



Innovative Green Finance

Report of the 2022 CCICED Scoping Study: Innovative green finance

Overview: Green financing has increased dramatically in recent years and now covers the full spectrum of financial services, from consumer and corporate banking to asset management, pension funds, and insurance, among others. This scoping study, launched in early 2022, examined some recent developments in innovative green finance. Given the widening and dynamic advances in green finance, coupled with the degree of technical details within individual areas, this report is intended to illustrate the kinds of green finance issues CCICED should examine in Phase VII.

China remains a global source of innovative green finance. Momentum continues at the state, provincial, and municipal levels and across different areas of the private sector, particularly in enabling carbon peaking, carbon neutrality, and other green transition implementation. The 2021 26th Conference of the Parties (COP) to the United Nations Framework Convention on Climate Change in Glasgow, the expected Kunming Conference on Biodiversity (CBD) COP, and other multilateral initiatives (such as the China-hosted November 2022 RAMSAR Convention meeting) are all drivers of expanded green finance, while the 14th Five-Year Plan emphasized the critical role of green finance in moving toward high-quality, green development and ecological civilization. Accordingly, China has issued a number of important guidelines and opinions in recent months covering domestic actions, as well as putting a spotlight on international green finance linked to Green Belt and Road (BRI) priorities.

Green finance has two main characteristics. The first comprises top-down, mandatory compliance markets such as China's national carbon market, emerging rules like mandatory climate risk disclosure, the reform of subsidies, incentives, and taxes to advance green development, and a wide range of public investments. The second comprises bottom-up, market-driven voluntary green financing instruments like environment, social, and governance (ESG) products, private sustainability supply chains for green goods and services, voluntary carbon offset markets, the growing demand for green consumer goods and services, and many other initiatives.

A key goal is to build synergies between top-down guidance and bottom-up application and innovation in order to create synergies that unleash the full potential of green finance. The green finance journey can further be accelerated with supporting regulations, such as recent steps by China to create a unified energy market,¹ within which green objectives such as linking emerging carbon emissions markets and water rights trading markets are expected to play a role.

¹ April 2022 guidelines from the Central Committee of the State Council intended to create a single, unified and consolidated national energy market sets out steps to integrate market-oriented, industry-based standards with government direction and guidance. The guidelines cover areas like market access and fair competition rules, social credit, procedures to ensure the interconnectivity of energy supply chains, greater standardization of energy infrastructure, and improved energy trading markets guided by market-oriented reforms.

Leveraging private and public partnerships to drive innovation in green finance and integrating climate and natural asset financing are the two overarching objectives of the 2022 CCICED scoping study. The study stresses the vital importance of integrating climate and biodiversity finance. While science unambiguously concludes that climate and ecological risks are deeply interconnected, climate and nature financing are not.² Instead, climate and ecological

financing are largely moving on separate tracks, with private sector engagement in climate finance continuously rising, while ecological and biodiversity financing are still dominated by public finance. The study examines how these gaps can be closed.

The international co-chairs of the CCICED scoping study are **Violante di Canossa**, Development Economist, Head of Research and Policy Team, United Nations Development Programme (UNDP) China, and **Andrew Deutz**, Director of Global Policy, The Nature Conservancy. The scoping study benefited from the opinions and advice of Chinese and international experts, who met several times between January and April 2022.

The 2022 scoping study drew on a number of recent and current CCICED works, including the [2021 CCICED Special Policy Study on Green Finance](#), the [2021 Scoping Study on Nature Based Solutions](#), the [2022 Special Policy Study on Nature Based Solutions](#), and the [2022 Special Policy Study on Sustainable Food Supply Chain](#).

The study focused on three key areas:

1. The benefits of integrating climate and nature finance
2. Tools, policies, and institutions to advance integrated climate-nature finance
3. Reforming environmentally harmful subsidies and implementing green subsidies

This report is organized as follows: Part One highlights some of the many recent trends in climate and nature finance, particularly in the context of the Glasgow Climate COP and negotiations toward the Kunming Biodiversity COP. Part Two examines the three key areas noted above. Part Three identifies short-, medium-, and longer-term solutions to climate and nature finance. Part Four makes several recommendations to CCICED as it begins Phase VII of its work.

Overall Recommendation: CCICED should prioritize green finance as a cross-cutting and stand-alone research theme throughout Phase VII, with a particular emphasis on two areas: how to integrate climate and nature finance and how to maximize innovation through market-oriented and public sector alignment. Future CCICED work should examine developments in specific areas of green finance such as ESG standards, transparency, auditing and accountability practices, financing nature-based solutions (NbS), sustainable food and green supply chains, voluntary carbon and biodiversity markets, mandatory climate and nature-risk disclosure,

² Economic evidence of the growing risks of climate change, measured both in short-term extreme weather events and longer-term GDP losses, are well established. There is also a growing body of evidence showing that the loss of biodiversity and ecosystems similarly poses immediate and longer-term, cascading macroeconomic risks. Conversely, evidence shows that investing in nature is an investment in future economic prosperity. For example, recent modeling using [GTAP economic data](#) shows the global GDP losses due to the loss of forests, clean water systems, and agricultural lands.

greenwashing, and other areas. Future CCICED should further include identifying how to leverage and increase green finance in the BRI to help meet SDG and the Paris Climate Agreement and Kunming Goals. As an overarching theme, CCICED should identify how to integrate and amplify common prosperity goals, including green jobs and stable wages and household income, as well as closing gender, income, and other inequality gaps.

Part One:

Context: Financing levels, sources, gaps, and options: Both climate and nature finance have increased in the past decade, albeit at different rates of growth. [Global climate finance in 2019–2020](#) was estimated at USD 632 billion annually. [Global biodiversity finance in 2019](#) was estimated at USD 143 billion annually. These levels are insufficient to meet the Paris Climate Agreement target of a temperature rise of only 1.5°C, advance carbon peaking and carbon neutrality, and implement the forthcoming Global Biodiversity Framework of the Kunming CBD process.

The [Climate Policy Initiative](#) estimates a global climate finance gap of USD 3.6 trillion to USD 4.1 trillion annually. A January 2022 [McKinsey Report](#) estimates an investment increase of USD 3.5 trillion yearly will be needed to achieve net-zero transition goals (with a net investment of USD 9.2 trillion), while the [2020 Financing Nature Report](#) estimates a biodiversity financing gap of USD 598 billion to USD 824 billion per year.

Through numerous government opinions, guidelines, and other measures, China continues to emphasize the importance of green finance. For example, in 2021 the Ministry of Finance issued preferential tax rates for enterprises based on energy savings, resource efficiency, and circular economy criteria. In November 2021, the People’s Bank of China ([PBOC](#)) established a new climate financing facility to provide low-interest loans via financial institutions to support company-based low-carbon investments. Other instruments, like [PBOC’s updated 2021 Green Bond Endorsed Projects Catalogue](#), green taxonomy work, and many others, are examined below. Between 2021 and 2022, an estimated 80 climate-related initiatives, from amendments to the green bond catalogue to carbon sequestration financing, have been issued at the state level and by provinces and municipalities, as well as sector-specific directives.

As in other jurisdictions, China’s [national emissions trading scheme](#) is an important source of climate finance: as [China’s ETS compliance carbon market](#) expands from the power sector to other sectors, as well as undergoing the transition from an intensity-based to emission cap system, so too will the revenues generated from these trades. China has also underscored the importance of [carbon sequestration linked to NbS](#).

Biodiversity Financing: The October 2021 [Kunming Declaration](#) noted that “*urgent and integrated action is needed, for transformative change,*” calling for greater coherence between the UN CBD and the United Nations Framework Convention on Climate Change, as well as other international agreements. The March 2022 Geneva Conference of the CBD made progress toward an eventual Kunming COP outcome, although significant square brackets remain. However, there have been a number of national commitments to increase international biodiversity financing, including the 2021 announcement by China of a new Kunming

Biodiversity Fund and announcements by France, the EU, and others in increasing the proportion of overseas development assistance directed toward biodiversity protection.

