CHINA AND GLOBAL SUSTAINABILITY TRANSITION OUTLOOK 2025

China's emerging leadership in global sustainability governance amid geopolitical turbulence

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Acknowledgments

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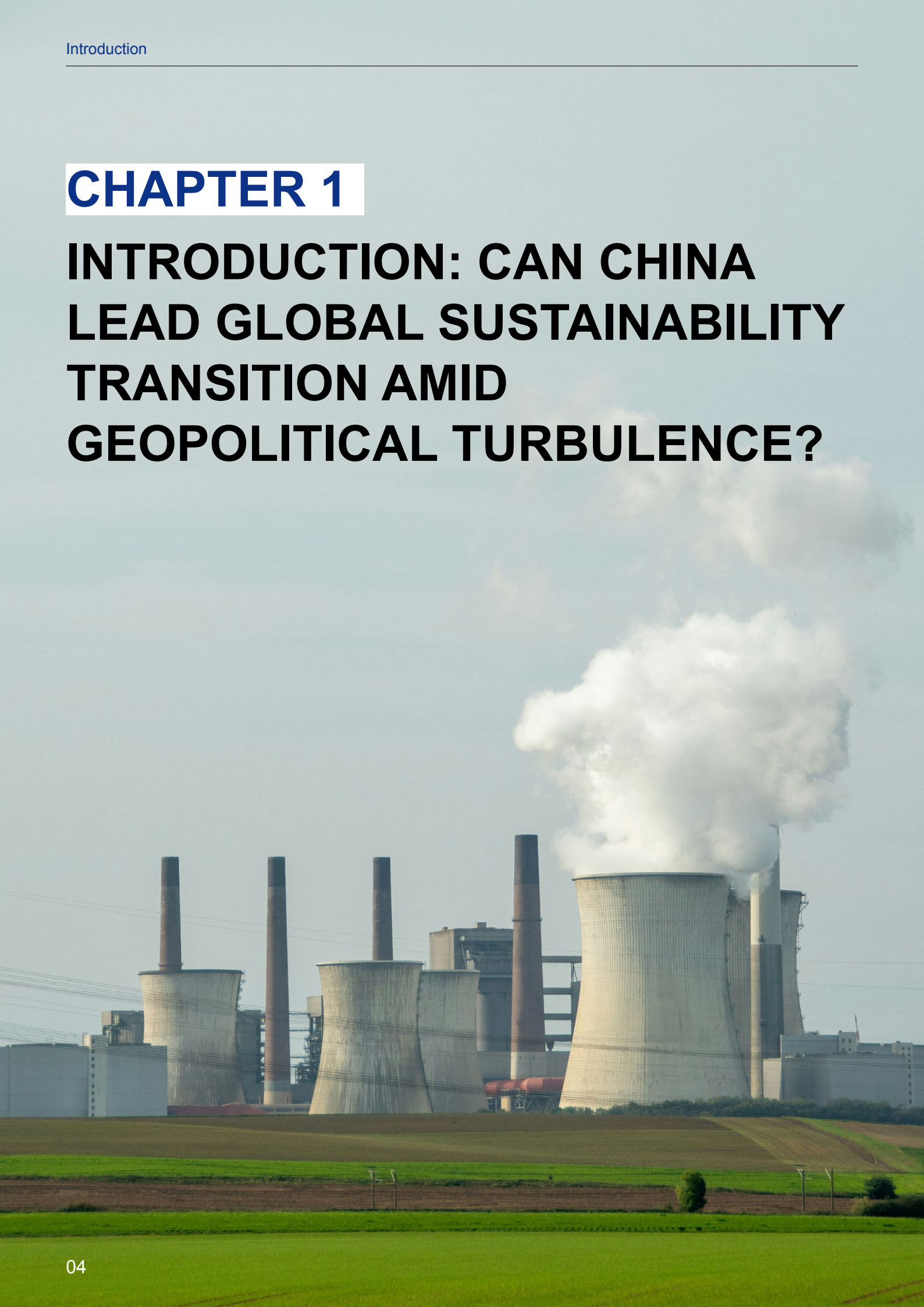
EXECUTIVE SUMMARY

Can China lead global sustainability transition? This question is particularly pertinent in 2025 as geopolitical shifts have left a leadership vacuum in global sustainability governance. Despite China's growing influence in global governance and its emergence as a powerhouse of clean technologies, Chinese state and non-state actors are not always coherent in their willingness to provide more support for sustainability transitions of other countries. Drawing on an original expert survey and evidence from academic and grey literature, this report examines China's roles in three critical areas related to sustainability transitions: as a promoter of international environmental cooperation, a leading energy investor in the Global South, and a dominant force in global critical mineral supply chains. Our analysis shows that while China has already made, in various ways, nontrivial contributions to sustainability transitions worldwide, several institutional and ideational barriers have prevented related Chinese actors from playing a more active role in supporting transitions in other countries. To address these challenges, we recommend policy reforms for Chinese state and non-state actors in four broad areas: strengthening support for multilateral cooperation, enhancing transparency of policies and activities, promoting a just transition in overseas engagement, and establishing robust communication channels with international stakeholders. Such reforms will help relevant Chinese actors cooperate more effectively with their international partners to accelerate global sustainability transition, establishing China as a responsible global power dedicated to protecting our common future.

CHAPTER 1

INTRODUCTION: CAN CHINA LEAD GLOBAL SUSTAINABILITY TRANSITION AMID GEOPOLITICAL TURBULENCE?



Introduction: Can China lead global sustainability transition amid geopolitical turbulence?

The year 2025 marked a turning point in global sustainability governance. Donald Trump's America First Policy, and continuous wars in Ukraine and Gaza have posed serious threats to international environmental cooperation, furthered geopolitical tensions, and impacted net zero transitions. At the same time, the world has passed the 1.5°C temperature threshold goal, and the global carbon budget to meet the Paris Agreement goals will be reached within three years, if emissions cannot be significantly reduced (WMO 2025; Forster et al., 2025). In this turbulent context, new leaders are urgently needed to strengthen global environmental governance and accelerate sustainability transition. Many observers are expecting China – the world's second largest economy and a rising power in international politics – to fill this leadership vacuum (You 2025).

