

Climate-Smart Mining

Accelerating the transition to a low-carbon economy.

Dr Edward Cameron

Mining Indaba | Cape Town | 11 May, 2022



Learning from experience

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.

Author of **“A World Made New”** and **“The New Corporate Climate Leadership”**.

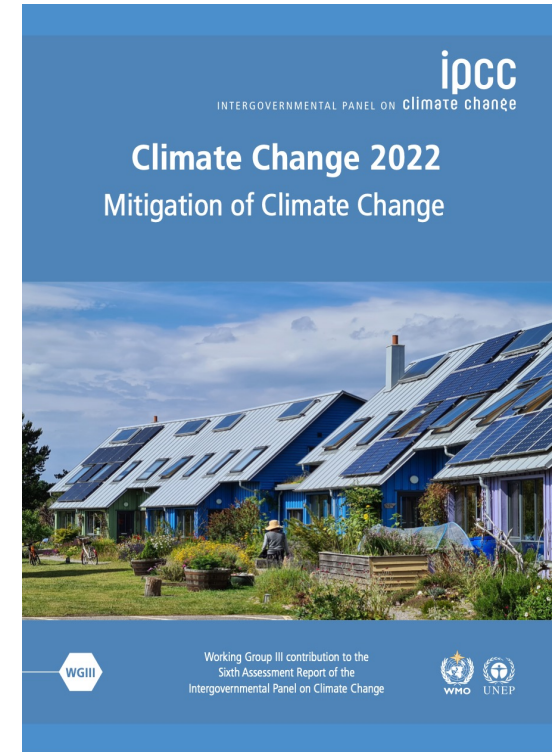
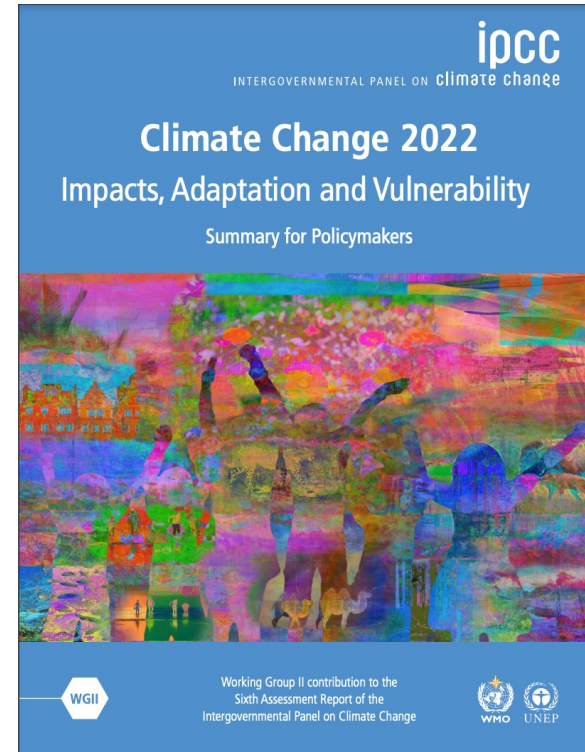


Learning from the Science

The Intergovernmental Panel on Climate Change has published two reports on climate **impacts, adaptation and vulnerability** and **mitigation**.

These reports total almost 7000 pages; 52,000 citations / sources; 550 authors; and 121,000 review comments.

It is the most comprehensive assessment of climate change in history.

