

In collaboration with PwC China



Towards Nature Positive: Corporate and Financial Institution Practices in China

INSIGHT REPORT
DECEMBER 2023



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Foreword



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At COP15 in Montreal in December 2022, under the presidency of the Chinese government, 196 countries adopted the Kunming-Montreal Global Biodiversity Framework (GBF) aiming to halt and reverse biodiversity loss by 2030. The GBF is a significant milestone for the conservation of the world's biodiversity and ecosystems, and has been hailed as the equivalent to the Paris Agreement on climate. The stakes could not be higher. Biodiversity is declining faster than at any time in human history. One million plant and animal species are now threatened with extinction, many within decades.¹

Of the 18 categories of ecosystem services on which businesses, economies and societies depend, 14 are in decline.² More than half of the world's GDP, or \$58 trillion, is highly or moderately dependent on nature.³ Nature's deterioration and the associated biodiversity loss pose critical risks that companies cannot afford to be complacent about.

Target 15 of the GBF aims to ensure that large companies and financial institutions monitor, assess and disclose their risks, dependencies and impacts on biodiversity throughout their operations, portfolios, supply and value chains.

This report showcases early-moving companies and financial institutions in China that are taking proactive steps to transition towards nature-positive business practices. It aims to inspire the business community to make these niche behaviours become mainstream in the coming years. Additionally, the report sheds light on public-private multistakeholder approaches to ecosystem conservation and restoration, as well as highlighting how the public sector is creating an enabling environment for nature-positive business models by integrating biodiversity considerations into policy-making decisions.

Ultimately, every company will face the consequences of nature and biodiversity loss, and will be required to take action. With over half the world's economy dependent on nature, the cost is simply too high to ignore.

Executive summary

The business case for protecting nature is clear: 55% of global GDP is moderately or highly dependent on ecosystem services, and companies with high or moderate dependence on nature account for more than half the market value of companies listed on China's stock exchanges.⁴

The corporate focus on biodiversity only recently became mainstream during the run-up to COP15 and the adoption of the Kunming-Montreal Global Biodiversity Framework (GBF) in December 2022. The GBF aims to ensure that large companies and financial institutions monitor, assess and disclose their risks, dependencies and impacts on biodiversity in order to reduce negative impacts on biodiversity, increase positive impacts and reduce relevant business risks.⁵

The vast majority of companies are still in the early stages of their nature-positive journeys – identifying nature-related issues and making high-level commitments. More than three-quarters of companies in China's Hang Seng Index (HSI) and over half of those in the China Securities Index (CSI) 100 mention biodiversity in their environmental, social and governance (ESG) reports. PwC China analysis of 2022 ESG reports showed that over half of HSI companies and more than one-third of CSI 100 companies have made some sort of commitment towards mitigating biodiversity risks or impacts.

This report highlights disclosure of biodiversity risks and biodiversity-related commitments by early-moving corporates and financial institutions in China. Quantification of impacts on nature (both negative and positive) is still in its early stages due to the complexity and variety of ecosystems and supply chains and the lack of widely accepted metrics and methodologies. These metrics and methodologies have begun to emerge in 2023 from multistakeholder initiatives such as the Task Force on Nature-related Financial Disclosures (TNFD) and the Science Based Targets Network (SBTN).

An essential change in mindset for companies is to go beyond stand-alone actions for nature and to integrate nature into their overall business strategies. Commitments to no net loss (NNL)

of biodiversity, deforestation-free supply chains, regenerative agriculture and plastic recycling are examples of corporate biodiversity-related goals that can be integrated into business models.

Financial institutions face biodiversity-related risks via the companies in their loan and investment portfolios. They can mitigate these by integrating nature and biodiversity into their lending and investment decisions. Regulators can support this by enhancing biodiversity-related corporate ESG reporting requirements. Such actions will help shift funding away from activities with negative impacts and towards more benign activities.

Natural capital and ecosystem services are public goods on which society, the economy and businesses depend, so the public sector will always need to play a leading role in protecting and restoring biodiversity with funding, policy, regulations, standards, research, multistakeholder initiatives, etc.

The mainstreaming of nature and biodiversity into policy-making helps create an enabling environment for nature-positive economic growth and can create business opportunities in areas such as ecotourism, agriculture, aquaculture, ecosystem restoration, construction and the circular economy. Valuing nature's benefits to people with metrics, such as gross ecosystem product (GEP), is essential to mainstreaming. Biodiversity-inclusive spatial planning and ecological compensation mechanisms help protect natural capital and ecosystem services. The government needs to set market rules that impose costs for externalized negative impacts while creating a level playing field with minimum requirements for sustainability.

A multistakeholder approach to biodiversity protection and restoration is a key to success. Nature- and biodiversity actions must be economically sustainable and deliver measurable benefits for local communities.

TABLE 1 | List of China examples from corporates, financial institutions, local governments and non-governmental organizations (NGOs)

Organization	Cases and case studies	Page
Towngas	Assessment and reporting of impacts and dependencies using TNFD's LEAP framework	14
State Grid	Assessment and reporting of impacts and dependencies using Natural Capital Protocol	15
China Molybdenum	No net loss of biodiversity commitment	17
COFCO International	Deforestation-free supply chain targets for soybeans and palm oil	19
McDonald's China	Regenerative agriculture plan to work with key suppliers and farmers	21
Swire Coca-Cola	Recycling targets for packaging and building a food-grade plastic recycling plant	22
Lenovo	Product recycling targets and end-of-life management approach	22
ICBC Standard Bank	Banned activity list for financing and multi-stage client ESG due diligence process	25
Equator Principles	No net loss of biodiversity requirement for project financing	26
Bank of China	Exclusion policy, and client acceptance/exit policy for environmental risks CNY 1.99 billion biodiversity-themed green bond	27
Industrial Bank	CNY 70 million wetland carbon sink loan	28
China Pacific Insurance Co. (CPIC)	Wildlife public liability insurance in Yunnan	28
Shenzhen municipal government	The first complete gross ecosystem product (GEP) accounts in China	30
Chengdu Xingcheng	Ecosystem restoration and valuation in the construction of Huancheng Ecological Park	32
Changshu municipal government	Multistakeholder urban wetland restoration approach	33



Select the case study
to discover more

1

Business depends on nature and biodiversity

Companies with high or moderate dependence on nature account for over half the value of China's stock exchanges.



The business case for corporate action on nature is clear. Of the world's GDP, 55% – \$58 trillion – is now moderately or highly dependent on nature.⁶

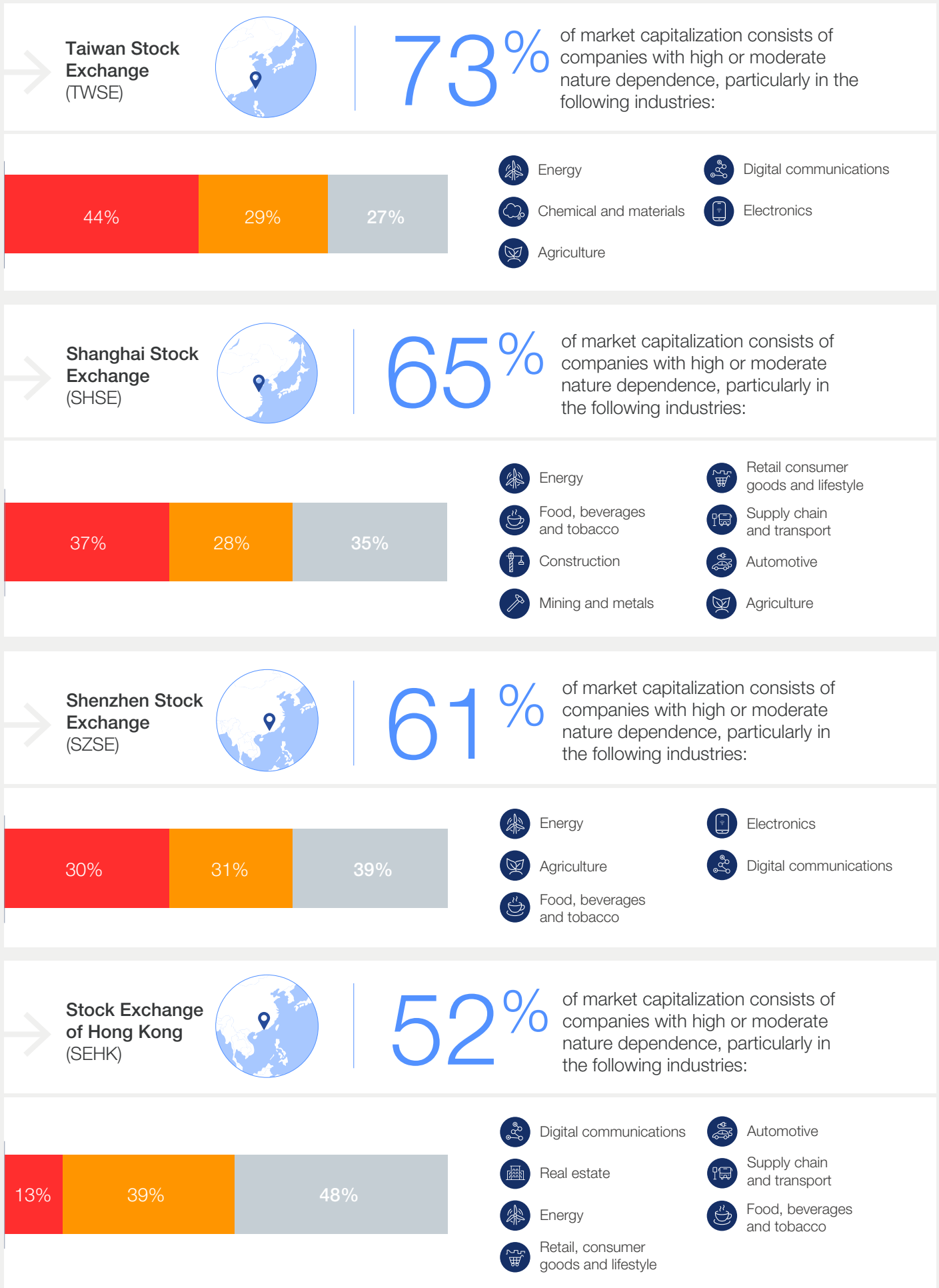
Economic dependence on nature carries over to financial markets and shareholders. Companies with high or moderate dependence on nature account for half the market value of companies listed on the world's top 19 stock exchanges – nearly \$45 trillion (see Appendix 1 for all 19 exchanges).

The Taiwan Stock Exchange, the Shanghai Stock Exchange and the Shenzhen Stock Exchange were the three most exposed of the 19 stock exchanges analysed. This was largely driven by

their exposure to agriculture, construction, and the food, beverages and tobacco industries. The Stock Exchange of Hong Kong was the 16th most exposed out of 19 exchanges analysed.