In addition to increasing public financing of biodiversity, experts underscored the increasing engagement of the private sector. In September 2021, 78 institutions endorsed the CERES [Financial Institutions Statement Ahead of the Convention on Biological Diversity](#), which called for a stronger Global Biodiversity Framework and National Biodiversity Strategies and Action Plans (NBSAPs), mandatory national regulations to implement the recommendations of the [Task Force for Nature Risk Financial Disclosures](#) (TNFD) covering nature-risk disclosure by financial institutions, and the reform of subsidies that are harmful to biodiversity and ecosystems.³

Also in 2021, roughly 30 financial institutions signed the *Financial Sector [Commitment Letter on Eliminating Commodity-Driven Deforestation](#)*, promising to assess their exposure to deforestation risk by 2022, disclose that risk in 2023, and by 2025 announce concrete measures to eliminate agriculture-related deforestation risk. [The Business for Nature Organization](#), an alliance of hundreds of companies, has called for increased action to halt ecosystem destruction and increase restoration.

Storebrand Asset Management, based in Norway, is a signatory to both the CERES and Commodity-related deforestation commitment, in addition to many other green finance initiatives. With US 120 billion in assets, it has a three-part strategy to green finance: exert influence to make companies greener and sustainable through its active ownership of some 4,000 companies; an exclusion list of companies that fail to meet their investment standards covering [conduct-related standards](#) and [product-based standards](#) like tobacco, cannabis, coal, and palm-oil. The current exclusion list comprises 257 companies. In addition, an observation list is maintained to monitor specific companies. In February 2022, Storebrand placed two of the world's largest soybean traders on their [observation list](#) because of the probable effects of deforestation attributed to their soft-commodity supply chains.

In 2021, the Axa Investment Manager Group announced before the 2021 Kunming meeting that it would [strengthen its zero deforestation](#) and green supply chain standards in its investment, insurance, and operations and committed EUR 1.5 billion to sustainable forest management. [BNP Paribas Asset Management](#) announced that by 2025 it would invest EUR 3 billion in terrestrial-related biodiversity protection, as well as EUR 250 million for start-ups to mobilize green development. In 2022, the company was ranked as the [first of 150 financial institutions in protecting forests](#). Following its announcement in 2021 to become a regenerative company, Walmart released a comprehensive [row crop position statement](#) that sets out supplier standards covering climate change impacts, deforestation, and environmental sustainability.

While these and many other private sector commitments to protect and sustainably use biodiversity are important, they pale by comparison with the growing number of climate finance

³ These action areas complement the recommendations of the 2021 CCICED green finance report, which comprise the adoption of TNFD disclosure and the redesign of China's system of agricultural subsidies and farm-support programs away from environmentally harmful outcomes toward systems that protect, restore and regenerate key ecosystems.

commitments made around the Glasgow COP to advance net-zero, carbon neutrality goals. Under the [Glasgow Financial Alliance for Net Zero](#), roughly 450 financial institutions with a reported asset value of USD 130 trillion have joined a number of sector-specific initiatives like the [Net Zero Banking Alliance](#), Net Zero Asset Managers Banking Alliance, [Net Zero Insurance Alliance](#), and the [Paris-Aligned Investment Initiative](#). A critical challenge remains to translate these and other private sector commitments into concrete actions: financing of oil, gas, and coal has increased in the fourth quarter of 2021, while the effects of the crisis in Ukraine have caused chaos in global energy markets in the first quarter of 2022.

Aligned and Integrated Green Finance: 2021 marked an important step at the multilateral level in moving away from separate or silo climate and biodiversity finance. The [Glasgow Leaders' Declaration on Forests and Land Use](#) is a promise by 141 governments to “halt and reverse forest loss and land degradation by 2030.” At the country level, a growing number of nationally determined contributions (NDCs) include [forest landscape restoration](#), related land use, land-use change and forestry, and [water management](#) as part of climate mitigation and adaptation goals. One of the strongest bridges between climate and nature involves NbS: the early 2022 [UNEA-5 resolution on NbS](#) marks the first multilateral definition of NbS, which is expected to increase NbS-related transparency and comparability and, as a result, may unlock additional private sector financing.

Financial Sector Enablers: Among the stark conclusions of the April 2022 Intergovernmental Panel on Climate Change ([IPCC Working Group III](#)) is the characterization of the financial sector as a “critical enabler” of carbon pollution. The IPCC report noted that over half of the world’s largest financial institutions have no restrictions on financing oil and gas, reflecting a “systematic underpricing” of climate risk. Other analysis found that two-thirds of the world’s largest banks and asset managers have no plans to reduce climate financing, and [83 percent of the world’s largest polluting companies](#) have no roadmap towards net-zero targets. In 2020, large commercial banks invested an estimated USD 750 billion in coal, oil, and gas while making Paris-related net zero pledges.

Study experts noted the extremely dynamic scope of recent private sector-led initiatives linking nature and climate. For example, [HSBC Pollination Asset Management](#), a specialized investment firm, intends to invest in regenerative agriculture, sustainable forestry, NbS, and other areas. The dairy company Danone North America—among the founding members of the [One Planet Business for Biodiversity](#)—announced in 2021 that it would co-finance with U.S. National Fish and Wildlife Foundation, research and technical support to [farmers in regenerative soil management](#). The U.S. food giant General Mills has made commitments to support the regenerative soil and land use of its wheat and grain farmers.

Misalignment Risk: Despite top-level multilateral signals and many examples of individual private sector initiatives, climate and nature finance are not currently aligned, and risk growing further apart. This misalignment creates risks to both carbon neutrality and biodiversity goals.

Study experts stressed the science-based, inextricable connection between the climate and biodiversity systems. Risks related to one tend to affect the other—for example, the concurrent,

cascading, and non-linear impacts of climate-related extreme weather events pose increasingly acute risks to biodiversity and ecosystems, that in turn are affecting critical food security, human security, and wider macroeconomic security. [The Working Group II report of the IPCC Sixth Assessment](#) identifies the pervasive negative impacts and future risks to natural ecosystems because of global warming, from ocean acidification and increased forest species mortality to changes in species range and disease vectors.

Critically, these risks are considered material economic and financial risks. The groundwork has been laid out clearly, from economic assessments of ecosystem and natural capital losses in the [2020 Dasgupta Review](#), the growing operationalization of the TCFD recommendations to the financial sector, and growing work by central banks in this area—including the [2019 Bank of England Global Financial Risk Forum, 2020 report](#) of Central Bank of The Netherlands that concluded that ecosystem risk is a widening financial risk, to the 2020 Green Swan Report and 2021 high-level exchanges facilitated by the [Bank for International Settlements](#)—to technical advances among [national statistical agencies](#) in implementing more standardized environmental and ecosystem accounting within national statistical agencies that go beyond [GDP income flow measurement](#) to include broader asset values of inclusive wealth comprising human capital, natural capital, and produced capital.

As the late Thomas Lovejoy noted at a 2021 CCICED meeting on NbS, climate change is part of a wider ecosystem imbalance of global dimensions. Many of these technical areas, from better risk disclosure to wider natural capital accounting, comprise the hundreds of initiatives currently underway and are a welcome solution to correcting current deficiencies. An illustrative description of some of these many initiatives is noted below. A more comprehensive as well as more focused technical assessment should be part of CCICED’s future green finance work.

Part Two

Section One: Opportunities for NbS

Financing for NbS: The term Nature-Based Solutions captures a wide range of definitions, project applications, and underlying values and assumptions. While the term *nature-based solutions* was for the first time formally adopted through multilateral consensus at the early 2022 Fifth session of the United Nations Environment Assembly, UNEA-5, the term remains sensitive.

Increased policy attention on NbS is attracting diverse sources of financing. For example, the UNDP [Human Development Report 2020](#) provides case studies in which private insurers are partnering with government agencies to provide coral reef insurance in Mexico, a collective financing mechanism to develop green infrastructure in support of freshwater management in Ecuador, high-resolution ecosystem mapping in Costa Rica to guide development, and other initiatives.

