

Protecting and Enabling Nature-Based Solutions

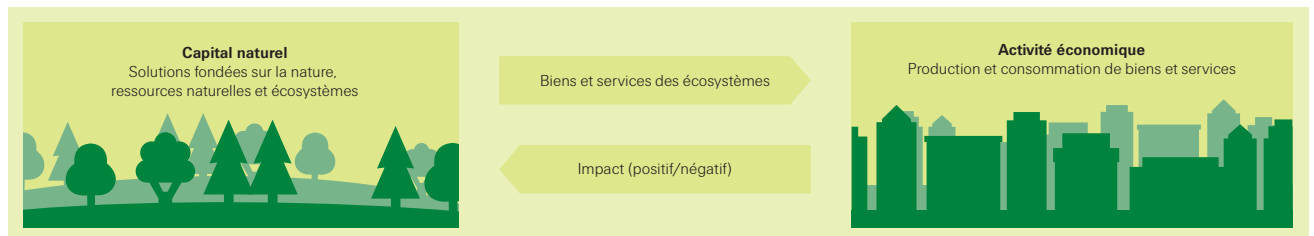
What if we could protect our natural assets? What if we could also protect and enhance the benefits that we derive from those assets?

There is no greater challenge right now for governments than managing the COVID-19 pandemic and recovery alongside the increasing impacts of climate change.

From climate change, biodiversity loss and ecosystem degradation, to air pollution, human rights and financial exclusion, sustainability issues have gained significant momentum around the globe.

Investing in nature can be one of the most effective climate adaptation measures, as nature has proven its ability to self-heal, capture carbon and reduce the impacts of weather-related disasters and natural catastrophes.

Nature-based solutions (NBS) are actions inspired and supported by nature, building resilience and providing social and economic benefits. Natural capital and nature-based solutions come in many forms and contribute significantly to income generation and national wealth. They are often taken for granted for the eco-services they provide, however there is a high level of interdependency between nature and economic activity.



The World Economic Forum¹ estimates \$44 trillion of economic value generation – more than half of the world’s total GDP – is moderately or highly dependent on nature and its services, and is therefore at risk with the degradation of nature

Nature-based solutions can be grouped into two main types:

Type 1: Existing natural capital

For example:

- Coral reefs – protect against tidal surges and provide economic benefits through tourism and fishing activities
- Mangroves – reduce the impacts of tidal surges, capture carbon and provide economic benefits for local fishing communities
- Forests and natural bushland – capture carbon, protect wildlife ecosystems, provide economic and recreational services

Type 2: Creating or enhancing nature to improve the functionality of the ecosystem / ecoservice delivery

For example:

- Innovative planning of agricultural landscapes to increase their multi-functionality
- Planting and enhancing tree species and genetic diversity to increase forest resilience to extreme events
- Building and reconstructing coastal landscapes to manage erosion
- Green roofs and walls to mitigate city warming and clean polluted air

Wetlands provide significant ecosystems, including water filtration and flood control. During Hurricane Sandy, the strongest hurricane in the 2012 Atlantic season, wetlands were estimated to have saved more than \$625m in avoided flood damage.²

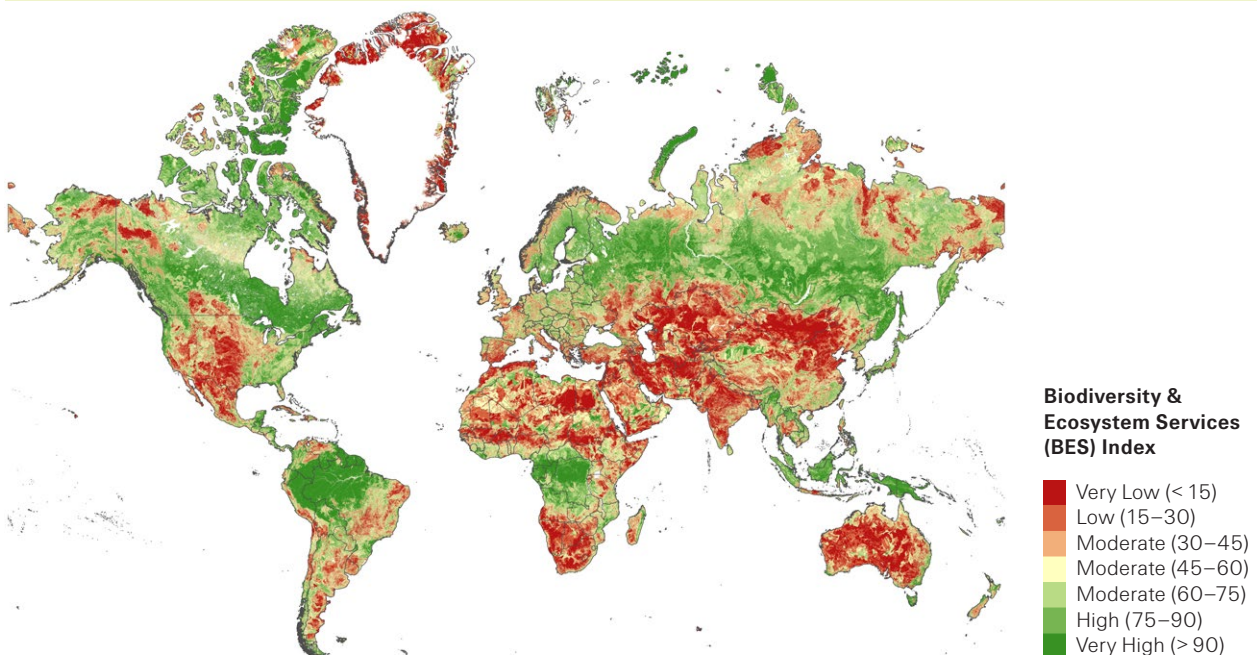
Coral Reefs, globally provide \$36 billion a year in economic value through tourism, of which \$19 billion is generated through “on-reef” tourism such as diving and wildlife watching, while the remainder is generated from tourism in reef-related areas, for instance, ocean views, beaches and local seafood.³