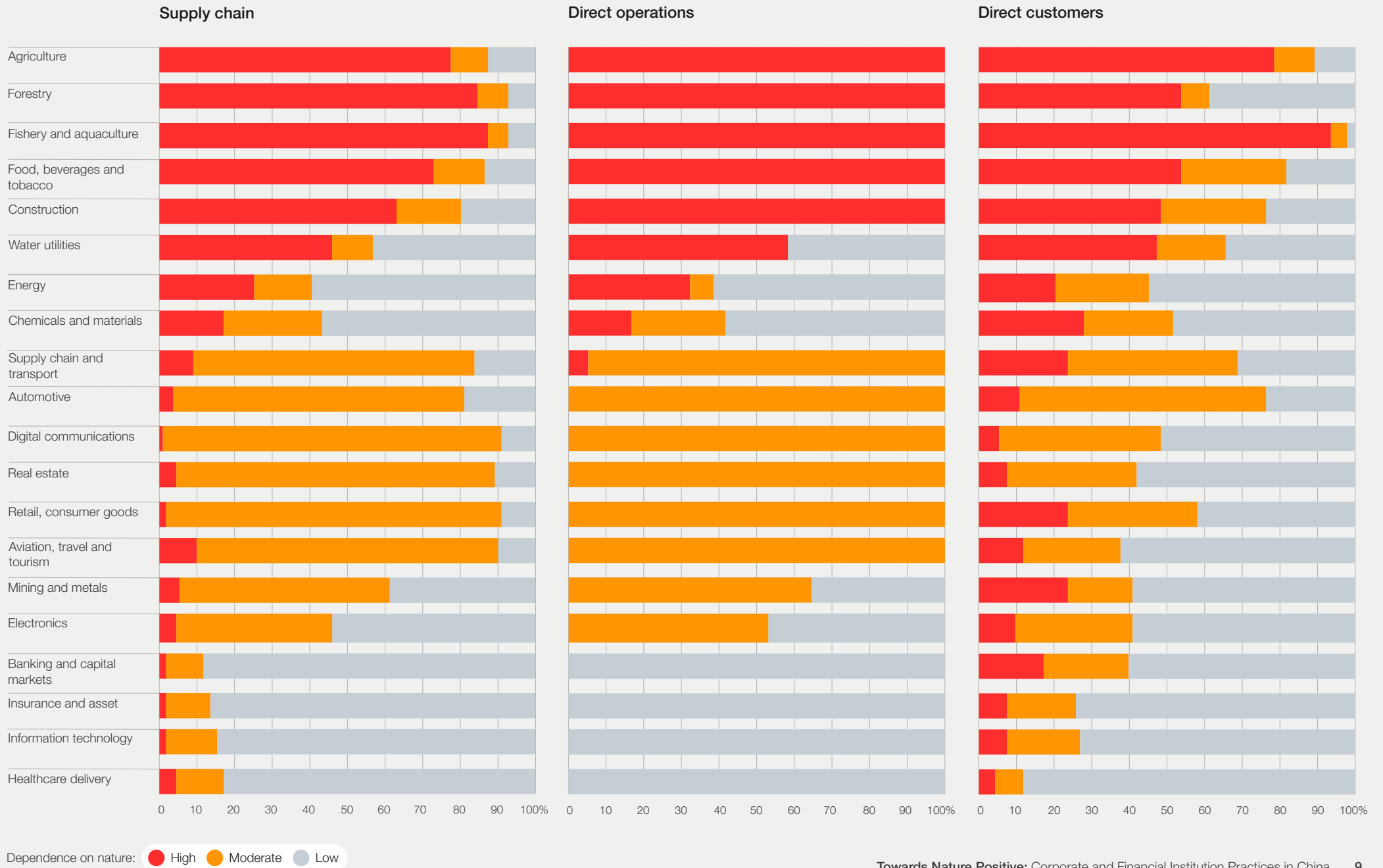
All industries rely, to some extent, on ecosystem services in both their own operations and their supply chains. Figure 2 shows various industries' level of value chain dependence on ecosystem services. In agriculture, forestry, fishery and aquaculture, food, beverages and tobacco, and construction, 100% of the economic value generated by direct operations and more than 50% of the value generated by their supply chains are highly dependent on nature.⁷

FIGURE 1 | Market capitalization of listed companies with high, moderate or low dependence on nature



Source: EXIOBASE; ENCORE database; S&P Capital iQ; PwC UK analysis

FIGURE 2 | Industries' global value chain dependence on nature by gross value added (GVA)



BOX 1 | The Kunming-Montreal Global Biodiversity Framework⁸

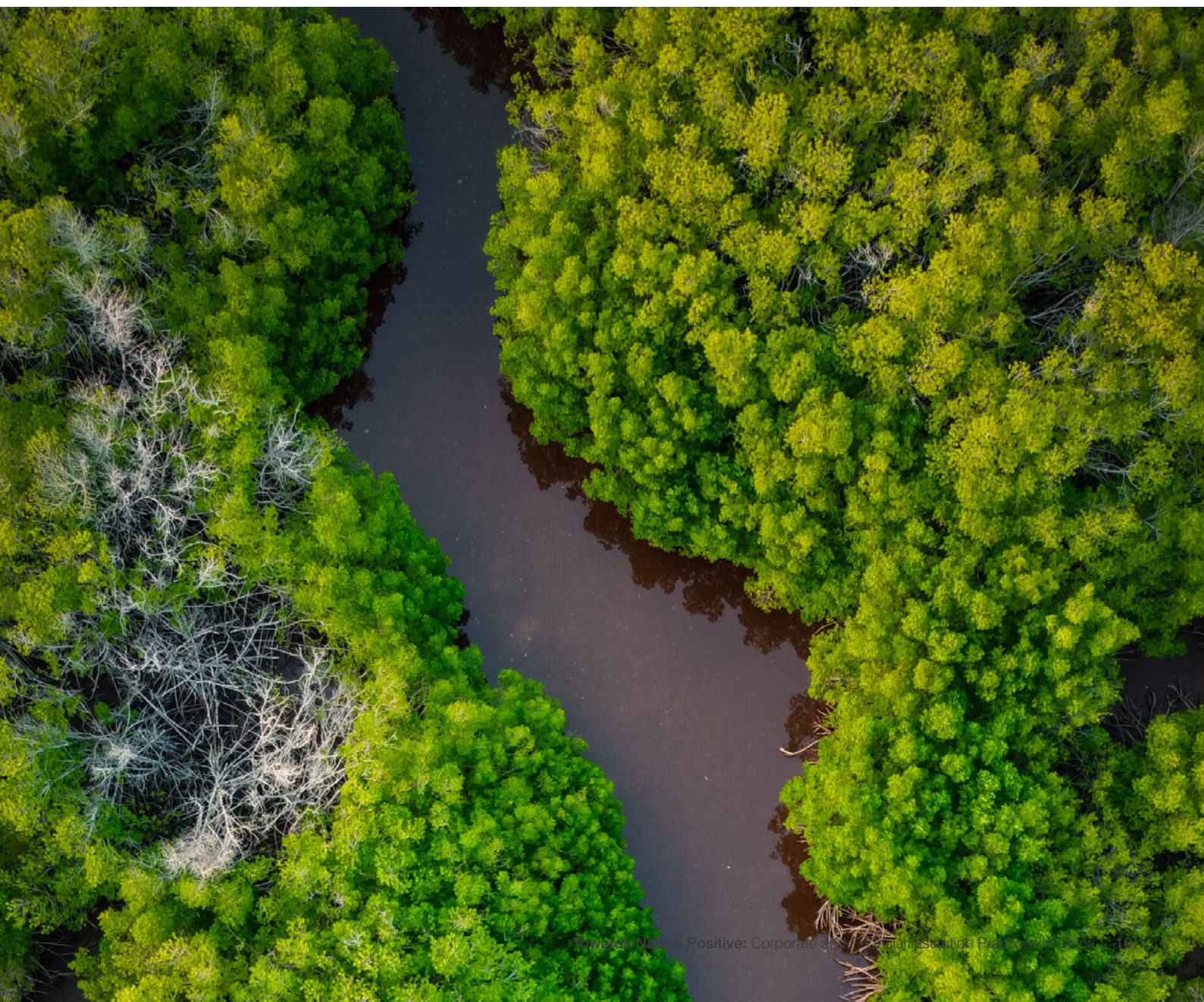
In December 2022, at the 15th Conference of the Parties to the UN Convention on Biological Diversity (COP15), with China as the presiding country, the Kunming-Montreal Global Biodiversity Framework (GBF) was adopted. The GBF's mission is to halt and reverse biodiversity loss by 2030.

For business, the GBF's target 15 aims to ensure that by 2030, large and transnational companies and financial institutions monitor, assess and transparently disclose their risks, dependencies and impacts on biodiversity through their operations, supply chains and portfolios in order to reduce negative impacts on biodiversity, increase positive impacts and reduce relevant business risks.

For the public sector, the GBF's target 14 aims to ensure the full integration of biodiversity and its multiple values into policies, regulations, planning and development processes, etc. across all levels of government and across all sectors.

Other targets for 2030 include:

- Biodiversity-inclusive spatial planning and management over all land and sea areas
- Placing 30% of the Earth's marine and terrestrial areas under ecosystem protection and 30% of the planet's degraded ecosystems under restoration
- Reducing pollution, including a 50% reduction in nutrient pollution and pesticide risk, and working towards the elimination of plastic pollution
- Reforming \$500 billion in annual subsidies that are harmful for nature and mobilizing \$200 billion in additional annual funding for biodiversity from public and private sources.



2

The corporate journey from understanding to nature-positive action

Companies need to integrate nature into their overall business strategies.

2.1 The nature-positive journey for business

In line with the GBF's target 15, companies will need to embark on their nature-positive journeys to understand their impacts and dependencies on nature, reduce the associated risks and move towards positive impacts on biodiversity.⁹

"Nature positive" is an apex goal for nature and biodiversity, similar to the goal of "net zero" for addressing climate change.¹⁰

“

A nature-positive future means that we, as a global society, halt and reverse the loss of nature measured from its current status, reducing future negative impacts alongside restoring and renewing nature, to put both living and non-living nature measurably on the path to recovery.

[International Union for Conservation of Nature \(IUCN\)](#)

The integration of nature and biodiversity into decision-making and strategy is at the core of becoming a nature-positive business. Until now, companies have often taken conservation or restoration actions that are not directly related to their own business model. Progressing towards nature-positive, however, requires that companies develop a thorough understanding of their relevant impacts and dependencies, then design, commit to and execute a nature strategy with time-bound targets that is integrated into their overall business strategy, operations and supply chains.

In addition to halting and reversing biodiversity loss, these actions can bring other benefits to companies, such as stronger risk management and resilience, innovative and more efficient use of resources, enhanced reputation among consumers, and compliance with emerging environmental regulations and environmental, social and governance (ESG) reporting requirements.

Disclosing a clear strategy for managing nature-related risks and opportunities can encourage confidence among institutional investors, who are increasingly interested in companies' environmental sustainability. Mitigating impacts on nature and biodiversity can expand access to financing, as a growing number of lenders factor biodiversity risks into their credit decisions. Corporate actions on nature are relevant to GBF target 19, as they mobilize private-sector funding to address drivers of biodiversity loss.

Table 2 provides a useful description of the stages on the corporate journey towards nature-positive. For more details on how to take nature-positive corporate action, please refer to Appendix 2 for useful frameworks and guidance.

TABLE 2 | Stages of the nature-positive journey

Starting	Developing	Advanced	Leading
The company identifies nature-related issues and presents stand-alone actions for nature.	The company assesses its impacts and dependencies and sets a high-level ambition or targets for nature.	The company integrates nature into strategy, sets measurable commitments for nature and implements strategic actions along priority parts of the value chain.	The company assesses impacts and dependencies for all potentially relevant realms, redefines industry business models and drives full value chain mobilization and beyond.

Source: World Business Council for Sustainable Development (WBCSD), *Roadmaps to Nature Positive*, 2023.

BOX 2

An integrated approach to biodiversity and climate is essential

The vast majority of companies in China appear to be in the “starting” stage or beginning their work in the “developing” stage, as indicated by the analyses in sections 2.3 and 2.4. This is not very different from the global corporate landscape, where companies in the “advanced” and “leading” stages still appear to be a small minority.^{11,12}

In the coming years, companies in China (and globally) will need to add skills and resources for assessing and disclosing these impacts and managing the associated risks and opportunities.

An inspiring number of companies and public sector organisations have taken concrete actions to use nature-based solutions (NBS) to capture carbon from the atmosphere. It is essential, however, that these projects integrate both biodiversity and climate goals. The IUCN Global Standard for Nature-based Solutions requires that NBS result in a net gain to biodiversity and ecosystem integrity.¹³

If not carefully thought out, many actions taken to achieve carbon goals can – despite good intentions – have a negative impact on biodiversity. Tree planting, for example, is often portrayed as an easy answer to the climate crisis.

However, poorly planned and executed tree planting could increase CO₂ emissions and have long-term deleterious impacts on biodiversity, landscapes and livelihoods.¹⁴ Where the main goal is timber production and/or carbon sequestration, fast-growing monocultures are widely used. It has, however, been demonstrated that in the long term, restored native forests maximize biomass and capture far more carbon while conserving biodiversity.¹⁵ At the same time, afforestation of areas that have been historically occupied by a non-forested biome such as grassland, savanna, non-forested wetland or peatland can deplete both biodiversity and soil organic carbon.¹⁶

2.2 Quantification is a key challenge

This report highlights current early-stage examples of corporate disclosure of biodiversity risks, dependencies and impacts, as well as biodiversity-related commitments that are aligned with the GBF targets by corporates and financial institutions. There is still a lack of widely agreed metrics and methodologies for quantifying impacts – both positive and negative – on nature. This is expected to change soon, however, with emerging convergence on reporting and methodologies, as well as growing levels of knowledge and expertise.