As the largest emitter of greenhouse gases (GHG), China has historically been understood as a reluctant leader in global climate and environmental governance as shown by China's position at the Copenhagen Climate Summit in 2009 (Dimitrov, 2010). However, with the Paris Agreement setting a new, bottom-up approach to global climate governance – relying on the nationally determined contributions (NDCs) defined by individual member states – China began to play an increasingly active role in climate action by advancing its net zero transition through a range of domestic and international policies and gradual upgrading of its climate targets (Yeophantong and Goh 2022; Liu et al., 2024). Simultaneously, China also became increasingly active in multilateral environmental institutions to promote cooperation, influence global discourses, and advocate certain governance approaches such as nature-based solutions (Goron 2021; Qi & Dauvergne, 2022; Zhu et al., 2024). In its latest NDCs announced before COP30, the country set for the first time an absolute emission reduction target (i.e., 7-10% of its peak emission level).

Moreover, China has transformed over the past two decades into a global powerhouse of clean technologies. The country now manufactures over 80 percent of solar PVs and battery cells, 60 percent wind turbines, and over 70 percent of electric cars worldwide (Dlouhy 2024; IEA 2025). China is now the world's largest market for renewable energy investments where record-breaking clean energy additions since 2024 have met the country's growing electricity demand (Myllyvirta 2025). In other words, the rapid growth of clean energy power generation has caused a decrease in China's carbon emissions, even as the country's power demand continues to grow. In addition to the remarkable transition within its borders, China has shifted its strategy of overseas investments in the energy sector by ending finance for coal and significantly increasing investments in renewable generation and cleantech manufacturing (Nedopil 2025; Xue & Larson, 2025). The rapid rise of Chinese clean energy industries has also significantly reduced the price of clean energy products such as solar panels, making them affordable to buyers across the globe. Over the past two years, growing imports of Chinese solar panels have led to the rapid uptake of decentralized solar power systems across the Global South, from Africa to South Asia (Jones 2025; Sun et al., 2025).

These recent trends have made China a key driver of global net zero transition. Therefore, China has already made important contributions, in various ways, to global climate and environmental action (Harlan et al., 2025). The changing geopolitical context has created additional opportunities for China to step up as a global environmental leader. The US' retreat from climate action under the second Trump administration, the European Union's challenges to taking more ambitious climate policy since the Russia-Ukraine war, and the limited capacity of other emerging economies seem to suggest that China is the ideal candidate to lead global sustainability transition.

However, in various aspects, China seems to still face enormous challenges to become a global environmental leader (Hale & Sun 2025). These challenges exist in both the country's domestic and international action. Domestically, China continues to expand coal-fired power plants and its recent climate targets seem far from ambitious to hold the world aligned with the Paris Agreement goals. Internationally, China-supported infrastructure development and resource extractions continue to receive criticism for their environmental and social impacts on local communities; China's dominance in clean technology supply chains have raised concerns over its unwillingness to transfer technology and create value addition opportunities to the rest of the world, especially Global South countries (Moore 2025).

Therefore, the critical question remains whether China can and is ready to act as a leader in the global sustainability transition in this changing geopolitical context. In this report, we provide a timely analysis of this question by considering China's influence on three key areas of sustainability transition: international environmental cooperation; overseas infrastructure finance; and critical mineral governance. These three areas were identified based on our review of existing academic debates on China's role in global sustainability governance, as well as consultations with related experts. By examining the role that China is playing in each area, we unpack China's rising leadership and key challenges preventing China from making further contributions.

Our analysis draws on empirical evidence from various sources including academic literature, policy documents, media reports, and an expert survey conducted through the 2025 Bath Conference on China & Global Sustainability Transition. We also incorporated the insights from the discussions at our Bath conference and grounded them in the related literature. By integrating the multiple sources of evidence, we seek to bridge diverse viewpoints across different regions and sectors. This approach allows us to formulate evidence-based policy recommendations on how China can engage more effectively with its international partners to accelerate global sustainability transition.

Our analysis shows that China has undeniably become a major player in global environmental governance and has made significant contributions to sustainability transitions both within and beyond its territories. Recent policies also suggest that China is willing to accelerate its own transition and support other developing countries' transition, with little sign that China is seeking to export specific models or values on development to the rest of the world. That said, in various aspects, the extent to which China is ready to step up to lead the provision of global public goods for sustainability transitions remains uncertain, due to the country's concern about its own development, its foreign policy tradition, and future geopolitical trends. In other words, although China is emerging as a new leader in global sustainability transition, it would provide a type of leadership different from traditional power like the US and Europe.

Based on these findings, how can China better work with others - especially Global South countries - to accelerate sustainability transitions, and how should other countries engage with China? We propose four broad areas of reforms in China's international cooperation for sustainability transition: providing stronger support for multilateral institutions; enhancing transparency of China's overseas activities; integrating justice principles in development cooperation; and developing communication channels to engage with different stakeholders across the globe. These reforms will help China to make more contributions to global sustainability transitions by better understanding the interests and concerns of its international partners, as well as better communicating its policies and practices to the world. By avoiding misunderstanding and advancing mutual understanding and trust, China can further international cooperation to accelerate sustainability transitions around the world.

In the rest of the report, we first show key results of our expert survey conducted in 2025, which provides an overview of China's changing role in global sustainability governance. We then present analysis of China's influence on three key areas. We conclude by highlighting our policy recommendations.

