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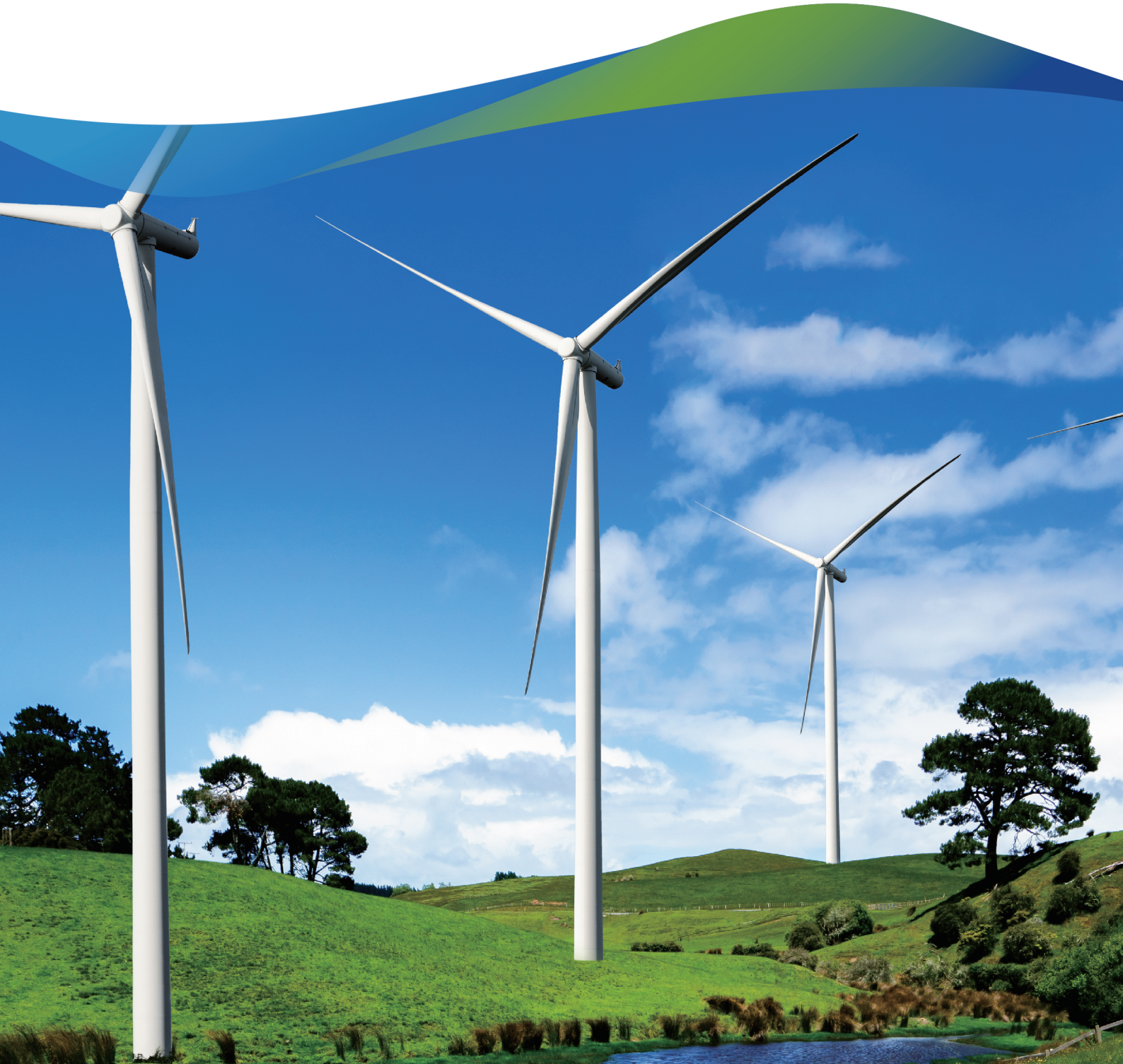
China Council for International Cooperation on Environment and Development

Stability, Resilience and the Green Transition

——CCICED Issues Paper 2022



PREFACE

Established in 1992, the China Council for International Cooperation on Environment and Development (CCICED) is a high-level not-for-profit advisory body to the Government of China. Along with China's rapid social and economic progress, CCICED has witnessed and taken part in the country's historic shift in development philosophy and model. It opens a door to advanced international experience on sustainable development and connects China and the international community on environment and development. CCICED also provides a valuable platform of exchange, enabling the international community to understand China and support the country's engagement with the world.