Frameworks and guidance are being released to assist companies in addressing these challenges. The Taskforce for Nature-related Financial Disclosures (TNFD) and the Science Based Targets

Network (SBTN), for example, have introduced guidance in 2023 on metrics and methodology, as well as other topics, e.g. the assessment of dependencies and impacts, strategy development and target setting, disclosure, risk and opportunity management, etc. At the same time, IUCN is developing a methodology to measure and track contributions “towards a nature-positive future”.¹⁷

These organizations are working with each other, with hundreds of companies around the world, with nature-focused non-governmental organizations (NGOs), and with leading subject matter experts. Please refer to Appendix 2 for links to TNFD, SBTN and other useful frameworks and guidance.

In June 2023, the International Sustainability Standards Board (ISSB) issued its first sustainability standards, IFRS S1 and IFRS S2. These aim to provide a comprehensive global baseline of sustainability-related disclosures. IFRS S1 provides a set of disclosure requirements that enable companies to communicate their sustainability-related risks and opportunities. IFRS S2 sets out specific climate-related disclosures.

Both IFRS S1 and IFRS S2 have fully incorporated the recommendations of the Taskforce on Climate-related Financial Disclosures (TCFD), (e.g. its four-pillar governance, strategy, risk management, and metrics and targets framework), marking the culmination of the TCFD's work. The ISSB will take over the ongoing work of the TCFD from 2024.¹⁸

In response to interest from investors, the ISSB has proposed a large research project on biodiversity, ecosystems and ecosystem services (BEES) that could lay the groundwork for potential future standard-setting.¹⁹

According to the ISSB, "Disclosure on BEES would enhance transparency around corporate activities that affect BEES, which could be useful information for investors in assessing financial value creation."²⁰

"BEES has emerged as a priority topic because 1) it underpins all human activities, including business, and 2) research and work on BEES and the related risks and opportunities for investors are evolving at a significant pace."²¹

The ISSB's research will include considering the work of the TNFD,²² which has also incorporated the four-pillar TCFD framework to be consistent with the ISSB standards.²³

The UN Convention on Biological Diversity (CBD) Secretariat has called for an ISSB standard on BEES by 2024. It would support the implementation of the GBF's target 15 and would enable the alignment of policy-making and financial and corporate investment activities with the goals of the GBF – as set out in target 14.²⁴



2.3 | Assessing and disclosing business impacts and dependencies on nature and biodiversity

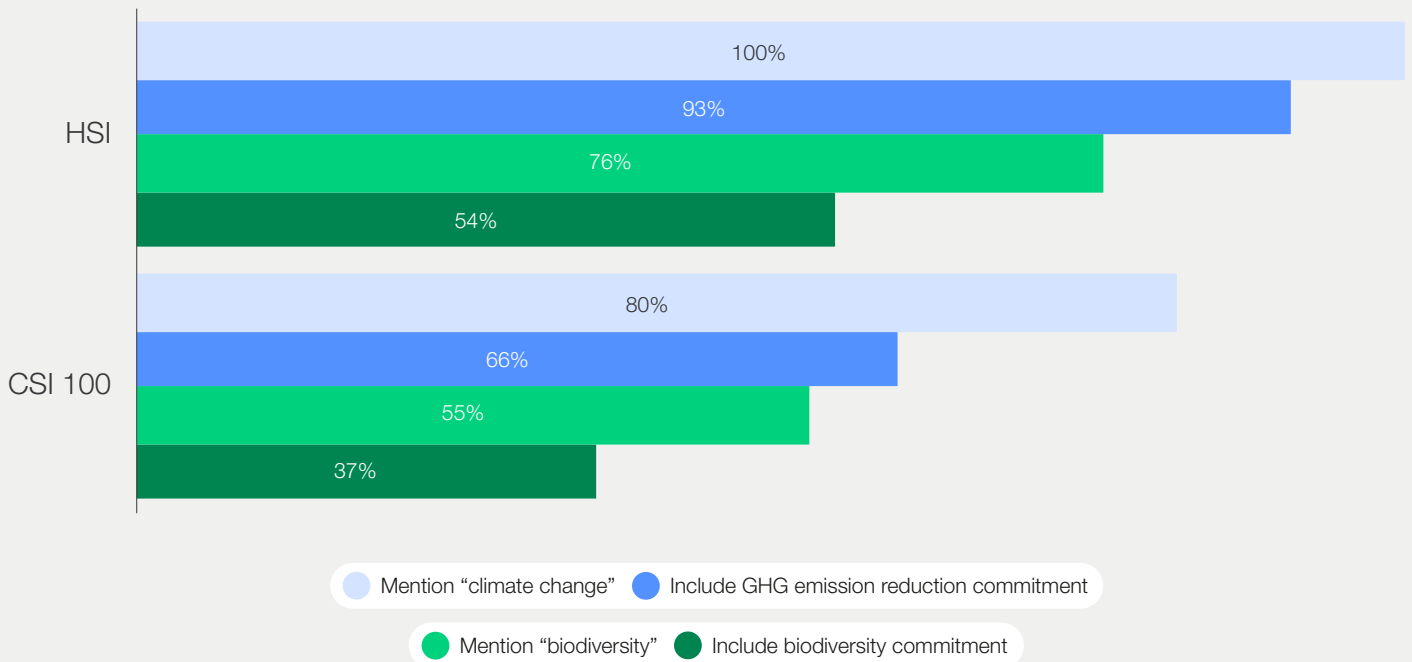
The potential loss of ecosystem services on which companies depend creates physical risks to their business. At the same time, companies whose activities negatively impact nature face transition risks due to litigation, reputational damage, increasingly strict environmental regulations, etc. These physical and transition risks can impact revenues, increase costs or impair assets.

Shareholders and financial institutions are increasingly focused on the implications of these nature-related risks for their investments and loan portfolios. Central banks and other regulators

recognize that dependencies and impacts on nature threaten the stability of their economies and financial systems and want more transparency around these risks. Increased disclosure will incentivize the shifting of financial flows away from harmful activities and towards those with more benign impacts on nature.

Analysis of ESG reports shows that many of China's leading companies are already acknowledging biodiversity risks and making relevant high-level commitments to manage them.

FIGURE 3 | Hang Seng Index (HSI) and China Securities Index (CSI) 100 companies that mention “climate change” and “biodiversity” and make commitments on greenhouse gas emissions and biodiversity in their 2022 ESG reports²⁵



Note: HSI constituents as of 15 June 2023 and CSI 100 constituents as of 23 May 2023

Source: PwC China

Nearly 80% of companies in the Hang Seng Index²⁶ (HSI) and more than half of the companies in the China Securities Index (CSI) 100²⁷ mention biodiversity in their annual ESG reports, compared to 100% and 80%, respectively, that mention climate change. More than one-half and one-third, respectively, of HSI and CSI 100 companies make some sort of commitment to mitigate biodiversity

risks or impacts, compared to 93% and 66% that have made commitments to reduce greenhouse gas (GHG) emissions.

The following are examples of companies that have already taken action to assess and disclose their impacts and dependencies on nature.

CASE 1

Towngas issues Hong Kong’s first TNFD-aligned report on nature-related dependencies and impacts²⁸

Towngas used the TNFD’s “locate, evaluate, assess and prepare” (LEAP) approach to assess impacts and dependencies on nature for 117 of its facilities across China. It screened for high biodiversity value locations by mapping for proximity to protected areas (PAs), key biodiversity areas (KBAs) and threatened species (TS).²⁹ Impacts and dependencies for the relevant business activities were identified using the Exploring Natural Capital Opportunities, Risks and Exposure (ENCORE) tool.³⁰

Based on these findings, the company assessed and mapped risk drivers, (including six physical and four transition

risk drivers), risk transmission channels (e.g. insufficient water supply), and potential business impacts for each of the business activities (e.g. operational disruption).³¹

The results will inform decision-making on the company’s future strategy and operations. In November 2022, Towngas disclosed the findings in an integrated document³² that covered both climate- and nature-related risks and opportunities. Towngas is now one of the first companies in China piloting the full TNFD nature-related risk management and disclosure framework.³³

CASE 2

State Grid uses the Natural Capital Protocol to assess its impacts and dependencies on nature³⁴

During 2020 and 2021, State Grid used the Natural Capital Protocol assessment methodology to analyse its impacts and dependencies on nature in grid planning, construction, maintenance and other business activities, and conducted a qualitative, quantitative and monetary valuation of relevant indicators. The company identified relevant risks and opportunities, providing a reference for strategy development as well as management and operational decisions.

Based on this analysis, State Grid published the *Biodiversity Management and Value Creation of State Grid Corporation* series, which consists of a comprehensive volume, as well as volumes on Jiangsu, Shandong, Zhejiang and Xinjiang.

2.4 Examples of corporate biodiversity-related commitments in China

Public commitments to take action on nature and the drivers of biodiversity loss enhance credibility and accountability, and help companies to align their nature-related planning, actions and targets. This section covers four different examples of commitments that are integral to core business models and relevant to the GBF’s 2030 mission and targets.

No net loss (NNL) and net positive impact (NPI)

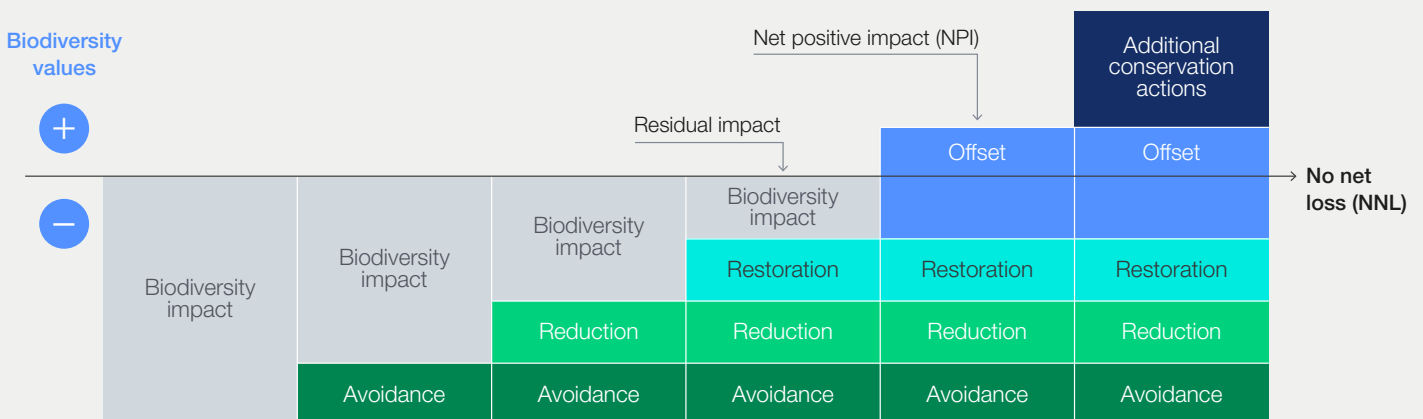
NNL and NPI targets for biodiversity imply that negative impacts caused by a company (or project) are either balanced or outweighed by activities that generate biodiversity gains. These targets are commonly associated with the mitigation hierarchy, where action is taken first to avoid, then to minimize, restore and – where necessary – offset negative

impacts.³⁵ Such targets are relevant to the GBF 2030 mission of halting and reversing biodiversity loss.

NNL/NPI targets are most often made on a project- and location-specific basis for activities in the energy, infrastructure, extractive and construction industries.

The use of the word “net” acknowledges that some biodiversity losses at a given site are inevitable, and that these may not be perfectly balanced in the time, space or type of biodiversity impacted due to the limitations of information available on relevant species and ecosystems.³⁶ An NPI goal can be considered a precautionary means of ensuring an NNL outcome for biodiversity.³⁷ Often, the two terms are used together in biodiversity goals. For example, the IFC’s Performance Standard 6 requires no net loss of biodiversity in natural habitats and net biodiversity gains in critical habitats.³⁸

FIGURE 4 NNL, NPI and the mitigation hierarchy



Source: IUCN, *No Net Loss and Net Positive Impact Approaches for Biodiversity*, 2015.

The importance of credible, robust and independent pre-project baseline and post-project biodiversity evaluations cannot be overstated. This also applies to projects that specifically aim to conserve or restore biodiversity, such as those mentioned in Case 9 and section 4.4. Going forward, this will be a critical area for capacity building.