CHAPTER 2

CHINA'S ROLE IN GLOBAL SUSTAINABILITY TRANSITION: EVIDENCE FROM AN EXPERT SURVEY

Chapter 2: China's role in global sustainability transition: Evidence from an expert survey

This chapter presents the results of a survey conducted among participants of the 2025 Bath Conference on China & Global Sustainability Transition. Our survey participants represent a wide range of experts on China's global engagements with different backgrounds and experiences especially on environmental issues, including those from academia, think tanks, governments, and civil society organisations.[1] The survey seeks to capture the perspectives of external experts from different regions and sectors on China's role in advancing global sustainable development, while identifying emerging consensus and potential divergences. To capture the participants' views comprehensively, the survey was conducted both before and after the conference over two months. A total of 33 responses were received (see more details on the sample in Annex 1). For ethical considerations, all responses are treated as anonymous.

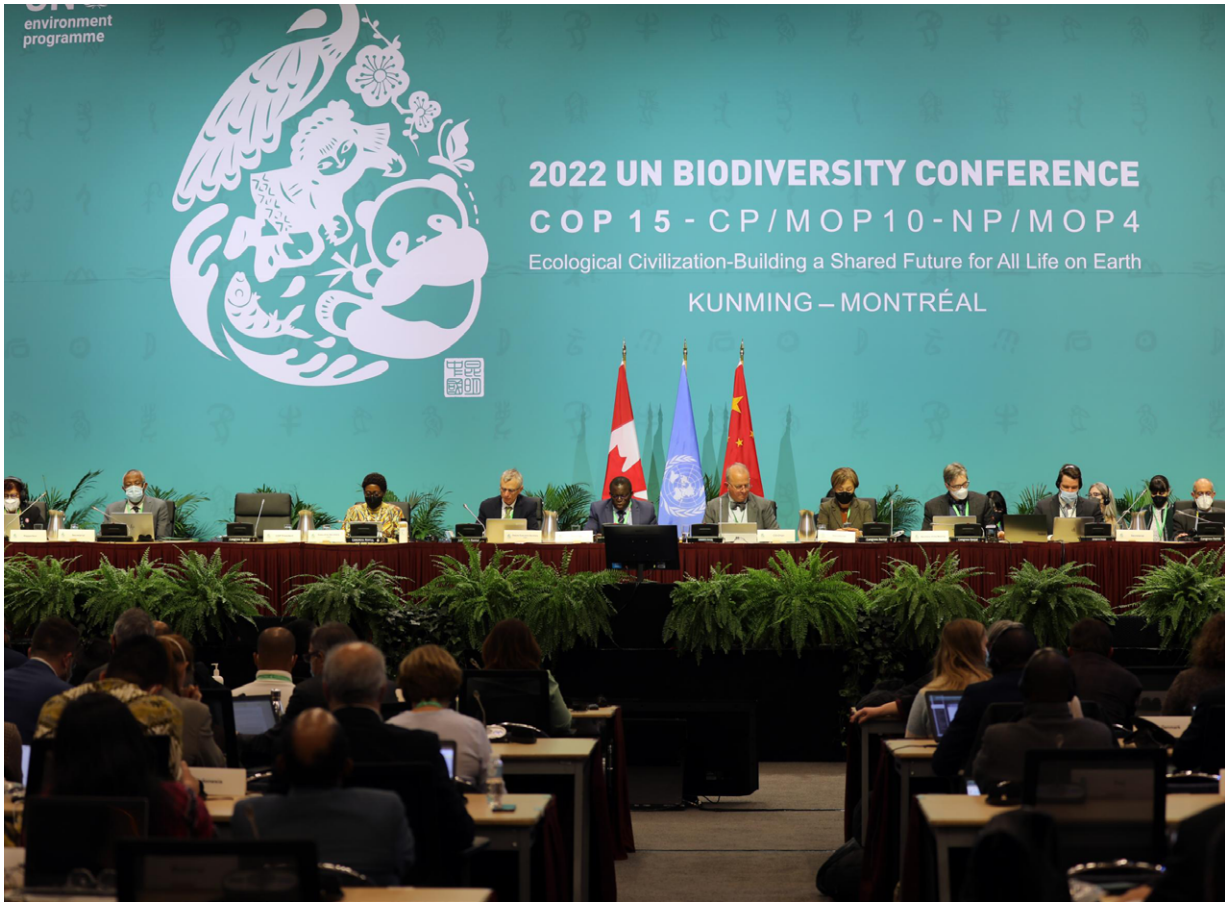


Photo by IISD/ENB | Mike Muzurakis

[1] We intentionally chose to not include participants from the Chinese government to gather views from external experts. And only a small number of experts (less than 20%) are based in China.

2.1 Perceptions of China's role in global sustainability governance

Overall, the experts participating in the survey acknowledge China's contributions to global sustainability transition. As shown in Figure 1, the most frequent responses to the question about China's role in global sustainability governance were highly positive: 37% identified China as an "important partner", 23% as a "leader of global sustainability of transition", and 15% as an "innovator in global governance". These results indicate a broad recognition of China as a key player in global sustainability governance, with many observers already viewing it as a global leader in certain domains. Negative evaluations were relatively rare, with only 1% describing China as a saboteur, 3% as disobedient, and none selecting no significant contribution. A similar positive trend existed in the answer to the question on China's potential to become a global leader in environmental and climate governance over the next 5–10 year (see Figure 2): 73% of the participants believed China is either "likely" (13 respondents) or "very likely" (11 respondents) to become a new leader. Only six respondents chose the neutral option (namely, "Neither likely nor unlikely").

Participants provided a range of explanations for their assessments. Among the respondents who considered China (very) likely to assume such a leadership, the most prominent explanation focused on its large investment and production of renewable energy and infrastructure, particularly highlighting how China has become a global supply chain superpower through its clean technologies. In addition, some pointed to geopolitical dynamics, emphasising that the political void created by the US' retreat from climate and environmental action gives China an opportunity to lead in environmental governance.

