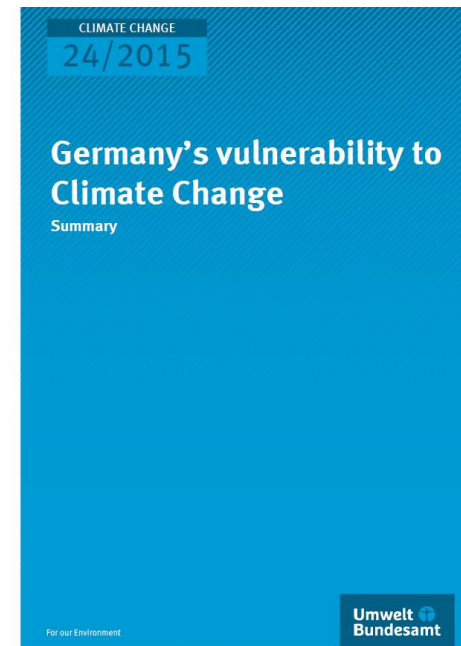


Sustainable Business

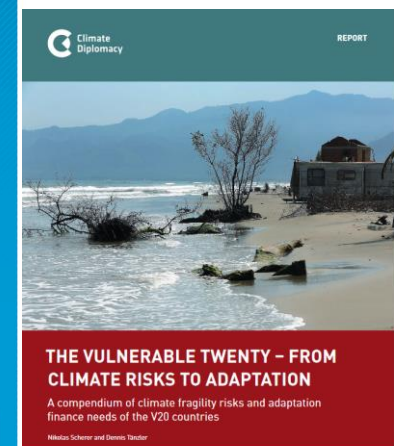
- The Vulnerability Sourcebook – Concept and guidelines for standardised vulnerability assessments
- Vulnerability Assessment for Germany, 2015 and 2021
- ISO 14091 Standard for climate change risk assessments
- Capacity building and awareness raising in the private sector
- Policy mix – Policy instruments for the German national action plan on climate change



The Vulnerability Sourcebook  
Concept and guidelines for standardised  
vulnerability assessments



Published by:   in cooperation with:  