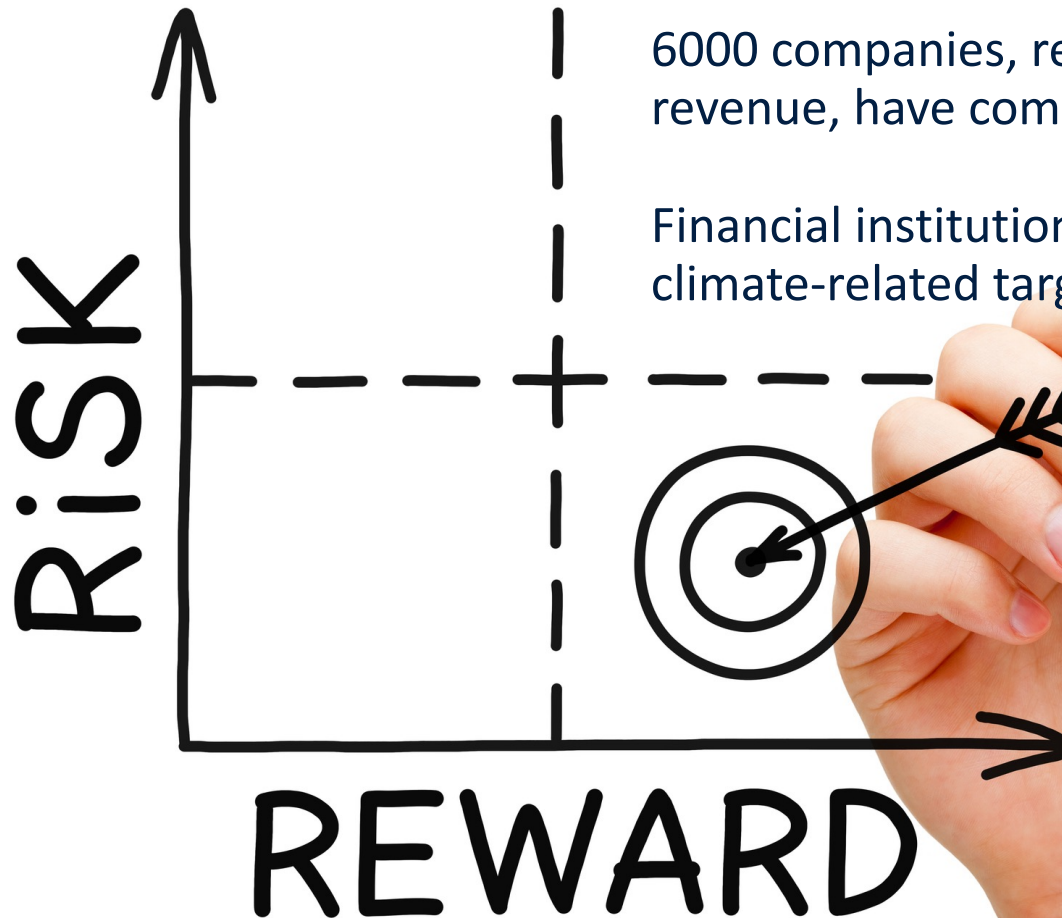


We are building a new climate economy



A new climate economy

FSB estimates the total global stock of manageable assets at risk from climate change to be as high as **\$43 trillion** by the end of the century.



National climate action plans: **\$125 trillion** by 2050.
Up to **\$23 trillion** to emerging markets by 2030.
At least **\$13.5 trillion** invested in clean energy.

6000 companies, representing **\$36 trillion** in revenue, have committed to climate action.

Financial institutions with AUM of **\$47 trillion** have climate-related targets.

A new climate economy

Nigeria



Bangladesh



Côte d'Ivoire



Tanzania



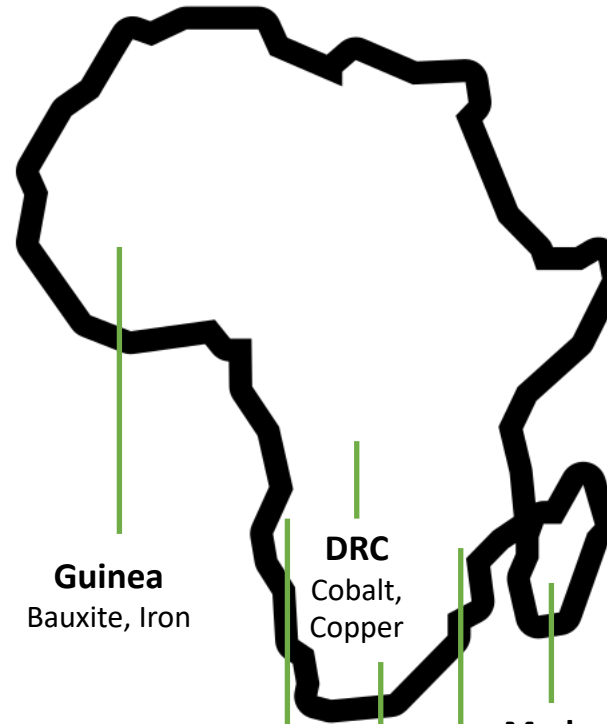
Tunisia



HSBC assessed the resilience / vulnerability of 77 countries based on physical risk, transition risk and transition opportunity.