Conversely, respondents who were more cautious or sceptical about China's leadership position argued that China's current influence is concentrated in technological, financial, and supply chain domains, rather than in shaping global norms, values, or governance frameworks. Others noted that China has historically been cautious in explicitly positioning itself as a leader, particularly in multilateral settings, where it often adopts the language of "peaceful development" and frames its role as cooperative rather than directive. This deliberate positioning was considered by some as a strategic choice to avoid perceptions of dominance (e.g., narratives of China's threat or hegemony), which could impact its willingness to assume a more visible leadership role in sustainability governance. In summary, experts in the survey widely regarded China as an indispensable actor in global environmental governance, with the potential to taken on some leadership positions in the coming decade. They also view this leadership role as rooted in green technology and investment, rather than in norm-setting.

Figure 1. Perceived roles of China in global sustainability transitions

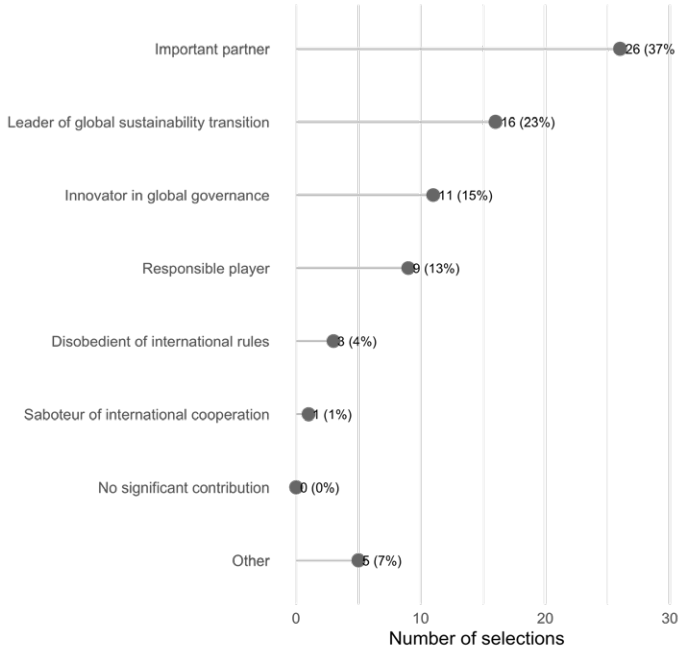
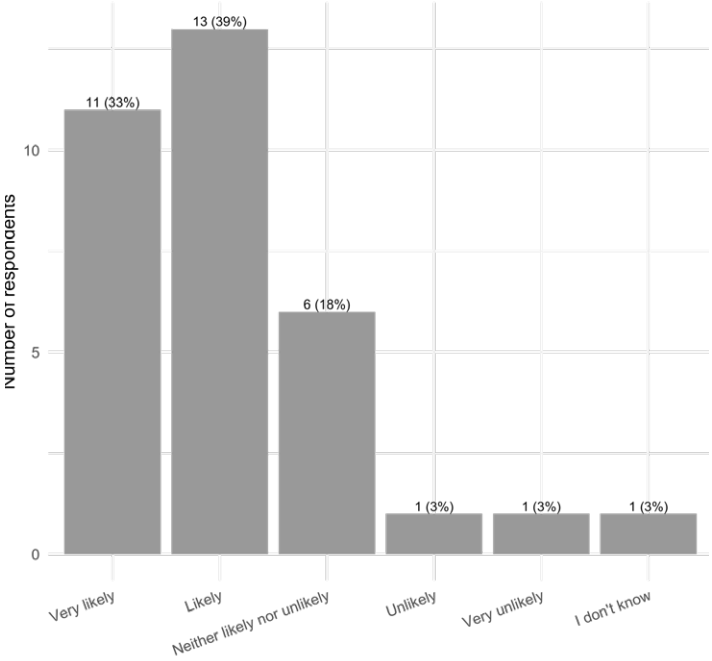


Figure 2. Expectations of China's emergence as a global environmental and climate governance leader (next 5-10 years)



2.2 How can China contribute to global sustainability transition?

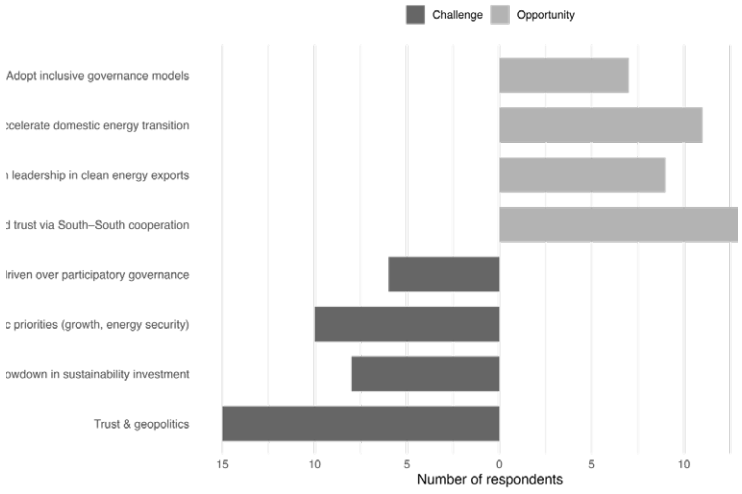
In our survey, we also explored the opportunities and challenges for China to better contribute to global sustainability transition. As shown in Figure 3, respondents identified several interrelated factors that could hinder China from being a global leader in the sustainability transition. The most frequently mentioned challenges were "trust" and "geopolitics", including polarised public views and media narratives, deteriorating relations with the West, limited transparency, and fear of over-dependence on Chinese technologies and financing.

In terms of international dynamics, some highlighted the global slowdown in sustainable investment, which could reduce China's both domestic and international green funding flows, and, in turn, impact China's technology- and investment-oriented influence in global sustainability governance. On domestic priorities, some participants underscored competing interests between advancing sustainability measures and pursuing other objectives such as economic growth, energy security, and social stability. Finally, some answers emphasized China's preference for technology-driven solutions over participatory governance approaches, which may limit its capacity to shape international norms.