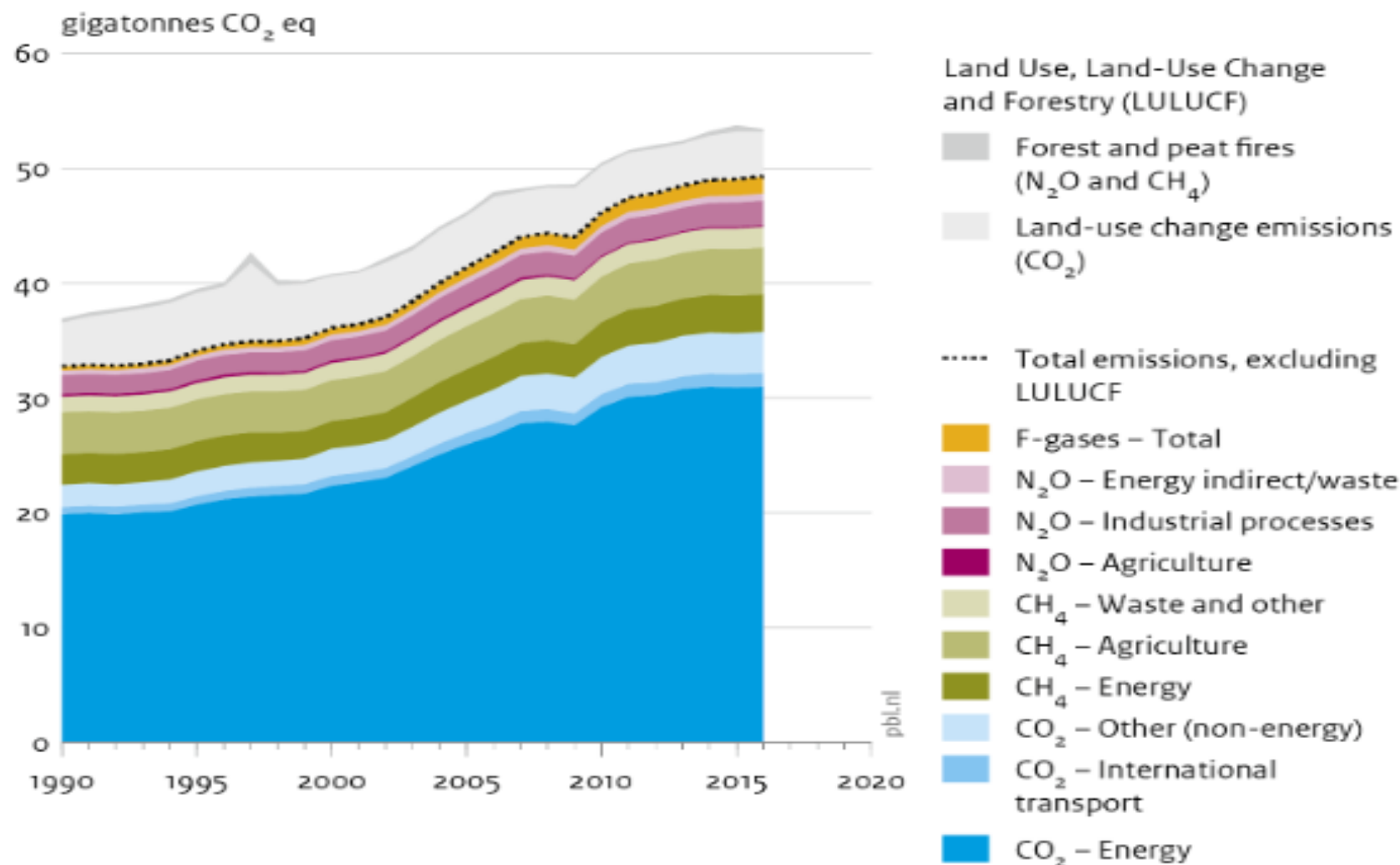


- Climate Change – importance for Italy
- Chances and risks through climate change
- SMEs: Problems and support needs
- (Public Policy) Instruments to support climate adaptation
  - Providing information
  - Organising exchange, providing training
  - Financing pilot projects
  - Improving the financial environment, increasing transparency
  - Setting standards

# Climate change – the big picture



## Global greenhouse gas emissions, per type of gas and source, including LULUCF



Source: EDGAR v4.3.2 (EC-JRC/PBL 2017); Houghton and Nassikas (2017); GFED 4.1s (2017)

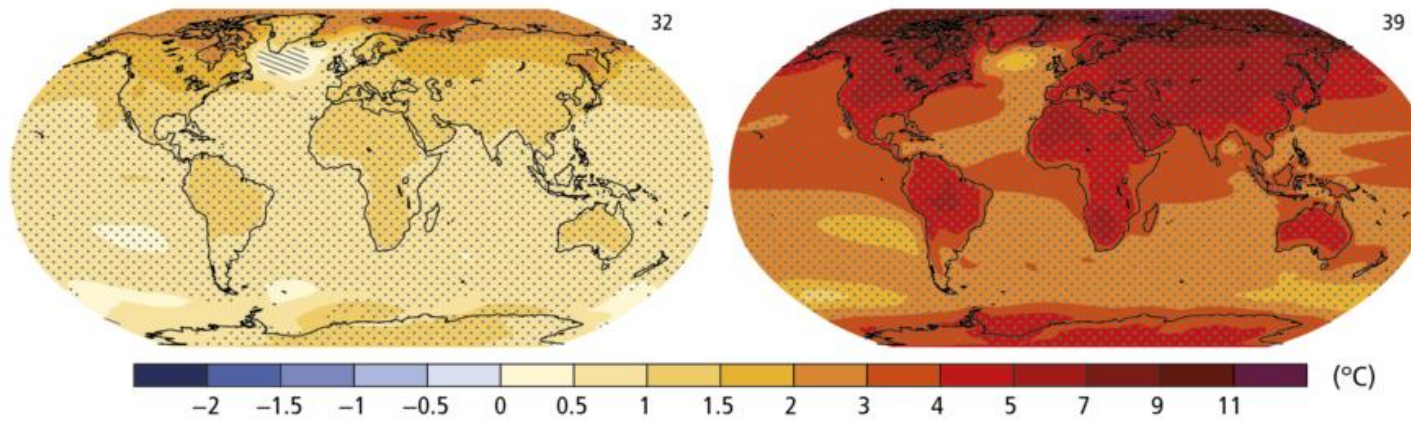


RCP2.6

RCP8.5

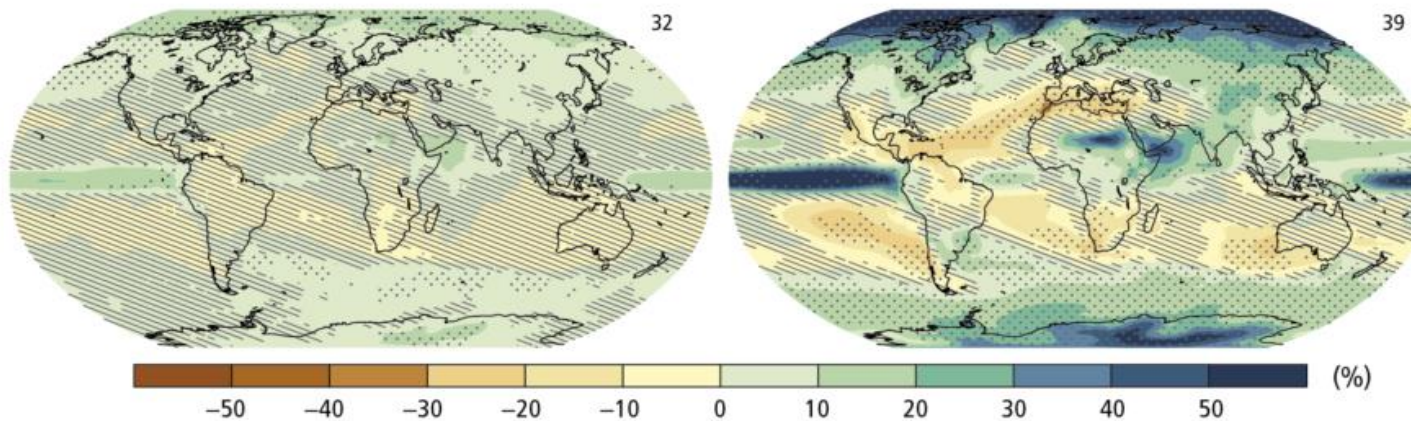
(a)

