

# Roadmap

Identification and integration  
of nature-related risks and  
impacts in underwriting and  
insurance brokerage

## The University of Cambridge Institute for Sustainability Leadership

The University of Cambridge Institute for Sustainability Leadership (CISL) partners with business and governments to develop leadership and solutions for a sustainable economy. We aim to achieve net zero, protect and restore nature, and build inclusive and resilient societies. For over three decades, we have built the leadership capacity and capabilities of individuals and organisations and created industry-leading collaborations to catalyse change and accelerate the path to a sustainable economy. Our interdisciplinary research engagement builds the evidence base for practical action.

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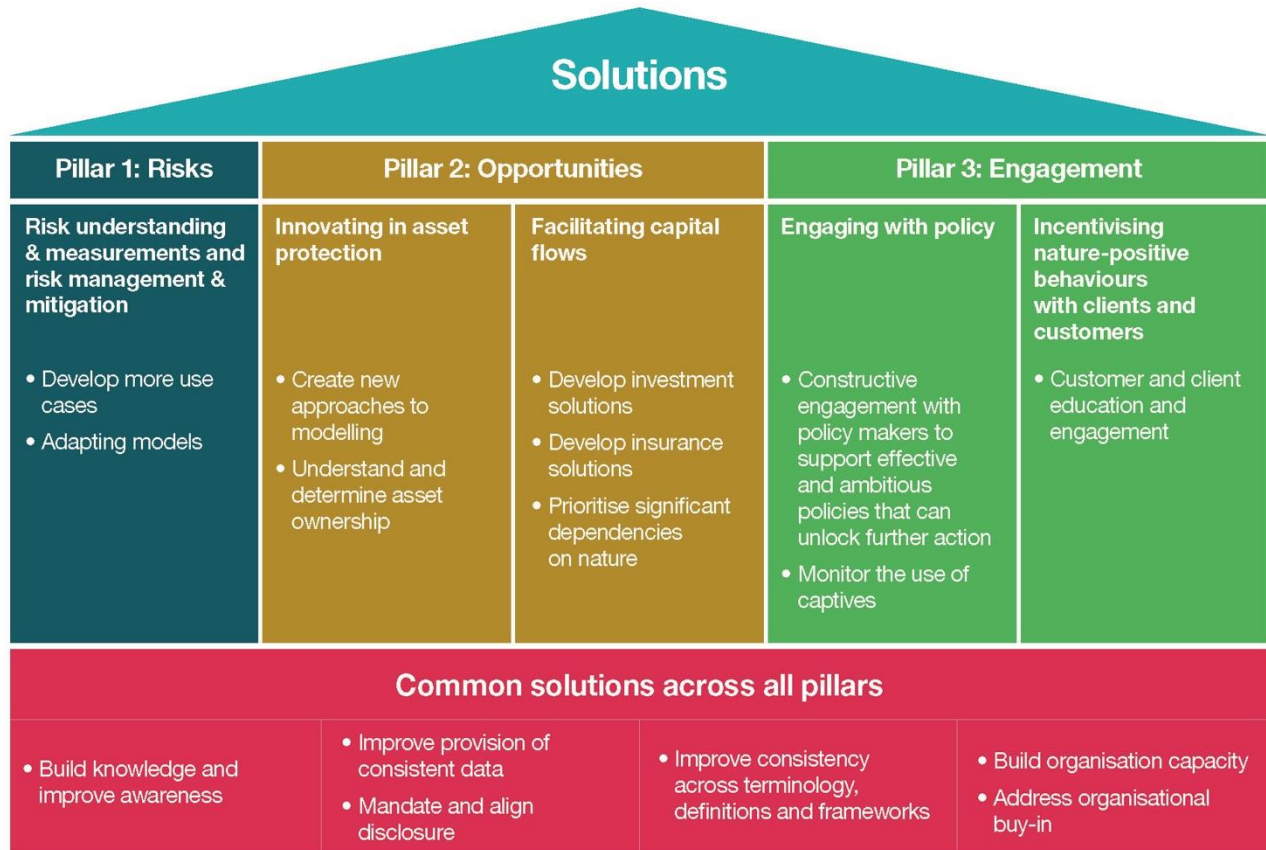
# Executive Summary

The insurance industry has a vital role to play in protecting our natural world. From integrating the risks of nature loss into insurance underwriting to grasping nature-positive business opportunities, re/insurers can be key in redirecting financial flows toward both net zero and the protection and restoration of nature. The value of nature needs to be integrated into underwriting to avoid irreparable damage to the natural world. The cost of not doing so is vast and understated. To this end, this roadmap charts a path for the insurance sector towards nature-positive underwriting. It also explores the insurance sector’s role in supporting the transition of its clients towards a sustainable economy.

Integrating sustainability, including nature-positive considerations, into re/insurance companies’ strategies is essential to transition to a sustainable economy. Nature-related financial risks need to be better understood, quantified and managed within insurance underwriting portfolios. Nature-positive opportunities need to become part of day-to-day insurance business. By aligning risk assessment and risk management approaches to address nature impacts, significant financial flows could be redirected towards a nature-positive and a net zero economy.

This roadmap sets out challenges, current practices and opportunities and showcases individual and collaborative actions needed within three key pillars for the insurance industry. The roadmap further summarises specific key actions that various actors, including the insurance industry, policymakers, academic institutions and standard setting bodies, need to take to progress the nature-positive journey.

Figure 1: The solutions required for a nature-positive journey



# Introduction

The [international agreement on biodiversity](#) reached at COP15 represents a historic opportunity to transform the economic system and reverse biodiversity loss this decade.<sup>1</sup> It is urgently needed. According to the World Economic Forum's (WEF) [Global Risks Report \(2023\)](#), 'biodiversity loss and ecosystem collapse' is cited among the top five 'long term' risks (over a 2-10 year period) for societies and economies, behind failures to mitigate and adapt to climate change and natural disasters and extreme weather events.<sup>2</sup> The insurance industry has a critical role in addressing these risks so that natural capital and ecosystem services are protected. To enable the insurance industry to fulfil this role effectively there is a need to drive insurance market awareness and mainstream nature-positive considerations into insurance companies' strategies, alongside their net zero ambitions, as well as towards policymakers and key legislation. (See box 1 for nature-positive definition). In particular, nature-related financial risks need to be better understood, quantified and managed within insurance underwriting portfolios. Nature-positive opportunities need to become part of day-to-day insurance business.

The insurance industry is built on the ability to quantify risks. Moving towards integrating nature-related risks and impacts into insurance brokerage and underwriting can be seen as a 'natural' evolution for the industry. The insurance industry can expand its role in society to support risk management through proactive nature-positive measures to help contribute to the protection and restoration of nature – both in advance of and in response to a disaster or loss. Awareness and expertise in the industry and among policymakers on the interaction of climate and nature-related risks and impacts is relatively low. Yet the risk assessment and management approaches already developed and applied across the industry hold great potential for helping wider society better understand this interaction. By aligning risk assessment and management approaches to address both nature impacts and the aims of the Paris Agreement, significant financial flows could be redirected towards a nature-positive and a net zero economy.

This roadmap charts a path for the insurance sector towards nature-positive underwriting and explores the insurance sector's role in supporting the transition of its clients towards a sustainable economy. The roadmap builds on the [Why Nature Matters: Nature-related risks and opportunities for insurance underwriting](#) report, published in September 2022. It reviews today's challenges of integrating nature-related risks into the insurance industry, what practices are already taking place in the market, and what the insurance industry needs to do to support the transformation towards a net zero and a nature-positive economy. Unless innovative and transformative actions are taken, the impacts of nature-related risks will only accelerate and become more prominent.<sup>3</sup>

This work is supported by insights from [ClimateWise](#), an initiative which helps the insurance industry build societal resilience and reduce the climate risk protection gap. ClimateWise supports the insurance industry to better communicate, disclose and respond to the risks and opportunities associated with climate

## Box 1: Nature-Positive definition

Nature-positive means halting and reversing the loss of nature by 2030 so that species and ecosystems begin to recover. It is a new operating model based on regeneration, resilience and circularity, not extraction, destruction and pollution.

A nature-positive economy is one in which businesses, governments and others take action at scale to reduce and remove the drivers and pressures fuelling the degradation of nature and work to actively improve the state of nature and the ecosystem services it provides.

change, and aligns its members' expertise to directly support society as it responds to the risks and opportunities.

For the past two years, ClimateWise has focused on the interplay between climate and nature, and the need for nature-positive actions. There remain significant challenges to the widespread uptake of nature-positive actions by the insurance industry. Understanding of the role of nature and nature-related risks for the industry is important in avoiding a future where nature-related risks inhibit the achievement of net zero and disaster risk reduction targets or where actions in pursuit of net zero targets lead to adverse outcomes for nature. Net zero targets and nature-positive actions should and can be complementary.