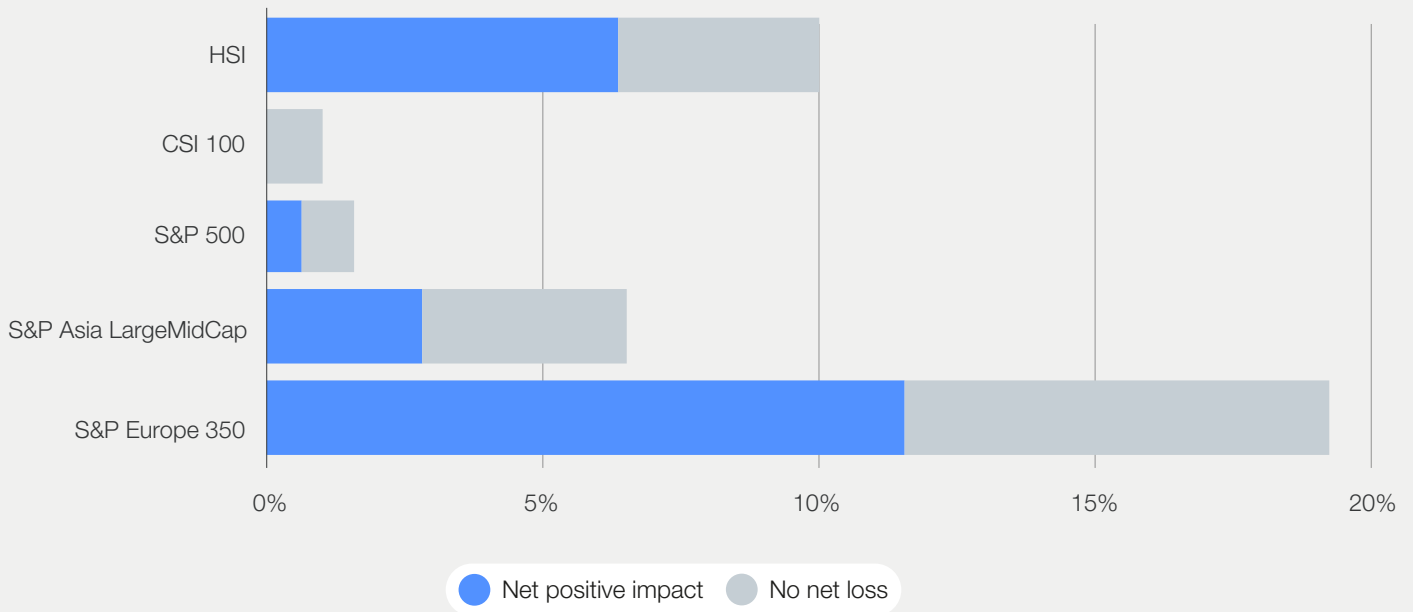
A small but growing number of companies in other industries are going beyond specific projects and applying the NPI approach to impacts across their full value chains (see Box 4). This can be especially powerful for companies that have large upstream land and natural resource footprints.

NPI commitments signal the way forward for corporate approaches to nature and biodiversity

because they require the assessment of overall impacts, as well as corporate actions (that are geographically relevant and proportionate in scale) to reduce negative impacts and increase positive impacts. In other words, companies must integrate nature and biodiversity into their overall corporate strategies and redefine their business models to address their impacts.

Among HSI and CSI 100 companies with NNL or NPI goals, there are companies in the energy, mining, infrastructure, shipping and pharmaceutical sectors. As a percentage of index constituents, the combined share of HSI and CSI 100 constituents with NNL or NPI goals is roughly in line with that of the S&P Asia LargeMidCap index (see Figure 5).

FIGURE 5 Percentage of companies in selected indices with NNL and NPI goals³⁹



Sources: HSI and CSI 100 figures based on PwC China analysis of 2022 ESG reports; For other indices: Rueedi, Joerg and Esther Whieldon, "Biodiversity is still a blind spot for most companies around the world", S&P Global, 15 December 2022.

CASE 3

China Molybdenum's NNL of biodiversity vision⁴⁰

China Molybdenum's NNL of biodiversity vision guides its strategy development, indicator framework and data monitoring. The company highlights the importance of environmental impact and baseline biodiversity assessments, as well as the application of the mitigation hierarchy.

"In order to establish a unified vision, goals and plans for biodiversity protection at the group level and build a clearer performance planning and monitoring system, we formulated our biodiversity vision in 2021, which commits to 'ensure no net loss of biodiversity from operations by continuously improving management and implementing mitigation measures.' Guided by this vision, in the future we will gradually develop key implementation strategies and establish a framework of core indicators to improve data aggregation, monitoring and review."

"The environmental impact assessment process is key to ensuring that the effects of our activities on biological diversity are appropriately recognized and mitigated. These programs are founded on baseline assessments of biological resources in the areas of planned operations, which are described in terms of species composition and species of concern, as well as supporting habitats at local, regional, and if appropriate, global levels. Baseline descriptions allow accurate identification of impacts anticipated from greenfield or brownfield project development. Accurate impact definition in turn drives application of the mitigation hierarchy in typical stages, such as 'avoid, reduce, mitigate and offset' and the subsequent development of biodiversity management plans if needed."



NNL and NPI approaches, in which negative impacts on biodiversity are outweighed by actions aligned with the mitigation hierarchy (illustrated in Figure 4), have long been associated with site-specific projects in sectors such as energy, construction or mining.

However, stakeholders now expect companies to take responsibility for the nature- and biodiversity-related impacts of their full value chains.

Setting an overall NPI goal (including the application of the mitigation hierarchy) can be a powerful point of focus for developing a nature strategy that addresses the full impacts of a company's direct operations and supply chain.

SBTN has created a mitigation hierarchy-based action framework for companies. The actions in Figure 6 are examples that illustrate how the mitigation hierarchy concept could potentially be applied to achieve goals and targets in a corporate NPI nature strategy.

FIGURE 6 | Examples of potential corporate actions in a full value chain NPI nature strategy

Avoid: Prevent impact from happening in the first place; eliminate the impact entirely

- Achieve zero conversion of natural lands in direct operations and supply chains
- Avoid water pollution, effluents and runoff, including acidification
- Avoid water withdrawals from sensitive ecosystems and limited resources (including groundwater)
- Avoid persistent organic pollutants and use of hazardous chemicals
- Avoid unsustainable or illegally harvested seafood and other marine resources from supply chains

Reduce: Minimize impacts, but without necessarily eliminating them

- Reduce GHG emissions
- Improve efficiency to reduce water use; install or upgrade wastewater treatment facilities to reduce pollutants
- Encourage and invest in circular economy for relevant materials
- Reduce agricultural land footprint in direct operations and supply chains; reduce nutrient runoff and soil erosion through sustainable agricultural practices
- Promote, implement and improve forestry and agricultural certification schemes (e.g. FSC, RTRS, RSPO, organic cotton standards)

Regenerate: Take actions designed within existing land and sea uses to increase the biophysical function and/or ecological productivity of an ecosystem or its components

- Shift food production towards enhancing working lands (e.g. organic agriculture, regenerative agriculture, sustainable rate of harvest, etc.)
- Regenerate existing plantations with sustainable practices (e.g. agroforests, enrichment strips, perennial crops and trees, etc.)
- Improve ecological productivity in working lands in line with landscape-scale objectives and stakeholder needs through silvopasture, agroforestry, border plantings, etc.
- Support regenerative ocean farming

Restore: Initiate or accelerate the recovery of an ecosystem with respect to its health, integrity and sustainability, with a focus on permanent changes in state

- Support the ecological restoration of deforested and degraded land
- Restore freshwater systems by restoring environmental flows, reconnecting habitats (including rivers) or restoring physical habitat
- Improve water quality and quantity in watersheds or along riparian/wetland buffers through restoration of native vegetation
- Support forest landscape restoration with reforestation, rehabilitation, remediation of past conversion, etc.
- Restore the landscape with pollinator habitat and native vegetation

Transform: Take actions contributing to system-wide change, notably to alter the drivers of biodiversity loss

- Champion nature-positive policies and initiatives

Adapted from: "Step 4", SBTN, n.d.; SBTN, *Science-based Targets for Nature Initial Guidance for Business*, September 2020; SBTN, *Step 3: Measure, Set, Disclose Land (Version 0.3)*, May 2023; SBTN, *Technical Guidance: Step 3 Freshwater: Measure, Set, Disclose*, May 2023.

Mitigating deforestation and conversion risk in supply chains

Beef, soy, palm oil and logging for paper and wood are responsible for about 70% of deforestation globally.⁴¹ China is the world's largest importer of beef, soy and wood pulp, and the second largest importer of palm oil.⁴² These commodities can merit enhanced levels of due diligence, traceability and/or certification to enable companies to mitigate the risk that their raw materials were produced on land that was deforested after the locally relevant cut-off date.

About 50% of HSI companies mention commitments to reduce or limit deforestation risk through measures such as site selection, environmental impact management, credit policies, or procurement policies that avoid deforestation-risk products or favour sustainability-certified agricultural and forestry commodities. Examples of such certified commodities include Roundtable on Sustainable Palm Oil (RSPO)-certified palm oil or Forest Stewardship Council (FSC)-certified paper.⁴³

The Consumer Goods Forum's (CGF) Forest Positive Coalition of Action has published a responsible sourcing strategy called the Forest Positive Approach. The first requirement is for businesses to make "a public commitment to be deforestation- and conversion-free across [the] entire commodity business, including a public time-bound action plan with clear milestones".⁴⁴

For more information on how to address these risks, the [Accountability Framework Initiative](#) provides a useful roadmap for achieving ethical supply chains that protect forests, natural ecosystems and human rights.

Global Canopy's Forest 500 identifies the world's 350 companies with the greatest influence on and exposure to tropical deforestation, and ranks them based on the strength and implementation of their commitments on deforestation and human rights. Of the 37 Mainland China and Hong Kong companies included in the 2022 Forest 500 ranking, one ranked in the top quartile, one in the second quartile, eight in the third quartile and 27 in the bottom quartile.⁴⁵

CASE STUDY 1

COFCO International's deforestation- and conversion-free targets⁴⁶

For its approach on deforestation and human rights in its supply chains, COFCO was ranked the highest among the Mainland China and Hong Kong corporates covered by Global Canopy's 2022 Forest 500 rankings and among the top 25% globally.⁴⁷

COFCO International's soybean non-deforestation and non-conversion targets include:

- By 2023, achieve full traceability to farm for directly-sourced Brazil soybeans.
- Disclose progress in mapping indirect suppliers to the farm in the Soft Commodities Forum's* (SCF) 61 focus municipalities, audited by an external party.
- By 2025, halt deforestation from direct and indirect soy supply in the Amazon, Cerrado and Chaco in line with the Agricultural Sector Roadmap to 1.5°C commitment.
- By 2030 achieve a deforestation- and conversion-free soy supply chain in sensitive regions of Latin America.

COFCO International's palm oil 2022-2023 non-deforestation and non-conversion targets include:

- Achieve and maintain full traceability to mill level for global palm oil sourcing (up from 70% in 2022).
- All direct suppliers with whom COFCO International has a regular business relationship have no deforestation, no peat and no exploitation (NPDE) policies and implementation plans by 2023.
- Adopt and implement the NDPE Implementation Reporting Framework.

*The [SCF](#) is hosted by the World Business Council for Sustainable Development (WBCSD), and aims to eliminate soy-driven deforestation and native vegetation conversion. COFCO International joined the SCF in 2019. The other members are Archer Daniels Midland, Bunge, Cargill, Louis Dreyfus and Viterro.