Change in average surface temperature (1986–2005 to 2081–2100)



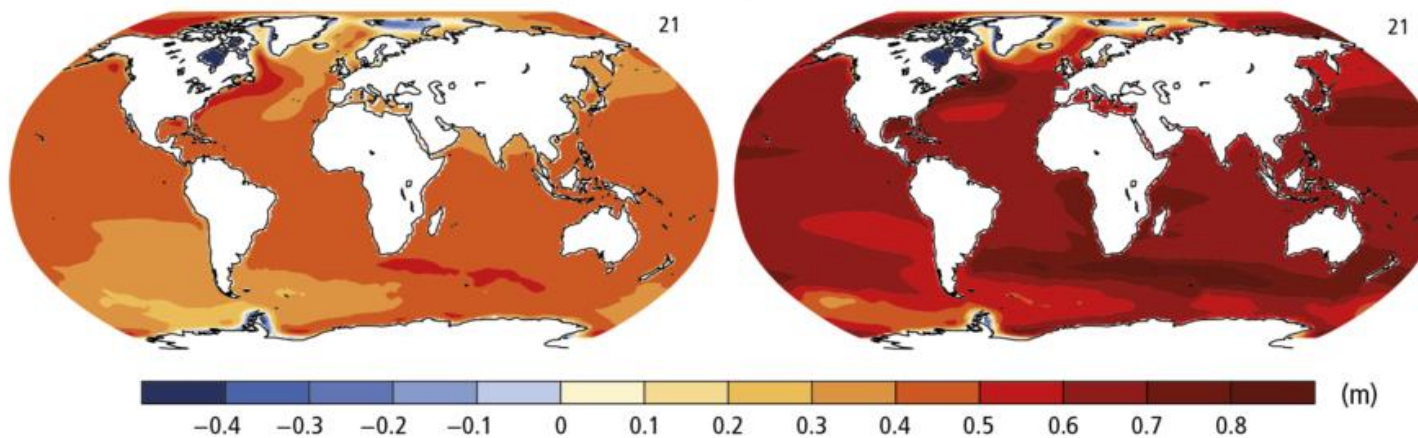
(b)

Change in average precipitation (1986–2005 to 2081–2100)



(c)

Change in average sea level (1986–2005 to 2081–2100)



Source:  
IPCC, 5th  
Assessment  
Report (2014)

