



 Insurance
Reinsurance

The Risks Associated with a Changing Climate: Executive Summary

Know You Can



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Climate Risk – Executive Summary

The climate is changing, with greenhouse gases (GHG) emissions at the highest levels seen for millennia. These changes are affecting multiple areas of our climate system; namely sea-levels, the atmosphere, the oceans, the cryosphere and carbon and other biogeochemical processes, along with the associated impact on local weather phenomena. As a (re)insurer, we are exposed to these changes through the risks we underwrite, the investments we make and the actions we take as a company. We recognize that our clients’ risks will change as a result of a changing climate and the transition to a low- or net-zero carbon economy. We also recognize the important role we have as a trusted risk expert and global partner in complex risks, working with our clients to understand and mitigate these risks, protecting what matters to them.

Climate Leadership is one of the five pillars of AXA Group’s Driving Progress 2023 strategy. At AXA XL, we believe we have a responsibility to help clients and communities manage the impacts of a changing climate, promote greener practices; support the protection of natural assets and biodiversity, as well as reduce our own environmental footprint through science-based carbon reduction targets.

This document outlines how we define climate risk and the risks and opportunities associated with a changing climate. It details initiatives we are working on and actions we have taken to showcase our climate leadership position.



Managing the impacts of climate change

The climate-related risks we are exposed to as a (re)insurer are complex and can be categorised in three ways:

- Physical risk
- Transition risk
- Liability risk

Physical Risk

The physical risks we are exposed to as a (re)insurer arise from extreme weather and climate that affect the hazards we experience through acute (e.g., tropical cyclones, flood, tornado/ hail) and chronic (e.g., temperature, sea-level rise) impacts. When we think about the impacts from the physical risk relating to a changing climate, we think about it from the perspective of:

Risk = f (Hazard, Exposure, Vulnerability)	
Hazard	■ the extreme event that has the potential to cause destruction
Exposure	■ the assets that are at risk of being impacted from the hazard
Vulnerability	■ the susceptibility to damage of an asset to a given intensity of the hazard, including it's adaptive capacity

The hazards we are exposed to as a (re)insurer are typically from events like hurricanes, floods, tornadoes/hail, or other acute local weather phenomena.

Internal analysis shows that exposure increases have been a significant driver in the increase in the costs associated with catastrophic natural hazards in recent years. This includes the increased costs of assets, along with the increase in number of structures driven by population growth, urbanisation and urban sprawl, in high-hazard areas. Vulnerability is the part of the risk equation that has been least studied.

Vulnerability encompasses factors like building codes, economic development, availability of research and natural and non-natural defences. We expect that increased awareness of the impact of climate change should drive improvements in vulnerability through government investments, increased attention to resilience and adaptation measures, as well as mitigation efforts.

Transition Risk

Transition risks related to climate change are the risks associated with a move towards a low- or net-zero carbon economy and typically arise from changes in three areas:

- Policy
- Technology
- Consumer preference and societal pressure

The severity of the financial risk and as well as the opportunities arising from policy, technology and changes in consumer behaviour are markedly dependent on the speed at which these transitions take place.

Regulators around the world are quickly realizing the potential impact that a transition to a low- or net-zero carbon economy might have, whether through direct measures like carbon pricing or through market forces as consumers turn towards greener alternatives.

The time horizon and likelihood of changes in the various industries that we support are highly uncertain. Despite this, we need to contemplate their potential impacts and continue to improve our own understanding of these changes both short-term and long-term to ensure that our underwriting reflects the changes in the risks that we are exposed to, and that we are well positioned to help facilitate this transition.

Liability Risk

Liability risks associated with a changing climate are the risks that arise from lawsuits initiated by claimants who have suffered loss or damage due to a changing climate. Today, there are more than 1,900 live litigation cases related to climate change around the world with more than 1,400 filed in the US alone. ¹This number is ever increasing and as a new and untested area of law, progress to date has been quite slow. We can, however, look at some recent rulings to learn about the potential exposure that could be felt by the insurance industry. Lawsuits for contribution to climate change have most commonly been launched based on public/private nuisance or negligence, but we are also increasingly seeing product liability-related lawsuits.