The [February 2022 UNEA-5](#) resolution marks the first time a multilateral body has adopted by consensus a universal definition of Nature-Based Solutions. This adoption of an international definition, drawing on the work of the International Union for the Conservation of Nature and

others, marks an important step toward common international definitions, project classification, and social and other safeguards and standards that can attract international investors on a greater scale. The recent report, *The [State of Finance for Nature in the G20 Report](#)* of the United Nations Environment Programme (UNEP) and others underscores the importance of making the financial case for NbS:

Nature-based solutions (NbS) is a category of assets in which businesses, governments and citizens can invest in order to work with nature. ... Through the improvement of carbon sequestration on agricultural lands and peatlands, defence from flooding by restoring mangrove populations, and the protection of global biodiversity through forest and other land conservation, nature-based solutions can help improve society today and in the future.

Greater engagement by private investors is needed to close financing gaps currently affecting NbS. Estimates by the 2021 *The [State of Finance for Nature report](#)* suggest USD 133 billion is invested annually in NbS. Of this total, 86% or USD 115 billion is public financing related to conservation, regeneration of forests, peatlands, agriculture, water conservation, and natural pollution control systems.⁴

The report estimates that private sector NbS financing is much lower, at 14% of total annual financing—or USD 18 billion per year—with investments dominated by biodiversity offsets, sustainable supply chains, impact investment, and private philanthropy investments. The report identifies five priorities to increase financing for NbS:

- Increase Overseas Development Assistance
- Reform agricultural subsidies
- Mandate Multilateral Development Banks (MDBs) to increase NbS financing
- Link developing country debt relief with NbS investments
- Support results-based NbS public financing linked to green bonds.

In 2021, UNDP's [BIOFIN](#) in China began work to reduce the biodiversity financing gap by delivering what is available, reallocating resources from where they harm to where they help, acting early to reduce the need for future investments, and generating additional resources. In addition to these four areas, numerous other solutions have been proposed to close financing gaps. For example, a recent Third World Network piece on [post-Glasgow financing](#) noted

⁴Similar estimates by [the Coalition of Private Investment in Conservation](#) (CPIC) indicate that conservation-related investments in 2021 remain overwhelmingly dominated by private debt and equity, followed by real assets. By contrast, tools like publicly traded instruments are rarely used in biodiversity-related finance, compared to renewable energy financing, for example. The CPIC report notes that the main revenue sources associated with conservation finance are dominated by sustainable commodities, which comprise more than half of all private sector investments, followed by returns from carbon and biodiversity credits. The report notes various barriers to scaling up biodiversity finance: a lack of project-ready investments, gaps in international design and measurement standards, and small-scale projects of around USD 5 million. CPIC estimates that 99.7 percent of investors are in Australia, Germany, the Netherlands, South Korea, Switzerland, the United Kingdom, and the United States.

China's use of capital controls to de-link domestic climate financing costs from international trends.

Public– Private Sector/Blended Finance: In addition to private and public financing scaling up nature investments, study experts emphasized the importance of public–private partnerships (PPPs) and blended finance to increase NbS financing. Various standards, guidelines, and projects underscore the potential of PPPs and blended finance, including the role of Development Finance Institutions (see below) in providing front-end concessional financing to help de-risk private sector investments, the willingness of some public finance sources to take on first-tranche losses in de-risking, and the use of guarantees, equity financing, and other approaches, which have been examined and deployed by the [World Bank International Finance Corporation](#), the Organisation for Economic Co-operation and Development ([OECD](#)), and others.

An international PPP example is the 2020 agreement between France's AfD and Blackrock to create a USD 500 million [Climate Finance Partnership](#) for climate infrastructure in developing countries.

Gender Equity and BIOFIN: A priority of UNDP's BIOFIN initiative in advancing gender equity through financing and financial instruments to support women and nature, including through special projects, specialized project workshops, gender balance in teams and other tools. One example of this [work is in Costa Rica](#), which is among the world's leaders in NbS and Payment for Ecosystem Services (PES). Three innovative financial instruments initiated in Costa Rica with the support of BIOFIN are a private capital rural women's credit mechanism, a PES financing mechanism for women working in the forestry sector, and a women's agro-forestry PES credit fund. The impact of these funds is expected to lower financing barriers women face in protecting nature.

The *UNDP Strategic Plan 2022–2025* prioritizes gender equity as one of its six signature solutions, to confront structural obstacles to gender equity and build women's economic empowerment and leadership. An important outcome of the Geneva Conference of the Kunming CBD negotiations in March 2022 was progress in adopting a gender framework for the pending global biodiversity framework that will integrate best practices in gender equity in biodiversity practices. A useful summary of leading gender-nature practices was released by [Women4Biodiversity](#) in late 2021.

Section Two: Initiatives and tools

Business Investment Roadmaps: The January 2022 report [Seizing Business Opportunities in China's Transition Towards a Nature-Positive Economy](#) identifies key transition investment opportunities for businesses in important systems like food and ocean use, energy and natural resources, and infrastructure and the built environment, in which increased nature financing can benefit the economy, create jobs, and support sustainability. The report estimates that investments in China's nature-based economy could add USD 1.9 trillion in business value

and 88 million new jobs by 2030. The report sets out an important framework and roadmap that should guide CCICED's future work in this area.

Natural Asset Class: In September 2021, the New York Stock Exchange and the Intrinsic Exchange Group launched a [new asset class](#) based on nature and the ways that nature provides benefits to people, strengthens economic productivity, as well as taking into account multiple intrinsic values. This natural asset class was examined in the 2021 British Government's [Economics of Biodiversity: The Dasgupta Review](#). The Intrinsic Exchange Group announced work to develop standards to measure and report on the flows of ecosystem services needed to measure this new asset class.

National Green Development Fund: The Fund was launched in 2020 with a capitalization of CNY 88 billion or USD 14 billion to provide equity financing in support of decarbonization. The first equity financing deal was announced in the first quarter of 2022, under a joint arrangement with China's largest steelmaker Baowu, to finance the decarbonization of steel production. This green financing tool is seen as an important market-oriented instrument that can help close gaps in green equity financing. Emerging lessons from the fund should be followed, including the evidence it provides for how similar models could close equity financing gaps in nature-related financing.

Ecological Environment-Oriented Development Reserve Bank: China's Ministry of Ecology and Environment (MEE) released [new guidelines](#) on March 8, 2022, based on lessons from a series of pilot green financing projects in 2021. The new guidelines link several green financing funds and reserve banks at the project level—notably, funds for environmental protection, sewage and wastewater treatment, soil remediation, freshwater and marine estuary environmental protection in the Bohai Sea, Yangtze River Estuary-Hangzhou Bay and Pearl River Estuary, ecological restoration of soils, forests, lakes, and grasslands, agro-environmental projects, and other areas outlined in the guidelines. Projects in the reserve banks will help finance ecological environment-oriented development outcomes based on joint PPPs and are intended to help leverage and attract greater private sector financing in areas like contaminated soil remediation that have had difficulty attracting private sector finance. MEE shared data on ecological environment-oriented development financing of 36 pilot projects already initiated, which have since been expanded.

The [Shandong Green Development Fund](#) is a leading example of an innovative financial mechanism designed to attract and catalyze private investors in climate-friendly infrastructure and related green technology investments. The Shandong Fund establishes a comprehensive climate investment framework with clear outcome-based interim and longer-term targets. For example, the fund estimates that by 2027, climate investments will reduce carbon emissions by 3.75 million tons annually, while climate resilience investments will benefit over three million people. It is also among the first financing mechanisms in China that prioritize effective gender mainstreaming. The fund is managed by a top-tier fund manager, CICC Capital Management, the subsidiary of a leading investment bank, China International Capital Corporation, which is publicly listed on the Hong Kong Stock Exchange. Lessons from the fund could be applied to broader climate-ecological integrated project financing.