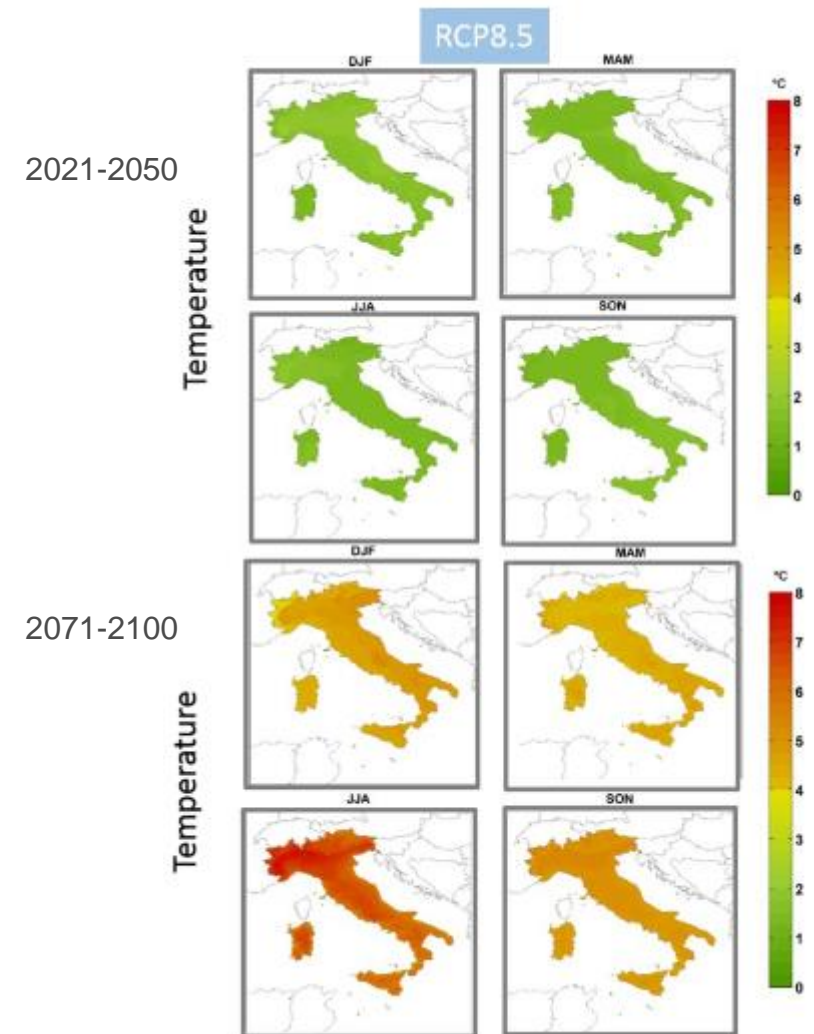
# Climate change in Italy



- Italy is particularly vulnerable to climate change
- Providing climate projections is challenging due to complex orography
- Projected increase in temperature
- Up to 8° C temperature increase in summer



Photo: AP Photo/Luca Bruno



Source: Italian Ministry for the Environment, Land and Sea (2017)



# Climate change in Italy



- Change in precipitation leading to hydrogeological risks

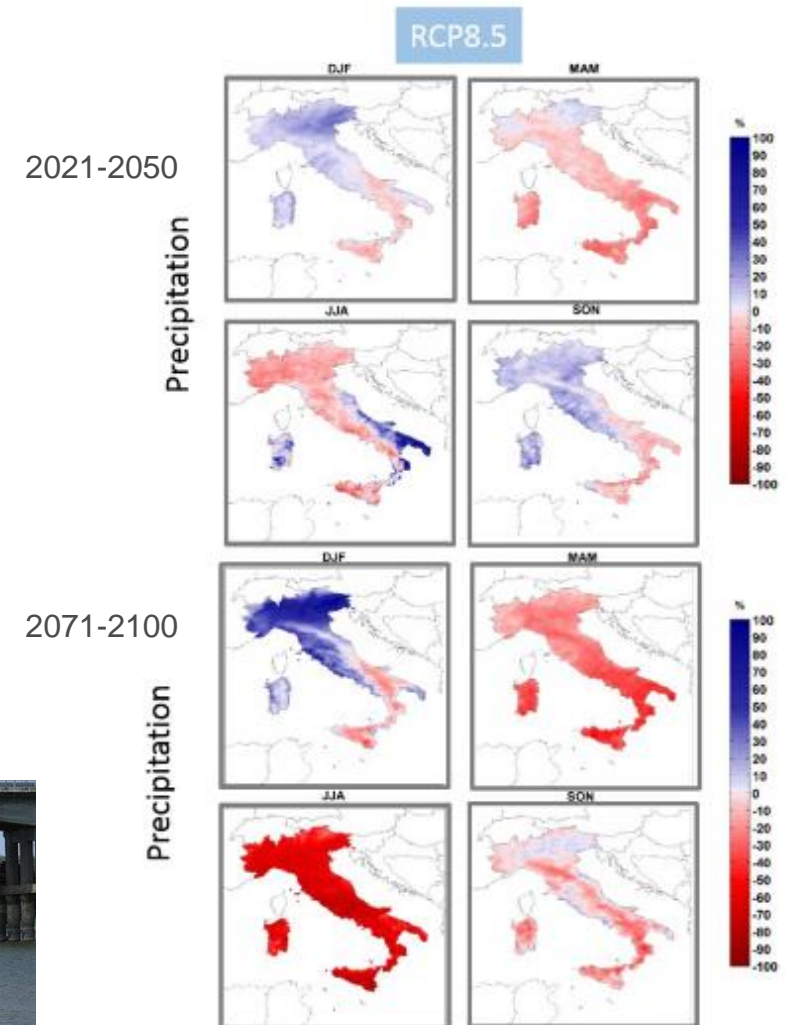
→ 9.6% of national territory and 82% of municipalities is affected by a high hydrogeological risk



Photo: Econews



Photo: Giuseppe Cacace/AFP



Source: Italian Ministry for the Environment, Land and Sea (2017)

