



# **The nexus between climate and data**

**Understanding climate risk and building  
climate resilience**

**Dr Edward Cameron | 17 March, 2022**

# Biography

Two decades working to reduce greenhouse gas emissions and build climate resilience.

Experience designing climate strategies for more than 250 companies across 10 industrial sectors including financial services.

Has served with the European Union, Foreign Ministry of Maldives, World Bank, World Resources Institute, and BSR.

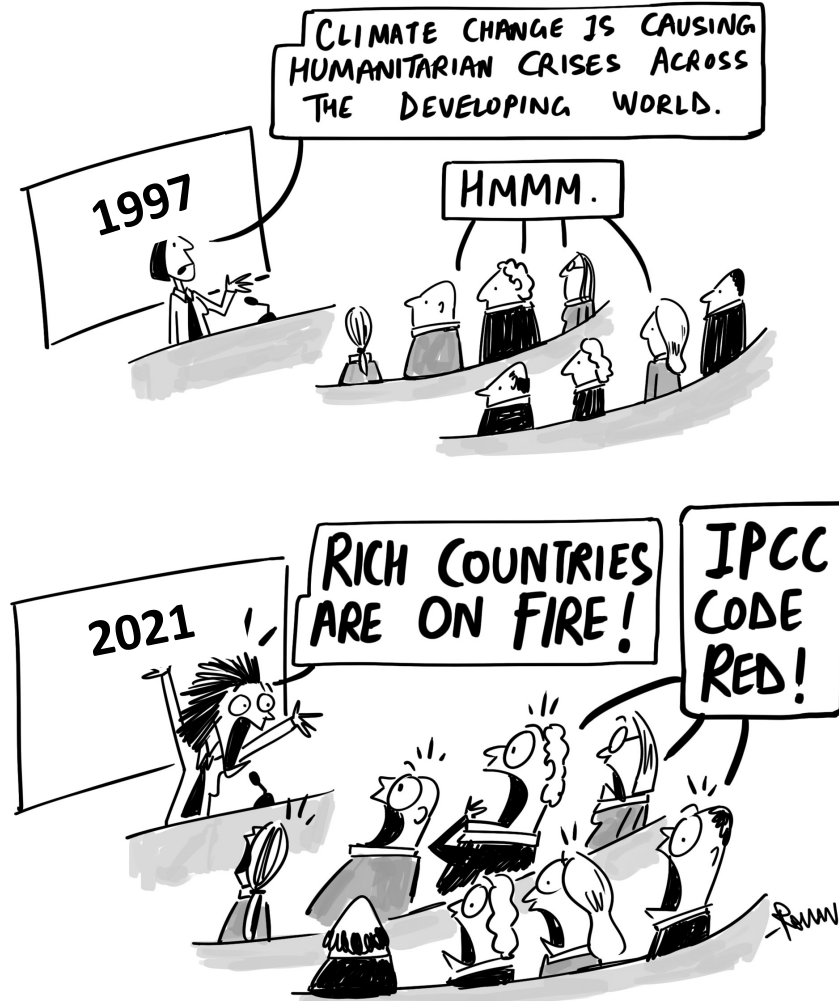
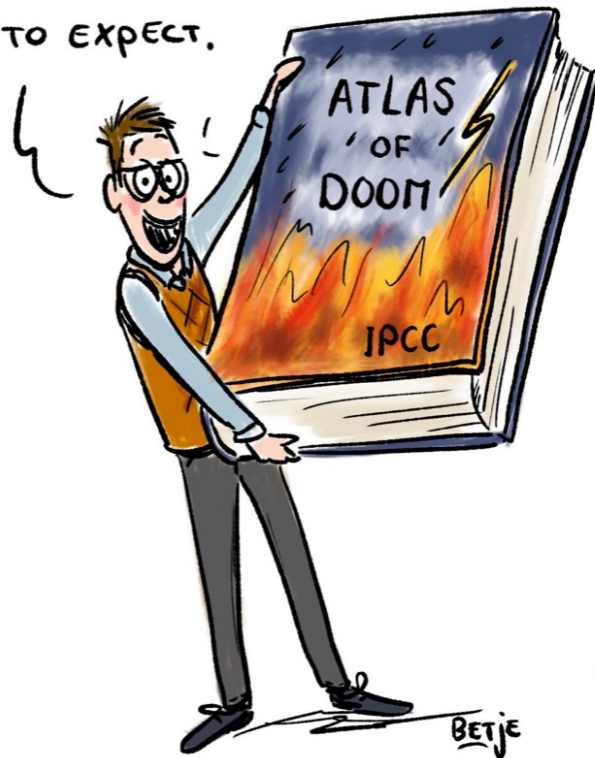
Authored A World Made New in 2020 and The New Corporate Climate Leadership in 2021.



# Climate crisis

We have detailed understanding of the causes, impacts of and solutions to the climate crisis

THIS IS GREAT!  
Now we know  
WHAT TO EXPECT.