Mangroves annually reduce property damage by more than \$US 65 billion and protect more than 15 million people. Approximately 90% of total benefits of mangroves are for protection from tropical cyclones. Mangroves reduce annual expected flood damages from tropical cyclones by \$US 60 billion and protect 14 million people. They reduce global flooding from regular conditions by \$US 5 billion and 1 million people every year.⁴

Assessing who and what is exposed

As everyone benefits from nature in some way, we are all impacted and bear the costs of damages and restoration – the question is: what is the optimal financing approach?

- **Investors** – insure green projects against delays or non-completion, protecting investment and returns
- **Businesses** – protect the revenue earned from activities based around natural resources (such as tourism), and cover costs when business is interrupted due to natural or man-made catastrophes
- **Government agencies** – insure against the cost of damages, regeneration and associated revenues, and access quick cash for clean-up and restoration of public nature sites. Governments can also help close the protection gap, by subsidising the cost of insurance for businesses and general consumers – to create resilience and economic stability



Swiss Re Institute (2020): Biodiversity and Ecosystem Services – A business case for re/insurance. Anna Retsa, Oliver Schelske, Bernd Wilke, Gillian Rutherford, Rogier de Jong. Zurich, 2020

Swiss Re Institute's Biodiversity and Ecosystem Services (BES) Index assesses and scores the state of ten ecosystem services at 1km² resolution on Earth: habitat intactness, pollination, air quality, climate regulation, water quantity, water quality, soil fertility, erosion control, coastal protection, food provision, timber production.

The data provides a current view that can facilitate risk, underwriting, and environmental policy recommendation. The data also shows the dependency on the ecosystem services on a country level.



How does insurance help protect and enable nature-based solutions?

Insurance is an efficient financial instrument and risk management tool that can enhance resilience and improve sustainable management of ecosystems and the economies and communities that depend on them.

Restoring and/or maintaining the natural environment involves considerable economic and social costs. Insurance can help, as its function is to protect an **asset** against a specific **threat**. Some **mitigation** needs to be in place to make the risk insurable.

As risk carriers, insurers protect households, business and governments by absorbing financial shocks from events such as cyclones, floods, droughts, earthquakes, accidents and illnesses.

As risk managers, insurers help communities understand, prevent and reduce risk through research and analytics, catastrophe risk models and loss prevention. Insurers also advocate proper land-use planning, zoning and building codes, ecosystem-based disaster risk reduction, healthy lifestyles and disaster preparedness.

Insurance services embedded within insurance products, such as simulations and early warnings of extreme weather, contribute to resilience and sustainable development. Remote sensing and other technology solutions used to assess the impacts of events and changes in the landscape can also be applied to monitoring and protecting nature-based solutions.

Redirecting existing insurance practices towards NBS provides an expansion of applications for insurance solutions and risk management

- **property insurance** – covers costs associated with damages, such as removal of debris, clean-up and business interruption
- **agriculture insurance** – covers organic environments against specific weather perils, such as storm, typhoon, flood, fire, frost and hail
- **environmental liability insurance** – protects against an infringement on third parties or public environments
- **engineering all risk insurance** – protects project construction against delays and disruptions.



Case Study: Mexican Reef

- In 2017, Swiss Re launched the world's first nature-based insurance solution to protect Mexico's Quintana Roo coral reef, the longest barrier reef in the western hemisphere.
- We collaborated with The Nature Conservancy and Mexican regional governments to protect the economic activity that was dependent on a healthy coral reef.
- Our solution provided rapid disbursement of funds, enabling trained community members to launch restoration actions quickly and minimize coral damage following a severe storm.