4 of the top 5 most vulnerable are in Africa.

African, South Asian and MENA-region countries populate the bottom quartile.



Guinea
Bauxite, Iron

DRC
Cobalt, Copper

Madagascar
Graphite

Gabon
Manganese

Mozambique
Graphite

South Africa
Cobalt, Copper

Many of the 17 critical minerals and metals, essential to building the new climate economy, will come from Africa.

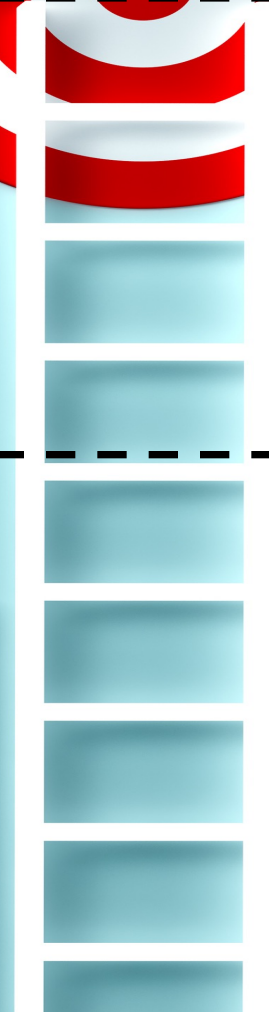
The Democratic Republic of Congo (DRC) alone is expected to supply 73% of the world's cobalt by 2023.



The Climate Resilient Company

Class of 2030

Class of 2022



The climate resilient company

Does not replicate 2015, but instead anticipates leadership in 2030.

Mitigation:

- Reducing total net GHGs by 45% by 2030.
- Net-zero CO₂ emissions by 2050 through investments in sources and sinks.
- Robust design to decarbonization targets.

Just Transition:

- Reimagine the future for high-carbon sectors and communities.
- Engage in a social dialogue to generate community-led solutions.
- Create a shared prosperity when building the new climate economy.



Adaptation:

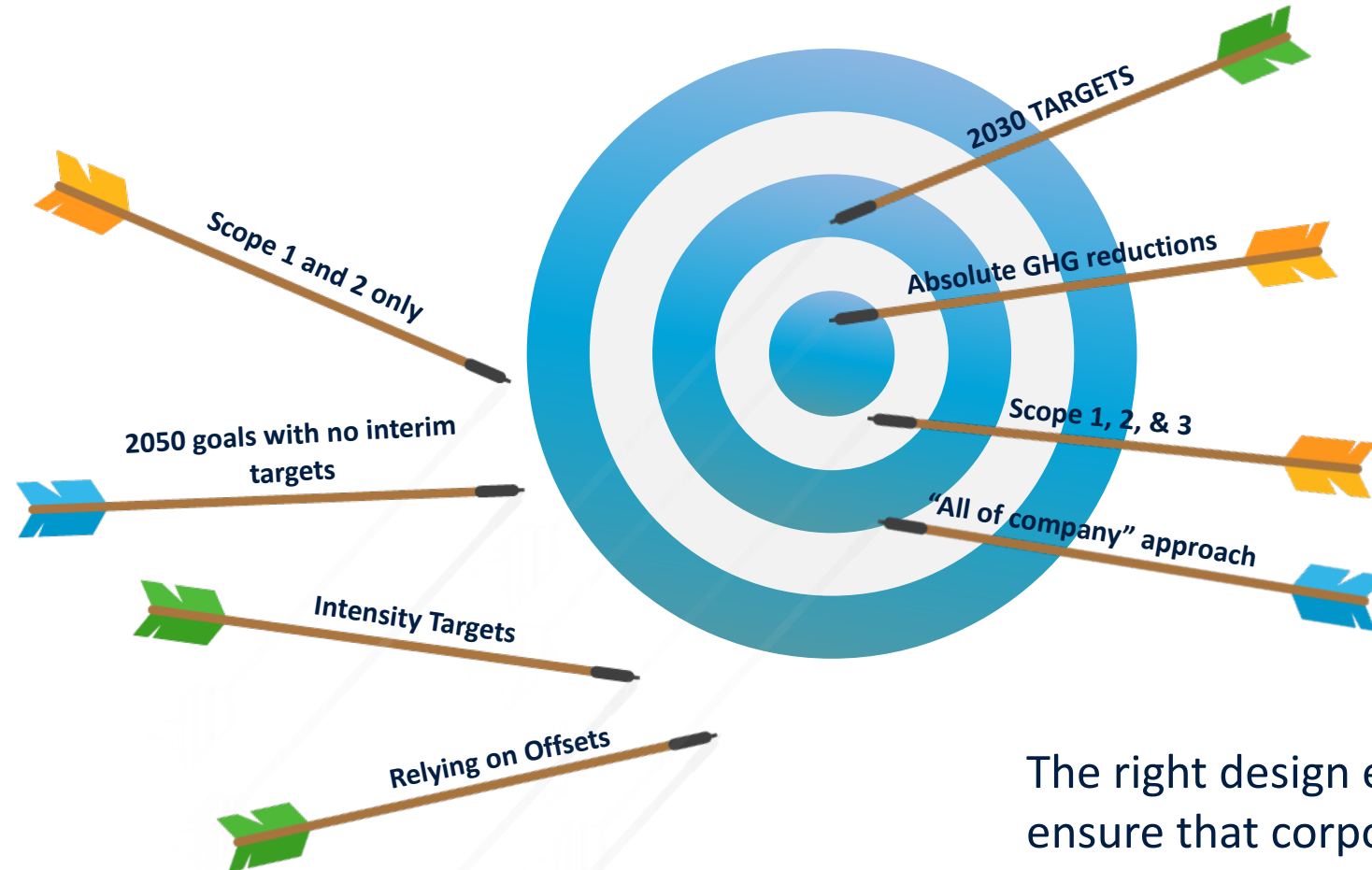
- Understand the dynamic interactions between hazards, exposure and vulnerability.
- Invest in six capital assets - human, social, natural, physical, financial, and political – to enhance adaptive capacity.
- Focus on the most vulnerable assets and populations.

The climate resilient company

Designs for decarbonization. Most corporate targets currently miss the target.

Of the **6000** companies with climate commitments, **1100** have net-zero targets.