# Climate Risk

## Observed impacts of climate change on human systems

Human systems	Impacts on water scarcity and food production				Impacts on health and wellbeing				Impacts on cities, settlements and infrastructure				Confidence in attribution to climate change
	Water scarcity	Agriculture/crop production	Animal and livestock health and productivity	Fisheries yields and aquaculture production	Infectious diseases	Heat, malnutrition and other	Mental health	Displacement	Inland flooding and associated damages	Flood/storm induced damages in coastal areas	Damages to infrastructure	Damages to key economic sectors	
Global	±	-	○	-	-	-	-	-	-	-	-	-	High or very high
Africa	-	-	-	-	-	-	○	-	-	-	-	-	High or very high
Asia	±	±	-	-	-	-	-	-	-	-	-	-	High or very high
Australasia	±	-	±	-	-	-	-	not assessed	-	-	-	-	High or very high
Central and South America	±	-	±	-	-	-	not assessed	-	-	-	-	-	High or very high
Europe	±	±	-	±	-	-	-	-	-	-	-	-	High or very high
North America	±	±	-	±	-	-	-	-	-	-	-	-	High or very high
Small Islands	-	-	-	-	-	-	○	-	-	-	-	-	High or very high
Arctic	±	±	-	-	-	-	-	-	-	-	-	±	High or very high
Cities by the sea	○	○	○	-	○	-	not assessed	-	○	-	-	-	High or very high
Mediterranean region	-	-	-	-	-	-	not assessed	-	±	-	○	-	High or very high
Mountain regions	±	±	-	○	-	-	○	-	-	na	-	-	High or very high

**Confidence in attribution to climate change**

- High or very high
- Medium
- Low
- Evidence limited, insufficient
- na Not applicable

**Impacts to human systems in panel (b)**

- Increasing adverse impacts
- ± Increasing adverse and positive impacts

# Climate Risk

## Projected impacts of climate change



The World Economic Forum consistently ranks climate change as the highest material risk to business.

The global cost of climate change could be as high as **\$24 trillion** by 2030.

The Financial Stability Board estimates the total stock of manageable assets at risk to be **\$43 trillion between now and the end of the century.**

**70% of global catastrophe losses are uncovered** leaving individuals and communities to carry the losses.

Economic Risks

Environmental Risks

Geopolitical Risks

Societal Risks

Technological Risks

Number and strength of connections ("weighted degree")

# Climate Resilience

Anticipate, avoid, absorb, recover and transform from climate risk.

## Decarbonize the economy:

- Hold global mean temperature rises to less than 1.5°C.
- Reduce GHG emissions by 45% by 2030 with net zero emissions by 2050.
- Bold collective action by all, with the prosperous going further and faster while speeding access to innovations.

## Adapting to climate risk:

- Improve understanding of the dynamic interactions between hazards, exposure and vulnerability.
- Invest in six capital assets - human, social, natural, physical, financial, and political – to enhance adaptive capacity.
- Focus on the most vulnerable populations.

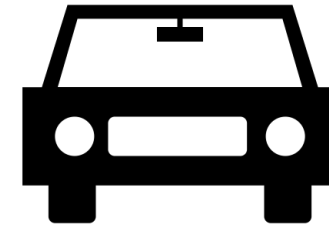
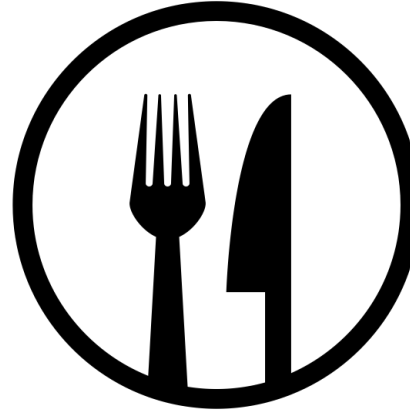
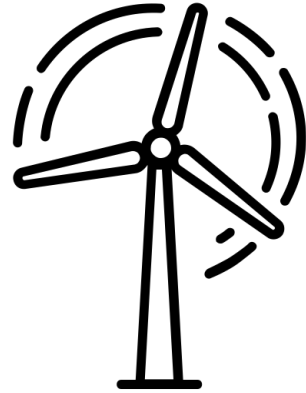
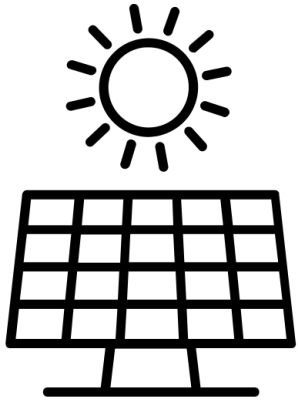


## The just transition:

- Reimagine the future for high-carbon sectors and communities.
- Replace the extractive economy with a regenerative one.
- Create a shared prosperity when building the new climate economy starting with the 21<sup>st</sup> century energy system.

# Climate Resilience

We can design tailored net-zero pathways for every company & community



## Energy

Sunset fossil fuels, Solar farms, roof-top solar, wind-turbines, geothermal, microgrids, wave and tidal, biomass, nuclear, cogeneration, methane digesters, in-stream hydro, waste-to-energy, energy storage, energy efficiency, reduced energy use.