As society continues to encourage climate-related financial disclosures whether from regulators or through other initiatives, we are moving towards a more transparent environment where climate change risk is concerned. Whilst these disclosures are a step in the right direction in addressing the impacts of a changing climate on our financial system, disclosures and advertising campaigns can expose companies to litigation and regulatory non-compliance from inaccurate or inadequate disclosure claims and even advertising liability claims related to greenwashing. We as an industry need to be mindful of the changing risk profile that comes with increasing disclosures and the desire to be seen as “green” within this space.

It is important to understand that while we have defined physical, transition and liability risk separately above, these risks are interconnected, and we should not think of them as independent.



¹ <http://climatecasechart.com/climate-change-litigation/>

Why is all this important?

Risk & Opportunity

Understanding the impacts that climate change will have on our business means we can look at ways of managing and mitigating these risks. To do so, we tend to use stress and scenario testing, considering ways in which each of these risks could move and the associated impacts on our business. Understanding these potential impacts allows us to plan for their likelihood either through portfolio adjustments or other hedging techniques.

Based on commitments that are being made by governments and the private sector, we know that our economy is going to transition to a low- or net-zero carbon economy. To meet climate and development aims, the Organisation for Economic Cooperation and Development (OECD) estimates that companies need to invest USD \$6.9 trillion annually. ²This will mean that we will not only see the development of innovative technologies but also changes in the business models of current industries.

(Re)insurance plays a vital role in facilitating economic activity in the global economy, and as the economy evolves so will opportunities in the industries we currently support as well as in the new industries that will emerge. The opportunity we have is to position ourselves, through the risks that we take on, to help facilitate this transition and provide support to our clients on their low- or net-zero transition. To do so, we will need to ensure colleagues are appropriately trained and skilled.

² [policy-highlights-financing-climate-futures.pdf \(oecd.org\)](https://www.oecd.org/policy-highlights-financing-climate-futures.pdf)

What steps are we taking?

AXA for Progress Index

AXA Group has launched a tool to measure the progress, and reinforce the impact of its climate and sustainability strategy through its role as an investor, an insurer and as an exemplary company. All AXA entities, including AXA XL, are adopting the following commitments built around climate and inclusive protection.