Case Study: Netherlands Dyke Reinforcement

- The island of Texel, in the Netherlands, sits next to the Wadden Sea World Heritage Site, as has around 1 million visitors each year
- It is protected by the Prince Hendrik Sand Dyke, and to prevent the risk of major failure, the local authorities innovatively engaged a dredging company to reconstruct and enhance the natural habitat with 5 million cubic meters of sand, and the planting of 2 million marram grasses in order to create a landscape gradient.
- Swiss Re supported the 2019 construction of this nature-based solution, with high levels of capacity for the construction-related risks.
- The outcome not only protects the island against rising sea levels, it has made it larger and more beautiful with additional natural habitat. The project won the WOW (waterway management) prize for best public collaboration and the Network Groene Bureaus Nature Prize for biodiversity strengthening.

The concept of insurance is not new, nor is the need to protect our environment – the paradigm shift lies in our ability to merge the two concepts, and take action.

Insurance is a tool that can protect and enhance our biodiversity, whilst increasing fiscal resilience. More than ever, private and public sectors need to work together to embrace the value of nature-based solutions, and protect our natural assets for future generations.



Swiss Re: Committed to action

The Swiss Re Group is one of the world's leading providers of reinsurance, insurance and others forms of insurance-based risk transfer.

The Swiss Re Group is a leading wholesale provider of reinsurance, insurance and other insurance-based forms of risk transfer. Its global client base consists of insurance companies, mid-to-large sized corporations and public sector clients. Swiss Re deploys its capital strength, expertise and innovation power to enable the risk-taking upon which enterprise and progress in society depend.

Our mission is to make the world more resilient. Failing to take care of the planet means ultimately not taking care of our own resilience. At the end of the day, the better we manage the health of our ecosystems, the better we manage human health and wealth.

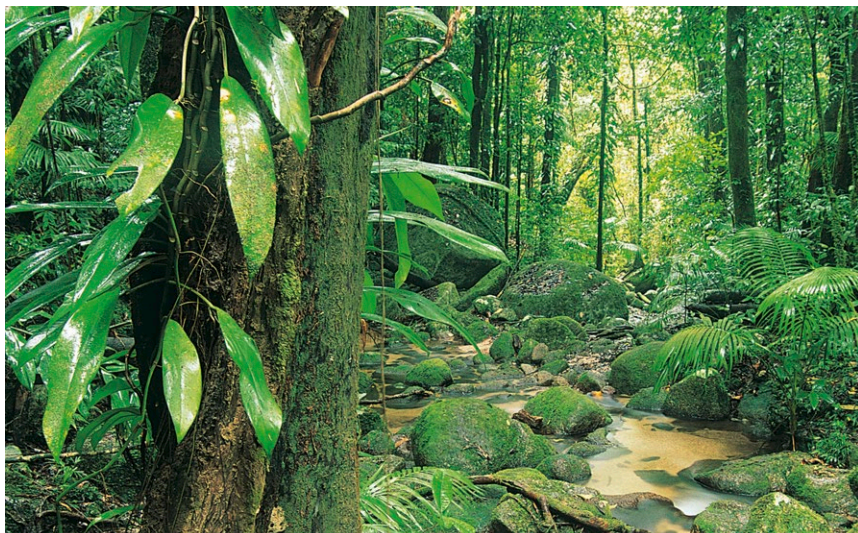
For Swiss Re, 'nature-based solutions' (NBS) is an umbrella term covering a range of needs and risks related to the natural environment. With our existing expertise and products, we seek to build an effective marketplace help protect and strengthen our natural environment and biodiversity.

Swiss Re has signed the Paris Pledge for Action and joined the UN-convened Net-Zero Asset Owner Alliance, to commit to carbon-neutral investment portfolios by 2050. All our business activities, including our insurance solutions, assets, liabilities and operations, reflect our commitment to sustainability.

**Let us help you enable and protect nature-based solutions and the communities that benefit from them.
Contact Swiss Re's Public Sector Solutions team:**

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Sources

- ¹ New Nature Economy Report 2020 Nature Risk Rising: Why the Crisis Engulfing Nature Matters for Business and the Economy, World Economic Forum, in collaboration with PWC 2020
- ² Narayan, S., Beck, M.W., Wilson, P. et al. 2017. The Value of Coastal Wetlands for Flood Damage Reduction in the Northeastern USA. *Sci Rep* 7, 9463
- ³ Spalding, M., Burke L., Wood S.A., Ashpole J., Hutchinson J. and Ermgassen P. 2017. Mapping the global value and distribution of coral reef tourism. *Marine Policy* 82:104-113
- ⁴ The Global Flood Protection of Mangroves 2020 Pelayo Menéndez, Iñigo J. Losada1, Saul Torres-Ortega

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