Since 2002, the International and Chinese Chief Advisors have produced an Issues Paper each year for the use of CCICED Members, high-level policy makers and others during the Annual General Meeting where research findings and recommendations are discussed.

Titled "Stability, Resilience and Green Transformation, " this is the 21st Issues Paper published by the CCICED. In times of global turbulence, the Paper provides thoughts on balancing long-term green, low-carbon, and high-quality development vis-a-vis short-term stability and security objectives. The preparation of the Paper is led by CCICED Chief Advisors, Mr. Scott Vaughan and Mr. Liu Shijin, with contributions from International Chief Advisor Support Group and the Chinese Associates[1] .

Stability and the Green Transition: Risks, uncertainties, and shocks have risen dramatically in 2022. China's Two Sessions conference in the first quarter of 2022—the National People's Congress and People's Political Consultative Conference —warned of the "triple pressures of shrinking demand, disrupted supply and weakening expectations." China's key strategic goals—economic growth, innovation, common prosperity, and climate mitigation—are now all seen from the single lens of ensuring stability and security in the face of turbulence and volatility.

The most pressing challenge of 2022 and for the foreseeable future is therefore aligning low-carbon, high-quality, green development with this focus on stability and security goals by highlighting two points: (i) that delaying ambitious climate and ecological protection and pollution action will magnify economic, human, and ecological insecurity and (ii) that supporting the transition to green development can enhance energy, food, human well-being, and other key security goals.

The key conclusion of CCICED's 2022 research work is that green development complements and reinforces key stability and security goals. Stability does not mean relying on business-as-usual approaches to energy, food, or other security goals. Instead, enhancing stability and security in the face of global ecological and other shocks means deploying smart, innovative, and adaptive policies that bolster resilience. Four areas of CCICED's work—energy security, food security, climate security, and financial stability—are explored briefly below.

Energy security: Energy is on the front lines of security and stability objectives. Since the second quarter of 2021, global oil and gas prices have surged, driven by chaotic swings in energy markets[2]. Global coal markets, valued at over USD 1 trillion in early 2021, have risen sharply. In turn, this price volatility contributed to interim supply shortages in China in late 2021.

At the 2022 Two Sessions Conference, President XI reiterated China's commitment to reaching carbon peaking and carbon neutrality goals. At the same time, he underscored the strategic importance of an orderly and predictable energy supply transition, stating that China "cannot throw away our means of living first, only to find that our new livelihood has yet to arrive." Like other countries, China is simultaneously expanding older energy sources with which it has significant endowments, notably coal, while increasing investments in clean, renewable energy. In the case of coal, researchers at China's State Grid Corporation estimate that up to 150 GW of new coal-fired power capacity will be built in the 2021–2025 period, bringing the total to 1,230 GW. China's fleet of coal-fired electricity stations is the largest in the world, at over 1,000 power plants. Other countries have

[1]ICA supporting group mainly includes Ms. Robyn Kruk, Mr. Knut Alfsen, and Mr. Dimitri de Boer. Chinese supporting team mainly includes Ms. Liu Kan and Ms.Mu Quan.

[2]First quarter energy prices were described as bedlam. Newcastle coal future prices rose from roughly USD 82 per tonne in mid-2021, to more than USD 400/tonne in early March 2022, before declining to USD 350/tonne in the early spring. Crude oil future price indexes, which remained roughly stable throughout much of 2021, have more than doubled by late March 2022. In many countries, gasoline prices passed a 10-year high during the same period.

similarly responded to energy supply shocks by reverting to fossil fuels. In 2021, global demand for oil and gas rebounded sharply. By the first quarter of 2022, oil and gas majors posted record earnings.

This increased reliance on fossils fuels comes as the Intergovernmental Panel on Climate Change released its Sixth Assessment Report, warning of the escalating human, ecological, and economic impacts of climate change and warning that the window to meet the Paris Agreement target of 1.5°C is closing: ambitious action is needed by 2030.

The challenge is therefore to leverage the current energy crisis as a means to meet the twin objectives of energy security and climate security. The European Union's (EU's) response to greater energy self-reliance takes exactly that track: in March 2022, it laid out measures to further accelerate its shift away from imported oil and gas and toward greater energy independence by rapidly scaling up renewable energy[3].