## Roadmap

Professionals within the insurance industry believe that [nature-related risks are material for their underwriting business](#). However, nature-related risks are not currently being assessed in underwriting by most re/insurance industry participants due to a lack of awareness and understanding of nature-related risks; data and information; regulatory and supervisory guidance; technical capacity and skills; and mandate/buy-in from Executive Management. ClimateWise's report [Why Nature Matters: Nature-related risks and opportunities for insurance underwriting](#) introduced principles for a framework for identifying and assessing nature-related risks in the re/insurance industry and discussed four approaches that re/insurers can adopt to reduce the impact on nature or contribute to its protection and restoration:

1. Incentivising nature-positive behaviours with clients and customers;
2. Innovating in asset protection and disaster risk reduction;
3. Facilitating capital flows for nature protection; and
4. Collaborating with governments, other industry sectors, non-profits and academia.

It builds on the insights of the CISL's [Handbook for Nature-related Financial Risks: Key concepts and a framework for identification](#) and wider publications like the Sustainable Insurance Forum's [Nature-related risks in the global insurance sector](#).

This roadmap explores these four approaches in more detail to identify challenges insurance firms are facing today, actions they are already taking, and which further actions are needed across the sector to achieve change and drive meaningful action.

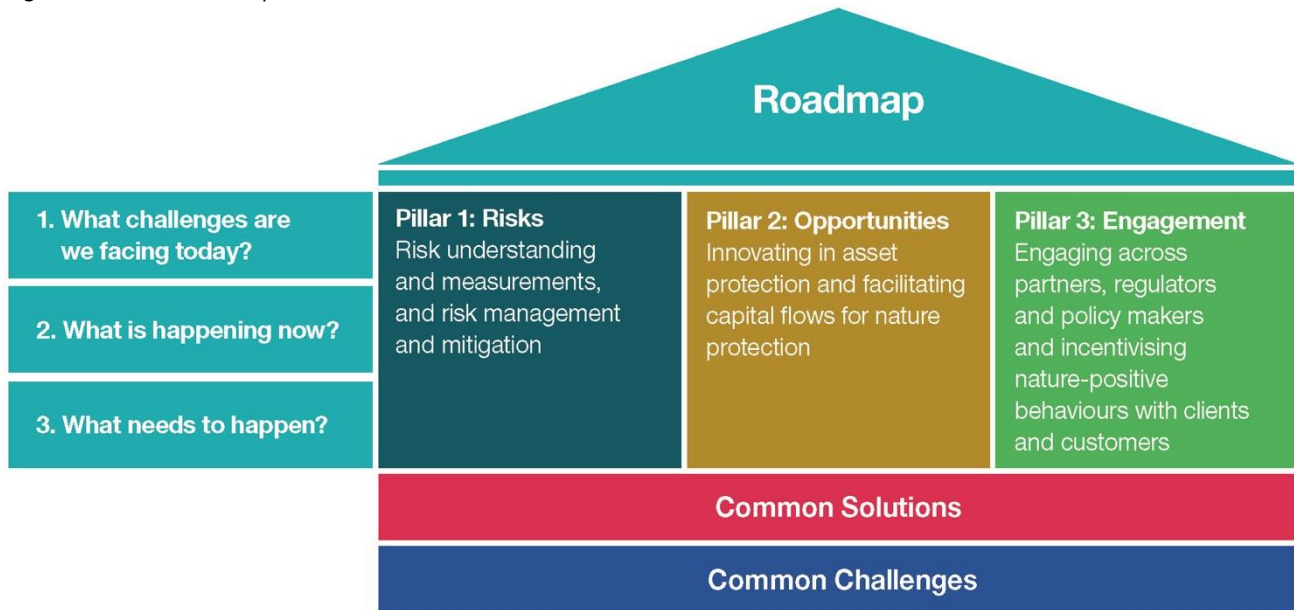
The roadmap sets out three key pillars:

1. **Risks:** risk understanding and measurements, and risk management and mitigation.
2. **Opportunities:** innovating in asset protection and facilitating capital flows for nature protection.
3. **Engagement:** engaging across partners, regulators and policymakers, and incentivising nature-positive behaviours with clients and customers.

Each pillar is divided into three sub-sections:

1. **What challenges are we facing today?** – What issues around nature-related risks are being integrated into the insurance industry
2. **What is happening now?** – How the insurance industry is already tackling these issues
3. **What needs to happen?** – What does the insurance industry need to do to move forward towards nature-positive considerations

Figure 2: The roadmap



The final section of this roadmap, ‘Summary of actions’, summarises the key activities that need to be taken by specific actors to progress towards nature-positive impacts in insurance brokerage and underwriting. The actors include the insurance industry, policymakers, non-profits and academic institutions, and standard setting bodies.

## Methodology

For this report, extensive research has been conducted on nature and insurance to develop a well-defined literature review on nature-related risks for insurance underwriting. Numerous consultations were held with insurance experts, biodiversity specialists, and policymakers. These insights also supported the development of the [Why Nature Matters: Nature-related risks and opportunities for insurance underwriting](#) report, published in September 2022.

Over the course of several months, two workshops were hosted by ClimateWise to bring together ClimateWise members, academics, climate risk modelers and insurance industry firms. The workshops were structured to facilitate open discussion to identifying an actionable pathway for identifying nature risks and impacts, integrating nature-related risks and opportunities into underwriting, and promoting nature-positive insurance offerings to complement net zero and disaster risk reduction commitments. To explore these findings, the project team liaised with a ClimateWise steering group and an external advisory group to provide support, guidance, and oversight over progress.

The analysis for this roadmap was conducted by identifying common and differentiating themes from the workshops and clustering them into different groups. The data and observations were then reviewed to segment the key findings across the three distinct pillars of this roadmap: 1. Risks, 2. Opportunities, and 3. Engagement. The findings from the workshops also revealed common challenges and solutions which appeared multiple times across the different pillars. The pervasive challenges and solutions are clustered into the ‘Discussion’ section. The final section, ‘Summary of actions’, summarises the key activities specific actors need to take to move towards nature-positive considerations.

# Pillar 1: Risks

## Risk understanding & measurements and risk management & mitigation

### What challenges are we facing today?

Nature is the foundation upon which our entire economy is built. However, up until now, it has been undervalued or left off the balance sheet.<sup>4</sup> Yet the degradation of nature poses a direct risk to society and economic activities, making it critical for the financial world to understand, measure, and manage these risks. Risk is defined as “the possibility of danger, defeat, or loss.”<sup>5</sup> Among the challenges to incorporating nature into risk management is the ability to assign a value to nature and quantify specific nature dependencies.

#### Ability to assign a value to nature

Under business-as-usual, we exploit nature more rapidly than it can regenerate itself, leading to the degradation of the ecosystem services our economy relies upon. Despite the clear benefits, assigning a monetary value to these ecosystem services is highly complex, context-specific and often controversial. Without an agreed methodology for measuring the monetary value of ecosystem services, it is difficult to develop and set targets for nature-based solutions (NbS) and other nature-positive actions that protect and promote ecosystem services (or, inversely, targets to stop further degradation of ecosystem services).<sup>6</sup> NbS are “...ways of working with natural systems to both strengthen them while solving broader problems such as climate change but also health, social inclusion, and more.”<sup>7</sup> The consequence for insurance is that existing models are not adapted to quantify nature and future nature-related risks, which may, in turn, lead to re/insurers undervaluing (and mispricing) and/or overexposing re/insurers to nature-related risks.<sup>8</sup>

#### Ability to quantify specific nature dependencies

Lack of reliable information about the degradation of nature, and the specific relationship between economic activities and nature, makes it hard for insurance firms to quantify dependence on nature. However, it is possible to use existing tools and data to start mapping dependencies. For example, CISL and AON mapped the nature-related risks across financial indices and concluded that the most prominent risk factor was currently dependence on water security.<sup>9</sup> This was true for the overall MCSI All World Index and for the agriculture, beverage, utilities and mining sectors.<sup>10</sup> This being established, the challenge facing the insurance sector is in understanding how customers may be impacting/impacted by water security, quantifying associated risks, and understanding how they can better serve the needs of the customer whilst also having a positive environmental impact.