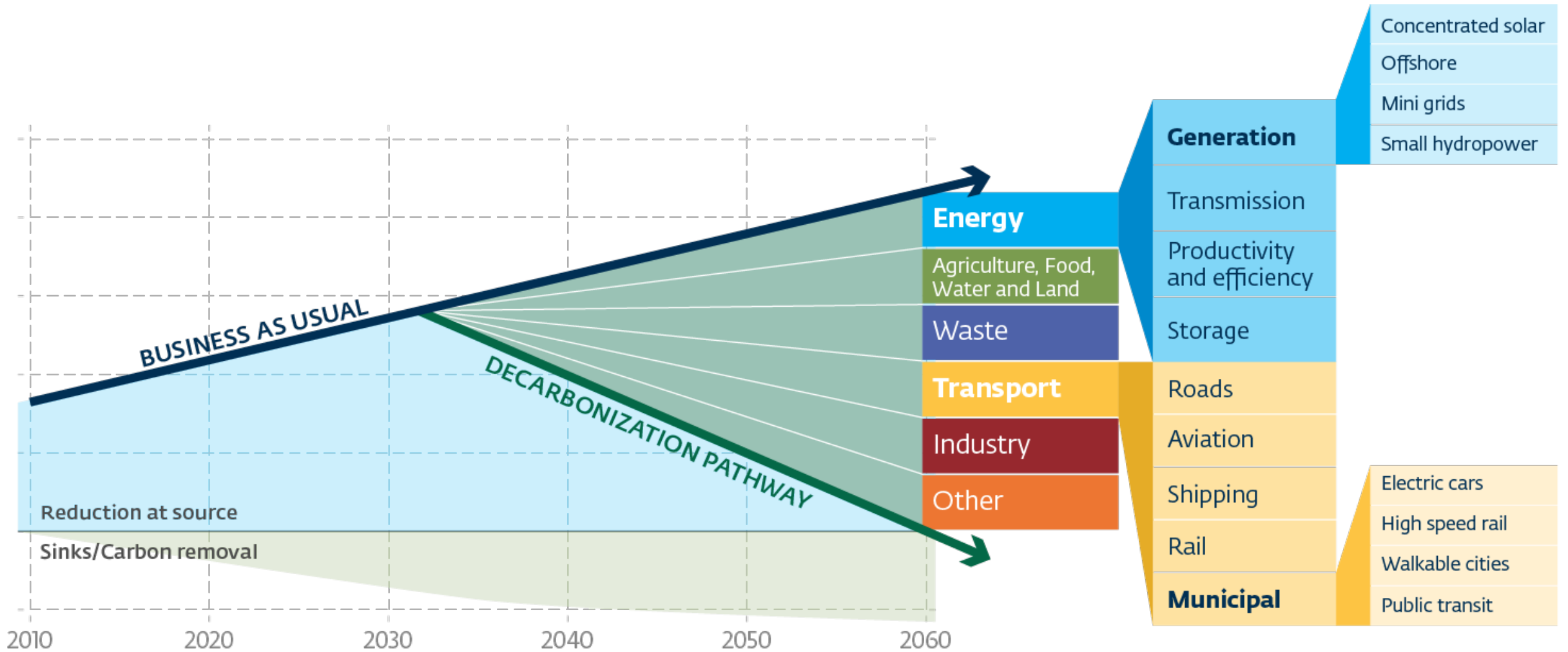
Of these **only 11, or 5%** have targets that are considered robust.



The right design elements can ensure that corporate climate strategies hit the target.

The climate resilient company

Builds ambition through solutions wedges rather than silver bullets.



The climate resilient company

Draws down from hundreds of “solutions” to build tailored strategies.

Decarbonization | Stabilization Wedges



Decarbonization Stabilization Wedges					
Energy	Transport	Landuse / Food	Buildings / Cities	Other	Enablers
Concentrated Solar Power	Carpooling	Plant-Rich Diets	Smart Thermostats	Landfill Methane Capture	Indigenous Peoples' Forest Tenure
Distributed Solar Photovoltaics	Public Transit	Reduced Food Waste	Building Automation Systems	Methane Digesters	Gender Empowerment
Utility-Scale Solar Photovoltaics	High-Speed Rail	Forest Protection	Insulation / Weatherization	Biochar Production	Family Planning
Micro Wind Turbines	Telepresence	Grassland Protection	Dynamic Glass	Alternative Cement	Education
Onshore Wind Turbines	EVs	Coastal Wetland Protection and Restoration	High-Performance Glass	Bioplastics	
Offshore Wind Turbines	Efficient Trucks	Nutrient Management	Green and Cool Roofs	Recycling	
Geothermal Power	Electric Trains	Farm Irrigation Efficiency	District Heating	Refrigerant Management	
Small Hydropower	Walkable Cities	Peatland Protection and Rewetting	High-Efficiency Heat Pumps	Alternative Refrigerants	
Ocean / Tidal Power	Bicycle Infrastructure / E-bikes	Sustainable Intensification for Smallholders	Solar Hot Water		
Biomass Power	Efficient Ocean Shipping	Conservation Agriculture	Low-Flow Fixtures		
Nuclear Power	Efficient Aviation	Regenerative Annual Cropping	Building Retrofitting		
Grid Flexibility	Smart Freight and Logistics	Improved Rice Production	Net-Zero Buildings		
Microgrids	Smart Highways	System of Rice Intensification	Biogas for Cooking		
Distributed Energy Storage		Composting	Improved Clean Cookstoves		
Utility-Scale Energy Storage		Temperate Forest Restoration			
Energy Conservation		Tropical Forest Restoration			
Energy Efficiency		Managed Grazing			
Energy Transmission		<u>Silvopasture</u>			
LED Lighting		Bamboo Production			
Water Distribution Efficiency		Abandoned Farmland Restoration			
Waste-to-Energy		Microbial farming			
Green Hydrogen					
Smart Grids					
Cogeneration					
Biomass					

The climate resilient company

Understands risk in three dimensions.