Respondents suggested a range of measures to help China overcome these challenges to lead global sustainability transitions (also see Figure 3). To enhance trust-building and reduce geopolitical tensions, many highlighted the potential to expand South–South cooperation, particularly through climate finance, technology transfer, and capacity building. Such efforts are seen as critical for bridging gaps between the Global North and Global South, with China well-positioned to leverage its diplomatic influence on both groups. They further emphasised technology transfer to developing countries, which could reinforce China's role as a practical accelerator of sustainability transitions.

From a domestic perspective, respondents stressed the importance of accelerating clean energy transition – especially through a decisive phase-out of fossil fuels – to align China's domestic actions with its international commitments such as the Paris Agreement. In terms of governance approaches, some also called for the adoption of more people-centric and participatory development models. Such an approach could complement China's existing technological and financial strengths, while enhancing its ability to shape international norms and standards in a more inclusive manner.

Figure 3. Challenges and opportunities for China in advancing the global sustainability transition

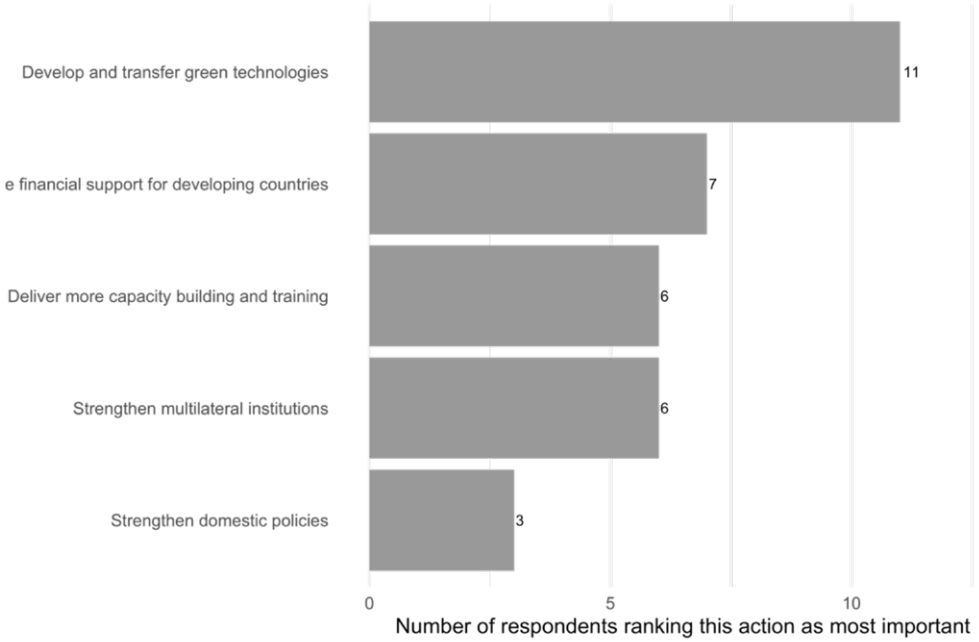


2.3 China in South-South collaboration

Since 2017, through its policy to green the Belt and Road Initiative, South-South collaboration has been a critical channel for China to support sustainability transition beyond its borders (Sun & Yu 2023). Accordingly, the survey asked what key actions China could take to better support sustainability transitions in the Global South. As shown in Figure 4, developing and transferring green technologies was the most frequently mentioned answer to this question, underscoring the importance of China's expertise on cleantech in the eyes of Global South countries, as well as China's strong capabilities in bridging technology gaps in their partner countries. Specific activities suggested by participants included developing local value-added capacity to enable Global South countries to accelerate their green structural transformation.

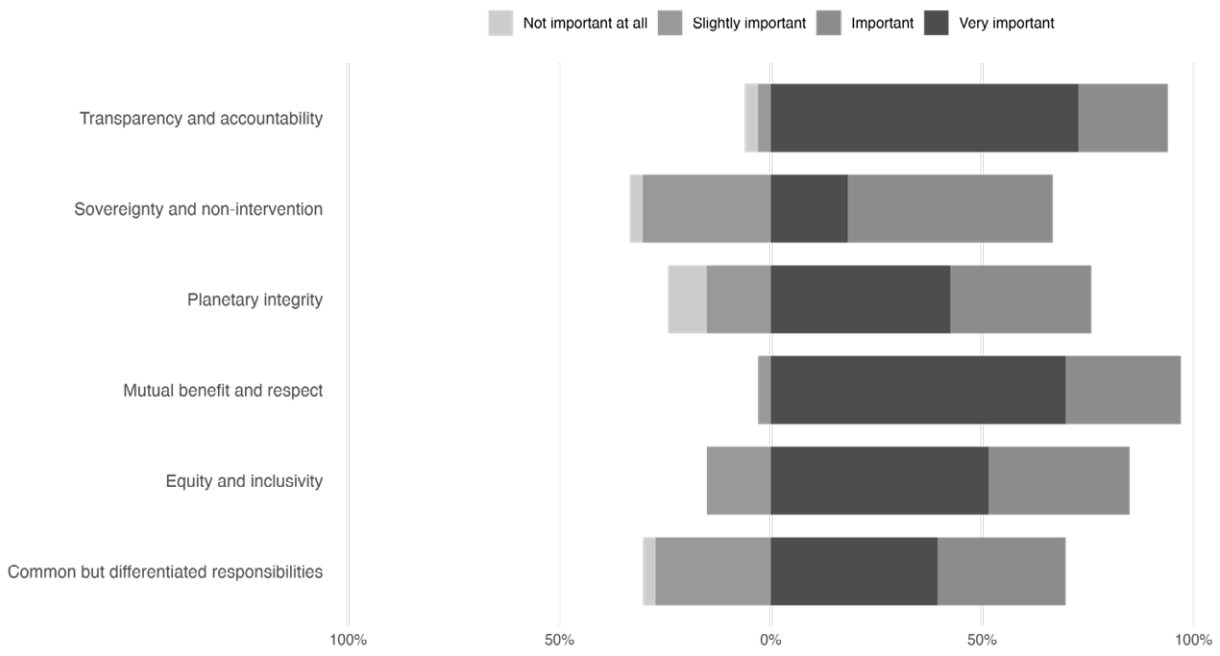
Increasing financial support for developing countries emerged as the second choice, reflecting ongoing concerns about access to affordable capital for a wide range of sustainable development projects. One avenue to advance this goal is for China to deepen its engagement with multilateral institutions such as the New Development Bank and the Asian Infrastructure Investment Bank, thereby leveraging collective resources and governance frameworks to expand sustainable financing. Beyond resource distribution, capacity-building and training, together with stronger multilateral institutions, were viewed as essential for embedding China's initiatives within a more transparent, accountable framework for South-South cooperation.