Not understanding the dependencies on nature can also create a risk of an ecosystem collapse. This is where an ecosystem suffers an extreme, possibly permanent, environmental degradation, potentially leading to its inability to provide ecosystem services.<sup>11</sup> For example, if a further three per cent of the Amazon is deforested, the local rainfall cycle could be irreversibly disrupted, and with it local food production.<sup>12</sup> The cost of passing this point, where rainforest becomes savannah, is estimated at USD 257 billion for the region alone. Still, the systemic risks for climate and global food systems are much more significant.<sup>13</sup> Conversely, policies which could contribute to avoiding a tipping point, including reducing



deforestation, investing in climate-adapted agriculture, and improving fire management, would generate approximately USD 339.3 billion in additional wealth.<sup>14</sup>

## What is happening now?

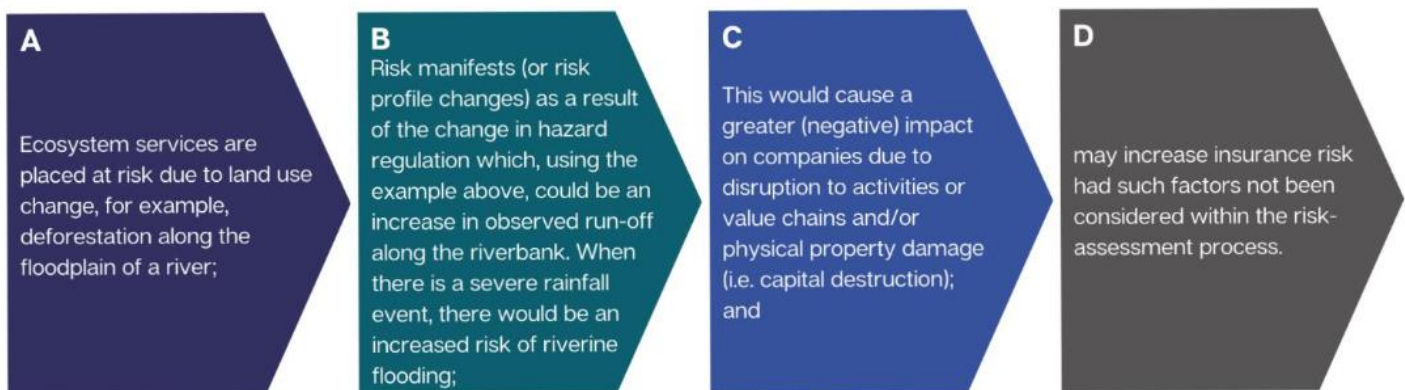
While numerous conversations have taken place on how nature needs to be integrated into risk modelling, there is little evidence of insurance approaches to nature-related risk measurement and mitigation. Some early best practice initiatives are emerging, utilising tools to identify and mitigate risk and investing in innovative solutions to recognise the value of nature-based solutions.

### Frameworks for identifying nature-related financial risks

The [Framework for identifying nature-related financial risks](#), designed by CISL’s Centre for Sustainable Finance and academics from the University of Cambridge conservation cluster, is a valuable tool for re/insurers to identify and assess nature-related risks, integrating them into financial decision making.



An example of how the framework could be applied in the context of re/insurance could be:



### Accelerate the use of tools

Different tools, such as those used for scenario analysis and assessing dependencies on nature, can be used to flag where to focus on extreme weather adaptation and identify and mitigate risks.<sup>15</sup> For example, tools which help detect moisture or flood level changes help people avoid damage to their property or unintended business interruptions.<sup>16</sup> AXA XL has taken a proactive [Valuing Water](#) position, which aims to

improve the management of water risks. Mitigating these now has a far less negative financial impact for the insurance firm than waiting for the damages to occur and repairing or investing in them later.<sup>17</sup> Incorporating environmental assessments in financial planning can help support the correct risk management and measurements undertaken. Another example is AXA XL's [Coastal Risk Index \(CRI\)](#), which allows mapping of current and future flood hazards. The CRI will enable the insurance community to more accurately price risk, and help private and public sector clients better understand their exposure to coastal flooding. This will ultimately help build economic and social resilience.<sup>18</sup>

### Invest in innovative solutions

A holistic understanding of what nature-positive projects can achieve and their impacts in supporting net zero needs to be clearly communicated to reduce the number of projects that harm nature and avoid unintended consequences.

The Natural Environment Investment Readiness Fund (NEIRF), designed by the Department for Environment Food and Rural Affairs (Defra) and the Environment Agency (EA), is a grant scheme which provides support to the development of environmental projects in England.<sup>19</sup> The scheme helps build capacity, develop common approaches, and establish early metrics to attract financial investment into natural environment projects.<sup>20</sup> The Hill, Stone and Wood's project aims to create a new home insurance product that directs financial resources towards projects that reduce local flood risks. In addition, the project intends to generate Impact Monitoring Tools that could be used across the insurance industry.<sup>21</sup>

### Apply enhanced due diligence using existing data

The absence of an agreed methodology for measuring the monetary value of ecosystem services should not be a blocker to re/insurers taking practical steps to limit further biodiversity loss and ecosystem collapse, especially in protected areas. The [QBE Environmental and Social Risk Framework](#), published in January 2022, recognises that protected areas, such as World Heritage sites, "*deliver critical environmental services such as stabilising soils, preventing floods and capturing carbon, all of which increase our resilience to the most harmful impacts of a warming climate*". The framework imposes enhanced due diligence requirements for projects in severe risk sectors (oil and gas, mining and large-scale hydropower) and high risk sectors (logging, commercial fishing, agriculture, plantations and large-scale infrastructure such as pipelines, roads and mega ports) located in World Heritage Sites or their buffer zone.<sup>22</sup>

### Incorporate nature-based solutions and enhance resilience

To achieve net zero and other wider environmental and social sustainability goals, insurance firms can turn to NbS<sup>23</sup>, which can increase insurance client resilience and, as such, are a natural form of insurance against extreme events (removing additional risks in financial portfolios). One example is the [Mesoamerican Reef Insurance Programme \(MAR\)](#) initiative. This fast-paying parametric insurance product enables reef restoration in the event of a hurricane, bringing resilience to surrounding communities and economies.<sup>24</sup> The participating insurance firms play a key role by incentivising preparedness and providing rapid financing to mitigate ocean related risks by restoring corals as efficiently and quickly as possible.<sup>25</sup> The insurance cover comes immediately into play once significant damage is caused to the coral reefs. The financial mechanism provides reliability and enables quick response for restoration activities.<sup>26</sup>

The parametric insurance product is becoming more globally adopted as an insurance company of Munich Re's similar initiative in Hawaii.<sup>27</sup> The partnership including The Nature Conservancy and WTW, launches the first parametric [coral reef insurance in the United States](#).<sup>28</sup> The product provides funds to repair storm damage caused to coral reefs. The parametric reef insurance policy was activated for the 2022 and 2023

hurricane seasons, with the financial support of the Howden Group Foundation and the Bank of America Charitable Foundation for the premium and programme development, respectively. It provides quick payouts to rapidly repair and restore reef damages to facilitate emergency care.

### Research and collaboration

Some initiatives directly tackle the issue of nature-related risk management through research. [Climate Futures](#) is a research-based centre looking to generate long-term cooperation between researchers, companies, and public organisations to address climate change and biodiversity loss. Climate Futures supports insurance companies by providing an understanding of how weather events can affect their basic insurance risk. This allows firms to better determine the risk profile and more accurately estimate price.<sup>29</sup> Active collaboration across stakeholder groups will likely enhance the development of user-driven projects and activities to tackle nature-related risks, fostering community resilience and positively benefiting financial institutions.<sup>30</sup> The project-based structure allows partners to take an active role in implementing positive ongoing initiative to protect and restore nature.

The Wyre Valley is another scheme which explores the effectiveness of catchment-level natural flood management approaches to provide multiple nature-based benefits. Wider collaboration with the Rivers Trust, Defra, EA, Esmée Fairbairn Foundation (EFF), Co-Op Insurance, United Utilities, Wyre Rivers Trust, Triodos Bank UK and Flood Re have formed this collaboration to support environmental projects to create sustainable funding models.<sup>31</sup> The partnership supports research on risk reduction from reduced peak water flows. It builds the case for green investments in restoring river landscapes.

## What needs to happen?

More use cases (disclosures) and adapting models are required to create an effective risk management and mitigation process.

### Develop more use cases

Standard setting bodies and academia can further assist by developing case studies on how physical and transition risks impact the insurance industry in practice to make it tangible for insurance firms. For example, translating global goals, such as the Global Biodiversity Framework (GBF), into scenarios can help the insurance industry understand the shape of nature-related transition risks moving forward.

### Adapt models

The industry needs to look into adapting its models to a rapidly evolving context, as the health of many ecosystems pushes up against tipping points.<sup>32</sup> Many tools and methods today are calibrated to the current climate. Adapting these to integrate nature and climate needs to be explored to proactively adapt to unpredictable events and tipping points in planetary systems. If re/insurers and underwriters identify and assess nature-related risks within existing models, then there is the opportunity to anticipate systemic nature-related risks. Modelling capabilities can also be applied to help better understand nature-related risks. While many models today are calibrated to the current climate, adapting these to integrate nature needs to be proactively explored.

# Pillar 2: Opportunities

## Innovating in asset protection

### What challenges are we facing today?

Asset protection is used to safeguard an individual's or business' valuable possessions or resources. For this roadmap, the term asset protection will also be used to discuss protecting natural assets from risks. Natural assets can be defined as "ecosystems, habitats or places that provide valuable ecosystem services for people or have value by itself".<sup>33</sup> Natural assets include mangroves, wetlands, forests and other elements of nature. The workshops identified several challenges for asset protection, including difficulties in modifying existing insurance tools and frameworks and determining asset ownership.