The economics of this link between energy security and renewable energy are clear: the International Renewable Energy Agency estimates again that renewable energy is cheaper than most fossil fuel alternatives. Markets are responding, although, as noted, inconsistently. The International Energy Agency estimates that investments in renewable energy dominated new power generation, accounting for an estimated 70% of the USD 530 billion spent in 2021 in new energy generation capacity. China remains the world's leader in renewable energy and has updated targets both at home and through the ongoing greening of the Belt and Road Initiative (BRI) to expand installed renewable energy further. Increased renewable energy can support key current accounts and balances of payment, particularly given that 75% of China's oil use is imported.

Off-the-shelf renewable energy systems like wind, solar, geothermal, and others are meeting critical energy security criteria, particularly related to affordability, reliability, and accessibility. Mid-term solutions like long-term battery storage, smart grids, and green hydrogen are becoming increasingly viable and cost-effective. In turn, clean energy investments are a growing source of employment in high-skilled manufacturing and services[4].

Another pillar of clean energy entails energy efficiency and conservation. The most effective energy security policy entails avoiding consumption in the first place. Energy efficiency is a critical pillar of productivity: the smart application of green technologies can boost innovation-led productivity, thereby lowering per-unit energy costs while increasing outputs. The evidence shows that energy efficiency can contribute from 25% to as much as 40% of global climate mitigation targets.

[3]EU Executive Vice President Frans Timmermans issued this challenge: "Let's dash into renewable energy at lightning speed. Renewables are a cheap, clean, and potentially endless source of energy and instead of funding the fossil fuel industry elsewhere, they create jobs here."

[4]Renewable energy contributes to common prosperity: In 2021, renewable energy continued to create new, skilled green jobs: of the roughly 12 million green jobs created globally through renewable energy, the largest proportion of that by a large margin was 4.7 million jobs created in China. As noted, the spinoff-job effects of renewable energy investments is typically higher than for conventional energy sources.

Clean energy also complements trade security. Market forecasts expect a steadily rising proportion of traded green goods and services, from low-carbon industrial goods like iron, steel, aluminum, and chemicals to consumption-based items like green tourism and zero deforestation—sustainable soft commodities. These markets are likely to grow, especially among younger consumers. Underscoring the importance of consumption-based models, the 2022 report on China by the International Monetary Fund concludes that China's structural shift from an investment-led to a consumption-based economy would bolster economic stability while reducing its greenhouse gas (GHG) emissions by 15%, based on the current basket of consumer goods. That reduction could be greater as China expands items like electric vehicles and other green choices.

Food Security: Recent supply and price volatility has hammered global food security objectives that lie at the heart of the Sustainable Development Goals. The April 2022 Food and Agriculture Organization of the United Nations (FAO) Food Index shows that the global food price index reached a record high, with cereal prices jumping 17% in one month and vegetable oils rising 23%. The cost of fertilizers in some countries has increased by 170%. In response, a growing number of countries as diverse as Sri Lanka, Chile, and South Sudan have all issued domestic food price warnings. Many more are expected.

Compounding these acute shocks are longer-term, chronic food security risks linked to climate change and the loss of biodiversity. At the 26th Conference of the Parties (COP 26), the UN Special Envoy for the Food Systems Summit warned that without urgent action to increase the resilience of agriculture to climate shocks, an additional 100 million people in Africa alone will face hunger by 2030. The most recent 5-year global UN assessment of land degradation[5] shows rising losses in soil health and soil fertility vital to food security. Land degradation, in turn, creates a vicious cycle in which the combined effects of climate change and ecosystem degradation amplify extreme flooding and drought, further exacerbating food insecurity.

Yet there are proven solutions to counter land degradation. The economic case for investing in sustainable, regenerative land systems suggests that every dollar spent on soil conservation and regeneration yields between $7 and $30 in benefits. Rather than being a single point of intervention, regenerative land system approaches entail comprehensive, systemic bottom-up and top-down approaches that involve production, consumption, protection, and restoration practices working in tandem. Science continues to show the vital importance of working with nature. For example, ongoing research on complex underground fungi networks shows how nature is connecting

[5]Among the findings of the April 28, 2022, global assessment by the UN Convention to Combat Desertification is that modern and traditional regenerative agricultural practices deliver multiple and interconnected benefits, including rural income and poverty alleviation, cost-effective climate change mitigation, and biodiversity conservation.

what had previously been assumed to be competing trees and other species, with underground systems exchanging water, nutrients, and carbon among species across landscapes. Emerging carbon markets create an additional incentive to protect these underground networks, which have been dubbed the carbon currency for above-ground forests and other carbon banks. Moreover, China's croplands comprise an estimated 19% of all carbon stocks. In addition to these vital terrestrial carbon stocks, there are similar ecosystem functions in oceans and the marine environment.