Supporting farmers' transition to regenerative agriculture

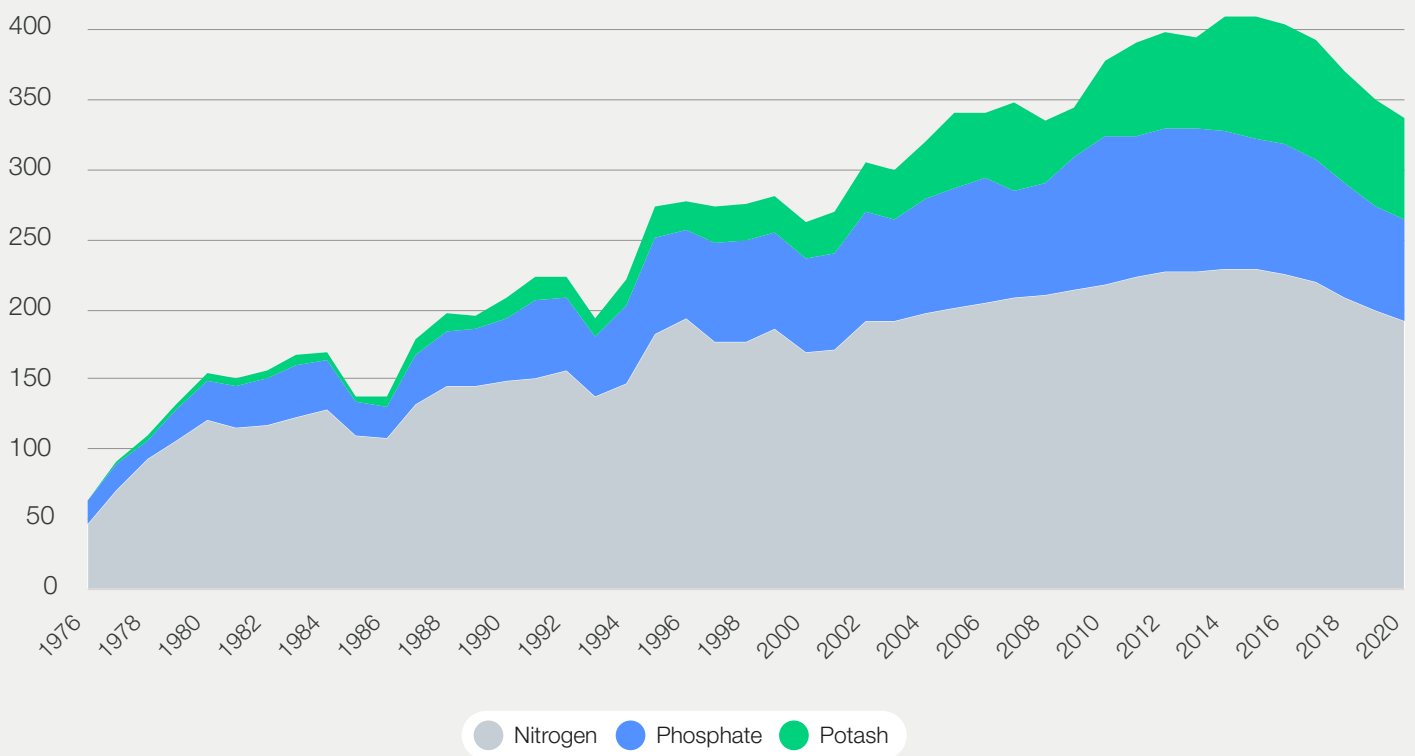
The GBF's target 7 includes the goals of reducing nutrient pollution and pesticide risks by half. Transitioning from conventional to regenerative agriculture can help achieve these goals.

Regenerative agriculture, broadly speaking, is focused on soil health and conservation. It entails minimizing tillage and chemical inputs (i.e. fertilizers and pesticides), using crop rotation and intercropping, protecting soil (with cover crops or mulching) and, where applicable, integrating

livestock operations and rotational grazing. These practices can enhance fertility, water filtration and retention, crop resilience and biodiversity-related ecosystem services (e.g. pollination).

China's government is working to create an enabling environment for many practices associated with regenerative agriculture. It aims to improve ecological subsidies and compensation for the protection of agricultural land, including the promotion of conservation tillage and crop rotation.⁴⁸ Efforts to reduce chemical inputs have resulted in the intensity of chemical fertilizer and pesticide use falling since 2015 as shown in Figure 7 and Figure 8.

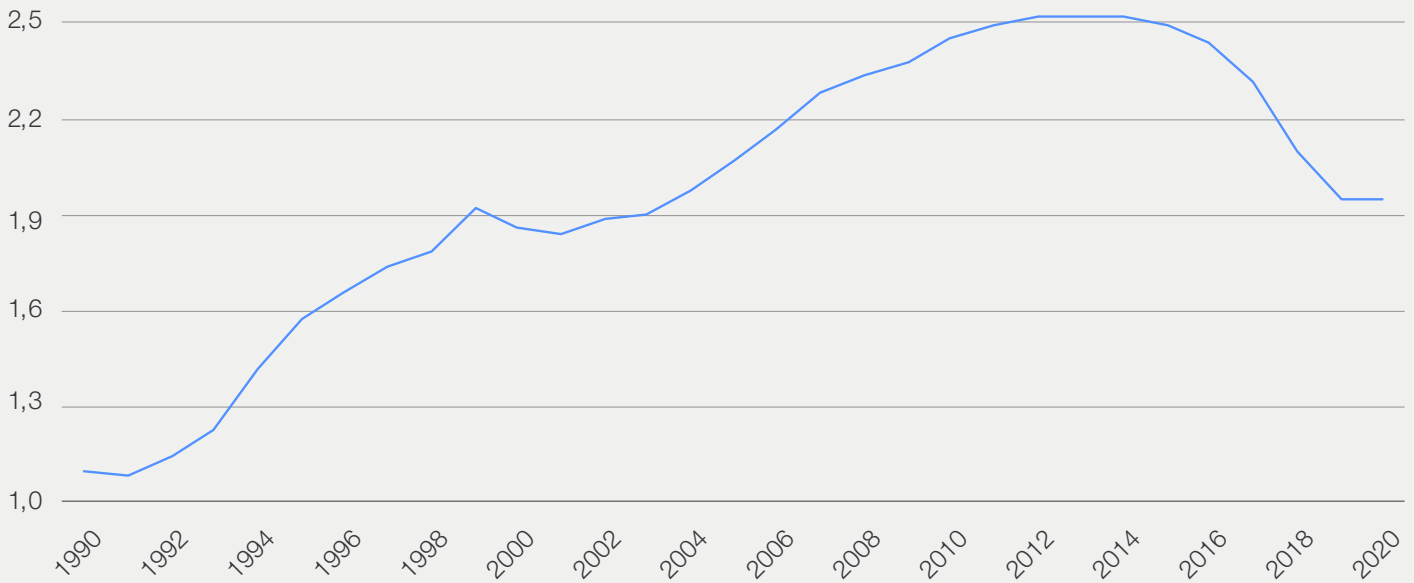
FIGURE 7 Mainland China chemical fertilizer use (kg/ha)



Source: Food and Agriculture Organization of the United Nations (FAO)



FIGURE 8 | Mainland China pesticide use (kg/ha)



Source: Food and Agriculture Organization of the United Nations (FAO)

CASE 4

McDonald's China launches its regenerative agriculture plan

In March 2023, McDonald's China launched its regenerative agriculture plan to work with nine key suppliers that provide over two-thirds of its procured ingredients. The programme will focus on nature, soil, water, livestock and farmers. During 2023-2028, it will promote regenerative agriculture ideas while ensuring alignment with local conditions.⁴⁹

By 2028, 10 test farms will be established, 2,000 core farmers will be empowered by the plan and 20,000 farmers in their communities will begin their regenerative agriculture journey.⁵⁰ The plan will support progress on McDonald's global 2050 carbon-neutral goal and the development of green and low-carbon agriculture.⁵¹

Reducing plastic waste and pollution with circular economy models

China is taking several multistakeholder approaches to reduce plastic waste and pollution, aligned with the GBF's target 7 goal of working towards the elimination of plastic pollution.

The national plan to control plastic pollution aims to cut the production and use of plastics, develop alternatives and reduce plastic going to landfills or leaking to the environment.⁵² It will ban many single-use plastics by 2025 and establish a management system for production, circulation, use, recycling and disposal.⁵³

China's national extended producer responsibility (EPR) plan prioritizes electrical appliances, electronic products, automobiles, batteries and packing materials.⁵⁴ By 2025, the regulatory structure should be in place, and China's average waste recycling rate should reach 50%.⁵⁵

Cities are addressing the challenge of collecting and sorting plastic waste from consumer goods and household waste. Hong Kong, for example, is installing reverse vending machines that pay people for depositing plastic bottles,⁵⁶ to be funded by a beverage supplier EPR scheme.⁵⁷

The following are examples of companies using a circular economy approach to reduce plastic and other waste.

CASE STUDY 2

Swire Coca-Cola's recycling plan for plastic and other packaging

Swire Coca-Cola has set the following targets:

- By 2025: Primary packaging will be 100% recyclable (2022: achieved 99%).⁵⁸
- By 2030: Primary packaging will contain 50% recycled material (2022: achieved 11%).⁵⁹
- By 2030: Collect and recycle one bottle or can for every bottle or can sold (2022: achieved 11% in Hong Kong and 100% in Taiwan, China for PET bottles. Achieved 99% in Mainland China and 49% in the US for cans).⁶⁰

Swire Coca-Cola's New Life Plastics (NLP) joint venture built Hong Kong's first food-grade plastics recycling facility in 2022, with capacity to handle 900 tonnes/month of PET and HDPE bottles. NLP reached processing rates of 400 tonnes/month in 2022.^{61,62}

Swire Coca-Cola's actions to reduce post-consumer waste from beverage packaging include:⁶³

- Reduce single-use packaging by cutting amount and weight.
- Promote eco-design and reduce use of packaging materials including bottle lightweighting, using transparent plastic to increase recycling values, and increase use of recycled content.
- Recycle packaging materials into the highest possible value end-products.
- Collaborate with public, private and non-profit organizations to promote the transition to a circular model.

CASE STUDY 3

Lenovo's product recycling and end-of-life management approach⁶⁴

Lenovo uses post-consumer recycled content in laptops, desktops, workstations, monitors and accessories. The company aims to eliminate plastic from packaging, and its corrugated packaging must contain at least 70% post-consumer fibre. Lenovo's product end-of-life management programme increases the beneficial reuse and recycling of products and parts and reduces the number of electronic products going to landfills.

- In 2022, the company expanded the use of closed-loop (CL) post-consumer recycled content plastics (PCC) to 298 products, up from 248 products the previous year. By 2026, 100% of PC products will contain PCC materials.
- In 2022, the company's use of plastics containing recycled content was approximately 7 million kg (gross), with a net CL PCC of approximately 4.1 million kg.
- Lenovo introduced ocean-bound plastics (OBP) content in speaker enclosures, dummy smart cards and dummy SIM covers. For these, the company used 10,800 kg (gross) of plastics containing OBP, with a net OBP of approximately 540 kg in 2022.

- Since 2005, the cumulative use of recycled plastics in products exceeds 130 million kg (gross), containing post-industrial recycled content (PIC) plastics, PCC and/or CL PCC, with net PCC of approximately 54 million kg and net CL PCC of more than 18 million kg.
- By 2026, the company aims to use recycled plastics for 90% of plastic packaging for PC products and 60% for smartphone packaging.
- The company launched packaging cushions containing 30% OBP and 70% recycled plastic, and it uses OBP in bags. These applications will use an estimated 130-140 tonnes of OBP this year.
- The company aims to eliminate plastic materials from product packaging and has achieved this for the ThinkPad X1 and Z series.
- Lenovo aims to recycle/reuse a cumulative 800 million pounds (362,874 tonnes) of end-of-life products between during 2005-2025.



3

Financial institutions' nature and biodiversity risks and opportunities

Financial institutions need to incorporate nature and biodiversity risks and opportunities into their lending and investment decisions.

In line with the GBF's target 15, financial institutions (FIs) will need to better assess and disclose nature-related impacts and dependencies in their investment and loan portfolios and better manage the associated risks and opportunities.

In December 2022, the People's Bank of China (PBOC) Research Institute of Finance and Banking published its [Survey Report on Financial Support to Biodiversity](#). It found that financial development and biodiversity are mutually dependent. Biodiversity loss brings physical and transition risks to the financial industry, while an optimal allocation of resources through financial means can contribute to biodiversity

conservation. The biodiversity financing gap remains sizeable, and transition risks are surfacing.

The report made several recommendations, including:

- Require FIs to better evaluate and manage biodiversity-related risks.
- Promote more efficient conversion of ecological benefits into economic benefits.
- Encourage new financing models for biodiversity conservation.

3.1 Managing financial institutions' biodiversity-related risks

Biodiversity loss brings risks to FIs via physical and transition risks to companies in their investment and lending portfolios. Physical risks originate with those companies' dependence on ecosystem services (as illustrated by the analysis in section 1). Transition risks originate from portfolio companies' adverse impacts on nature and society's efforts to reduce those impacts (e.g. through litigation, regulation, etc.), as illustrated by the example in Box 5.