#### Tools

Current insurance tools cannot be easily modified to the changing environmental systems, nor be adapted to upscale nature-positive projects.<sup>34</sup> The catastrophe (CAT) models used to simulate potential catastrophes and estimate loss due to a catastrophic event are not well suited to estimate all climate and nature risks.<sup>35</sup> There are several reasons for this. For example, new data around natural assets cannot be easily integrated into existing exposure and pricing models.<sup>36</sup> Further, models and tools developed initially for climate integration focused on climate and land use but did not necessarily interact with natural assets.

#### Frameworks

There is also a lack of coherent framework for decision-making with easily accessible data and insight into risk management. A global shortage of climate and disaster risk financing products has led to missed opportunities to invest in communities in need and in adaptation/protection of nature.<sup>37</sup> Innovative insurance opportunities and critical financial and risk management support are key to driving positive change across different sectors.<sup>38</sup> Adaptive frameworks that improve resilience for societies and the ecosystems which are most at risk, need public and private investment as well as insurance services.

#### Asset ownership

Another challenge concerns asset ownership and the rights to generated cashflows. Ownership of natural assets is typically fragmentary, which is influenced by externalities. No individual experiences the full impact or needs to act when referring to nature as an asset. This opens up a wider problem of who owns natural assets.

For example, near Puerto Morelos, Mexico, extreme waves and storms caused beach erosion next to hotels, shops, and other tourist attractions, leaving these businesses to repair the damages incurred.<sup>39</sup> While, in the event of a significant coastal storm, commercial businesses may be directly affected due to physical damages to their property and the associated knock-on impact that this has to their business, insurance firms would also, in such circumstances, likely be required to pay out claims for the necessary repairs and business interruption.<sup>40</sup> There would also be a knock-on effect to the wider community due to decreased tourism, which removes cash flow from the city/country, including from companies that may not have directly suffered physical damage from the storm.<sup>41</sup> Coastal protection is a clear necessity, and who will be affected if the asset is damaged needs to be considered.

An additional consideration is who owns the asset and pays for general upkeep and damage repair. Determining which assets are valuable to the communities needs to be a priority, as is the need to understand how re/insurance expertise can be used to repair and conserve natural assets to increase local resilience in affected communities. At the same time, establishing asset-ownership may help spread the costs associated with monitoring and reporting risks (and opportunities) associated with a given natural asset. Re/Insurers are risk partners, and therefore are incentivised to work with customers to help improve resilience. Where the identification of an end customer is unclear, it may dissuade re/insurers from investing in developing tools needed to interact with natural assets. Insurance costs are already a challenge in certain parts of the world. Establishing which stakeholders benefit from new tools and approaches, and are therefore best placed to share the costs associated with such tools, could help to mitigate broader concerns regarding 'general' price inflation.

## What is happening now?

The insurance industry faces many challenges to innovation in asset protection. However, some insurance initiatives have taken proactive measures to protect assets and develop new approaches to asset allocation by creating partnerships and joint initiatives or restructuring debt.

### Joint initiatives

Using the Puerto Morelos example, a partnership was brought together to [repair and conserve the beaches of Puerto Morelos in Mexico](#). The collaboration was designed to manage the increasing risks of environmental damage caused by extreme weather events to 60 km of coastal reefs and beaches. [The Nature Conservancy \(TNC\)](#), [Swiss Re](#), the Mexican state of Quintana Roo, [Puerto Morelos Hotel Owners Association](#), other local partners and experts designed an insurance mechanism for protecting reefs. The mechanism included a parametric insurance product financed through tax collection from the tourism industry, allowing for the restoration of vital ecosystems after extreme weather events.<sup>42</sup>

Another example is the [Flood Re Scheme](#), a joint initiative between the UK Government and insurance companies to ensure flood cover of household insurance policies is available and affordable, and transitions to a risk-reflective market by the end of the scheme in 2039. The scheme has piloted innovative approaches to adapt to and minimize risks. In 2022, Flood Re launched the first '[Build Back Better](#)' scheme to ensure homes are more resilient against future flooding.<sup>43</sup> The scheme reduces the cost and impact of future floods by including property resilience measures in flood repairs. The project will also work to quantify the risk reduction benefits to re/insurers of these resilience measures and complementary measures like sustainable drainage systems. Flood Re has also partnered with the Wyre Valley Natural Flood Management (NFM) project to establish evidence and metrics for risk reduction from the project's natural flood management aspects.

### Partnerships

[The Global Risk Modelling Alliance \(GRMA\)](#) is another partnership that combines public and private risk expertise to help build climate and disaster resilient communities. It offers open risk management tools, data and access to operation risk finance expertise co-developed with the [Insurance Development Forum \(IDF\)](#).<sup>44</sup> GRMA offers the private sector risk analytical capabilities for the benefit of the public sector by providing developing risk strategies and access to risk capital.

The Lloyd's Disaster Risk Facility is another initiative which joined forces with AXA XL, Hiscox, Beazley, RenaissanceRe, Chaucer, MS Amlin and Nephila to close insurance gaps globally through the development

of contingent risk financing solutions which can mitigate the societal and economic impact of natural hazards.<sup>45</sup> The partnership engages with governments and organisations to develop new solutions to support developing economies improve their resilience and tackle underinsurance against natural catastrophic risks.<sup>46</sup> The partnership is committed to filling the protection gap by supporting populations which encounter the most serious losses and little or no access to insurance by developing innovative solutions.

### Restructuring debt

The Belize [Blue Bond deal](#) is an example through which a debt restructuring project was set up to fund ocean conservation and provide economic benefits for coastal nations.<sup>47</sup> The Nature Conservancy organisations raised more than USD 350 million for the Government of Belize to allow the country to retire its debt, resulting in savings on the principal in the scale of 12 per cent of their GDP. Restructuring this debt permitted the Government of Belize to free up an estimated USD 180 million in funding to finance ocean conservation over the next 20 years. This large debt refinancing project combined parametric and other non-traditional insurance products to offer pre-specified payouts.<sup>48</sup> The payments can be triggered in several ways: based on the intensity of the hurricane, the occurrence of two hurricanes of any intensity in the same 12 months, or if a hurricane of any intensity is accompanied by heavy rainfall.<sup>49</sup> Storms and hurricanes are a risk to Belize's economy and revenue due to the extreme damage they cause. The blue loan structure incorporates sovereign debt catastrophe insurance cover. Belize committed to several restoration and conservation milestones, including protecting 30 per cent of its oceans by 2026 and determining which ocean protection options will deliver the most benefits to communities and biodiversity.<sup>50</sup> Furthermore, as part of the agreement, the Belize Government would make regular payments to the conservation fund to preserve marine resources including its oceans, endangered mangroves and vulnerable coral reefs. It allowed the Belize government to create long-term commitments for ocean protection and restoration.<sup>51</sup>

## What needs to happen?

To transition towards a nature-positive future, more innovative solutions to protect natural assets are needed. For this to happen several actions need to be taken, including better understanding and determining asset ownership and adapting insurance models to incorporate nature.

### Understand and determine asset ownership

Catastrophic events can undermine the value of natural assets by damaging and/or even destroying the ecosystem services that they provide.<sup>52</sup> Understanding ownership of and beneficial interests in natural resources such as freshwater, coastal, and marine assets can be complicated. It can lead to problems determining who is responsible for maintaining and restoring them in the event of damage and quantifying potential loss arising from their decline.<sup>53</sup> Insurance firms need to enhance their understanding of asset ownership and interest to help foster collaboration among interested stakeholders. The notion that natural assets are too big for one re/insurer to protect in their entirety also needs to be challenged. The insurance sector has a long history of offering syndicated solutions for significant risks and needs to explore opportunities for collaboration in the context of protected natural assets.

### Create new approaches to modelling

In line with regulators, the insurance industry needs to create new modelling approaches and develop scenario frameworks to better reflect the interaction between business and nature to improve wider

understanding of the associated risks. This could include collaboration with academics and other research institutions where considerable modelling of natural systems has already been undertaken. Regular sustainability practices/framework reviews should align with the latest scientific findings and technological developments. EA is currently working through the National Flood Risk Assessment (NaFRA). NaFRA demonstrates how different risk levels vary across floodplains and how risk can be reduced depending on the defences in place.<sup>54</sup> The flood risk assessment sets out a strategic context for mapping flood risk in a catchment which supports decision makers by identifying the places which are most at risk in what circumstances and policy options being adopted to manage flood risks. This would help the insurance industry develop the products and services required to protect nature and the societies that depend on nature.<sup>55</sup>

## Facilitating capital flows

### What challenges are we facing today?

Given the financial materiality of nature loss, the insurance sector needs to push capital towards nature-positive engagements. Greater focus needs to be given to innovative financing mechanisms to restore and conserve nature. Evidence from the workshops showed that it is challenging to adapt a 'one-size-fits-all' solution to every nature-related issue, verification mechanisms are lacking, and political and territorial (regional and national) differences also need to be considered. These are considered further below.