Figure 4. Actions identified as China's top priority for supporting sustainability transitions in the global south



The survey explored the principles that should guide China's cooperation with the Global South. As shown in Figure 5, "transparency and accountability" received the highest level of support (72.7%), closely followed by "mutual benefit and respect" (69.7%). These were viewed as essential for fostering trust and ensuring mutually beneficial relationships between China and its partners in the Global South. Notably, however, the principle of common but differentiated responsibilities, which has long been a cornerstone of China's international climate and environmental policy, received limited support (with only 27.3% of respondents rating it as "slightly important"). This may suggest an expectation that China should take on greater responsibility in supporting other developing countries. Other principles, such as environmental integrity, long-term sustainability, and non-intervention, were mentioned less frequently.

Figure 5. Guiding principles for China's cooperation with the Global South.



2.4 Risks associated with China's rising leadership

While identifying opportunities for China to take on a more active role in global environmental governance, our respondents also identified potential risks brought by China's growing influence on sustainability transitions in other countries. The most frequently mentioned concern was the overreliance on Chinese supply chains, especially on key clean technologies, reported by 25 participants. This answer is not unexpected given the recent effort of some governments, especially the US and the EU, to de-risk their cleantech supply chains from China (Zhou et al., 2025). In a related vein, geopolitical implications, such as the potential for cooperation to become entangled in broader strategic rivalries, were highlighted by 22 respondents, with 18 respondents pointing to national security concerns. In other words, many respondents remain highly concerned about deepening engagement with China in key sectors on sustainability transitions due to the fear that China may leverage its technological advantages for a geopolitical purpose. Together, these results show that although external experts have high expectations for China to take more on a leadership role in global sustainability governance, they still see find a transition dominated by China as somewhat risky. Therefore, if the world requires more engagement from China for sustainability transition, China and its international partners must build more trust and develop robust cooperation mechanisms.

The results from our survey show important insights from experts into China's current and future role in global sustainability governance, highlighting several areas of sustainability transition where China exerts significant influence and appears promising to both lead and accelerate transition. In the next three chapters, we analyse three critical issue areas (international environmental cooperation, energy finance, and critical minerals) and identify key opportunities and challenges for China to better contribute. Instead of providing a comprehensive analysis, our goal is to use these cases to illustrate China's crucial role and identify areas to enhance and improve China's engagement.

CHAPTER 3

CHINA AS A PROMOTER OF INTERNATIONAL ENVIRONMENTAL COOPERATION

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Chapter 3: China as a promoter of international environmental cooperation

Our first area of consideration is China's efforts to promote international environmental cooperation in both bilateral and multilateral processes. In this section, we provide a short review of China's changing role in global environmental governance, then assess its contributions to international cooperation. Although China has become increasingly active in promoting environmental cooperation, it remains reluctant to take more responsibility due to its developing country status; we therefore identify key opportunities and challenges for China to further lead international environmental cooperation.

3.1 China's evolving role in global environmental governance over the last decade

For a very long time, China's position in global climate governance was marked by its reluctance to accept any binding international commitments at the 2009 Copenhagen Climate Summit (Hilton and Kerr, 2017), with some observers even criticising China for "wreck(ing)" a deal (Lynas 2009). At the time, China was the world's largest polluter, with an economy heavily dependent on fossil fuels; however, as a developing country in the United Nations Convention Framework Convention on Climate Change (UNFCCC), remained unwilling to accept any obligations on emission reductions. In other words, Beijing faced a formidable challenge of reconciling the country's rapid economic growth with its responsibility on climate mitigation (Teng & Wang 2021).

In the early 2010s, China began a significant transformation towards low-carbon development. The 12th Five-Year Plan marked a strategic shift from energy-intensive growth to innovation and low-carbon technologies (Engels, 2018). This shift coincided with the takeover of Xi Jinping as the country's new leader, who put a strong emphasis on green development as demonstrated by his "two mountains theory" and campaign on "ecological civilization" (Hanson, 2019; Huang et al. 2024). This transition created opportunities to design policies compatible with international responsibility, signalling a more constructive stance on global cooperation. Between 2010 and 2015, China reduced energy intensity by 18.2% and carbon intensity by 20% and has since strengthened its environmental governance through a "war on pollution", which led to measurable improvements in air and water quality across the country (Greenstone et al., 2021).

With this remarkable change in domestic policy, China's environmental turn has also been highly visible through its growing role in multilateral environmental governance. A landmark example was its proactive contribution to concluding the Paris Agreement in 2015, especially through the joint US–China climate announcement that set out concrete targets before the negotiations began in Paris, including peaking CO_2 emissions by 2030, reducing CO_2 emissions per unit of GDP by 60% from 2005 levels, and increasing the share of cleaner energy in the national mix (NRDC, 2015). China also played a central role in coordinating developing countries through the G77 + China and BASIC groups in order to achieve consensus on the Paris Agreement (Allan et al., 2021; Xie, 2021).