# Climate Change Impacts



**Settlements**



**Social & cultural impacts**



**Energy**



**Transport**

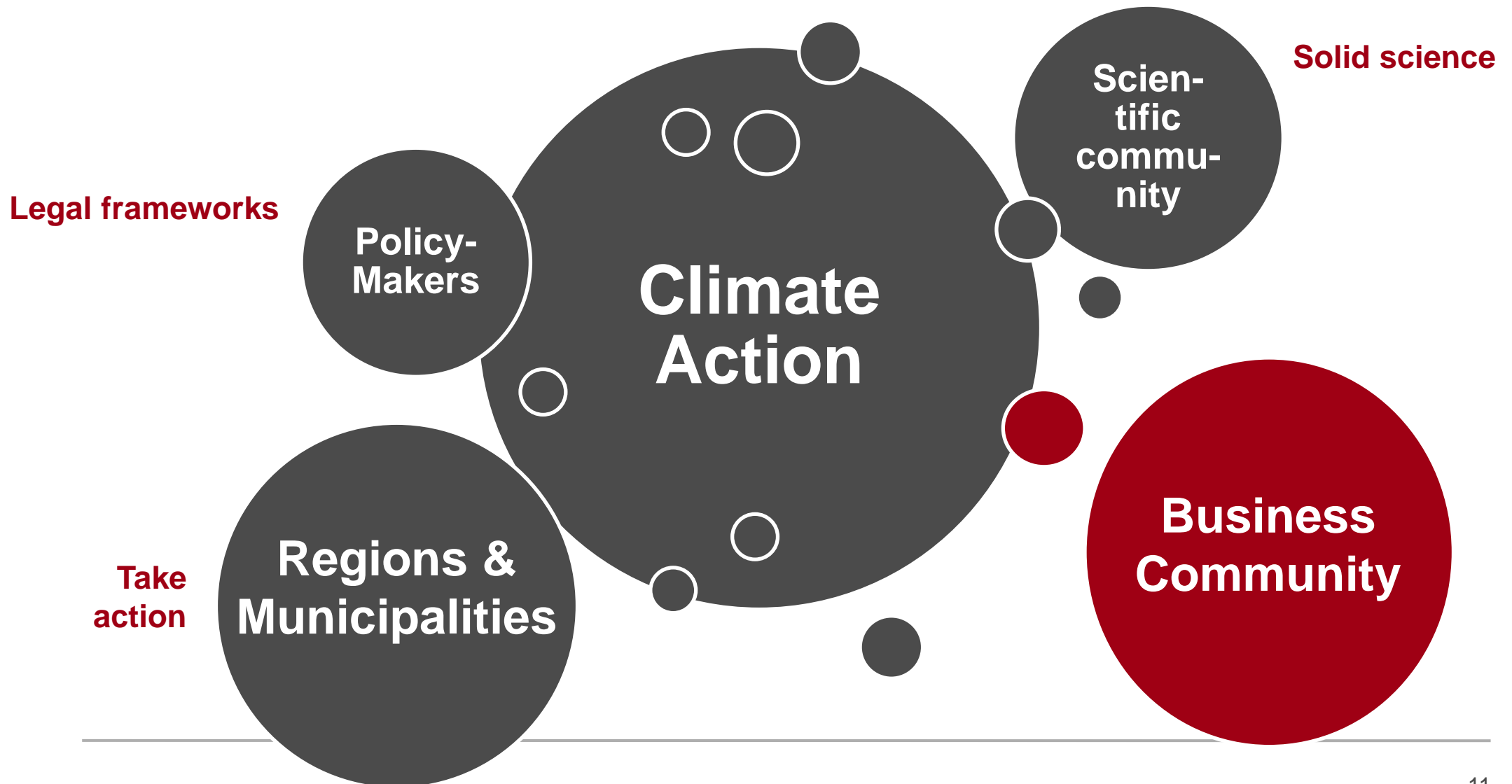
**Environmental**

**quality**

**Human Health**

**Tourism**







# Relevance of the topic for businesses: Vulnerability and risks

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- General vulnerability
  - All types of business
  - E.g. flooding, heat stress
- Sector-specific vulnerability
  - Sector dependent
  - E.g. water dependent industries (energy, agriculture...)
- Trade related (indirect) vulnerability
  - Across borders
  - E.g. supply chain interruption



# Trade related vulnerability: the Example of the beer sector



- Around 60% of global hops production comes from two areas: Yakima valley in Washington State and Hallertau region in Bavaria
- 2015 for example had a fairly hot and dry summer both in Washington State and in Bavaria
- Hallertau: yield loss of 26% compared to 2014
- German hop growers incurred losses of around 50 Million Euro
- Smaller breweries had difficulties getting the quantity and quality of hops needed