As an Insurer

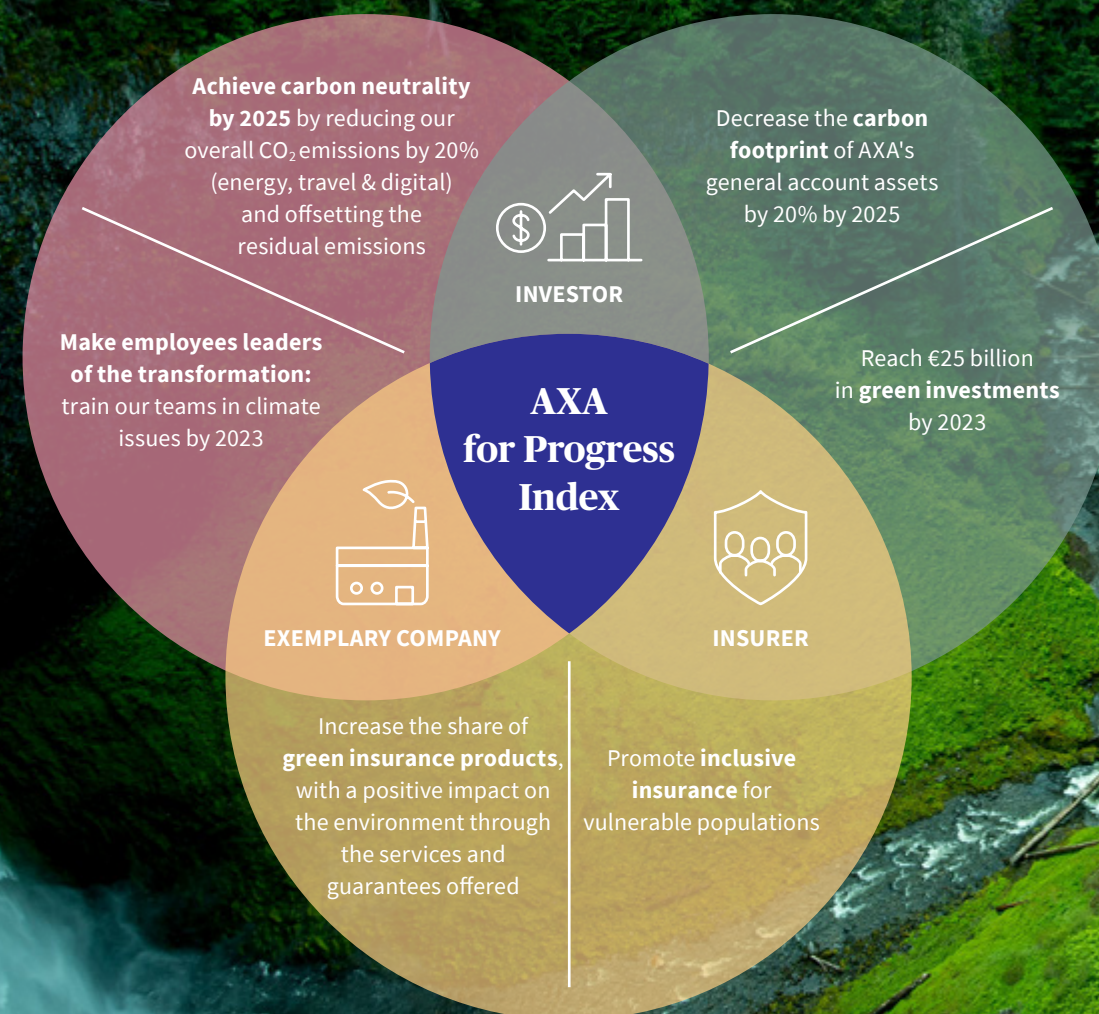
Our Green Business strategy focuses on delivering a positive impact on the environment by contributing to at least one of the following: mitigation (GHG reduction), adaptation (resilience), circular economy (repair vs. replace) and biodiversity (pollution prevention). Some of our current “Green Business” products are summarised here:

- We offer Green Building Materials Expense supplemental coverage in our North America Environmental Pollution and Remediation Legal Liability (PARLL) policy. This insurance coverage protects businesses against loss, remediation expense and legal defense expenses that may arise from sudden and gradual pollution conditions. Now, businesses not only have the financial help to clean up a pollution incident, such as a fuel oil spill, they can take it a step further. With this added Green Building coverage, in the event of a pollution incident that causes property damage, clients can choose to use green, sustainable materials in the property’s restoration.
- In addition, our Structured Risk Solutions team continues to develop performance insurance solutions for the technical risks associated with breakthrough low-carbon technologies (e.g., renewable energy, fuel cells, energy storage, energy efficiency, carbon capture, hydrogen, waste to energy, and biofuels).

Outside of the Green Business framework we continue to seek ways to help our clients address insurance challenges that also align with our sustainability initiatives:

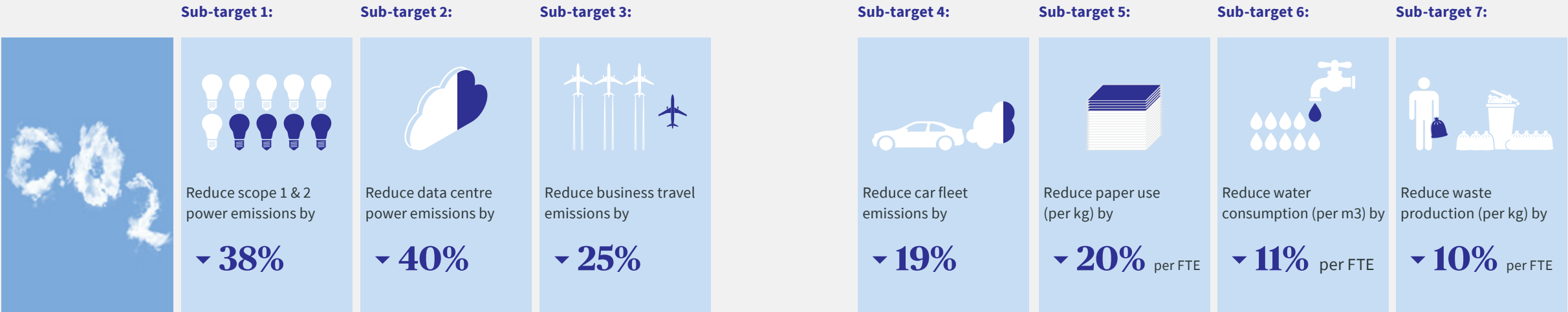
- AXA XL’s North America Construction business has developed tailored Builders Risk insurance programs to address clients’ mass timber project risks. Mass timber, which includes cross-laminated timber (CLT) is gaining popularity in North America. It’s also considered a more sustainable building material; according to the Wood Council, replacing steel with mass timber would reduce carbon dioxide emissions by 15% to 20%. The process of manufacturing timber uses substantially less fossil fuel energy per unit volume than steel, concrete, or aluminum, meaning that timber has a lower carbon footprint.
- Our partnership with The Nature Conservancy (TNC), a global non-profit, and the University of California, Santa Cruz in 2020 to conduct a feasibility study on developing a mangrove insurance product. The report from the study outlines how an insurance product could be designed to finance this restoration and the conditions needed to bring the product to market.

Our Inclusive Insurance focuses on insurance products or services that aim to better serve clients and communities exposed to structural or short-term societal vulnerabilities. These societal vulnerabilities could be the result of poverty, gender biases, or territorial disputes. AXA XL’s agriculture team has developed a novel parametric insurance product in Nicaragua aimed at protecting more than 10,000 smallholder coffee and grain farmers against excess rainfall and drought.



2025 GOALS:

How we’re reducing AXA XL’s carbon footprint



As an Investor

In 2019, AXA Group joined the Net Zero Asset Owners Alliance (NZAOA), committing to aligning its investment portfolio with net-zero commitments. As part of this, AXA has made several near-term commitments as an asset owner:

- Green assets – to have EUR26bn of green/impact investments by 2023
- Transition bonds – to have EUR200m in bonds to be used by companies to finance transition projects
- Carbon emissions – to reduce the carbon emissions of our investment portfolio by 20% by 2025

As an Exemplary Company

We believe that acting as an exemplary company begins within disclosure, transparency and action.

In alignment with the reporting recommendations of the Task Force for Climate-related Financial Disclosures (TCFD) framework, we are committed to publishing our first AXA XL Climate report in 2022. This will complement the TCFD reports published by AXA Group since 2018 along with other regulatory disclosures relating to climate that we have made historically.

At AXA XL, we are aiming to reduce our own carbon footprint by 25% by 2025, underpinned by a series of “sub-targets”. Our carbon emissions are, however, only one measure of our environmental impact. Resources such as paper, water and waste have a low-carbon intensity but are environmentally important. We have therefore included resource consumption targets for paper, water and waste.

AXA XL annually offsets Scope 3 emissions through our carbon offsetting partner, The Nature Conservancy. We use our carbon credits to support the Rio Bravo Climate Action Project, one of the

first Reducing Emissions from Deforestation and Forest Degradation (REDD) projects in the world. Today, the project protects 15,500 acres of tropical rainforest in Northwest Belize, keeping 1.6 million tons of CO2e (carbon dioxide equivalent) out of the atmosphere (since 2002), as well as preserving the habitats for a wide variety of flora and fauna and unique vegetation, and supporting the economic development of local communities.

A key metric is within the AXA for Progress Index and relates to the training of our colleagues to ensure they have the appropriate knowledge to understand climate risk and lead the transition to a low-carbon economy. We have a goal to ensure that 100% of all colleagues complete this training by the end of 2022.

We have several initiatives underway that support our Climate ambitions when it comes to acting as an exemplary company:

- We partnered with RedR, an international capacity-building nonprofit, to better prepare on-the-ground, frontline responders for when natural disasters occur.