Alongside its role in multilateral processes, China also strengthened its efforts in promoting bilateral cooperation, showing greater openness to accountability. For instance, it began dialogues with the United Kingdom to explore collaboration on methane reduction and emissions trading schemes (Department for Energy Security and Net

Zero, 2025), and environmental and climate cooperation with the European Union has also been developed (Hurri, 2020). At the 25th EU–China Summit in July 2025, both sides reaffirmed their shared responsibility to uphold the international rules-based order and committed to joint leadership in reducing greenhouse gas emissions ahead of COP30 (European Commission, 2025).

In addition to cooperation with major economies in the Global North, China has significantly expanded environmental diplomacy with the Global South, seen most significantly through its policy of the Green Belt and Road Initiative (Sun et al. 2023). Specific examples include the establishment of new initiatives, such as the Belt and Road Initiative International Green Development Coalition, to share information, coordinate policies, and promote best practices (Geng & Lo 2023). China has also strengthened cooperation with Global South countries on science and technology for environmental governance and low-carbon development, demonstrated through joint research centres and programmes with Brazil, Thailand and many others (Lewis 2023; Rodenbiker 2023). In some cases, the Chinese government has shown its intention to promote its environmental governance model and related values to other countries (Li & Shapiro 2020).

3.2 What contributions has China made?

The evidence shows that China has become increasingly active in promoting multilateral and bilateral environmental cooperation over the last two decades. This evolution marks a departure from earlier reluctance and reflects a deliberate effort from Beijing to shape - rather than resist - the global environmental agenda. The key question thus lies in the contributions that China is willing to make to global environmental governance and the implications of China's growing influence for the rest of the world.

China's steady green transition and growing international engagements have positioned it not only to make substantial contributions to global sustainability transition, but to potentially provide leadership. In contrast with Trump's anti-climate and anti-environmental policy, Chinese top leaders have reaffirmed their commitments to green development and support for international environmental cooperation. At the Leaders' Climate Summit on Just Transition in April 2025, President Xi Jinping described China as a "steadfast actor and major contributor in promoting global green development," underscoring China's strong support for multilateral environmental governance. Therefore, in a new world order distinguished by US decline and increasing multipolarity, China could serve as a protector of multilateral environmental institutions and a key driver of further international regulations and governance.

China's emphasis on green development driven by clean technologies presents an effective development model to attract many Global South countries (Wang-Kaeding 2021). Promoted through China's South-South cooperation and Belt and Road Initiative, China has brought tangible benefits to the Global South. Between 2015 and 2020, China supported ten low-carbon demonstration zones and 100 mitigation and adaptation projects, trained over 5,000 technical experts in climate action and ecological conservation, and allocated more than one billion CNY to programs in developing countries (State Council, 2021). These initiatives enable China to share its experiences and expertise on green development with its Global South partners, help them accelerate their sustainability transitions, and amplify voices from the Global South.

3.3 What are key challenges to strengthening China's engagement?

However, China's ability to further lead in international environmental cooperation at both multilateral and bilateral level, appears largely constrained by several structural factors – primarily the tension between China's international responsibility as a new global power, and its developing country status. While China's economic and military power now far exceeds any other developing country, it has only transitioned to become a middle-income country in the last twenty years and is still considered a developing country and part of the Global South in all multilateral processes. Its development history also has many similarities with other developing countries, which have fostered a decolonization or anti-imperialist agenda with Global South countries (Qi and Dauvergne, 2022; Miller, 2013). This developing country status and the identity that underpins it has led to China's advocacy of the principle of common but differentiated responsibilities (CBDR) in multilateral environmental governance. As a result, China remains unwilling to make any binding international commitment to provide financial support to other developing countries as shown by its position on climate finance (Logan, 2025). A remarkable example is China's opposition to contribute to loss and damage funds, arguing that only developed countries should bear such obligations (Yeh and Loizeaux, 2024).

However, as its economic and technological power continue to grow, China needs to take more international responsibility by providing increased financial support to its Global South peers. Even if the change of China's developing country status is unlikely to happen in most multilateral processes, China should provide more voluntary support with greater transparency for green development in other developing countries. In certain strategic areas, China can also voluntarily give up its developing country status to gain more international support, such as in the World Trade Organization (Brandi & Berger, 2025). Without taking more responsibility, not only will China be further criticized due to its large environmental impact, but also its ability to act as a bridge-builder in global environmental governance will be limited.

The second constraining factor is China's environmental governance model, described by some researchers as "coercive" or "authoritarian" environmentalism, featured by the lack of public participation through democratic processes (Li & Shapiro 2020; Gilley, 2012). Differing markedly from Western approaches valuing inclusion and participation, this model can cause negative socioeconomic impacts, especially on marginalised communities. As a result, cooperation with China can raise concerns over the possibility of adopting a Chinese model in environmental governance. In fact, the lack of consultations with non-state stakeholders have been proven to be detrimental to China's South-South environmental cooperation projects in many developing country contexts (Rodenbiker, 2023). Therefore, Chinese actors should refrain from exporting a China model in any international cooperation activities and actively promote mutual learning.

3.4 How to strengthen China's support for international environmental cooperation?

Based on the analysis above, we can identify several broad areas to strengthen China's leadership role in international environmental cooperation. At the multilateral level, many opportunities exist to deepen China's engagement with other major economies to strengthen international institutions and regulations. They include more proactive cooperation with pro-environment or pro-climate governments in the Global North such as the EU, to further multilateral cooperation in various environmental issues including to enhance the effectiveness of the existing institutions, such as the Paris Agreement, and to develop new agreements to address urgent crises such as a new legally-binding treaty to end plastic pollution.

At the bilateral level, greater consultation and participation with all kinds of stakeholders are vital for the long-term success of China's international engagement. Incorporating local needs into China's environment-related international development cooperation initiatives and aligning these initiatives with just transition principles would significantly improve China's reputation around the world. This also requires more transparency, by disclosing data on China's bilateral cooperation projects to avoid mistrust and misunderstanding from its international partners and reduce the likelihood of greenwashing.