Green Infrastructure Finance: Following the launch of the first batch of Real Estate Investment Trusts (REITs) on the Shanghai and Shenzhen stock markets in 2021, roughly CNY 30 billion (USD 4.7 billion) was quickly raised. As in other markets, China's REITs are backed by real assets. As of April 2022, a total of 12 public-offering REITs have been issued, with unit prices increasing by 20%. It appears this pilot REIT program will soon expand to cover a wider range of infrastructure categories. As flagged in the CCICED 2021 Special Policy Study (SPS) on Green Finance, REITs include several green financing areas, notably feeding into China's National Green Development Fund, the Yangtze River Green Development Fund, and green industry investment funds initiated and established by local governments. At the same time, the report noted several challenges in scaling up green REIT funds, including a lack of tax incentives, insufficient liquidity, low yields, and poor franchise and ownership transfer channels. Based on the overall success of China's REITs and their expected growth, CCICED made a number of recommendations to increase ecological-environmental REIT financing, including through widening PPP cooperation, improved environmental measurement and transparency, and other steps.

Standards, Reporting, and ESG: There are hundreds of major private sector non-financial reporting standards that measure products and services, operational processes, and, less frequently, combined performance impacts. For example, there are over 400 product-related sustainability standards, with roughly half measuring [agricultural products](#) like coffee, tea, palm oil, soy, rice, wheat, and other soft commodities. Standards exist for a range of services, including electricity, tourism, and green finance. The scope of private standards is expanding in light of net-zero pledges, with coverage including steel, cement, green hydrogen, and other areas.

The financial sector has been following the proliferation of green standards that has characterized agricultural and other sectors. The International Monetary Fund (IMF) has counted over 200 standards for climate finance alone. This proliferation risks creating market confusion among competing standard bodies.

In response, several international initiatives are underway to bring about greater coherence, comparability, convergence, and, if possible, standardization to unite varying standards. The newly launched [International Sustainability Standards Board](#) (ISSB) of the International Financial Reporting Standards (IFRS) Foundation is expected to build greater convergence among major climate-related standards bodies. These include [TCFD](#), [SASB](#), [CDSB](#), [CDP](#), [IIRC](#), [GRI](#), [PRI](#), [Science-Based Climate Targets](#), [IMP](#), and the [Capitals Coalition](#). It is too early to tell how smoothly the ISSB work will progress. In a hopeful sign, the heads of IIRC and SASB jointly wrote to the IFRS in 2021, committing to work together. While few expect the ISSB's task to be smooth or quick, the eventual outcome will affect dozens of major Chinese standardization and accreditation entities, given the importance of IFRS standards in major Chinese companies⁵.

⁵ Study experts noted that most green finance standards are process-oriented—for example, setting up climate risk assessment strategies and processes to assess climate risk—as opposed to outcome-based standards.

As noted, there are numerous ESG standards. One example is the UN-related [Principles for Responsible Investment](#) (PRI), which are intended to help investors, asset managers, and others benchmark ESG standards and reporting. In late 2020, PRI issued [guidance linking ESG with negative carbon options](#), notably related to forestry conservation, afforestation, and avoided deforestation. This work complements other PRI guidance—for example, its principles relating to forestry and science-based biodiversity targets. In addition, in order to move responsible investment from process and business conduct to real-world impacts contributing to the SDGs, PRI has outlined a [five-part framework](#) for tangible SDG outcomes. With the same purpose, UNDP has also developed the [SDG Impact Standards](#) for Bond Issuers—a set of decision-making tools helping investors and enterprises integrate impact management and contributing positively to the SDGs in their strategy, management approach, disclosure, and governance practices.

An important recent example of cooperative work between public and private sector standard bodies is the agreement between the EU's European Financial Reporting Advisory Group and GRI to co-develop a new biodiversity reporting standard. The advisory group is working toward a draft standard in mid-2022, and GRI is working to update its current biodiversity standard under the [Global Sustainability Standards Board](#) before the end of 2022. This cooperation has the potential to align the EU's biodiversity standards with wider/global standards under the GRI and may prove to be a useful blueprint for aligning Chinese-based biodiversity standards with international ones.

The relationship between private green financial standards and ESG-related markets and regulations is complex: regulatory supervisors seek to ensure markets are innovative and responsive to evolving demand and supply conditions while at the same time ensuring market actors follow various rules governing transparency, solvency, auditing, and truthful product claims, among others. One example of regulatory-led action to further green financial markets is the EU rules covering [sustainability-related disclosure in the financial services sector](#), which will require all asset managers to classify their portfolios as either sustainable or non-sustainable, referencing the EU Taxonomy.

Shades of Green: Following the release of new [EU rules in 2022](#), there have been discussions regarding the possible expansion of categories beyond the current green taxonomy, reflecting predictable worries among investors that not falling within a green category means they fall into a non-green, brown or environmentally destructive category. Similar debates have occurred pertaining to products and services certified as green, sustainable, or low carbon. Study experts noted the potential usefulness of other categories, notably red or brown, no-go, high-risk or classification categories—essentially a negative list of high-risk financing. The Traffic Light System MEE has introduced in its [BRI project financing](#) is a useful model to inform decision making based on three environmental risk categories: red as high risk, yellow as no environmental risks, and green indicating no environmental risks and environmental benefits.

Recently, PBOC called for increased research into green transition finance; that is, identifying ways for carbon- or pollution-intensive companies like steel, cement, or chemical companies that are ineligible to access green financing—like green bonds or other ESG products—can access transition finance. PBOC has put a spotlight on the role of financial institutions in helping companies currently excluded from green financing opportunities but with green transition plans and commitments to access bridge or transition financing—for example, through the use of sustainability-linked bonds or financing arrangements designed around longer timelines, with interim performance targets that include the gradual lowering of GHG emissions.

This focus on transition finance is important in widening the scope of many green financing products—which often remain a small segment of the overall financial sector—to include plans to green the finance sector more comprehensively by planning the transition away from current brown or grey financing to overall, systemic green goals.

Transparency and Accountability: Market and investor confidence hinges on transparency and accountability: if investors lack confidence in the robustness and independent verification or auditing of market data, they will eventually exit those markets. Green markets are no exception. On the contrary, given the still novel and emerging dynamics of carbon, biodiversity, and other green markets, investors arguably are looking for even greater transparency and accountability compared to more established and familiar markets. Transparency narrowly includes financial accounting standards and compliance, as well as a growing range of non-financial reporting standards and market expectations.

More broadly, transparency also includes the design and delivery of both domestic public policies—for example, through national audit offices and independent statistical agencies, to international Development Finance Institution (DFI) financing. Recommendations from recent reviews of DFIs point to the need for robust, independent transparency and accountability mechanisms that include predictable procedures through which local complaints can be received, reviewed through compliance investigations, and settled using dispute resolution procedures, followed, if necessary, by financing to correct harmful practices and compensate local communities.

Greenwashing Risks: 2021 saw record levels in ESG investments, with asset managers creating a record number of new ESG products. The market analysis group Morningstar Analytics reported an all-time peak in ESG investments in 2021: as of September 2021, sustainable fund assets were more than USD 330 billion. (By comparison, [ESG assets](#) in the third quarter of 2020 were USD 183 billion.) The majority of these investments are linked to renewable energy.

This growth is welcome, provided green claims lead to actual, measurable green performance outcomes. However, the risk that green ESG claims are exaggerated, weakly founded, or based on nothing is real and growing. In late 2021, China cautioned against the risk of greenwashing, and with good reason. A February 2022 [Nature article](#) notes significant gaps in corporate carbon mitigation plans—often omitting entirely Scope Three emissions in their reporting or relying on carbon offsets to meet net-zero pledges. Such weaknesses are partly explained by weak

climate governance within private sector corporate boards: for example, a 2021 [survey by NYU's Stern School of Business](#) showed extremely weak board governance capacity related to climate and ESG matters.