By better managing biodiversity risks, FIs will play an essential role in shifting funding away from activities with negative impacts on nature and towards those with more benign impacts. Regulators can support this by enhancing biodiversity-related ESG reporting requirements.



Financial institutions are not well prepared to effectively manage biodiversity risks. Without a deep understanding of these risks, banks have not fully incorporated them into their risk management process. Surveys show that some banks haven't taken environmental factors into their credit models, allowing businesses to obtain credit despite past or ongoing environmental penalties.

People's Bank of China Research Institute of Finance and Banking, [Survey Report on Financial Support to Biodiversity](#)

China's growing focus on biodiversity has resulted in more stringent conservation policies. The "Yunnan green peacock case" was China's first preventive public interest action to protect endangered wildlife.⁶⁵ The case was chosen as one of the 10 most important decisions of 2021 by the Supreme People's Court, China's top court.^{66,67}

In this case, a hydropower project on the Gasajiang River in Yunnan was halted because it threatened the habitats of two endangered species. This came after it had already incurred billions of yuan in investment and despite the fact that the project had followed the proper procedures.⁶⁸

The Yunnan green peacock case demonstrates the potential transition risk for FIs that fail to fully assess biodiversity-related risks and incorporate them into lending and investment decisions. According to the PBOC Research Institute of Finance and Banking, "This case shows that large-scale projects come with a long project period and high environmental risks, and present substantial uncertainty to financial institutions as they cannot prevent or control the risks at the late stage of projects with sole dependence on environmental impact assessment (EIA) and related permits."⁶⁹

The following are examples of approaches that FIs can take to better manage their biodiversity-related risks.

Exclusion lists and targeted due diligence processes

FIs can promulgate an exclusion list to stop financing activities that have excessively high negative impacts on biodiversity and where no transition pathways are possible. The FI would refuse to finance or invest in these activities. A more restrictive approach is to refuse to provide any services at all to companies that engage in these activities.

For existing clients, an engagement-focused approach is typically preferred. FIs can require clients to have a publicly announced time-bound transition plan to phase out the excluded activities and can support those clients in their transition. For this approach to be effective, the FI needs to clearly state that it will exit clients that fail to make progress in halting the excluded activity.

FIs can implement ESG screening procedures that require enhanced due diligence on transactions and clients involving high-risk commodities, business activities, project types and locations.

CASE 5

ICBC Standard Bank's list of banned activities⁷⁰

ICBC Standard Bank, a London-headquartered subsidiary of the Industrial and Commercial Bank of China (ICBC) with a large commodities and emerging market focus, has issued a list of banned activities that entail high environmental risks, including climate-, deforestation- and biodiversity-related risks. The bank will not directly facilitate the banned activities with any current or prospective clients.

In 2022, the bank adopted a multi-stage client due diligence process. First, clients are evaluated against a set of criteria, such as sector, country and ownership, to determine potential ESG touchpoints that require further investigation. If the pre-assessment flags any ESG risks of concern, an in-depth ESG risk evaluation is conducted that measures clients against up to fifty questions. Analysis showed that about 10% of existing clients would be subject to such in-depth evaluation.

TABLE 4 | ICBC Standard Bank's banned list

Sector	Activity
Mining	Mountain top removal
Energy	Arctic circle drilling and exploration
	Tar sands drilling and exploration
Fisheries	Commercial drift net/bottom trawling fishing
Agri-commodities	Deforestation and/or burning tropical rainforest to produce agri-commodities
	Production or trading in palm oil

Project financing requirements for NNL of biodiversity

By making project financing contingent on delivering NNL of biodiversity, FIs can mitigate their financed impacts on biodiversity and reduce the nature- and biodiversity-related transition risks in their investment and lending portfolios, such as those illustrated by the Gasajiang River hydropower project (see Box 5).

NNL requirements for project financing are aligned with the PBOC recommendation that financial institutions better manage environmental risks by making the mitigation of biodiversity impacts (through the application of the mitigation hierarchy) a component of project screening and due diligence

while excluding projects that involve ecologically important areas or irreversible biodiversity impacts.⁷¹

Achieving China's double-carbon goals (peak carbon emissions by 2030 and carbon neutrality by 2060) will require massive amounts of project financing for low-carbon energy and transport infrastructure, electric vehicle and battery manufacturing, and raw material extraction projects (for copper, cobalt, nickel, lithium, etc.). If China's largest banks implemented biodiversity NNL policies, they could play a significant role in mitigating negative impacts on biodiversity both in China and in Belt and Road Initiative (BRI) projects while at the same time reducing their own biodiversity-related transition risks related to litigation, stranded assets and reputational damage.

CASE 6

Equator Principles Financial Institutions

When providing project financing, Equator Principles Financial Institutions require those projects to comply with the IFC Performance Standards (IFC PS).⁷² This includes a requirement to achieve NNL of biodiversity in natural habitats – and a net biodiversity gain in critical habitats – through the application of the mitigation hierarchy.⁷³

Industrial Bank reports that it has applied the Equator Principles to a total of 1,346 projects as of 2022, involving a total investment of over CNY 500 billion.⁷⁴

China's Green Investment Principles, a platform to enhance green financing across the Belt and Road Initiative (BRI), has set a target to increase the number of financial institutions committing to the Equator Principles.⁷⁵

CLP, one of Hong Kong's leading energy companies, has implemented its own NNL policy for new projects.⁷⁶ In 2020, 70% of the company's financing for new projects came from Equator Principles Financial Institutions.⁷⁷

Equator Principles Financial Institutions with headquarters in Mainland China or Hong Kong:⁷⁸

- Bank of Chongqing (2021*)
- Fujian Haixia Bank (2021*)
- Bank of Guizhou (2020*)
- Industrial Bank (2008*)
- Bank of Huzhou (2019*)
- Mian Yang City Commercial Bank (2020*)
- Bank of Jiangsu (2017*)
- Weihai City Commercial Bank (2021*)
- Chongqing Rural Commercial Bank (2020*)

*Date of adoption

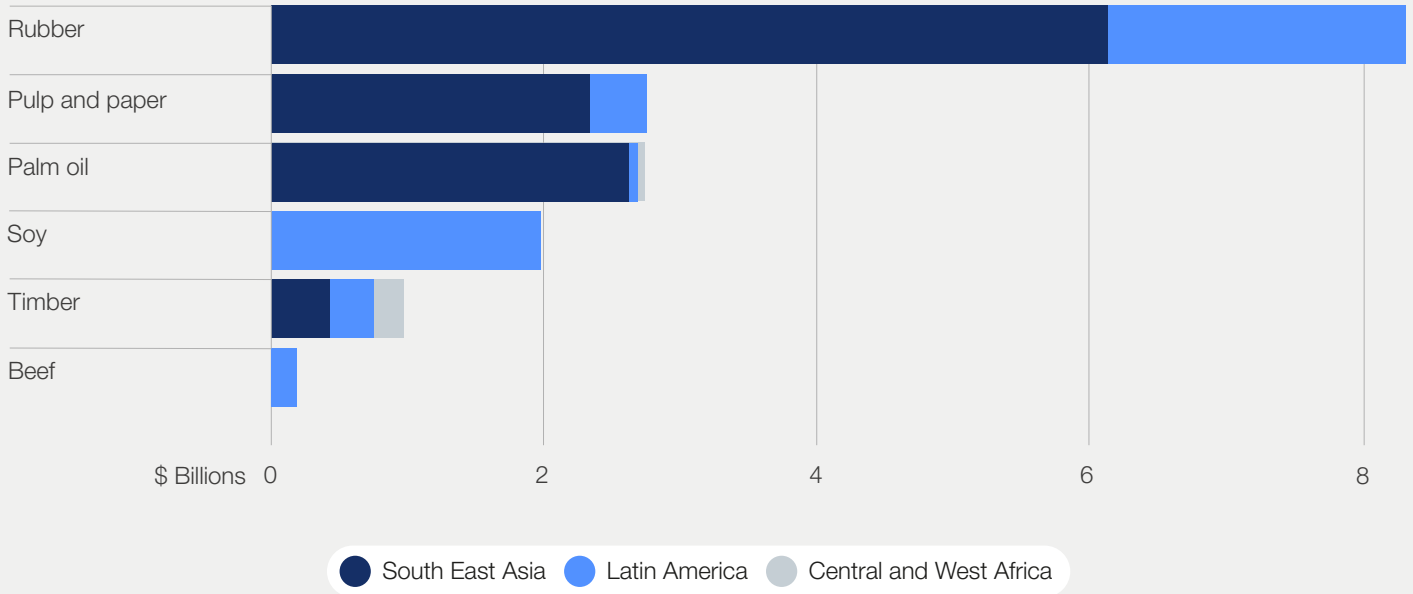


Mitigating FIs' deforestation and conversion risks

more than \$16.6 billion in financing to companies in forest-risk commodity supply chains in South-East Asia, Latin America, and Central and West Africa.⁷⁹

From 2018 through 2022, FIs from Mainland China and Hong Kong are estimated to have extended

FIGURE 9 **Estimated 2018-2022 financing from Mainland China and Hong Kong FIs to companies in tropical deforestation-risk commodity supply chains**



Source: Forests and Finance Database

FIs can mitigate biodiversity risks related to agricultural expansion in their lending or investment portfolios by setting requirements for investee companies or companies seeking financial services. Examples include:

- Companies and their suppliers must make a time-bound commitment to achieve zero deforestation and conversion of natural habitats in their beef and soy supply chains and a time-bound commitment to have full traceability of beef and soy channels.
- Palm oil producers must have a time-bound plan for full RSPO certification of their operations. Companies processing or trading palm oil must have a time-bound plan to trade and process only RSPO-certified oil.

- Companies and their suppliers must not drain or degrade wetlands or peatlands, use fire for land-clearing activities or degrade high conservation value (HCV) and high carbon stock (HCS) areas.

Global Canopy's Forest 500 identifies the world's 150 FIs with the greatest influence on and exposure to tropical deforestation and ranks them based on the strength and implementation of their commitments on deforestation and human rights. Of the six Chinese banks covered in the 2022 Forest 500 ranking, two ranked in the top 50% and four ranked in the bottom 30%.⁸⁰

CASE 7

Bank of China's approach to environmental risk control and mitigation⁸¹

Bank of China's exclusion list includes deforestation- and conversion-related activities, as well as a clear statement that it will exit clients that fail to make relevant rectifications.

"For the enterprises/projects that are found to go against national policies and regulatory requirements, fail to meet environmental protection standards, and have significant environmental and climate risks; destroy critical habitats, important biodiversity areas and national nature reserves;

illegally log, fish and poach wildlife; blindly expand oil palm plantations leading to deforestation; and illegally occupy and destroy forest lands, the Bank requires not providing credit or investment support for these corporate customers or their projects; as to the existing business relations, it shall urge related customers to make rectifications and take effective measures to mitigate risks; and if rectifications are impossible, it shall exit from the business relations with such customers as soon as possible."

3.2 Nature- and biodiversity-related opportunities for private sector financing

There is a growing number of mechanisms for private sector funding of investments that support the protection or restoration of biodiversity. New financing vehicles will continue to be developed based on evolving investor and borrower demands, new policy incentives, regulatory guidance to banks, and new nature-focused applications of existing and emerging financial instruments. Capturing these

opportunities will be aligned with the GBF's target 19 on mobilizing additional funding for biodiversity.

The following are examples of financial products and structures that can channel funding to activities aligned with reducing negative impacts and increasing positive impacts on nature.

Green bonds

Green bonds are any type of bond instrument where the proceeds will be exclusively applied to finance (or refinance) projects that have clear environmental benefits and are aligned with the core components of the Green Bond Principles.⁸² During the years 2014-2022, just over \$2 trillion worth of green bonds were issued globally.⁸³ These account for less than 2% of the approximately \$120 trillion global bond market⁸⁴ – indicating potential for significant growth.