## Food & Landuse

Plant-rich diet, farmland restoration, food waste, clean cookstoves, agroforestry, regenerative agriculture, nutrient management, composting, forest protection, afforestation, wetlands, net-zero buildings, district heating, insulation.

## Transport & Planning

Public transport, walkable cities, bike infrastructure, high-speed rail, EVs, maritime, aviation, logistics.

# Climate Resilience

Many of the solutions span decarbonization, adaptation and just transition.

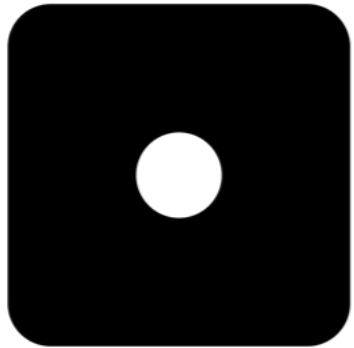
In 2018, the IPCC identified 57 “solutions” covering landuse and agriculture

Land Management		Value-Chain	Risk	Enabling Responses	
Increased food productivity	Reduced deforestation and forest degradation	Reduced post harvest losses	Livelihoods diversification	Land use zoning	Reg. of rental markets
Agroforestry	Increased soil organic carbon content	Dietary change	Management of urban sprawl	Spatial planning	Weather insurance
Improved cropland management	Reduced soil erosion	Reduced food waste at the consumer and retailer	Risk-sharing instruments	Integrated landscape planning	Health insurance
Improved livestock management	Reduced soil salinization	Sustainable sourcing		Payment for ecosystems services	Social protection and safeguards
Agricultural diversification	Reduced soil compaction	Improved food processing and retailing		Environ. farm planning	Contingent finance
Improved grazing land management	Fire management	Improved energy use in food systems		Standards and certification	Reserve funds
Integrated water management	Reduced landslides and natural hazards			Scientific, local and indigenous knowledge	Early warning systems
Reduced grassland conversion to cropland	Reduced pollution including acidification			Recog. of customary tenure	Contingency plans
Forest management	Restoration and reduced conversion of coastal wetlands			Community mapping	Access to markets
	Restoration and reduced conversion of peatlands			Redistribution	Securing land tenure
				Decentralization	Environmental costs
				Co-management	Empowering communities
				Risk-sharing and transfer mechanisms	Reforming subsidies
				Prep for supply chain disruption	Nutrition policies
					Public procurement
					Awareness campaigns
					Stakeholder consultations

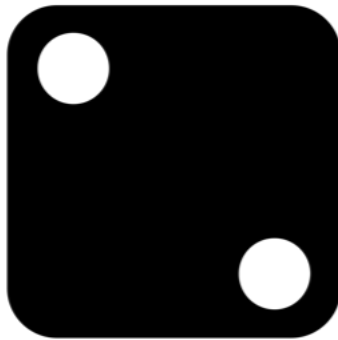


# Climate data challenges

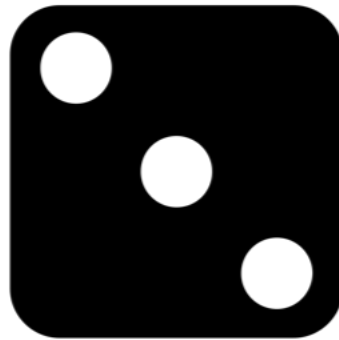
Anticipate, avoid, absorb, and recover from climate risk.



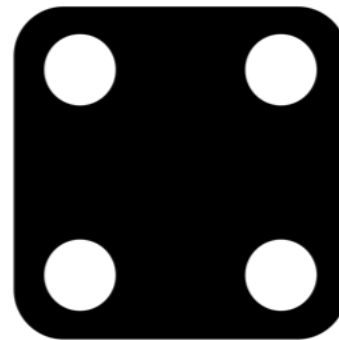
Access  
to data



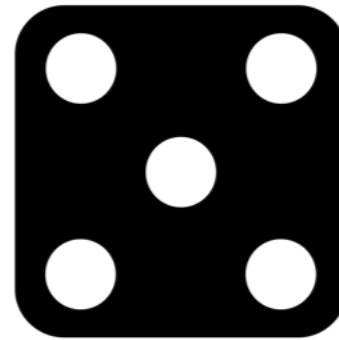
Granular  
data



GIGO



Data collection  
and  
standardization



Solutions  
platforms



The opportunity  
space

Commodification  
of data

# GIGO (Garbage in, garbage out)

**We are misdiagnosing climate risk and this is leading to maladaptation**

**Hazard.** Climate change hazards include hurricanes, heatwaves, wildfires, and vector-borne diseases.



**Exposure.** Are homes, businesses, infrastructure and people in the path of the storm?

**Vulnerability.** Are there *underlying weaknesses* that increase susceptibility to harm?

# Knowledge not just data

We often seem to prize data above expertise and co-creation



# A chance for a new climate economy

*Climate*