A good practice is the EU's annual "sweep"—mandated by law under consumer protection regulations—to expose greenwashing. In early 2021, the results of the EU's first sweep of websites concluded that [40 percent of green claims lacked evidence](#), while a subsequent EU report that examined 344 green claims concluded that over 50% lacked evidence to back green claims, of which as astonishing 37% were based on vague, misleading, or false claims.

In late March 2022, the UN Secretary-General launched the High Level Expert Panel on the [Net-Zero Emissions Commitments of Non-State Entities](#) to examine net-zero markets claims in ESGs, climate and carbon disclosure standards, securities and accounting regulators, regulatory and other bodies supervising the global financial system, and others. The panel, chaired by former Canadian environment minister and former CCICED vice-chair Catherine McKenna, is expected to make recommendations in late 2022 or early 2023. CCICED follows the work of the panel and invites members to brief them on their ongoing work and eventual recommendations that should be adopted by China's relevant supervisors.

Green Taxonomies: Under the [EU International Platform on Sustainable Finance](#), the China–EU Common Ground Taxonomy initiative issued its first assessment of [Climate Change Mitigation taxonomies](#) in November 2021. The purpose of the platform's China–EU working group is to build greater comparability and interoperability among different national taxonomies, in order to support common or converging practices of green bond issuers and verifiers; company-level low-carbon roadmaps; banks and other financial institutions aligning their portfolios with low-carbon roadmaps; development finance institutions and reporting entities interested in benchmarking the Common Principles for Climate Mitigation Finance Tracking (see below); and international standard-setting bodies. By 2022, all EU financial products that list some green claims must cross-reference how they align with the EU green taxonomy.

China's green taxonomy focuses mainly on providing guidance for green bond issuers and covers three main areas: environmental improvement, climate change measures, and the efficient use of natural resources. China's green taxonomy is based on the 2021 joint PBOC, NDRC, and CSRC Green Bond Endorsed Projects Catalogue, which identifies several major activities and specific sectors. For conservation and NbS-related finance, the "ecology and environment related sector" is the most relevant and comprises "ecological agriculture" and "ecological protection and construction." Given the importance of standards to support green markets, the Chinese taxonomy also includes green services such as auditing, inspection, and evaluation of projects.

The 2021 CGT report identifies common areas between the EU and China green taxonomies that have the highest impact. Critically, the EU green taxonomy forestry sector and China taxonomy ecology and environment sector are earmarked as "high priority," thus underscoring the opportunity to increase investments in NbS. That report notes that principles like "do no significant harm," various social and human rights issues, and other areas have yet to be addressed, while differing terminology, standards, and safeguards make

detailed comparisons difficult.

Do No Significant Harm: The legal principle, also defined as “Do no significant harm,” is defined by UNEP as the duty of a state to prevent, reduce, and control the risk of environmental harm to other states. The principle has been included in numerous [international treaties and agreements](#), especially covering water resource management. As negotiations to complete Article 6 continued, in 2018 the Sustainable Development Dialogue group was formed to examine safeguards to be considered in Articles 6.2, 6.4, and 6.8 related to the “do no harm” principle.

DFIs: Study experts highlighted the role of DFIs in integrating public and private sector climate and biodiversity investments. Most of the estimated 450 DFIs that make up 10% of global annual investment have the dual mandate of supporting economic development through job creation, public health and education, gender equity, or rural electrification and making a return on investments comparable with prevailing markets.

In recent years, many DFIs have taken a more proactive role in SDG financing, including financing climate change mitigation and adaptation: for example, between 2015 and 2020, European DFIs have committed EUR [8 billion in climate finance](#). One example of DFI helping to leverage PPPs is the German BMZ partnership with the [InsurReliance Global Partnership](#) to help underwrite climate risk affecting poor and vulnerable households and communities. In order to better coordinate DFI-related climate financing, European DFI entities agreed in late 2020 to increase comparable climate disclosure measurement and reporting.

Gender Lens Investments and Development Finance Institutions: In 2018, G7 countries promised to mobilize USD 3 billion in DFI and private sector investments to support gender equity, by improving women’s access to finance, skilled jobs, and leadership opportunities. As of early 2021, approximately USD 4.6 billion investments has been committed under the [2XChallenge](#), which has expanded well beyond the G7-based DFI to include the European Investment Bank, pension funds, private equity funds, and institutional investors. Part of the success in exceeding their financing targets has been the progress made in implementing comparable criteria to measure the impact of gender equity financing in women’s entrepreneurship, leadership, employment, consumption, and intermediate investment.

Overseas Development Assistance: The revised 2021 [Common Principles for Climate Mitigation Finance Tracking](#) serves as the basis for MDBs (including ADB, AIIB, and the New Development Bank) and IDFC members to classify climate finance in a comparable manner via the annual [Joint Report of Multilateral Development Banks on Climate Finance](#). Of the total amount tracked in the joint report (USD 66 billion), the majority consists of investment loans (USD 50.4 billion), with much lower levels comprising policy-based lending (USD 4.8 billion) and grants (USD 3.3 billion). Other forms of climate finance are lines of credit (USD 2.1 billion), guarantees (USD 1.9 billion), equity finance (USD 1.4 billion), and results-based finance (USD 1 billion).⁶

⁶ The tracking report provides various categories to track MDB investments, notably related climate adaptation financing that includes the “crop and food production” and “other agricultural and ecological services,” and in the climate mitigation category under “agriculture, aquaculture, forestry and land-use.”

An important outcome of the Glasgow COP was the [Climate Finance Delivery Plan](#) on how to meet the Paris Climate Agreement pledge of USD 100 billion a year. While noting disappointment that the USD 100 billion has not been met, the plan expressed confidence it will be met by 2023, based on [tracking and scenarios prepared by the OECD](#) that point to the need for both MDBs and Export Credit finance to shift current financing and increase climate financing.

Risk Disclosure: There have been significant steps following the 2017 release of the [TCFD report](#), notably in adopting management rules covering climate-related risks and opportunities. Of note, in June 2021, the G7 agreed to [mandatory climate risk reporting](#) based on the TCFD recommendations.⁷ In July 2021, the G20 agreed to adopt a “[baseline global reporting standard](#).”

In July 2021, PBOC released its [Guidance on Environmental Information Disclosure for Financial Institutions](#). The PBOC guideline notes,

Financial institutions shall report on their environmental objectives, visions, strategic plans, policies, actions and key outcomes during the year, such as their own operating activities generated by carbon emission controlling targets and achievements, resource consumption, pollution and prevention, climate change mitigation and adaptation, etc.⁸

For example, among the recommendations of the 2021 Board Statement of the Institute of International Finance on [climate finance](#) is the need to harmonize international risk disclosure rules, as well as support the convergence of green taxonomies, data standards, metrics, and other enabling tools.⁹

As noted, the 2021 CCICED Green Finance SPS recommended China adopts TNFD risk disclosure practices. Given the inherent connection between climate and nature risk, consideration should be made to coordinate the release of TCFD and TNFD disclosure at the same time, acknowledging that the phased-in introduction of mandatory risk disclosure will be complex.

In April 2022, PBOC and six ministries introduced an important draft law intended to strengthen and build greater comparability regarding how financial risk will be measured,

⁷ There are different approaches to mandatory climate disclosure within the G7. For example, in July 2021, the [U.S. Securities Exchange Commission](#) announced it was developing new rules for all public companies, thereby differing from the EU’s Sustainable Financial Disclosure Regulation’s more narrow coverage of asset managers and financial advisors. The EU regulation came into force in 2021. A related example of central bank guidance on climate risk is the November 2021 [Principles for Effective Management and Supervision of Climate-Related Financial Risk](#) of the Bank for International Settlements.

⁸ In addition to carbon-related risks, TCFD has important consequences from a climate resilience and adaptation lens, since it also covers the disclosure of physical risks from climate-related events like flooding, drought, coastal inundation, etc.