#### Scalable solution for every ecosystem

One of the main concerns in facilitating capital flows to protect and restore nature is that ecosystems in different geographic areas almost never perfectly mirror each other. Therefore, there is a perception that solutions will have to be tailored to each individual location, inhibiting the ability to scale projects.<sup>56</sup>

#### Verification

To facilitate capital flows into NbS, financial firms need to be certain that relevant projects deliver their advertised benefits. There is currently, however, a lack of verification mechanisms for re/insurers, which makes it challenging to prove that projects are reaching their required milestones and enabling nature preservation/restoration, leaving insurance companies potentially open to greenwashing claims.

#### Political and territorial risks

NbS opportunities to protect nature tend to be in emerging markets, often meaning there are increased political and territorial risks to navigate. Frequently emerging markets have lower credit ratings, which impacts the cost of capital. Further, governance or political concerns, may need to be addressed.

### What is happening now?

While there are numerous challenges to facilitating capital flow and investment towards nature-positive actions, there are examples of transactions where concerns have been alleviated. Examples include collaboration between actors to use blended finance, innovative business models and new product development.

#### Make use of blended finance

One initiative which looks to facilitate capital flows towards sustainable projects is the [Blended Finance Facility for Marine Protected Areas \(MPAs\)](#) project. The Ocean Risk and Resilience Action Alliance (ORRAA),

a multi-sector collaboration between governments, financial institutions, the insurance industry, environmental organisations and stakeholders from the Global South, is partnering with Blue Finance to structure a blended finance facility which will implement sustainable revenue-generating initiatives in MPAs.<sup>57</sup> It will provide early and up-front capital for the effective management and sustainable financial stability of these MPAs. The initiative will invest over USD 22 million in grants, impact loans, innovative solutions, etc.<sup>58</sup> The project should enhance the protection of high biodiversity coral reefs and positively impact local economies, such as coastal finishing communities.<sup>59</sup> While the overall structure of the facility and its investment mechanisms are designed to be upscaled and tailored to numerous ecosystems and sites and transferable to different communities and regions, further investigation is needed to determine how this will operate in practice.

### Innovative business models

Another project which uses innovative business models is [the Meloy Fund](#). It looks to transform coastal ecosystems and fishing communities in the Philippines and Indonesia through debt and equity investment in businesses which benefit fishers and ecosystems.<sup>60</sup> Unsustainable fishing practices pose a severe threat to coastal ecosystems and communities. Therefore, the fund invests in sustainable seafood processing companies, aquaculture or mariculture farms, and relevant agricultural technologies.<sup>61</sup> It looks to impact by reducing costs or improving revenues for local fishery businesses.

### New products

[BBVA](#), in partnership with [Iberdrola](#), have both looked at ways to improve capital flows into biodiversity and sustainable solutions through their [Water Footprint Loan](#). The newly created sustainable loan focuses on reducing water footprint. It can be of particular interest to companies making extensive use of water in their production or operating processes.<sup>62</sup> The loan considers specific water indicators, where customers can benefit from their efforts to reduce their water footprint in terms of price and reputation by standing out from competitors.<sup>63</sup>

## What needs to happen?

The workshops identified several actions required to facilitate the movement of capital towards NbS. These include developing investment and insurance solutions. The academic sector can also support this by expanding the insurance industry's understanding of their dependencies on nature to build new approaches.

### Develop investment solutions

As seen in the section above, blended finance can be used to leverage public capital. Blended finance can improve the risk profile of investment opportunities to further catalyse private sector investing.<sup>64</sup> Incentivising public and private investment by reducing nature-based project risks and increasing project returns, can build confidence in the private sector's investments.<sup>65</sup>

Another investment solution which can influence proactive behaviour is contingent capital. Contingent capital looks to provide clients with additional capital under certain circumstances. The contingent capital approach could be useful for the insurance industry to solve undercapitalisation caused by nature loss or the risk of ecosystem service degradation.

Insurance credits are another avenue worth exploring. For example, if organisations that put capital aside in case of natural disasters are given access to the insurance market, they could reallocate some of this capital towards an insurance product and use the remainder to invest in NbS. For example, Howden,



REplexus and Mitiga Solutions developed a way to enhance the deployment of funds for volcano catastrophe bonds for the Danish Red Cross.<sup>66</sup> Under this new model, funds are raised in advance to allow financial resources to be released and distributed to mitigate catastrophic damages from volcanic eruptions. This allowed the Danish Red Cross to free up the money put aside to cover disaster costs. They now pay the re/insurers a premium for an insurance product that will pay out in the event of a volcanic eruption.

### **Develop insurance solutions**

Parametric insurance has also been used to facilitate flows of funds towards NbS. Parametric insurance allows funds to be available within days after an extreme weather event to support ecosystem restoration.<sup>67</sup> For example, if a wildfire disaster occurs, the pay-out from pre-agreed parametric insurance can be triggered. This avoids lengthy claims adjustment processes, reducing the time it takes for restoration activities to be implemented which can then reduce the risk of further damage occurring.

### **Prioritise significant dependencies on nature to create momentum for nature-positive underwriting**

Academics and researchers can support the insurance industry in mapping out where their most significant dependencies around nature lie, elevating the understanding of how to distribute capital towards ecosystems that require attention as a priority. A focused approach on high impact areas which are measurable and for which there is already readily available data could drive capital towards nature projects where dependencies are highest and generate momentum for nature-positive underwriting.

# Pillar 3: Engagement across partners, clients, customers, regulators and policymakers

## Engaging with policy

### What challenges are we facing today?

Collaboration across the pillars mentioned above is essential to enable and accelerate the transition to a sustainable economy, not only between re/insurers but also other financial institutions, policymakers and regulators. Workshops conducted between CISL and re/insurers noted the lack of a consistent policy framework to guide nature-related finance, e.g. inconsistent and insufficient disclosure requirements, inconsistent nature-related policy and concerns about capital allocation restrictions.

#### Policy uncertainty

In most cases, no clear policy and regulatory guidelines incentivise nature-positive behaviour. New regulatory frameworks are emerging, and it is critical they are interoperable across jurisdictions. For insurance firms to reorient their business models to support a transition to a nature-positive economy, policies need to provide long term certainty and consistency.

There is also the challenge around comparability and standardisation of policies across jurisdictions.<sup>68</sup> This is an issue for two reasons. Firstly, the insurance industry does not currently use consistent sustainability data to incorporate nature into financial decisions, if this data is even considered at all. Secondly, larger insurance companies typically operate across multiple jurisdictions, and therefore contradictory national and regional policies are not conducive to an aligned cross-jurisdiction reporting and verification process.

#### Inconsistent and insufficient disclosure requirements

With the notable exception of France ([Article 29 of the French law on Energy and Climate](#)), which mandates disclosure of biodiversity and climate-related risks and impacts, there are currently no mandatory disclosure requirements for nature-related dependencies, risks or impacts. TNFD can help develop recommendations for organisations to follow when disclosing information about their exposure to natural hazards. CDP is another organisation that supports disclosure of certain nature-related risks, including deforestation and water issues. CDP also supports organisations, cities, regions and governments to transparently report on their actions to progress towards a sustainable net zero future. In some cases, disclosure can help lower the cost of capital as it demonstrates a potentially lower risk profile.<sup>69</sup>

#### Regulatory restrictions around capital allocation

Another potential challenge relates to capital requirements, which represent the excess of assets over liabilities. One of the points raised during workshops related to the Solvency II directive (Solvency II). Pursuant to Solvency II, insurance firms are required to hold assets that match their future liabilities with the aim of providing adequate protection for policyholders and beneficiaries.<sup>70</sup> Solvency II also directs what type of assets re/insurers can invest in, through tiering requirements which are intended to ensure

these assets are sufficiently available to absorb losses. Re/insurers attribute higher than necessary requirements for capital as one of the reasons why they are not investing more in a green transition.<sup>71</sup>

## What is happening now?

The insurance industry is reliant on the decisions taken by policymakers and regulators. Some policies and regulations are starting to emerge to support a nature-positive economy. These include the post-2020 GBF, European Green Deal, EU Adaptation Strategy and Solvency II.

### Post-2020 Global Biodiversity Framework

The [Global Biodiversity Framework](#) adopted in December 2022 by 196 governments has the potential to transform the relationship that businesses and financial institutions have with nature by 2030.

With regard to disclosures, the agreement is to “ensure” major corporate and financial institutions disclose their risks, dependencies and impacts on biodiversity; driving the creation of reporting standardisation. In support of this, the TNFD received EUR 29m over six years from the German government to refine the disclosure framework and build implementation capacity. The [ISSB](#) also announced the inclusion of biodiversity in its own standards. Therefore, re/insurers and other financial institutions look set to be supported and actively encouraged to integrate nature into underwriting and financial decisions. As a financial institution, not taking the first step of mapping the relationship that your business activities have with nature is becoming increasingly indefensible.