- Access to water is expected to be an increasing challenge across the globe, having multiple impacts on companies and communities. Our “Valuing Water” initiative considers both the social and economic value of fresh water.
- In partnership with The Nature Conservancy, we are assisting in the creation of a ground-breaking investment product: Blue Carbon Resilience Credits. The resilience credit, purchased with the blue carbon credit or separately, will quantify and invest in the added risk-reduction benefits of shielding coastal communities from more intense and frequent natural disasters in the future, helping conserve and restore our natural ecosystems to their full potential.
- We are funding research to explore ways drought risk can be better managed in the most vulnerable regions. The research is being conducted by Pennsylvania State University and centers on identifying a way to calculate livelihood-specific weather indices that could be used in resilience programming, focusing on a case study of rainfall-driven hazards in Somalia.

Net Zero Insurance Alliance

AXA Group, as the chair of the recently convened Net Zero Insurance Alliance (NZIA), has committed to the goal of transitioning its underwriting portfolios to net-zero greenhouse gas emissions by 2050, consistent with a maximum temperature rise of 1.5°C above pre-industrial levels by 2100, to contribute to the implementation of the COP21 Paris Agreement.

This work builds on previous work begun by AXA Investment Managers and AXA Asset Managers as part of the Net Zero Asset Owners Alliance and Net Zero Asset Managers Initiative respectively. A major milestone for building and estimating metrics for our portfolio is the development of a scientifically sound and industry – accepted standard for measuring carbon emissions within an underwriting portfolio.

The NZIA has partnered with the Partnership for Carbon Accounting Financials (PCAF) for the development of this standard, and AXA and AXA XL representatives are part of the working group. To achieve the NZIA commitments each member company will individually set appropriate Science Based Targets (SBT) every five years in line with the Paris Climate Agreement, and individually report on progress annually. The aim for these targets will be set based on one or more scientific metrics, with the metric to be defined by January 2023 and the specific AXA Group target defined by July 2023 within the NZIA framework.

Once the scientific metric and target setting protocol have been finalized, AXA entities can begin the process of (1) calculating the absolute carbon emissions associated with the underwriting portfolios within scope for the defined baseline year; and (2) defining the business plan with necessary objectives to achieve the reduction target for the first five-year period within the targets of the Science Based Targets (SBT) protocol and specified by AXA.

Committed to responsible underwriting

AXA Group is committed to responsible underwriting across its portfolio.

Thermal coal is one of the most carbon-intensive sources of energy and it remains one of the largest sources of environmental greenhouse gas emissions. AXA Group is committed to a long-term exit strategy reducing exposure to the thermal coal industry to zero by 2030 in the European Union and OECD countries, and by 2040 in the rest of the world. AXA Group's coal divestment and underwriting restrictions, initiated in 2015, were extended to AXA XL in 2018. In 2019, this approach was strengthened by applying underwriting restrictions to power generation and mining clients developing new coal capacity or with significant coal business, and to coal industry partners, defined as manufacturers (e.g., equipment suppliers) and infrastructure players (e.g. port terminals, dedicated railways) operating or developing coal assets, or standalone coal-related infrastructure assets.

AXA Group further strengthened its commitment to responsible underwriting by updating its exclusions in the Oil & Gas sector in 2021 by introducing with restrictions on new oil and gas greenfield exploration and reducing exposure to unconventional exploration and production (e.g., Arctic drilling, oil sands and shale/fracking).