⁹ Chinese members of the institute are Agricultural Bank of China, China Merchants Bank, Bank of Communications, Industrial & Commercial Bank of China, China Construction Bank, China Everbright Bank, CITIC, China Development Bank, Industrial Bank, and China Guangfa Bank

managed, and reported across its financial services sector through a common risk framework. As this important new legislation emerges, opportunities to include climate, ecological, and environmental financial risks could be considered.

Voluntary Carbon Markets: One of the strongest market signals of NbS investment trends is the growing interest in voluntary carbon markets, by which investors purchase carbon offset credits. Market projections vary widely, with PRI estimating investments in reforestation and afforestation reaching USD 800 billion in annual revenues by 2050, reflecting assets of over USD 1.2 trillion. Less spectacular forecasts from the January 2021 final report of the [Task Force on Scaling Voluntary Carbon Markets](#) estimated carbon offset markets at between USD 5 and USD 50 billion by 2030. [2021 recorded voluntary carbon markets](#) of USD 1 billion in trades, with forestry and land use constituting over 60% of all investment. Within China, there are over 20 major carbon offset certifying bodies, such as China Quality Certification Center. Given recent work to ensure carbon offsets are not subject to greenwashing, initiatives like the [Voluntary Carbon Markets Integrity Initiative](#), which issued clear initial recommendations in late 2021, present an opportunity to align Chinese domestic market practices with evolving international standards and best practices.

Recent guidelines and opinions issued by China's State Council, PBOC, and MEE emphasize the central role of carbon sequestration markets as a part of China's carbon peaking and neutrality transition pathways, examined in a recent CCICED background note on [carbon offset markets](#).

Attention is growing around nature markets. Narrowly, these cover voluntary NbS markets that include various outcomes like climate adaptation, sustainable agriculture, freshwater management, and climate mitigation. More broadly, markets draw from years of work around natural capital-based markets, as examined in the 2021 [UK Dasgupta Review](#), or ongoing work on payment for ecosystem services. In April 2022, the [Finance for Nature](#) launched a new global task force to examine nature markets.

Corporate NbS Funds: In the past year, there has been a flurry of company-led funds related to supply chains and NbS. Examples include

- [Apple Restore Fund](#) of USD 200 million, launched in April 2021, to finance forestry projects that will remove up to one million metric tons of carbon annually
- [L'Oreal: Fund for Nature Regeneration](#), a EUR 50 million fund to restore degraded ecosystems and capture 15–20 million metric tons of CO₂
- [Amazon Right Now Climate Fund](#) of USD 100 million for NbS investments
- [Orange Nature Climate Fund](#) of EUR 50 million to purchase high-quality carbon credits;
- [Kering Regenerative Fund for Nature](#) to support NbS linked to responsible and green supply chains, with a goal of restoring 1 million ha by 2025 and supporting regenerative agriculture

- [The LEAF Coalition](#), a coalition of the U.S. and British governments and 19 major companies, including Walmart, Bayer, and Unilever, announced it had reached its USD 1 billion target for tropical forest protection in late 2021.

These initiatives complement a substantial increase in nature finance from private philanthropy organizations like the [Bezos Earth Fund](#) commitment at the Glasgow COP to USD 2 billion in financing to help stop deforestation, as part of a broader [Protecting our Planet Challenge](#) to support 30x30 conservation goals.

Deforestation-Free Supply Chains: The [2021 CCICED green value chain SPS report](#) examined the strong causal link between the sourcing of various soft commodities, such as soy and palm oil, and deforestation, specifically tropical deforestation.

More than a decade ago, hundreds of companies signed onto a zero-deforestation pledge by 2020 under the [Consumer Goods Forum](#). In 2014, the [New York Declaration on Forests](#) promised to halve global deforestation rates by 2020. Both targets have been missed by a wide margin, prompting [various assessments](#) to map complex supply chains and prioritize a systems-based approach to sustainable sourcing, including designing inclusive governance systems that deliver financing to local farmers.

Financing local farmers will be critical in meeting new sustainable supply chain promises as well as meeting the new global deforestation Glasgow pledge. Typically, small-scale farmers face higher production costs in meeting sustainable sourcing standards and third-party certification criteria while being hampered by a lack of access to affordable credit, especially in meeting upfront costs.

In the past year, there have been numerous new financing initiatives to implement sustainable supply chain sourcing. For example, the [Responsible Commodities Facility](#) was recently established with the collaboration of WWF, TNC, UNEP, WEF Tropical Forest Alliance, and others, to help finance farmers producing sustainable soy in Brazil.

Other examples of NbS-focused financing initiatives include the [Nature+ Accelerator Fund](#), launched by IUCN and the GEF, which is intended to scale up NbS financing toward an eventual goal of USD 160 million from 70 NbS projects by 2030.

At the first meeting of the UN CBD COP 26 in October 2021, China announced a new USD 230 million Kunming Biodiversity Fund, inviting other countries to contribute to the fund.

With the [Glasgow Leaders' Declaration on Forests and Land Use](#), signed by China and 140 other countries committed to stopping deforestation within their jurisdictions by 2030, the responsibility to ensure deforestation-free supply chains has shifted to the government's steps to augment private sector actions. A number of jurisdictions, including Norway, France, the EU, the United Kingdom, and others, have introduced regulatory measures to restrict market access for goods that cannot prove they have been harvested legally or meet certain sustainability

standards. [Opposition from various food importers](#) regarding the proposed law of due-diligence procedures is one reason the British bill is delayed.

From a financial reporting perspective, this renewed focus on supply chains now includes climate risk considerations. In announcing its climate risk disclosure draft rules in 2021, the U.S. Securities Exchange Commission indicated it would likely include Scope 3 [GHG emissions linked to upstream and downstream supply chains](#). An Opinion issued in late 2021 by China's State Council indicated the need to undertake a climate risk assessment to align China's supply chains with carbon peaking and carbon neutrality goals.

Section Three: **Reforming Environmentally Harmful Subsidies**

The [2021 *Financing Nature* report](#) highlights the extent to which many agricultural and other harmful subsidies contribute to biodiversity loss on either the production or consumption side. Examples from that report include subsidies that contribute to freshwater pollution, land degradation, forest and other ecosystem habitat loss, preferential output-based support of single-crop outputs, ineffective waste management, and other impacts. Citing OECD estimates tracking 53 countries, the report notes annual agricultural subsidies in 2016–2017 of USD 703 billion and estimates total “biodiversity-harmful subsidies” in 2019 of between USD 274 and USD 542 billion.

There have been numerous efforts over the past three decades to identify, reduce, and reform environmentally harmful subsidies. Past work has focused on national farm-support programs like the U.S. Farm Bill or the EU Common Agricultural Policy, with some success in carving out different kinds of farm support. For an interim period, the World Trade Organization (WTO) allowed [green box subsidy support](#) for some agricultural subsidies. Study experts suggested these temporary measures be made permanent.

As noted, a major conclusion of the *Financing Nature* report is the urgent need to reform environmentally harmful subsidies. A joint [FAO-UNDP-UNEP report](#) from September 2021 recommended repurposing most forms of agricultural subsidies due to their pervasive price distorting and nature-destructive effects, in addition to negative climate, public health, equity, and trade effects.¹⁰ The report recommends six steps to estimate harmful agricultural subsidies at the national level as the basis for repurposing them. Similarly, UNDP's BIOFIN has developed a methodology to estimate domestic farm subsidy levels that are harmful to nature, with case studies underway in numerous countries (such as this [case study in Mongolia](#)). There is an opportunity to highlight subsidy reform during COP 26.

¹⁰ The FAO-UNDP-UNEP report estimates global farm support is projected to increase to almost USD 1.8 trillion in 2030 under a business-as-usual scenario that takes into account the expected economic recovery. About 73 percent of this (USD 1.3 trillion) would be in the form of border measures, which affect trade and domestic market prices. The remaining 27 percent (USD 475 billion) would be in the form of fiscal subsidies that support agricultural producers and could continue to promote overuse of inputs and overproduction.