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

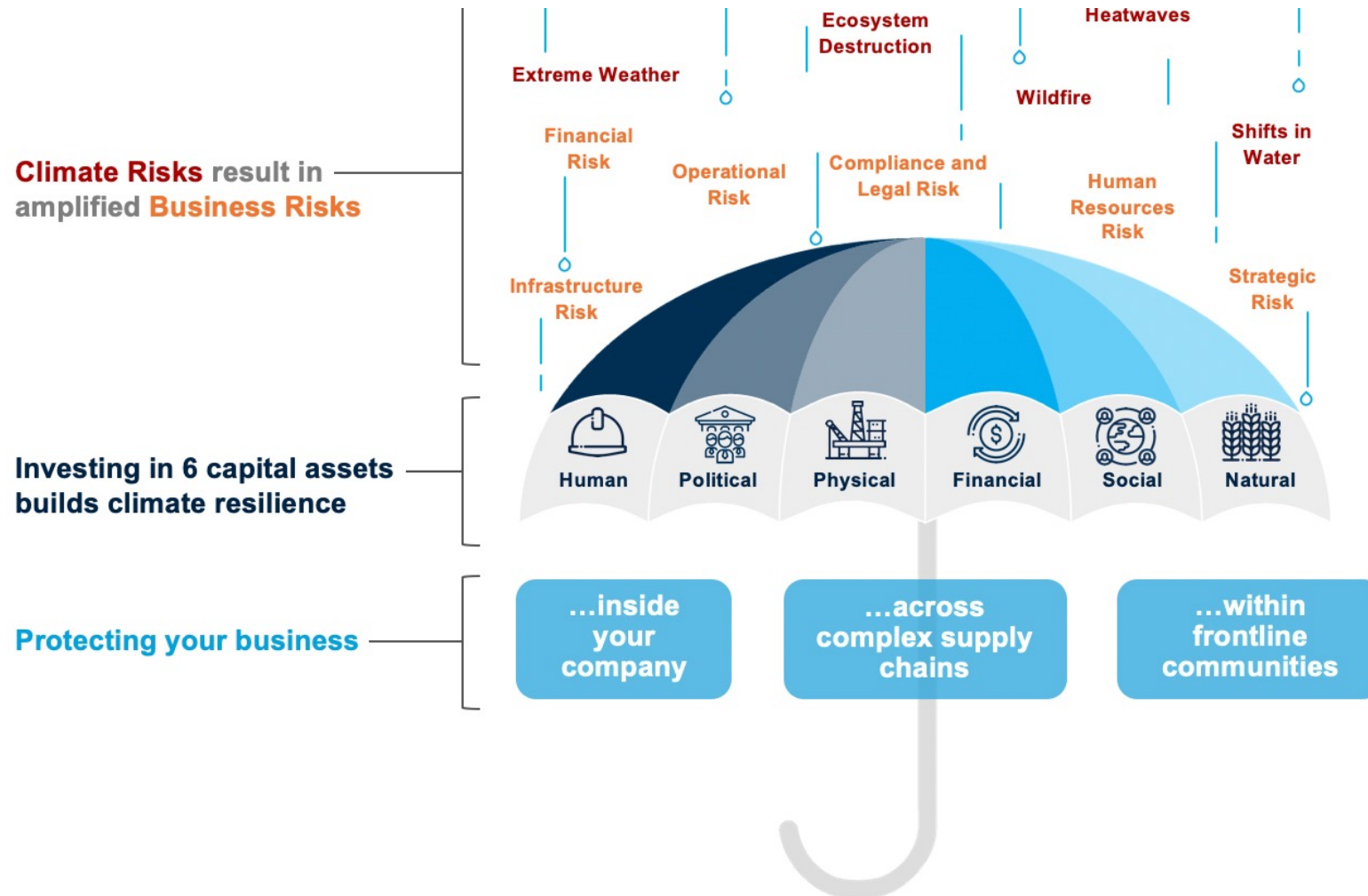


Exposure. Are homes, businesses, infrastructure and people in the path of the storm?