Ocean Risk

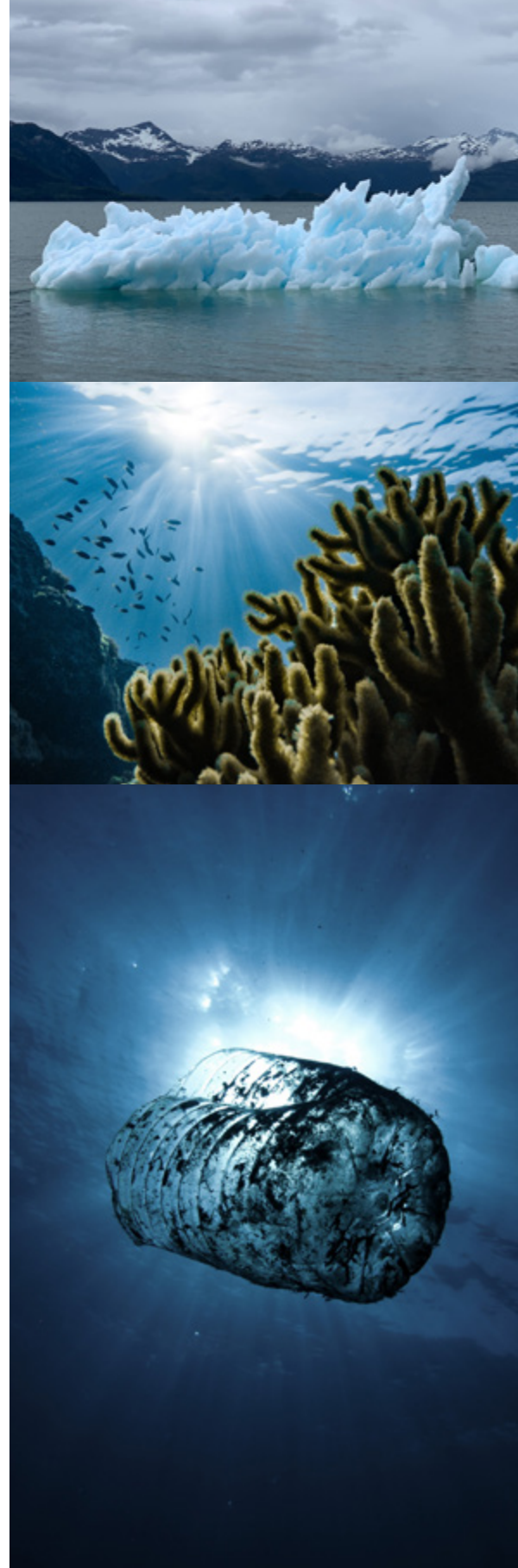
The ocean is fundamentally linked to the climate system action as a regulator, by buffering the damaging effects of climate change. However, as a consequence, the ocean is changing faster than at any time in human history, posing threats to the lives and the livelihoods of billions of people, many of them living in the poorest and most vulnerable communities.

AXA XL's Ocean Risk Initiative was launched to utilize our risk management expertise and AXA Group's investment appetite to define and understand Ocean Risk. The initiative also aims to develop pioneering finance and insurance products that build resilience and reduce the impact of Ocean Risk on exposed communities.

We are looking to achieve this through:

Coastal Risk Index – this is a project that has been developed through collaboration with our scientific partners to integrate the protective benefits of coastal ecosystems into insurance risk models.

Nature-based solutions – by identifying the role that nature has in risk mitigation and maintaining the balance in the environment, we are looking to develop appropriate insurance solutions for these natural assets ensuring that the communities that they support and the carbon they sequester is appropriately protected.



Climate research

Within the science function of AXA XL, we have been carrying out academic collaborations with various universities and research institutions around the world for many years. These types of academic engagements have allowed AXA XL to bring findings from leading scientific institutions into our business and our collective thinking.

Perhaps more than ever, climate change has brought the scientific element of the business into greater focus and, therefore, our academic research is now of elevated importance. To that end, we currently have four ongoing and prospective science projects that are focussed on/related to climate change:

- NCAR (National Centre for Atmospheric Research) – diagnose and project the changing ratio of US hurricane wind and rain intensity, by region, return period and various time horizons.
- University of Colorado Boulder Earth Lab – develop a proof-of-concept exposure prediction model for California, recognizing that exposure growth/urbanization rather than climate change may play the more important role in increasing losses from natural hazards (Iglesias et al., 2021).
- University of Quebec at Montreal – estimate impacts from climate change, climate variability and socioeconomic scenarios on global risk from floods and tropical cyclones (hurricane/typhoon).
- Leverhulme Centre for Wildfires, UK Met Office, Reading University – explore wildfire risk through development of a near-term view based on annually updated five-year climate predictions from the UK's Met Office on both global and continental scales.

For more information

- <https://axaxl.com/climate-risk>
- <https://axaxl.com/sustainability>
- <https://www.axa.com/en/press/publications/2021-climate-report>





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