Among the recommendations of the [CCICED 2021 green finance SPS](#) is the importance of reforming China's subsidy program. Specific recommendations include

- Increase subsidies of a universal nature to reduce the damage of subsidies to biodiversity while ensuring that farmers' income and agricultural output do not decline. This would entail a shift in the structure from direct to indirect subsidies
- Integrate environmental targets into the criteria for determining subsidies. Environmental targets should be included in the identification criteria of more subsidy policies, including targets to support ecological protection.

Subsidy reform has also been an important focus of climate action. For example, in 2009, the G20 pledged to identify and eliminate “inefficient fossil fuel subsidies.” Actual progress has been limited either in defining what “inefficient” means or bringing about lasting reductions to support levels.¹¹ Initiatives like [Friends of Fossil Fuel Reform](#), established in 2010, and ongoing analytic work by the [IMF](#), OECD, the World Bank [Energy Subsidy Reform Facility](#), the [Global Subsidies Initiative](#), and others helped provide the context for reference in the 2021 Glasgow declaration of a commitment to reduce fossil fuel subsidies. Given the increased role of market-based instruments in advancing carbon neutrality goals, study experts noted that among the distortionary effects of fossil fuel subsidies is a weakening of the intended price effect of carbon markets.

Reforming environmentally harmful subsidies has been the topic of ongoing work at the WTO and its predecessor, the GATT, for three decades, with little progress. The 20-year WTO negotiations toward an agreement on reforming fish subsidies underscore the inability of trade policy to reach a consensus to condition and reduce environmentally harmful subsidies.

Part Three:

Short-Term and Medium-Term Implementation Opportunities

Green Taxonomy: Identify how the current green taxonomy can scale up NbS investments by tracking taxonomy categories of “Ecological Agriculture” and “Ecological Protection and Construction.”

Financial Risk Disclosure: Identify how China's newly announced mandatory climate risk disclosure can track physical risks related to climate-related extreme weather events (for example, flooding), as well as track how various climate resilience investments, with a special category for NbS-related climate adaptation investments, can be included in the new disclosure framework.

¹¹ A [2021 assessment](#) for the G20 concludes nominal levels of subsidies remain unchanged from 2010 to 2019. 27 percent (USD 475 billion) would be in the form of fiscal subsidies that support agricultural producers and could continue to promote overuse of inputs and overproduction.

Economics of Nature Loss: Deepen analysis by financial regulators around risks of biodiversity losses and financial exposure to biodiversity losses, domestically and in overseas engagement, incorporate, for example, ongoing work of the [Network of Central Banks and Supervisors for Greening the Financial System](#).

Data Supporting Carbon Markets: In support of carbon market approaches to carbon peaking and neutrality, CCICED can examine options in the design of China's recent commitment to create a comprehensive climate data system to make data related to NbS carbon sequestration systems available to investors, as well as track the development of new ISSB standards as they relate to climate and nature finance.

Article 6 Rules: Following the completion of the Paris Rulebook, review the current portfolio of eligible post-2013 CDM projects, and retain those carbon credits that align with the new Article 6.2 and Article 6.4 rules regarding double-counting, additionality, permanence, and transparency.

Financing Sustainable Sourcing of Supply Chains: CCICED should help identify existing rural financial support programs, such as eco-compensation programs, to include direct payments to farmers (for example, through well-established financing programs like [China's Eco-Compensation Scheme](#), preferential loans, or other rural payment schemes to integrate NbS payments). CCICED's SPS on Sustainable Food Systems is relevant in this regard.

Climate Risk Assessment of China's Value Chains: As work begins in assessing the climate risk of China's domestic supply chains, CCICED can help identify risks associated with the potential degradation of forests, wetlands, peatlands, grasslands, and others in terms of their carbon stocks, as well as the extensive de-risking benefits of NbS in relation to climate adaptation and resilience.

Corporate NbS Funds: CCICED can examine how tax incentives and tax treatment, together with other practices, can encourage more company expenditures in NbS projects, with tax incentives linked to both investment levels and actual income flows generated from NbS funds, and with credits tied to income revenue that benefits local farmers, communities, and others.

Closing Inequality Gaps: CCICED should identify how NbS financing can help address income, labour, gender, and other inequalities, as this is an integral part of China's green transition commitment as well as commitments in the 14th Five-Year Plan and more recent economic goals of closing China's income inequality gaps.

International and South–South Cooperation

Biodiversity Resource Mobilization: The completion of the CBD Kunming COP 15 is expected in the second half of 2022. CCICED should prioritize how to implement the decisions of the Kunming summit to increase financing for biodiversity, with a priority focus on scaling up green finance from the private sector and coordinating and leveraging multilateral development bank financing to advance 30x30 and sustainable use objectives.

Green BRI: In late March 2022, NDRC issued new Opinions on Promoting the Green Development of the Belt and Road Initiative. At the core of this new Opinion is the requirement to advance green development throughout BRI cooperation. Among the priority areas identified is green finance, based on the work of the UN and G20, which includes promoting voluntary guidelines and best practices related to green investments and financing, leveraging loans from international financial institutions and private green investment, and encouraging financial institutions to implement the Green BRI Investment Principles. The Principles, signed by over 35 major Chinese and other banks, sets out steps to embed sustainability in corporate governance, assess and disclose environment-related risks, use green financing instruments like ESG products, use green supply chains, and raise public awareness. CCICED's Phase VII work should identify the means to implement the new Opinions, through research, case studies, and recommendations.

DFI/MDB De-Risking Financing: MDBs and DFIs should step up coordination to de-risk carbon transition and increase blended/PPP finance to help de-risk private sector financing.

Medium-Term Opportunities

Green Taxonomy: Update China's green taxonomy to include additional and specific categories for conservation finance and NbS investments.

Nature-Risk Disclosure: In the next ten years, adopt the TNFD standards to disclose nature-related risks among all financial sector actors, including asset managers.

Sustainable Supply Chains: Set annual financing levels to support farmers, fishers, and others in ensuring sustainable, nature-positive supply chains. Diversify financing to include grants, equity, and lines of credit to finance the enabling tools needed for the traceability of supply chains.

Subsidy Reform: Implement domestic actions to reduce fossil fuel subsidies in support of China's dual control targets, and increase subsidy support for net-zero agriculture, land use, and forestry management goals. Implement pilot projects to restructure agricultural subsidies to an indirect system that supports rural livelihoods. It would be useful for CCICED to examine and draw lessons from past attempts at reforming environmentally harmful subsidies.

Part Four

Recommendations:

In addition to the overall recommendation that CCICED prioritize learning how to integrate nature and climate financing. Additional recommendations are as follows:

- Recommendation one: CCICED should identify policies, case studies, standards, and partnerships to scale up financing in high-quality NbS, including forests, mangroves, grasslands, wetlands, regenerative land management and green/sustainable food systems, green and climate-resilient infrastructure, marine and coastal resilience, and other areas.
- Recommendation two: CCICED should identify roadmaps for the private sector to increase climate and nature financing, with the aim of ensuring that *overall* financial flows reduce negative impacts on nature/climate. Work can include analysis of emerging standards, safeguards, disclosure practices, green taxonomies, ESG financial products, auditing standards, monitoring and verification standards, and other initiatives, including evolving from the G20 Working Group on Sustainable Finance. Synergies between digitization and sustainability are examined in a complementary CCICED 2022 scoping study.
- Recommendation three: CCICED should identify opportunities to increase and leverage public sector finance both within China—including involving State-Owned Enterprises—as well as via international public finance involving bilateral, regional, or MDBs finance, export finance, and other areas.
- Recommendation four: CCICED should examine opportunities for public–private partnerships and related blended nature and climate finance, including options to integrate compliance and voluntary carbon markets.
- Recommendation five: CCICED should deepen its analysis of options for systemic, comprehensive reform of environmentally harmful subsidies in support of integrated nature-climate finance. Special consideration should be placed on addressing jobs, income, and other inequalities in fiscal policy reform.
- Recommendation six: CCICED should help support and strengthen international cooperation in green finance through ongoing exchange at the strategic policy and regulatory levels and in relation to product and other areas in support of shared efforts to support global green development goals.