Photo: dpa, Felix Kästle

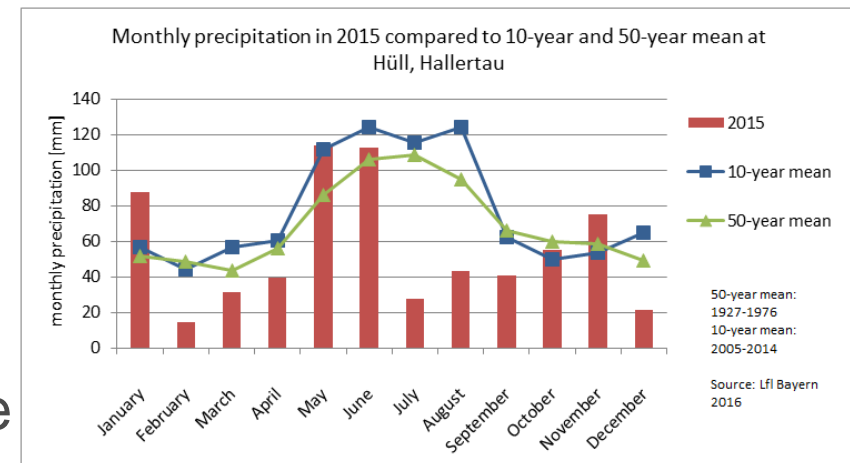


Figure 2: Monthly precipitation in 2015 compared to the 10-year and 50-year mean at the weather station Hüll in Hallertau. Data: LfL Bayern 2016, graph: adelphi.



- Direct – Changing climate conditions
  - **Benefits for some sectors**
  - E.g. regional improvement of agricultural productivity
- Indirect – Changing demand
  - **Businesses offer solutions**
  - Big companies, small start ups, innovative solutions, insurances
- However: Risks are far more important than opportunities



# Perceptions in the business sector – awareness of risks



- By multinational companies:
  - Climate Change frequently among top risks in business focussed surveys
  - Departments to monitor trends and future challenges
  - Global survey of CDP in 2017 (1700 large businesses): 83% think that Climate Change holds physical risks for their enterprise
- By SMEs:
  - German survey of 1040 businesses (in 2011): 29% think that Climate Change holds physical risks for their enterprise
  - SMEs less aware of climate impacts than multinational enterprises



Photo: CNN



Photo: Expense  
Reduction Analysts

## Why are SMEs less aware of climate impacts?

- Often **shorter planning horizon** than large businesses
- **Availability of expertise** and institutional units or procedures
- **Fewer resources** for data access
- **Short-term immediate problems** prioritized over “distant” climate impacts
- **SMEs crucial for regional economies → Public Policy intervention needed**



Photo: businessbecause.com



Photo: Ben White/Unsplash

# What SMEs need to adapt

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- Language and concepts that **reflect realities** of their businesses
- Willingness to invest in adaptation if the business **advantages are clear**
- **Investment in adaptation** is driven by three factors:
  - a) expected reductions of risk
  - b) reductions in costs
  - c) the creation of new opportunities and the expectations of future revenues



Photo: Eric Gay / AP



# What SMEs need to adapt/ How to facilitate adaptation



- Raising **awareness of impacts** on company's premises, supplies, logistics, stakeholders and business environment within their planning horizons
- **Inclusion of climate risk management** into general risk management systems
- Demonstrating the concept of climate-related business risks and the advantages of early action → **best practice examples** for region or sectors
- Focus also on **potential co-benefits of adaptation** (e.g., reduced variable operating costs due to improved energy efficiency)



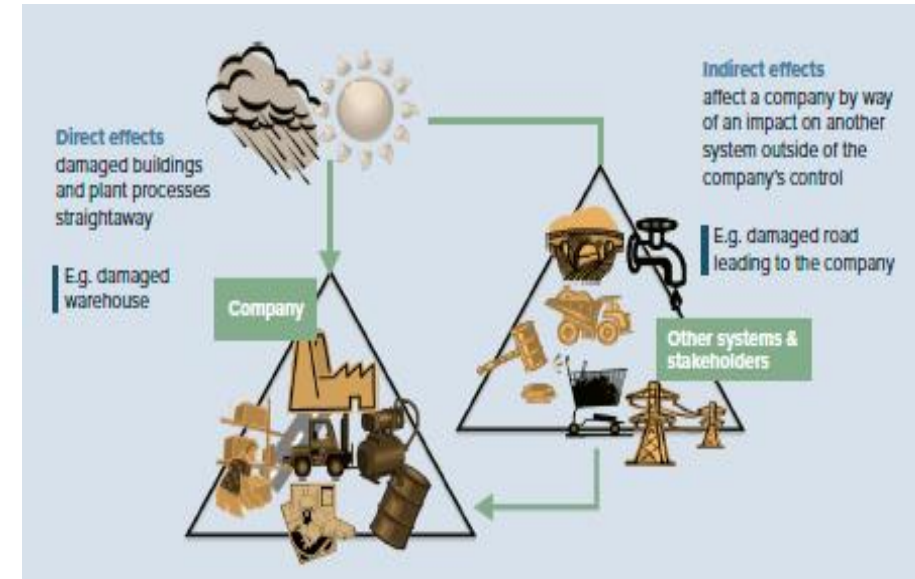
Source: Climate Expert



# What SMEs need to adapt/ How to facilitate adaptation



- **Showcasing clear possibilities for action**
  - Climate Change as force majeure for many SMEs
  - E.g. PSACC project: 'Adaptation Measures Catalogue'
- Reaching SMEs by up-scaling using **private sector multipliers**
  - E.g. Chamber of Commerce, business associations, training institutions for businesses