Emerging nature-based solutions are demonstrating concrete ways to support regenerative landscapes, deliver sustainable food systems, bolster climate resilience, and support sustainable rural livelihoods[6]. Project-based nature-based solutions complement wider climate adaptation measures needed to bolster food security in the face of rising drought and flooding affecting large river basin areas. Given that food production in the Yangtze River basin accounts for nearly half of China's total output of rice, oil crops, vegetables, and pork, integrating climate adaptation is vital to food security goals.

Building sustainable food systems, scaling up nature-based solutions, and integrating climate resilience within integrated water management systems are the focus of three 2022 CCICED Special Policy Studies. Each underscores the critical importance of building food security as part of wider human security and well-being, by which common prosperity goals like advancing equality for women and girls—including through rural green finance, gender-based trade finance, access to public health, education, entrepreneurship, and other opportunities—leads to more durable, inclusive, and adaptive outcomes.

Climate Security: In 2021, the number of record-breaking extreme climate events once again increased. In its *State of the Climate* 2021 annual report, the UN World Meteorological Organization estimated that over 4 days in July 2021, Henan Province recorded record rainfall: more than 200 mm of rain occurred in just one hour, smashing previous national records. The city of Zhengzhou experienced extreme flash flooding that led to more than 300 deaths. The flooding of buildings, roads, and subways resulted in economic losses totalling USD17.7 billion.

Deadly heat waves also increased in 2021: a recent study published in *The Lancet* estimates that heat-wave exposures in China measured per person increased by 4.5 days compared with the 1986–2005 average, leading to an estimated 92% increase in heat-wave-related deaths, USD 176 million in direct economic losses, and lost work hours estimated at 1.4% of China's annual gross domestic product.

[6] *The 2022 UNEA-5 meeting marks a key step forward by adopting, for the first, time a multilateral definition of nature-based solutions.*

Financial Stability: CCICED's 2022 work underscores the critical role of green finance as an enabler in implementing high-quality, green development. Growth in environmental, social, and governance (ESG) financial products continues, backstopped by the further elaboration of green taxonomies, green bond eligibility, innovative private–public partnerships, and new pilots to finance the transition of companies to meet green financing eligibility. With more green claims, China, like other jurisdictions, has flagged the importance of transparency, verification, and accountability[7]. China joins others in mandating climate risk disclosure in the future.

Carbon markets in 2021 reached an estimated USD 851 billion globally, with the biggest contributions coming from compliance markets like the EU's Emissions Trading Scheme, China's national carbon market trading, and other carbon pricing in roughly 60 other jurisdictions. In addition to compliance markets, companies and others are investing in voluntary carbon markets, which surpassed USD 1 billion in 2021. With the completion of Article 6 of the Paris Rulebook, expectations are that both public sector compliance carbon markets and voluntary carbon markets will continue growing[8].

The other side of the financial market coin is the growing uncertainty and longer-term instability associated with carbon investments. In 2020, the Bank for International Settlements warned of the growing risk that climate change could trigger a global financial crisis. The Basel Bank warned that due to escalating and unpredictable or non-linear climate risks—what is called Green Swan or fat tail risks linked to physical and transition risks—the current approach of financial actors in anticipating risk based on quantitative models and other tools is ill-suited to warn when risks like stranded assets would occur. Initiatives like the Glasgow Financial Alliance for Net Zero (GFANZ), in which different sub-sectors of the financial sector have pledged net-zero targets, are promising. The focus is on implementing these and scores of other private sector pledges.

An additional and urgent dimension of financial security involves sovereign debt. 2022 has seen dangerous debt levels, with an alarming number of both developing and emerging economies experiencing or facing debt distress or default. Climate change and the loss of ecosystems are magnifying this debt turbulence: for example, 40% of the world's most indebted countries are also the most exposed to climate change impacts. In 2022, CCICED continued to identify options to align sovereign debt with climate, nature, the Sustainable Development Goals, and other goals.