Furthermore, the ‘30x30’ headline commitment to conserve 30 per cent of land, coastal and marine habitats by 2030 is a clear spatial requirement that could be rolled down to the national level, changing the economic calculus around land use and resource access, as well as creating demand for new insurance products. Removing USD 500 billion of environmentally harmful subsidies per year could also help catalyse nature-positive change in the economy while increasing the transition risks attached to companies/sectors that rely on these subsidies to operate.

Whilst the agreement is not legally binding, these government commitments, along with the Finance for Biodiversity [pledge](#) (126 signatures with USD 18.6 trillion AUM) and ongoing work of the Network for Greening the Financial System (NGFS) on nature-related financial risks, showcases the momentum to integrate and internalise nature into the economy and finance, first through disclosures.

### European Green Deal

The [European Green Deal](#) is core to Ursula von der Leyen’s agenda for her term in the European Commission. It aims to transform the EU into a resource-efficient and competitive economy with net zero emissions of greenhouse gases (GHG) by 2050. The Green Deal covers initiatives across sustainable finance, climate, circular economy, nature and innovation, with key ambitious packages aimed at achieving the EU’s climate goals and setting out new frameworks on biodiversity and nature restoration. A number of new pieces of legislation now under negotiation also tackle due diligence and corporate reporting. For example, insurance firms and other financial institutions will be required to include non-financial statements dealing with ESG matters in annual public reporting.<sup>72</sup>

### EU Adaptation Strategy

The [EU Adaptation Strategy](#) sets out how the EU needs to adapt to the impacts of climate change by 2050.<sup>73</sup> The three main priorities of the strategy are integrating adaptation into macro-fiscal policy, nature-based solutions for adaptation and local adaptation action.<sup>74</sup> The strategy calls for more

international collaboration and highlights the importance of systemic solutions, including the high priority of preserving healthy ecosystems to create efficient nature-based solutions.<sup>75</sup> The strategy incentivises the insurance industry to actively consider how to address the losses and damages incurred from nature-related disasters exacerbated by climate change, such as access to freshwater access.<sup>76</sup>

## Solvency II

[Solvency II](#) sets out prudential regulations for the insurance sector. It is a risk-based forward-looking framework which manages climate and nature risks alongside the other risks faced by re/insurers.<sup>77</sup> Its regulatory framework indicates specific requirements for insurance and reinsurance firms to abide by, including assessing their overall solvency through quantitative and qualitative measurements.<sup>78</sup> The directive has been undergoing a review that aims to amend provisions of the directive to help the framework be better aligned with the objectives of the Capital Markets Union and the European Green Deal, with negotiations ongoing in 2023 between the European Parliament and the Council. This could include environmental and sustainability considerations.

## What needs to happen?

### **Constructive engagement with policymakers to support effective and ambitious policies that can unlock further action**

It is essential to foster conversations between the insurance market, policymakers and regulators to design an insurance system that contributes to a nature-positive transition. Industry should highlight the key areas of action to encourage the development of measures and policies that address nature-related risks and impacts. Policymakers should address the critical need to harmonise and clarify climate and nature-related policies and monitor the use of captives for environmental risk finance. A constructive engagement between the industry and policymakers that considers how to unlock actions and establish an effective and ambitious framework is critical to this effort. This section reviews actions that can be taken in a broader investment capacity where re/insurers have a strong interest.

Constructive engagement with policymakers to support effective and ambitious policies that can unlock further action. Existing climate policies need to be harmonised to include wider environmental considerations and thus address nature-related risks and impacts in an integrated manner. This is already the case for some policies. The 2022 UK [Environment Act](#) aims to halt the decline in the abundance of species by 2030 – the number of individuals per species – and increase them by at least 10 per cent by 2042.<sup>79</sup> Achieving the species abundance target will require a fundamental change to certain sectors of the economy, such as agriculture, water management and development. Achieving that goal requires mitigation of climate change and a focus on protecting natural habitats. Furthermore, there is a need for national policy to collaborate with global policies. For example, harmonisation between UK and EU regimes. It will therefore encourage standardised assessment of nature-related risks alongside net zero considerations.

### **Monitor the use of captives as vehicles for environmental risk finance**

A captive insurance company is an insurance or reinsurance company owned by a non-insurance parent company, which insures or reinsures the risks of its parent/affiliated companies. Captives are an important mechanism for risk finance. There are three major areas that captives cover: the underwriting portfolio, the investment portfolio and corporate governance. The use of captives can be beneficial for environmental protection coverage and for land restoration. However, not every captive is used for environmentally beneficial purposes. If the threshold for firms subject to the Solvency II directive is raised,

the classification of 'low risk' profile firms would potentially mean increasing the use of captives and specialist re/insurers. So a segment of the insurance industry excluded from supervision would develop. This could be beneficial from a climate-risk management perspective. For example, when captives build up excess surplus, extra liquidity and a capital buffer are generated, which creates economic resilience to potentially fund unforeseen catastrophes, climate change mitigation and adaptation.

Captives can be an efficient long-term risk-financing mechanism for companies that experience climate and nature-related risks. They also provide additional comfort in a challenging risk environment with supply-chain coverage limitations, decreasing risk coverage, and increased insurance pricing. Captives can incorporate sustainability principles that improve how and in what they invest, and their underwriting and risk transfer criteria, policies and guidelines.

However, as captives are a risk management and operations mechanism with no specific climate consideration or function, it could also increase the use of captives by carbon intensive industries as major re/insurers withdraw from the market.

Given the tight interconnectedness of the financial market, having a pocket of high carbon risk could not only present an issue for the smaller firms in question but also create the possibility of contagion. This subsegment could be regulated within national regulatory environments; for example, the UK Prudential Regulatory Authority's supervisory statement 3/19 applies to insurance and reinsurance firms within the scope of UK Solvency II, including the Society of Lloyd's and managing agents and non-Solvency II firms<sup>80</sup>. This is not without its downsides, however as, it could drive the emergence of national regulatory arbitrage, where firms gravitate towards a less regulated national environment over time.

## Incentivising nature-positive behaviours with clients and customers

### What challenges are we facing today?

Nature-positive action needs to be considered alongside net zero action; the two are often complimentary and should not be undertaken in isolation. Yet nature-positive underwriting is in its infancy. The role of insurance in mitigating nature loss lacks clarity and consistency, which can result in inconsistent messaging to customers and clients.

#### **Customer and client perception of the role of the insurance industry**

In some cases, customers and clients of re/insurers do not currently recognise the insurance market as a risk transfer tool but rather a service where financial protection is received against potential losses.<sup>81</sup> Customers do not transfer all risks to insurance companies because not all risks may occur frequently or because not all risks a customer faces may be within the appetite for certain insurance products. Further, while multi-year policies are not standard and only available to certain classes of business, a substantial portion of policies have a time horizon of 12 months or less. Clients and customers are also often unaware of the multi-year products that exist in the market, underestimating the ability of the insurance industry to work with long-term risk financed projects.<sup>82</sup>

#### **Insufficient discussions amongst underwriters, brokers, risk consultants, and others**

Conversations amongst the insurance supply chain, including underwriters, brokers, risk consultants, etc., on supporting their clients and customers to think about nature are rare. One barrier is that individual and organisational knowledge about the connection between insurance and the natural world is limited.<sup>83</sup>

Therefore, there needs to be a focus on building capacity within insurance firms before insurance can be used as a vehicle for leading the transition among its customers and clients. Another area to consider is the role competition law authorities play in providing greater comfort to insurance market participants that collaborative initiatives in the net zero and nature-positive space will not be subject to enforcement action. There is some recent discussion on this following Sarah Cardell's speech to the Scottish Competition Forum.<sup>84</sup>

## What is happening now?

Despite the challenges, some re/insurers are proactively incorporating nature-related factors into risk identification conversations with customers and clients.

### Risk identification conversations with clients

There is increasing willingness on the part of clients, customers and insurance companies to start engaging in conversation about nature-related risks and opportunities. Incoming mandatory climate-related disclosures appear to have played a role, incentivising clients to think about their environmental sources of risk more generally, including those which are nature-related, such as water curtailment.

### Ongoing development of tools and 3<sup>rd</sup> party data intelligence platforms

The ongoing development of tools is helping clients and customers to better understand their nature-related risk exposures. For example, the recently launched [WWF Biodiversity Risk Filter](#). Similarly, collaborations between brokers, underwriters, and 3<sup>rd</sup> party data intelligence platforms are helping create more meaningful discussions around nature-related risks and opportunities. Specifically, the ESG data gathering and reporting process is an interface that can be built upon to gather further information about client risk exposure to include nature-related risks and impacts.