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

The climate resilient company

Invests in resilience inside the company, across supply chains and within frontline communities.



The climate resilient company

Draws down from hundreds of “solutions” to build tailored strategies.

Adaptation | Capital Assets



Six Capital Assets | building blocks of climate adaptation

Human	Social	Physical	Natural	Political	Financial
<p>Indigenous, traditional, & local knowledge, technologies, & methods; Worker trainings Awareness raising & education; Household preparation & evacuation planning;</p>	<p>Participatory scenario planning Multi-stakeholder co-learning Transboundary collaboration Participatory action research & social learning; Improved access to social support structures</p>	<p>Coastal defence Green infrastructure Sustainable urban water management Resilient power systems Energy generation diversification Smart-grid Updated design standards on energy assets Transport & road infrastructure improvements. Early warning systems Levees Water storage Irrigation Water sanitation resilience Storm & wastewater management Shelters Vaccine development Adequate housing Building codes & practices</p>	<p>Forest-based adaptation Agroforestry Sustainable aquaculture and fisheries Biodiversity management and ecosystem connectivity (ecological corridors) Water use efficiency and water resource management Improved cropland management Efficient livestock systems Restoring wetlands Soil moisture conservation Farm diversification Urban agriculture Maintenance of genetic diversity Protected areas</p>	<p>Integrated coastal zone management Sustainable urban planning Health systems adaptation Planned relocation and resettlement Disaster risk management Heat health action plans Addressing inequities based on gender, ethnicity, disability, age, location and income. Reduced gender inequality & marginalization in other forms. Improved access to & control of local resources Land tenure Improved access to education, nutrition, health facilities, energy, safe housing, technology, information, decision making and justice Food banks & distribution of food surplus Vaccination programs</p>	<p>Social safety nets Cash transfers Public works programs Risk spreading and sharing Grants Guarantees Equity Concessional debt Market debt Internal budget allocation Savings Insurance Public-private partnerships Income, asset, & livelihood diversification Catastrophe bonds Payments for ecosystem services Microfinance Disaster contingency funds</p>

The climate resilient company

Creates a regenerative economy.

Reimagine the future not just managed decline.