[7] *Like other jurisdictions, China has signalled the growing risk of greenwashing—and with good reason: for example, a recent EU review or "sweep" to weed out greenwashing claims found 37% of company claims they investigated included vague and misleading statements, while an astonishing 59% of claims were not sufficiently backed up by evidence to support them. In response, the EU ESMA Securities is proposing new regulations against ESG green washing. Other regulators are considering similar actions. Similarly, MEE has brought to light standards bodies like Sinocarbon that had unverified carbon claims.*

[8] *The newly established Integrity Council for Voluntary Carbon Markets is a welcome step to ensure voluntary carbon market investments in carbon offset credits are of high integrity, meeting for example the International Union for Conservation of Nature Gold Standards for nature-based solutions.*

The Implementation Challenge: Policy: CCICED's 2022 work has focused on opportunities to align carbon-neutral, nature-positive, and equitable options for energy, food, and other security and stability priorities. Realizing win–win results is neither automatic nor simple. Instead, win–win outcomes require a high degree of governance, institutional and administration coordination, competence, and innovation.

The Glasgow climate and Kunming biodiversity COPs present unique opportunities for international collaboration. Virtually all governments have agreed on common targets, timetables, policy priorities, and sequencing to meet common goals set out in nationally determined contributions and updated National Biodiversity Strategies and Action Plans (NBSAPs).

At the same time, the same governments advance contradictory policies, largely through incoherent policy goals in complex administrative systems. For example, while making new pledges at Glasgow and Kunming, governments allocated roughly USD 350 billion in fossil fuel subsidies and roughly USD 500 billion in harmful agricultural subsidies in 2021 alone[9].

It is a complex task to ensure policy coherence within and between public ministries across different jurisdictions and between market-oriented and regulatory approaches, especially when drawing on the evidence of science and the advice of civil society organizations to meet key climate, nature and other goals. Whole-of-government models will become indispensable. In 2021, China established the Climate Leaders Group, which is chaired by Vice Premier Han Zheng and comprised of other senior members, including the ministers of construction, industry, natural resources, ecology and environment, transportation, commerce, and others. In February 2022, the Group reaffirmed the need to meet China's carbon peaking and carbon neutrality goals while acknowledging the important role of coal and the need to maintain energy security, food security, supply chain security, and living standards.

Other countries are implementing government-wide coordination to advance climate implementation. The United Kingdom's Climate Action Strategy Cabinet Committee is chaired by the Prime Minister and other senior-level bodies. British implementation targets and timetables are measured against a national climate budget[10]. In March 2022, Canada released its updated climate plan, which is comprised of 79 distinct implementation plans across multiple federal ministries that will need to partner with provinces, Indigenous communities, the private sector, and civil society. Other jurisdictions, such as the EU, the U.S. federal government, France, Germany, Denmark, and others, have all set out whole-of-government climate plans.

[9]Such measures are part of broader government spending, estimated by Business for Nature at US$1.8 trillion in 2021, involving subsidies to pollution-intensive industries like coal, oil, gas as well as agriculture and other sectors.

[10]The UK carbon budget (December 2020) calculates the emissions reductions needed to meet net zero targets, recommending a 78 percent reduction in UK territorial emissions between 1990 and 2035, as well as the specific climate actions needed to meet that targetThese include mandating that all new cars and vans and all boiler replacements in homes and other buildings be low carbon by 2030, largely based on electricity, which should be zero carbon by 2035, with offshore wind becoming the backbone of the national energy system. Low-carbon hydrogen is recommended to expand in the same scale that electricity supply is today, by 2050. Other recommendations from the carbon budget include increased energy efficiency for buildings, a shift in favour of low-carbon diets, a sharp reduction in waste, increased productivity of farms and increased forest cover to help remove CO_2.

While each jurisdiction has its own distinct administrative design, common elements related to a new generation of green industrial policy explored in the CCICED Special Policy Study on green trade emphasize the success of innovation- and technology-based partnerships between the private sector and government. Phase VII of CCICED will be among the most important of its impressive 30-year history, in particular, for identifying through evidence, research, case studies and perhaps most importantly—through international cooperation, the exchange of views, and the building of trust—how to design and implement high-quality, green development.