To date, 77% of global green bond proceeds have been used in the energy, buildings and transport sectors.⁸⁵ The GBF and the growing focus on nature could drive increased issuance for biodiversity-relevant green project categories, such as pollution prevention, environmentally-sustainable management of living natural resources and land use, terrestrial and aquatic biodiversity conservation, wastewater management, circular-economy projects, etc.⁸⁶

CASE 8

Bank of China issues CNY 1.99 billion biodiversity-themed green bond

Bank of China issued the world's first biodiversity-themed green bond from a financial institution⁸⁷ in September 2021. There were six eligible green projects to be funded, including terrestrial and aquatic biodiversity conservation projects and forest reserve projects in various parts of China. Their approximate total value was CNY 1.99 billion (about \$280 million).⁸⁸



Carbon markets

Carbon markets can bolster financing for nature and biodiversity via nature-based climate solutions. Globally, the voluntary carbon credit (or offset) market is estimated at \$2 billion, with the potential to reach \$1 trillion by 2037.⁸⁹

China is preparing to reboot its market for domestic voluntary carbon credits, the China Certified Emission Reductions (CCER) scheme, with increased emphasis on forestry projects.⁹⁰ China's national emissions trading system (ETS), launched in 2021, is driving new demand by allowing companies to cover up to 5% of their compliance obligation with CCERs.⁹¹

This growing demand for voluntary carbon credits is enabling new funding mechanisms for biodiversity in China. For example, carbon sink loans provide lending that is secured by the future market value of carbon credits generated by forest or wetland restoration projects.

Approvals for carbon credit projects and financing should be subject to biodiversity-related requirements such as the IFC Performance Standards⁹² or the IUCN Global Standard for Nature-based Solutions⁹³ to ensure that carbon-focused nature-based solutions result in a net gain to biodiversity and ecosystem integrity.⁹⁴

CASE 9

Industrial Bank issues CNY 70 million wetland carbon sink loan⁹⁵

The Xiazhu Lake Wetland, located in Deqing County of Zhejiang Province is a national wetland park and tourist attraction, with more than 800 species of plants and animals. In November 2022, Industrial Bank granted it a project loan of CNY 70 million, specifically for the wetland's

ecological protection and improvement. Income from the wetland's carbon sink is one of the sources of repayment for the project, opening a green financial channel for wetland ecological governance and wetland biodiversity protection.

Insurance to support biodiversity conservation

Insuring against damage caused by wildlife, with streamlined insurance compensation, can ease potential conflicts between humans and wild animals. Yunnan province introduced public liability insurance for personal or property damage caused by wildlife. Province-wide coverage was achieved

in 2014. Since 2011, policies jointly underwritten by CPIC Property Insurance and PICC P&C have paid CNY 140 million in claims. In May 2022, Qinghai province released the *Pilot Program of Insurance Compensation for Personal and Property Damage Caused by Terrestrial Wildlife in Qinghai Province*. This province-wide, government-funded liability insurance for wildlife damage made it the leading province in terms of geographic coverage and scope of compensation.⁹⁶

CASE 10

CPIC's Yunnan branch develops first wildlife public liability insurance⁹⁷

In 2009 the Yunnan Provincial Forestry Department and CPIC's Yunnan branch developed the first wildlife public liability insurance, based on intensive research and a series of field surveys. This innovation introduced the concept of insurance

to the ecological compensation mechanism and transformed government compensation into commercial insurance compensation as a government function. It has been recognized for its contribution to poverty alleviation in Yunnan.



4

Enabling environment: public sector mainstreaming of nature and biodiversity

Dependent on ecosystem services, China has made significant efforts to fund biodiversity protection and integrate nature into policy-making.

“Clear waters and lush hills are worth a mountain of gold and a mountain of silver”,⁹⁸ is an important government recognition that stewardship of natural capital and ecosystem services is integral to and necessary for achieving economic growth that is measured in monetary terms.

According to the PBOC Research Institute of Finance and Banking, a major challenge to biodiversity financing is that “biodiversity-related projects are mostly public interest or quasi-public interest undertakings with long life cycles, limited investment returns and little short-term economic benefits.”⁹⁹

“Underdeveloped supporting policies – security against risks, compensation mechanisms, tax relief and interest subsidies – have also, to some extent, restricted financial support for biodiversity projects.”¹⁰⁰

These factors make public-sector funding essential when market mechanisms fail to attract sufficient private-sector investment in conservation and restoration.

The following are examples of policy, regulatory and public-sector financial measures that support the enabling environment for China’s transition to a nature-positive economy. Each of these helps protect the public goods of natural capital and ecosystem services on which society, the economy and business depend. Each will have important implications for local economies and business environments.

4.1 Biodiversity-inclusive spatial planning

The GBF’s target 1 calls for all areas to be under integrated biodiversity-inclusive spatial planning and/or effective management processes addressing land- and sea-use change.¹⁰¹

China is the first major economy to implement a functional zoning system that designates land areas at a national level for urban development, agriculture and various ecological functions – including 63 key ecological function zones (KEFZs) that cover about half of the country’s total land area¹⁰² and

extend to more than 800 counties. The KEFZs aim to sustain five ecosystem services: water retention, biodiversity protection, soil retention, sandstorm prevention and flood mitigation.¹⁰³

China’s ecological protection redlines entail spatial zoning by provinces at a more refined scale¹⁰⁴ to protect important ecosystem services and ecologically valuable or sensitive areas.¹⁰⁵ These cover 30% of China’s land area and more than 150,000 km² of marine environment.¹⁰⁶

4.2 Assessing the value of ecosystem services

A fundamental step in enabling the nature-positive transition is the qualitative and quantitative assessment of natural capital and the ecosystem services that it provides to society. Estimating their monetary value enables consideration of nature in various decision-making contexts, such as evaluation of government policy and performance, land-use and infrastructure planning, financial compensation for ecosystem services suppliers, and assessing business dependencies and impacts on nature.^{107,108}

Aligned with the GBF's target 14, China is mainstreaming the measurement and use of gross ecosystem product (GEP), i.e. the total economic value of ecosystem services produced within a given geography. China is the first country to adopt GEP in economic planning.¹⁰⁹ It aims to have an initial methodology in place by 2025 and a complete mechanism for realizing GEP by 2035.¹¹⁰ Currently, 17 provincial and 50 city governments are implementing GEP pilots.¹¹¹

CASE 11

Shenzhen publishes first complete GEP accounts in China

In 2021, Shenzhen published the first complete GEP accounting system in China,¹¹² and reported a GEP of CNY 130.38 billion (\$20.36 billion) consisting of CNY 2.35 billion worth of provisioning services, CNY 69.95 billion worth of regulating services (including CNY 48.8 billion worth of

climate regulating services) and CNY 58.07 billion worth of nonmaterial services (including CNY 41.9 billion of tourism and leisure services.)¹¹³ Going forward, the city aims to grow both GDP and GEP.¹¹⁴

4.3 Public funding for nature and biodiversity protection

The GBF's targets 18 and 19 aim to increase biodiversity funding by repurposing harmful subsidies and by increasing funding from public and private sources.

China has invested trillions of yuan in ecological compensation programmes, mostly since 1998, for soil and water conservation in the Yellow River and Yangtze River basins, forest conservation, desertification mitigation, agricultural productivity,¹¹⁵ and wetland restoration and protection.¹¹⁶

China's ecological compensation mechanism, generally speaking, attempts to reduce conflicts between development and conservation by having beneficiaries (e.g. downstream urban residents) pay suppliers (e.g. upstream rural residents) to protect ecosystems for specific services (e.g. supplying clean water).¹¹⁷ The central government transferred about CNY 413 billion (\$58 billion), for example, to

local governments during the years 2018-2022¹¹⁸ to compensate for restrictions on development in KEFZs and to incentivize improved management.¹¹⁹

In September 2021, the government laid out goals for improving ecological compensation mechanisms to address forests, grasslands, wetlands, marine environments, rivers and croplands.¹²⁰ The most business-relevant goals include:

- Increasing the role of market mechanisms and diversified compensation approaches to help regions that conduct ecological protection obtain benefits and encourage the whole society to participate.¹²¹
- Improving ecological subsidies and compensation for the protection of agricultural land, including the promotion of conservation tillage and crop rotation.¹²²



4.4 Creating an enabling market environment for nature-positive business and investment decisions

Governments have a role to play in setting market rules that impose extra costs for negative impacts, reward positive impacts and create a level playing field by setting minimum sustainability requirements that compel all participants to internalize the cost of addressing their impacts on nature. Market mechanisms can help spur innovation and drive efficiency by allowing companies to find the most cost-effective means of addressing impacts on nature.

- China's carbon markets are an emerging example of environmental market mechanisms, including both the national allowance-based ETS and voluntary CCERs.
- EPR schemes can require every company that puts plastics (and other materials) on the market to pay for their collection and recycling.
- Mandating minimum levels of recycled content can create the necessary level of demand to make recycling economically sustainable.
- Restricting water pollution from agriculture and aquaculture can level the playing field for sustainable practices and incentivize more efficient conservation measures and innovative chemical-free approaches to yield enhancement and intensification.
- Central bank relending programmes can provide funding to commercial banks for low-interest relending to fund activities that reduce negative impacts or increase positive impacts on nature.

4.5 | Examples of public-private collaborative actions to protect and restore nature and biodiversity

The following case studies are examples of public sector investments in protecting and restoring natural capital and the biodiversity on which it depends. They illustrate the potential for government

policies to create ecological and social benefits as well as business opportunities in activities such as ecotourism, agriculture, aquaculture, ecosystem restoration and construction.

CASE STUDY 4

Ecosystem restoration and valuation in the construction of Chengdu Huancheng Ecological Park

Chengdu Xingcheng is building the 133 km² Huancheng Ecological Park,¹²³ which encircles the city of Chengdu. With completion expected in 2027, more than 38 km² of land and 12 km² of urban water ecosystems are being restored,¹²⁴ including several wetlands. 100,000 mu (66.7 km²) has been allocated for agriculture,¹²⁵ including 6,372 mu (4.2 km²) for agricultural demonstration projects and research.

Experts estimate that the park's annual GEP, after completion, will be CNY 26.9 billion.¹²⁶ Several government bodies and academic institutions are building a system, including sensors and procedures, to continue the assessment and monitoring of the park's GEP, including its land remediation and ecological restoration. Both a tailored methodology and a GEP assessment report have been published.¹²⁷

Eight of the park's wetland projects have been listed on the Sichuan United Environmental Exchange (SUÉE) in the province's first emissions reduction transaction for ecologic protection.¹²⁸ The resulting Chengdu Certified Emission Reduction (CDCER) carbon credits secured a CNY 10 million credit line with a 1.8% annual interest rate, provided by Industrial Bank to Chengdu Xingcheng¹²⁹ – demonstrating how innovative financial structures can be used to convert ecological benefits into economic benefits. Chengdu Xingcheng Investment Group also raised \$300 million for the project by issuing a five-year green bond in Hong Kong with an interest rate of 2.375%.¹³⁰

With 621 km of multi-level greenways, 78 landscape bridges and other facilities for culture and recreation,¹³¹ the park is expected to improve quality of life for Chengdu's residents and attract tourists. For the surrounding areas, it is expected to attract new talent and business investment and benefit property prices. It is estimated that, by 2050, the park will drive about CNY 1 trillion of value creation related to consumption and livelihoods.¹³²

Revenue from recreation and cultural activities is projected to more than cover the park's operating costs.¹³³ There are 337,000 m² of characteristic parks that will be completed in 2023 and opened for leasing, with expected revenues of over CNY 20 billion during the period of the project. Revenues from the park's 177,000 m² forest esplanade are expected to exceed CNY 10 billion. Other sources of revenue will include parking lots, advertising, leasing of land, etc.¹³⁴

Other highlights include:

- The number of bird species inhabiting Chengdu increased from 384 to 511¹³⁵
- 240,000 trees planted¹³⁶
- 1,900 tonnes/year of CO₂ absorption capacity¹³⁷
- 2,000 tonnes/year of dust prevented from polluting the air¹³⁸
- 120 million visits logged as of February 2023¹³⁹



Changshu multistakeholder urban wetlands restoration approach

The Changshu Wetland Innovative Model of Urban Development and Wetland Conservation was awarded the Paulson Nature Stewardship Prize for Sustainability.¹⁴⁰

Changshu, located at the southern end of Suzhou municipality, is characterized by its high population density,¹⁴¹ agriculture and aquaculture. It is estimated to have approximately 2,000 small and micro wetlands.¹⁴² Many of Changshu's wetland areas have already been urbanized or converted to agriculture, and so efforts cannot be limited to restoring original wild habitats and ecosystems. Instead, a "three-factor integrated development model" incorporates ecological protection, agricultural production and the lives and livelihoods of wetland village residents¹⁴³ to ensure a deeply integrated approach to local community development and wetland protection.¹⁴⁴ These restoration efforts have not only improved the state of local ecosystems but have also fostered economic growth from activities such as tourism, agriculture and aquaculture.¹⁴⁵