Report authored by Scott Vaughan, CCICED International Chief Advisor

Annex I: Scoping Study Meetings for 2021-2022 Research Year

January 26 – Scoping Study Introductory Meeting

February 17 – Core Expert Inception Meeting

March 24 – Scoping Study Workshop: Innovative Green Finance

April 21 – Scoping Study Workshop: Sovereign Debt linked to Biodiversity, Climate and SDGs: An opportunity for China?

Annex II: Scoping Study Team Structure

Chairs	
Scott Vaughan	CCICED International Chief Advisor
Violante di Canossa	Development Economist, Head of Research and Policy Team, UNDP China
Andrew Deutz	Director of Global Policy, The Nature Conservancy
Core Experts	
Christoph Nedopil	Associate Professor and Director Green Finance & Development Center, Fudan University
Margaret Kuhlow	Global Finance Practice Leader, WWF International
Jill Dauchy	CEO, Potomac Group
BAI Yunwen	Director of Center for financing NbS, Institute of Finance and Sustainability
SUN Tianshu	Institute of International Development Cooperation, CAITEC
Tracey Cumming	UNDP, Technical Advisor on Environmental Finance for the Biodiversity
Swarnim Waglé	Chief Economic Advisor, UNDP Regional Bureau for Asia and the Pacific
Mark Halle	Co-Founder, BetterNature
Paul Steele	Chief Economist, International Institute for Environment and Development
Renata Rubian	Policy Advisor, UNDP Regional Bureau for Asia and the Pacific
Consulting Experts	
Bob Tansey	Senior Policy Advisor, The Nature Conservancy
Knut Alfsen	International Chief Advisor Support Team
WANG Yali	SDG Finance Specialist, UNDP China
Stewart Maginnis	Deputy Director General, International Union for Conservation of Nature; Co-Team Lead, Special Policy Study on Nature-based Solutions
DU Hongxia	Senior Manager, Green Finance, WWF China
ZHANG Chenghui	Former Director-General of the Research Institute of Finance, Development Research Center of the State Council
Erik Berglöff	Chief Economist, Asian Infrastructure Investment Bank
YE Yanfei	Inspector of the CBIRC's Policy Research Bureau
Eric Usher	Head, UNEP Finance Initiative
ZHANG Jianping	Director, Center for Regional Economic Cooperation, CAITEC
XU Jiajun	Executive Deputy Dean, Institute of New Structural Economics at Peking University
Rodolfo Lacy	Director for Climate Action and Environment for Latin America, OECD
ZHANG Yumei	Researcher, Institute of Agricultural Economics and Development, Chinese Academy of Agricultural Sciences

Farooq Ullah	Strategist, The B Team
Rose Niu	Chief Conservation Officer, Paulson Institute
Gianni Ruta	Lead Environmental Economist, World Bank
Jess Ayres	Director, Climate Change, Children's Investment Fund Foundation
Yue Qi	Manager, Climate, Children's Investment Fund Foundation
WEI Yuan	IFC/SBN Asia Coordinator
Dimitri de Boer	Chief Representative, China, ClientEarth
Fan Danting	Legal Researcher, ClientEarth
FU Xiaotian	Food And Natural Resources Program Director, World Resource Institute (China)
Sonja Sabita Teelucksingh	Adviser to the CEO, Global Environment Facility
Carolina Rojas	Advisor, Strategic Environmental Dialogues, GIZ
Maxim Kenens	Junior Advisor for Sustainable Finance, Long-Term Strategies and NDC Implementation, GIZ
Ulrich Volz	Director of the Centre for Sustainable Finance and Professor of Economics at SOAS, University of London
ZHANG Jianyu	Executive President, BRI Green Development Institute (BRIGI)
Rebecca Ray	Senior Academic Researcher, Boston University Global Development Policy Center
Simon Zadek	Chairman, Finance for Biodiversity
Jean-Paul Adam	Director for Technology, Climate Change and Natural Resources Management in the United Nations Economic Commission for Africa
Catherine Phuong	Deputy Resident Representative, UNDP Lao PDR
Carlos Larrea Maldonado	Professor, Universidad Andina Simón Bolívar, Ecuador
Hannah Ryder	CEO, Development Reimagined
XIONG Wanting	Chinese Academy of Social Sciences
Kirthisri Wijeweera	Advisor on Nature Performance Debt Instruments, UNDP
David Boland	Global CEO, EvolveGroup
Adam Starr	Technical Specialist, SAFE Ecosystems Project at UNDP Lao PDR
Thome Xaisongkham	Programme Analyst, UNDP Lao PDR
Raniya Sobir	International Development Consultant, UNDP

Annex III: China's Terrestrial Carbon Sink Potential - A review of literature

Author: Kalifi Ferretti-Gallon

[LINK TO FULL REPORT](#)

Executive Summary

The impacts of climate change over the last decade have intensified worldwide. In 2021, global disruptions of the Covid-19 pandemic were compounded by extreme weather and climate disasters. Devastating climate-related events over the last year included heatwaves, hurricanes, floods, and droughts experienced by countries across the world, amounting to well over 170 billion dollars of damage. As climate change impacts continue to add environmental, social, and economic pressures to a global system already under stress, it is becoming increasingly important to reduce greenhouse gas emissions. ‘

By the end of COP26, 151 countries revised or submitted new nationally determined contributions (NDCs) to a global reduction of emissions. China revised its NDC to include new goals for their emissions peak and net-zero targets. However, there is concern that the revised objectives and climate strategies of the world’s largest emitting country might not be sufficient to reduce global temperatures to 1.5°C above pre-industrial levels. Fortunately, recent efforts to restore and protect China’s terrestrial biomes have improved the country’s capacity to reduce its net emissions.

This report provides a review of literature on the capacity of China’s terrestrial ecosystems to store carbon and remove carbon dioxide for each major terrestrial biome: forests, grasslands, croplands, shrublands, and wetlands. This analysis concludes with a list of policy recommendations and opportunities for each biome to enhance China’s capacity to store carbon and exceed its current targets.

Based on the review of literature, four key takeaways are identified:

- Carbon sequestration plays a significant role in China’s carbon peaking and carbon neutrality. The degree to which different biomes offers carbon storage and sequestration potential varies greatly, with China’s forests providing the majority of soil and vegetation carbon storage (38%), followed by grasslands (30%), croplands (19%), shrublands (8%), and wetlands (5%).
- China’s forests shifted from source to sink; currently representing about 56% of total terrestrial sequestration. Existing programs incentivizing afforestation and reforestation in China is expected to increase forests capacity to remove and store carbon, and substantially expanding these initiatives to could significantly offset the countries predicted annual emissions.
- Managing in China to improve yields could also enhance sequestration potential. Croplands in China store about 1/5th of its terrestrial carbon. Sequestration through

sustainable soil management to improve annual yields could also function to significantly increase carbon uptake.

- Grasslands and shrublands don't hold as much vegetation carbon relative to forests but still play a vital role. Both biomes have diminished in area due to conversion to other land uses, but have a high potential of carbon sequestration and retention of properly restored.
- Protecting wetlands will be important for mitigating major GHG releases. While wetlands represent the smallest proportion of China's terrestrial carbon storage, they are an important storage for carbon dioxide as well as methane and are vulnerable to climate impacts and land use change that could prompt their release

A comprehensive system to track trends in China's terrestrial carbon storage and sequestration rates is strongly recommended. China's terrestrial biomes are important for offsetting the country's emissions and contributing to global efforts to mitigate climate change. However, their capacity to remove and store carbon is influenced by variables specific to each biome. A system that tracks these trends will improve analysis and inform better land sector policies in China.