Source: GIZ PSACC, 2017

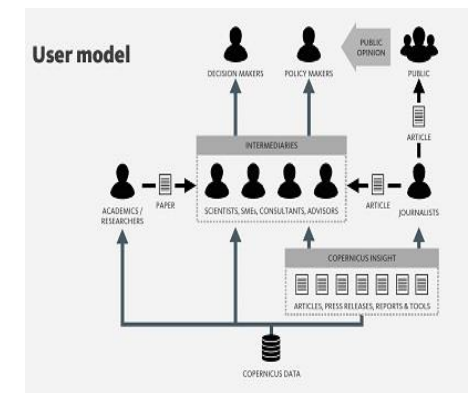


Photo: Network for Business Sustainability

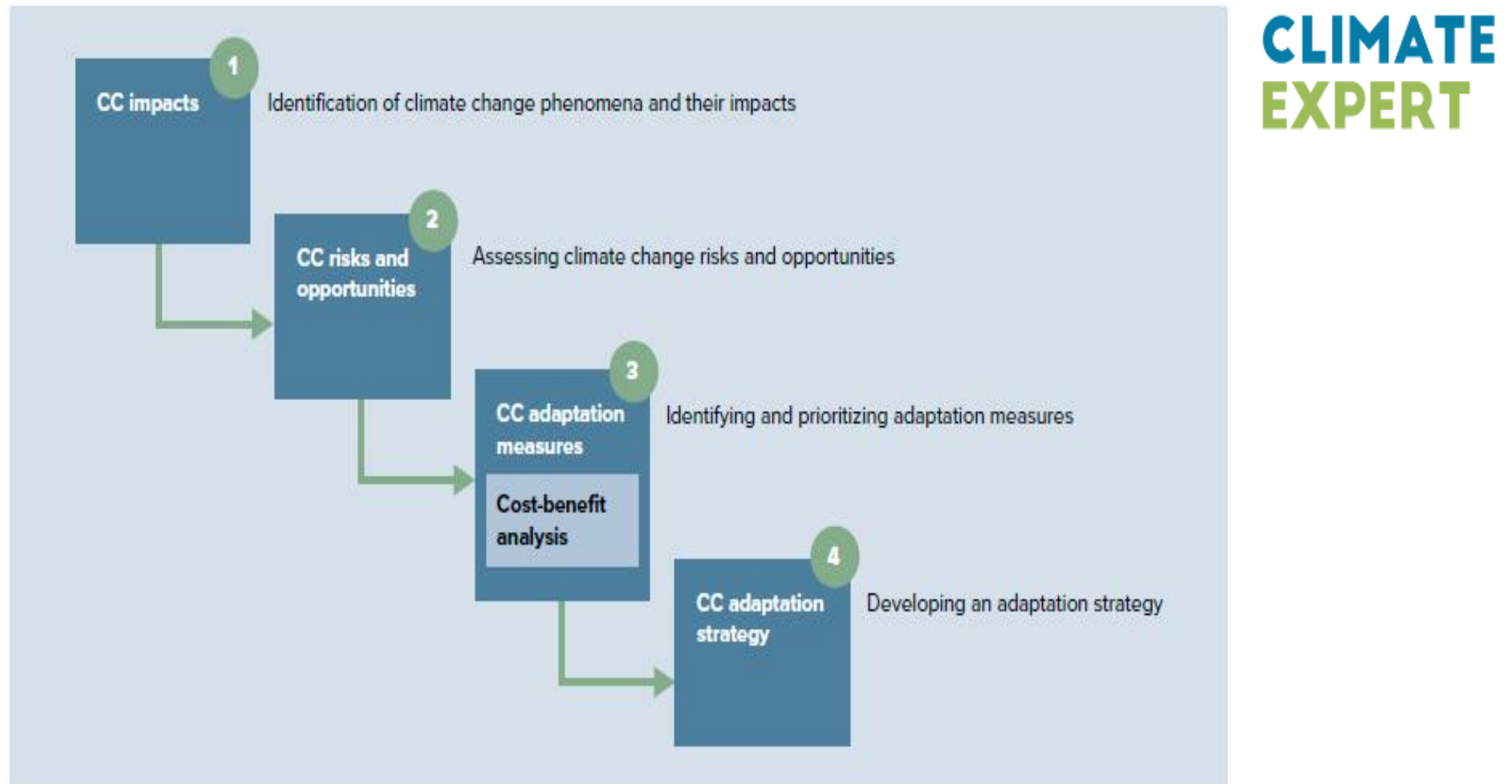


## Providing information

- General guidelines and good practice:  
Climate-ADAPT
- Climate data and services:  
Copernicus Climate Change Service
- CAST – Climate Adaptation Support Tool
- UKCIP Adaptation Wizard
- Climate Expert



- Developed for businesses:



Source: GIZ PSACC, 2017

- Considers both **direct and indirect impacts** on the business

# Instruments – Providing information: The Climate Expert



- Analysis of **seven impact areas** where climate change can potentially affect a company (from stakeholder and market considerations to operational considerations like logistics)
- Excel Sheets can be used by consultants to conduct **full company assessments** with SMEs
- **Target group:** Consultants supporting SMEs' adaptation efforts, managers and staff of SMEs
- **Duration:** approximately 2-3 days within the company
- **Requirements:** access to key figures of the company

**CLIMATE  
EXPERT**

BENEFITS of adaptation measures (= cost savings, additional revenue)

Currency	0
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Risk	0
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Adaptation measure	0
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CC matrix	Impact factor	Effectiveness of measure (in %)	Annual probability (in %)
Baseline scenario	1	100%	100%
Severe scenario	1	100%	100%
Disastrous scenario	1	100%	100%

Year	I. Avoided costs of the negative effect						II. Climate independent benefits				Aggregated benefits / year (considering scenarios)		
	Lost revenue		Repair / replacement		Other		Cost savings		Additional revenue		From	To	Average
	From	To	From	To	From	To	From	To	From	To			
Now (0)											0.00	0.00	0.00
1											0.00	0.00	0.00
2											0.00	0.00	0.00
3											0.00	0.00	0.00
4											0.00	0.00	0.00
5											0.00	0.00	0.00
6											0.00	0.00	0.00
7											0.00	0.00	0.00
8											0.00	0.00	0.00
9											0.00	0.00	0.00
10											0.00	0.00	0.00
Sum of undiscounted total benefits over all years:											0.00	0.00	0.00



- ...today's event!
- Stakeholder dialogues (e.g. logistics, construction, chemical industry, energy)
  - KomPass in Germany
- Trainings
  - Training for financial institutions (UNEP Finance Initiative)



Source:  
Umweltbundesamt



Photo:  
[greenplanetethics.com](http://greenplanetethics.com)

- Climate Adaptation support programmes
  - Support programme DAS
- Inserting climate change in other support programmes
  - Life
  - Delta programme
  - ...

## Paneuropa

- German logistics company, project funded by German Ministry for the Environment
- Adapt to and prepare for an increase in extreme weather events
  - To avoid obstructions, shortages and bottlenecks, congestions and stoppage
- Assessed and implemented several adaptation measures
  - Software to monitor cold chain
  - Determining alternative routes in case of disruption due to extreme weather events
  - Modern air conditioning and light-painted driver's cabin



Source: Paneuropa

## Workplace healthcare adaptation

- Project funded by German Ministry for the Environment
- Important factor for employees is preventive corporate healthcare under changed climatic circumstances
- Project developed concepts for training modules to prepare for and manage climate change impacts in corporate healthcare
- Integrated in training courses for HR managers
- Information about
  - Climate change related health risks
  - Climate adaptation strategies in businesses
  - Technical and staff-based adaptation measures



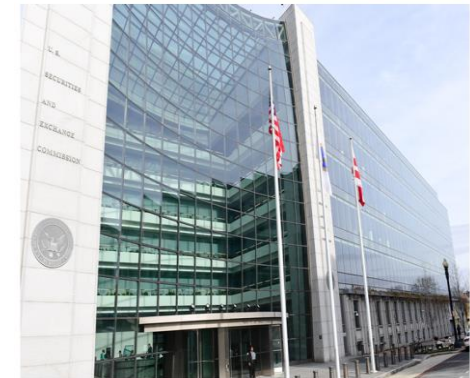
Source: Bupnet 2017












- Climate finance instruments for adaptation are growing in scale. They can provide financial incentives (de-risking through blending, grants, concessional loans, etc.) or/and technical assistance to help deliver adaptation measures. New products and services for resilience can attract new equity investments
  - Lack of data and metrics hinders investments in climate resilience.
  - The finance sector's involvement in this area is currently very small, with the main sources of finance coming from adaptation funds under the UNFCCC umbrella, supported to varying degrees by governments, development banks and IFIs.
  - Insurance and reinsurance companies are the most active participants in adaptation, as many responses require insurance solutions to help communities manage weather related risks.
  - More public policy involvement might be beneficial.
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- **Compulsory disclosure** of material risks to Climate Change for stock traded companies (U.S. Securities and Exchange Commission)
- CDP: organisation of investors **pressuring** large companies **into transparency**



Source: GAO | www.gao.gov

Areas of focus	Engage & inform	
 Climate	 Companies	 Supply chain
 Water	 Cities	 Investors
 Forests	 Governments	 States and Regions

## Standards and technical guidelines

- Establish new standards
- Mainstream adaptation into existing standards, e.g.:
  - ISO 14001: include climate related risks
  - TRAS 310: Climate Change safety bonus for high risk plants



- Climate change will substantially affect the Italian industry
- SME need support to act on the challenges of Climate change
- Public policy can support the Industry in various ways and with various instruments
- First steps have been made with Life IRIS and many projects, but much remains to be done

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