## What needs to happen?

The first step re/insurers can take to incentivise nature-positive behaviour amongst clients and customers is through engagement and education, highlighting how re/insurers can play a role as risk identification and transfer agents.

### Customer and client education and engagement

Insurance firms can educate customers and clients by sharing information about the risks posed by nature loss, engaging with customers and clients on these risks as part of the standard underwriting process, and facilitating conversations about potential risk transfer products and services. Insurance firms can take these actions in isolation but would only gain significant traction if a consistent industry-wide approach is adopted. If the market does not move together, there is a risk that pro-active engagement by re/insurers in isolation is disincentivised as customers and clients move business to competitors who take a reactive approach to nature-based risks and are willing to provide capacity without due consideration of such risks. Consistent customer and client engagement also forces the creation of accessible language and concepts across the market concerning nature-related risks and opportunities.

# Discussion

## Common challenges and solutions

Four distinct challenges, spanning the different pillars, were identified through the workshops. These challenges centre around a lack of knowledge and awareness, consistent data, clear terminology, as well as organisational and capacity constraints. Several actions were identified to create an effective risk management and mitigation process including the need for standardised data, consistent terminology, standardised frameworks and mandatory disclosure requirements. These require senior management buy-in to build capacity, commit resources to cross-industry standardisation efforts and support disclosure to accelerate wider industry action. Alongside this, there is an opportunity for further collaboration between the insurance industry, third party experts and potentially the public sector to manage nature-related risks.

### Knowledge and awareness

#### Challenge

The level of understanding of how nature-related risks and nature-positive approaches can be practically applied within the insurance industry is relatively low. The existence of climate risks, and their associated relevance to financial decision making, has become embedded within the insurance industry. However, the same cannot be said for nature-related risks which, notwithstanding the large body of academic work on this, is still in its infancy in terms of applying this knowledge to insurance.<sup>85</sup> This may be causing the sector to reactively address claims following disasters or losses instead of proactively engaging with nature-positive measures.<sup>86</sup> Part of the issue is the inherent complexity of nature, meaning that it could be seen as easier to deal with the effects and claims rather than to understand the levers to take actions to reduce risks pre-emptively. This response-based approach is highly dependent on past event evaluation rather than forward-looking approaches. As with climate change, the past may no longer be a good guide to the future as biodiversity loss and ecosystem collapse continue. Another underlying cause of the low level of understanding within the space could be that nature is still seen as an externality for everyone. No single body experiences the full impact or has the impetus to act. Therefore it requires a complex system to account for it. By default, nature-related risks are a less dispersed problem than climate (e.g. more place-based than global) but also more fragmentary (e.g. no single approach like carbon accounting possible).

#### Solution

There is a need for improved industry-wide knowledge of nature-related risks and nature-positive approaches. Reinforcing re/insurers, underwriters, brokers, risk consultants, etc., knowledge on the importance of nature will encourage industry stakeholders to adopt and adapt strategies which incorporate nature at their core. It may also widen development of scalable green transition projects and opportunities. Agreeing on a consistent way to prioritise nature loss and developing an understanding of resilient nature restoration and protection across the industry can raise awareness at all levels of risks and opportunities.

## Data

### Challenge

Evidence from the workshops raised concerns across all three pillars that there is a lack of available, granular, streamlined, and reliable data that appropriately reflects nature-related risks in insurance brokerage and underwriting. This lack of data diminishes the sectors' ability to fully invest in innovative approaches to support the protection and restoration of nature.<sup>87</sup> While there are several nature knowledge databases such as [IBAT](#), [ENCORE](#), [Nature-based Solutions Evidence Tool](#), [SHIFT](#), or [Equator Initiative](#), they lack globally consistent, long-term and in-depth analysis of environmental risk issues. Often sources on nature data have conflicting information, as discussed in the [ABI Climate Change Roadmap](#). When the data available is not streamlined or standardised across the industry, it makes it difficult to integrate it into underwriting and insurance business<sup>88</sup>, and when there are numerous uncertainties and incomplete datasets, this leaves underwriters with data gaps for insurance-risk analysis, risk pricing or developing products.<sup>89</sup> Furthermore, when data is unavailable or unreliable, quantification of nature-related risks becomes difficult, making it is hard to interconnect these to drive meaningful actions. For example, due to such data complexities, nature's contribution to disaster risk reduction (e.g., flood and hurricane risk) is generally not factored into catastrophic models, which provide how natural catastrophe risk is quantified and traded in (re)insurance markets. However, there is never a perfect data solution and given the insurance industry's core competency of dealing with uncertainty, the inadequate data provision should not preclude the industry from taking action.<sup>90</sup>

### Solution

Non-profits, academia and other researchers can help the insurance industry better protect assets by improving the quantity and quality of data. High quality and standardised data is critical for integrating natural assets into climate and catastrophe risk models and for developing innovative insurance solutions that de-risk nature-positive investments.<sup>91</sup> For example, data on costs to maintain and repair an asset or costs to protect an asset against extreme weather can be valuable. Academia can also play a key role in forming focus groups with the insurance industry, specifically with underwriters, to determine which data sources are the most effective to consider from the perspective of an underwriting risk assessment.

Peer-to-peer knowledge sharing can also drive change by showcasing leadership and, by doing so, enabling and prompting wider industry action. Regulators can be a part of such knowledge sharing and thought leadership, driving the creation of supportive policies that encourage disclosure of consistent and decision useful data.<sup>92</sup> This could help regulate and streamline frameworks to support product innovation.<sup>93</sup>

## Disclosure

### Solution

Consistent disclosure recommendations regarding metrics and targets relevant to key nature-related risks are also imperative as they allow financial data providers to begin curating relevant nature-related datasets and applying proxies (where reported data is unavailable) to help quantify risks. Past disclosures on nature-related risks have largely been qualitative. Quantitative data on activities that impact nature which may give rise to nature-related risks, should increasingly be considered alongside climate risk data to better allow re/insurers to understand the interactions between climate change and nature-related risks.

Industry-wide initiatives in respect of climate change provide reporting recommendations and, in some cases, requirements to drive meaningful action and progress towards the ultimate net zero goal (please



see the ClimateWise Principles, the Partnership for Carbon Accounting Financial Insurance-Associated Emissions Standard and the UN-convened Net Zero Insurance Alliance Target Setting Protocol (v.1)). A similar clear and transparent approach to the reporting of nature-related risks and targets can help insurance firms to showcase best practices and demonstrate responsible stewardship in the nature space.<sup>94</sup>

## Terminology

### Challenge

Nature, biodiversity, ecosystems, environment, natural resources, and natural capital are used interchangeably in literature, assessments, and reporting, often complicating communication with stakeholders.<sup>95</sup> The complexity and lack of standardisation in terminology exacerbate knowledge and data challenges. Unclear definitions and terms variations also hinder the reporting processes for insurance companies.<sup>96</sup>

Lack of clear terminology also undervalues potential solutions that can be incorporated into insurance portfolios, such as NbS.<sup>97</sup> The absence and/or misuse of terminology can undermine a general understanding of the benefits that nature can provide and the positive impact that NbS can have, in addition to increasing the potential for greenwashing (intentional or unintentional). Greenwashing occurs when an organisation misleads stakeholders into viewing their impact on the environment as more positive than it is.<sup>98</sup> The reputational risk, in addition to the associated costs, arising from a greenwashing allegation is not insignificant. This lack of clarity and consistency can preclude insurance companies from taking action.

### Introduce consistency across terminology and definitions, and leverage existing frameworks

#### Solution

Consistent terminology and definitions are required for biodiversity, nature, as well as transmission mechanisms tying nature loss to financial terminology. Here collaboration between standard setting bodies, policymakers, regulators, and academia is key to remove ambiguity such that insurance firms can better incorporate nature within their objectives. It will also help foster cross-industry standardisation of reporting.

Organisations providing standardisation frameworks such as the [Taskforce on Nature-related Financial Disclosure \(TNFD\)](#), [Science Based Targets Network \(SBTN\)](#), [International Sustainability Standards Board \(ISSB\)](#), [Sustainability Accounting Standards Board \(SASB\)](#) can help establish clearer terminology and define a common language for discussing nature-related risks and opportunities, in addition to better enabling the consistent quantification of such risks over time through disclosure recommendations. Not only is this a direct way of fostering industry-wide engagement, but it also allows for consistency across industries and the financial sector – in doing so, providing a cost-effective way for re/insurers to capture, use and disclose material data points as they become more widely accessible.