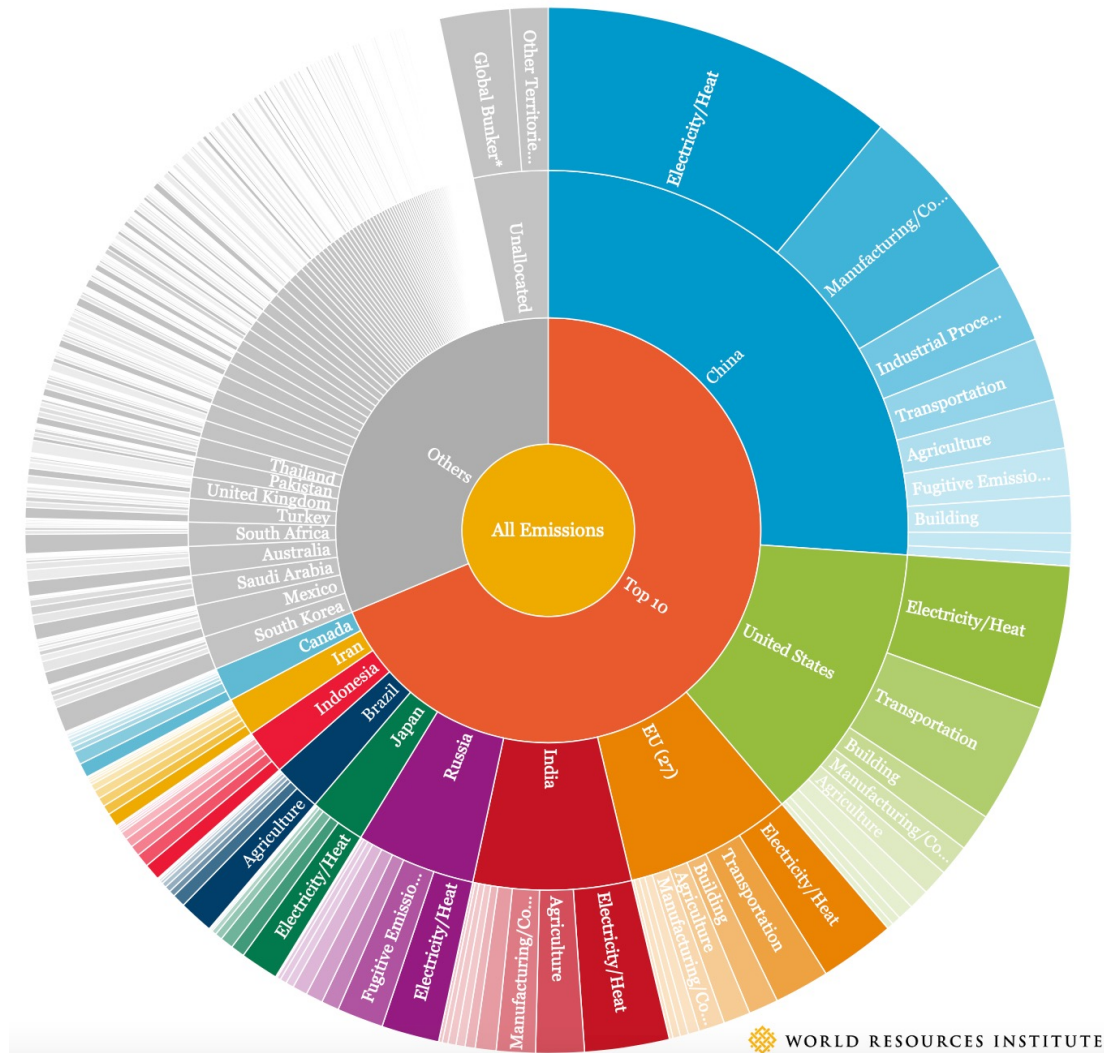
Social dialogue not just stakeholder engagement.

“Do not harm” is obsolete.



The climate resilient company

Truly investing in Africa



The top ten emitters are responsible for 69% of GHG emissions.

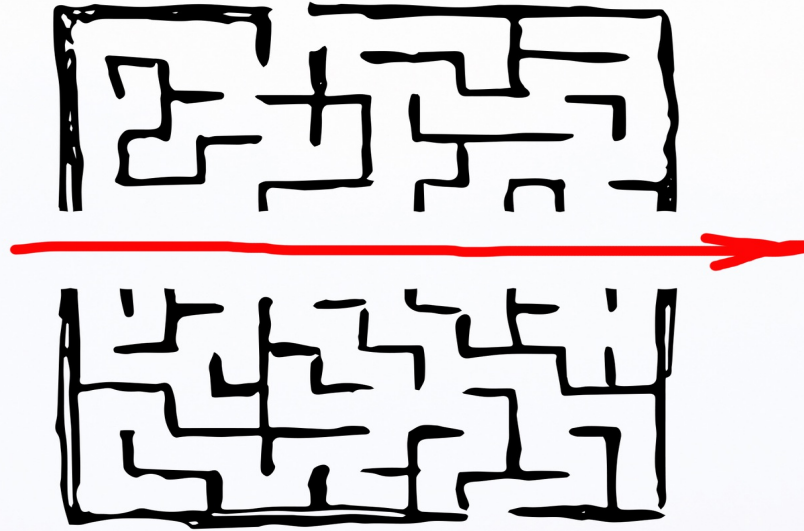
“Others” are responsible for 31%.

South Africa contributes 1.08%. Guinea approximately 0.06%.

In the African context there is an urgent need to elevate adaptation and just transition.

The climate resilient company

It's a journey!



Becoming a climate resilient company requires leadership, creativity, courage and collaboration.



“Winning Slowly Is the Same as Losing”

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