Changshu considers the importance of wetlands in spatial planning and city management.¹⁴⁶ The Changshu Wetland Administration Committee has established a consultative committee to include people from different stakeholder groups, such as scholars and community representatives, in wetland decision-making and management.¹⁴⁷ Wetland restoration has been integrated into a sustainable tourism plan, providing recreation opportunities for local residents and visitors.¹⁴⁸ Nature-based solutions have been used to address various issues; for example, ecological percolation islands were used to address sediment pollution caused by aquaculture in the Nanhu wetland.^{149,150}

Between 2010 and 2022 the Suzhou municipal government invested CNY 12 billion in ecological compensation funds,

providing compensation for ecological protection of 1.149 million mu (766 km²) of rice fields, 315,000 mu (210 km²) of ecological public welfare forests, 172 wetland villages, 50 water source villages, and 102,600 mu (68.4 km²) of scenic spots.¹⁵¹

Highlights of the restoration include:

- The value of ecosystem services provided by Changshu's wetlands in 2021 was estimated at nearly CNY 100 billion.¹⁵²
- The wetland protection rate increased from 5.5% (2011) to 65.3% (2023).¹⁵³
- Water quality in key wetlands improved from grade V to grades II/III.¹⁵⁴
- Municipal water quality segments achieving grades I-III increased from 26% (2015) to 78% (2021).
- Bird species increased from 136 to 319.¹⁵⁵
- Revenue from mitten crabs and aquatic crops reached CNY 2.5 billion.¹⁵⁶
- Income from wetland crops such as paddy rice, wild rice, water shield, water chestnuts, fox nuts, lotus, arrowhead and water cress grew to CNY 960 million.¹⁵⁷
- Annual tourism, driven mainly by wetland parks, reached 20 million visits, with revenue of CNY 30 billion.¹⁵⁸
- Other contributions to the local economy include increased property values and attracting new industries.¹⁵⁹



Conclusion

With 55% of global GDP and more than half the value of companies listed on China's stock exchanges moderately or highly dependent on nature, business leaders need to put nature at the same level as climate change in their corporate governance and risk management.

The integration of nature and biodiversity into decision-making and strategy is at the core of becoming a nature-positive business. Companies need to assess their baseline dependencies and impacts on nature – including those of their supply chains. Based on that understanding, they can identify risks and opportunities and adjust their business model to address those. Public, time-bound commitments to address specific biodiversity-related risks and impacts can build credibility, enhance accountability and serve as high-level focus points for plans and actions. For more details on how to take nature-positive corporate action, please refer to Appendix 2 for useful frameworks and guidance.

This report highlights disclosure of biodiversity risks and biodiversity-related commitments by corporates and financial institutions. There has been a lack of widely agreed metrics and methodologies for companies to quantify impacts and dependencies on nature, but 2023 has seen the emergence of new frameworks, metrics and methodologies from organisations such as TNFD and SBTN. Corporates and financial institutions will also require new skill sets and resources to address their biodiversity-related risks and opportunities and to fulfil emerging disclosure expectations and requirements.

Financial institutions will need to better evaluate and manage biodiversity-related risks to protect the value of their asset portfolios. Regulators can support this by enhancing biodiversity-related corporate ESG reporting requirements. With improved understanding, there will also be opportunities to offer new financing structures and products.

Nature and ecosystem services are public goods upon which businesses, the economy and society depend, so the public sector must play a leading role in protecting and restoring biodiversity. Creating a market environment that supports business activities that are both ecologically and economically sustainable is essential.

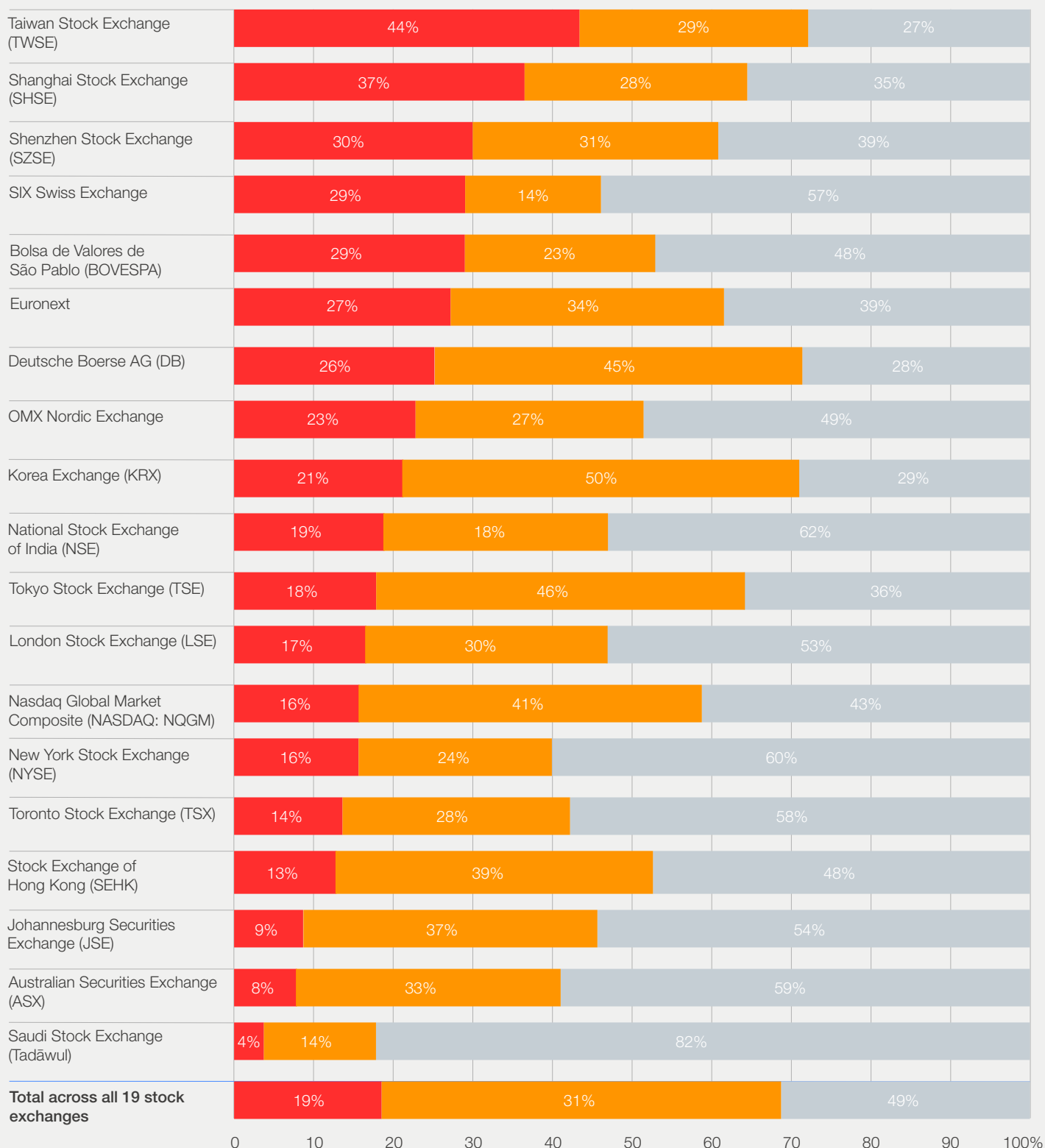
To succeed, China's biodiversity conservation and restoration efforts will need to bring benefits to local communities and create market conditions for economically sustainable nature-positive business models that convert ecological benefits to economic benefits. A cooperative and multistakeholder approach will be necessary to preserve nature and ecosystem services, public goods that provide essential benefits to all of society. Success will depend on action and cooperation by all levels of government and by all actors of society.

Appendices



A1 | Exposure of stock exchanges to nature-related risk

FIGURE 10 | Market capitalization of listed companies with high, moderate or low dependence on nature



Dependence on nature: ● High ● Moderate ● Low

Note: Here, nature dependence measures the degree to which the economic value generated by business activity is exposed to the risk of ecosystem disruption. High dependence means that economic value comes from business activities that could fail financially as a result of particular ecosystem disruptions. Moderate dependence means that economic value comes from business activities that are likely to experience a material reduction in financial returns because of particular ecosystem disruptions. Low dependence means that economic value comes from business activities that are likely to experience limited material financial effects of ecosystem disruptions.

Source: EXIOBASE; ENCORE database; S&P Capital iQ; PwC UK

A2 Frameworks and guidance for businesses to manage nature-related risks and opportunities

- The [Taskforce on Nature-related Financial Disclosures](#) (TNFD) framework offers guidance for companies and financial institutions to assess their dependencies and impacts on nature, develop a strategy and organization to manage the relevant risks and opportunities and report on all of these.
- The Science-based Targets Network (SBTN) provides a [five-step process](#) for setting, implementing and tracking progress on science-based targets for nature.
- The Natural Capital Protocol provides a [framework](#) for companies to identify, measure and value their direct and indirect impacts and dependencies on natural capital.
- Business for Nature’s [ACT-D framework](#) provides an overview of high-level business actions on nature.
- The [Accountability Framework Initiative](#) (AFI) uses consensus-based guidelines for companies in the agriculture and forestry sectors to provide a roadmap for achieving ethical supply chains that protect forests, natural ecosystems and human rights.



A3 Potential for business opportunities and jobs from China’s nature-positive transition

The World Economic Forum’s [Seizing Business Opportunities in China’s Transition Towards a Nature-positive Economy](#) lays out a roadmap for Chinese companies to seize the business opportunities offered by 15 priority transitions in three key socioeconomic systems that together

can pave the way to a people- and nature-positive development that will be resilient to future shocks. These transitions are projected to add \$1.9 trillion in annual business value and potentially create 88 million jobs in China by 2030.¹⁶⁰

TABLE 5 | Food, land- and ocean-use systems

Opportunity and size by 2030	(\$ billion)	Jobs (000s)
Organic food and beverages	99	8,257
Reducing supply chain food loss and waste	87	1,293
Diversified vegetables	62	5,154
Eco-tourism	53	283
Reducing consumer food waste	46	6,866
Sustainable aquaculture	42	3,544
Alternative meats	25	353
Micro-irrigation	20	226
Sustainable inputs	19	1,599
Circular models – textiles	18	566
Nuts and seeds	15	1,276
Wild fisheries management	15	1,262
Technology in smallholder farms	10	304
Restoring degraded land	7	240
Sustainable forestry management	7	545
Technology in large-scale farms	6	135
Bivalves protection	6	473
Plant-based dairy	5	169
Technology in wood supply chains	4	441
Urban agriculture	4	350
Preventing food to landfill	3	64
Natural climate solutions/ forest ecosystem services	3	240
Non-timber forest products	3	215
Bio-innovation	3	52
Livestock intensification	2	24
Agro-forestry	1	125
Certified sustainable foods	0	17
Farm-to-fork models	0	3
Total	565	34,076

TABLE 6 | Infrastructure and the built environment

Opportunity and size by 2030	(\$ billion)	Jobs (000s)
Energy-efficient buildings	161	12,178
Sustainable infrastructure finance	91	9,147
Repurposing land from parking	86	881
Green long-range transport	52	2,155
Waste management	39	1,035
Water & sanitation infrastructure	32	3,245
Residential sharing	28	178
Natural systems for water supply	21	688
Office sharing	19	121
Municipal water leakage	16	36
Smart metering	13	26
4IR-enabled long-distance transport	10	137
Wastewater reuse	9	274
Energy access	7	271
Building resilience to climate shocks	3	63
Urban green roofs	2	149
Total	589	30,584

TABLE 7 | Energy and extractives

Opportunity and size by 2030	(\$ billion)	Jobs (000s)
Circular economy models	275	8,545
Renewables expansion	157	7,867
Resource recovery	118	322
End-use steel efficiency	87	933
Water efficiency in mining	34	878
Additive manufacturing	19	558
Mine rehabilitation	16	1,619
Energy and mining supply chain technology	14	1,443
Sustainable substances in extraction	10	59
Redesign of dams	5	466
Shared infrastructure	4	387
Total	739	23,077

Note: Annual business opportunity based on estimated savings or projected market sizing in each area. These represent revenue opportunities that are incremental to business-as-usual scenarios. Where available, the range is estimated based on analysis of multiple sources. Rounded to the nearest \$1 billion.

Source: World Economic Forum, *Seizing Business Opportunities in China's Transition Towards a Nature-positive Economy*, 2022.

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