## Organisational capacity

### Challenge

Time, financial resource constraints and lack of specific skillsets within the insurance industry are key barriers to conducting research and enhanced due diligence to capitalise on nature-related financial risks at an organisational and product (i.e. insurance contract) level, collecting data on them, and capitalising on nature-positive opportunities. The skills required to identify, quantify and innovate around these risks may differ from typical underwriting and organisational risk assessments. These constraints also limit the ability

of underwriters to price nature-related risks and nature-positive projects.<sup>99</sup> These organisational challenges can be exacerbated by the perceived lack of buy-in or emphasis from senior management, causing insurance firms to operate according to business as usual.<sup>100</sup> Limited involvement and understanding from senior management has also prevented the insurance industry from fully understanding the value of NbS and incorporating these into portfolios. The limited involvement is not necessarily down to the lack of will to engage with the issue. Instead, it could be due to knowledge gaps and competing priorities at a senior level, as 77 per cent of financial professionals report a sustainability skills shortage at their organisation.<sup>101</sup>

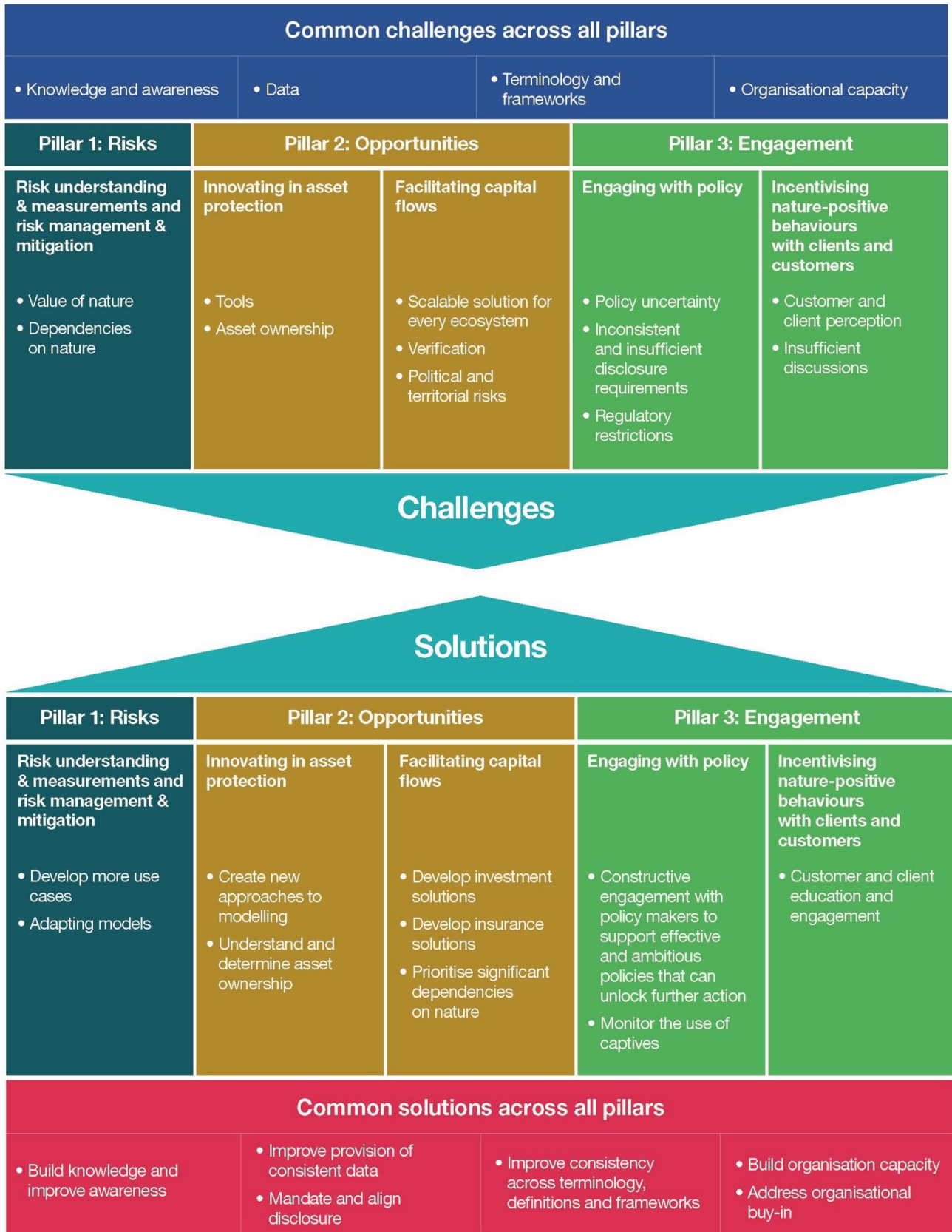
### **Organisation-wide capacity building and senior management buy-in**

#### **Solution**

The insurance industry also needs to have the buy-in from executive management to build momentum towards shaping strategic objectives with positive impacts on biodiversity.<sup>102</sup> As suggested by the [Oxbow Partners 'ESG Data for Underwriting' report](#), making progress on ESG can only happen if there is senior commitment and a clear strategy. Mandates from senior management can help increase the capacity to build knowledge, collect data and improve assessment methodologies around nature-related risks. The backing from decision makers can bridge the gap between already existing nature-based pilots to medium sized projects as well as upscale investments into NbS. The initiatives discussed in the section above are the type of innovations required at scale, allowing the insurance industry to show stewardship to drive meaningful change.<sup>103</sup> Senior management support can also unlock the time and capacity required to build new teams to research specific areas and make progress towards the identification and integration of nature-related risks and impacts in underwriting and insurance brokerage.

The figure below represents specific challenges identified across the different pillars with specific solutions required to tackle the nature-positive journey. Below are challenges to common solutions identified across all pillars.

Figure 3: The roadmap: challenges to solutions



# Summary of actions

As discussed throughout the three pillars, numerous challenges relate to the integration of nature-related risks in insurance underwriting. While some actions are being taken within the industry, more is required to deliver nature-positive outcomes. Table 1 summarises the actions that each actor needs to take to progress on the nature-positive journey.

Table 1: Actions to progress towards a nature-positive journey

Actions	Actors			
	Insurance industry	Policy makers	Non-profits and academic institutions	Standard setting bodies
Improve data	X	X	X	X
Introduce consistent terminology and definitions	X	X	X	X
Develop more use cases	X		X	X
Understand and determine asset ownership	X	X		
Understand and quantify dependencies on nature			X	X
Adapt natural catastrophe models and create new approaches to modelling	X	X		
Build capacity across the insurance industry	X			
Introduce voluntary and then mandatory disclosures		X		
Develop investment and insurance solutions	X			
Increase appetite to invest in green projects	X			
Increase senior management buy-in	X			
Constructive engagement with policy makers to support effective and ambitious policies that can unlock further action	X	X		
Monitor the use of captives as vehicles for environmental risk finance	X	X		
Customer and client education and engagement	X		X	

Collaboratively taking these actions into consideration could help halt and reverse the loss of nature, enabling species and ecosystems to recover.

# Conclusion

Our economy depends on the benefits and services that nature provides. Yet one-fifth of these services are on the verge of collapse.<sup>104</sup> Momentum amongst the financial sector to recognise and reverse the catastrophe risk this poses is building, as shown by the [Finance for Biodiversity Pledge](#), the signatories of which have USD 18.8 trillion of assets under management.

The re/insurance sector can play a critical and distinctive role in identifying and quantifying nature loss, developing solutions to manage exposure to nature-related risks, promoting the protection and restoration of nature, and working with the broader finance sector to transform how the wider economy values nature and the ecosystem services that it provides.

Building on [Why Nature Matters: Nature-related risks and opportunities for insurance underwriting](#), this roadmap details a path for re/insurers toward nature-positive underwriting by highlighting the following:

1. The challenges the insurance industry is facing to integrate nature-related risks into underwriting
2. Leading practices to incorporate nature into underwriting and other financial activities
3. Actions available to accelerate progress on nature-positive underwriting, through focusing on risk, opportunity and engagement.

Data, terminology and consistent frameworks are key for further action on both the risk and opportunity pillars. More relevant disclosure is another solution to address the data and knowledge gaps. However, there is never a state when data is perfect. Therefore, engagement across the entire ecosystem of financial actors is required to start embedding nature-related concepts within the re/insurance landscape now. This includes participation in third party efforts by initiatives such as the TNFD, ISSB and academic bodies. Further, a collaboration between re/insurers, policymakers, and regulators represents an opportunity to develop standardised, open-source methods and tools for nature-related risk analysis and nature-positive insurance products, as well as supporting effective and ambitious policies that can unlock further action.

Within re/insurance companies, building awareness and capacity is required at all organisational levels. This will aid development of new modelling approaches and adaptation of existing models to reflect nature-related considerations. Part of capacity building is developing more use cases of best practice across the industry. Further, increasing capacity at C-suite and senior management levels and will be helpful in building organisational buy-in for transforming the re/insurance industry and developing a pipeline of investment and insurance solutions for a nature-positive economy. Finally, building capacity among customers and clients will help drive the demand for nature-positive insurance products.

This roadmap showcases priority steps re/insurers can take in this journey to a nature-positive future. To avoid irreparable damage to the natural world, the full value of nature must be integrated into underwriting. This integration will support the mobilisation of capital away from destructive activities and toward those that restore and protect nature.

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