Finally, to strengthen China's support for environmental cooperation overall, an improvement of national public global environmental governance awareness is needed. An effective environmental governance system should be built on public understanding of today's planetary crises, so that Chinese citizens can demand its government to take more international responsibility. However, currently many Chinese citizens still do not have good understanding of the environmental impact of China's development. In this context, improving public awareness would not only accelerate China's green transition, but also avoid potential public backlash against more international responsibility taken by China.

CHAPTER 4

CHINA'S OVERSEAS ENERGY INVESTMENT

Chapter 4: China's overseas energy investment

Another important area of China's influence on global sustainability transition is due to its role of being a major investor of clean energy in the Global South. In this section, we briefly show China's emergence as a major supporter of clean energy transition around the world, as well as key contributions that Chinese investments have made. We then identify major barriers for China to further lead global energy transition as an investor, and propose practical reforms to Chinese financial institutions, companies, and other stakeholders.

4.1 Evolving trends in China's renewable investments

Over the past decade, China has quickly expanded its role in the global energy sector by making large investments in renewables. The country is now the largest global energy investor by a wide margin, and drives global clean energy investment by accounting for 45% of investments in renewable power (IEA 2025). Some analysis has estimated that China's total clean energy investment (including all types of clean technologies) in 2024 reached USD 940 billion, which is close to the global total investment into fossil fuels in the same year (Myllyvirta et al. 2024). The rise of China's renewable energy sector - now over 10% of the country's GDP - has also meant growing outward investment from China in clean energy, especially in the Global South, as companies are increasingly eager to expand their overseas market.

China's ability to lead in global energy investments has been made possible by its overseas development projects especially the Belt and Road Initiative (BRI), through which China has financed 1.175 trillion USD in development projects across the globe since 2013 (Nedopil 2025). Although the majority of energy finance in the BRI initially went to fossil fuels, particularly coal, this quickly shifted towards renewables, with China ending its finance for overseas coal projects in 2021 (Wang et al. 2024). As a result, the proportion of the BRI investments in solar and wind projects increased from 5% in 2013 to more than 30% in 2025 (Nedopil 2025). This growth in China's overseas clean energy finance closely aligns with the Chinese government's strategic move towards greening the BRI, starting around 2017 to enhance the initiative's credibility (Sun & Yu 2023).

All in all, China has not only transformed into the world's largest market of clean energy, but has also become the leading renewable investor in many countries around the world, thereby shaping these countries' clean energy transition trajectories.

4.2 What contributions can China make as a leading investor of renewable energy?

As China has become a renewable energy superpower over the last two decades, it now emerges as a major financier of renewable energy in the Global South. Despite having no official responsibility to provide climate finance under the UNFCCC, China has steadily ramped up its climate finance - with a total contribution of CNY 177 billion (approximately USD 24.5 billion) between 2016 and 2023 according to the Chinese government (Xinhua 2024). This figure has placed China as the fifth largest donor of climate finance (Liu et al 2024). On renewable energy, according to AidData's Global Chinese Development Finance Dataset (2023), between 2000 and 2021, China invested in power generation, energy efficiency and research and training projects worth USD 20.62 billion in 86 countries (Gu et al., 2025).[2] All these figures suggest that Chinese renewable investments now constitute a major contribution to the global net zero transition.

Moreover, Chinese financial institutions have co-financed, often through syndicated loans, many green projects with international commercial banks and multilateral development banks in the Global South (up to USD 34.6 billion) - including hydropower, solar, wind and green transportation (Chen & Emery 2025). While the main incentive of co-financing is risk sharing, such partnerships established between Chinese financial institutions and their international counterparts create the opportunity to further explore financial innovation, such as blended finance, to accelerate clean energy transitions across the globe.

In addition to financing, China has provided support for a range of capacity building and training initiatives on clean energy, often involving the transfer of technologies and knowledge from China's experience of green development (Harlan and Lu, 2022). The lack of technical capacity of local workforces has often been a key barrier for China-supported projects to provide tangible development benefits to host countries. Therefore, in projects such as the Africa Solar Belt, which aim to provide 50,000 households in Africa with solar home systems, the effort of Chinese stakeholders to facilitate capacity building and technology transfer would be crucial (Song & Ireri, 2024). As China has become a pioneer in cleantech innovation, it has the potential to share its technologies and expertise alongside investments to accelerate net zero transitions and promote socioeconomic development in the rest of the world.

[2] The figures include hydropower achieving net emission reductions, but exclude nuclear power.

4.3 What are the key barriers to increasing China's green investments?

Despite China's growing overseas investments in clean energy, several barriers exist against China leading green transition in the Global South. First, although the Chinese government has made a series of efforts to green the BRI, concerns on the social and environmental impacts of China-supported infrastructure development persist. China's renewables investments often involve large-scale infrastructure development such as dams, reservoirs, solar farms and electricity transmission lines, which can result in the displacement of local communities and negative impacts on ecosystems (Harlan and Lu 2022).

Further, when operating overseas many Chinese companies may not carefully engage and consult with local communities throughout the project life cycle, due to a lack of experience of working in different host contexts (Chen 2025). This can cause mistrust and misunderstanding between Chinese investors and local people, which may lead related projects to generate negative social impacts and trigger public opposition to clean energy transition. Relatedly, China's clean energy investments may have important justice implications in host countries; research in Indonesia shows that economic benefits from Chinese clean energy investments have mainly accrued to elites while undermining vulnerable communities and reinforcing inequality (Wijaya & Jones 2025).

Furthermore, important regulatory gaps remain for the Chinese government to monitor overseas investments including companies' practices on the ground. Until now, the Chinese government has only issued voluntary guides to promote green investments (Nedopil 2021). This means Chinese investors are only held accountable to the laws of the host country, which often have less or more lenient social and environmental safeguards to encourage investment. As a result, some Chinese investments are still channelled towards fossil fuels even after Beijing's ban on overseas coal finance, such as in the case of captive coal power plants supporting industrial parks (Nesan et al., 2025). Stronger environmental and social safeguards with robust accountability mechanisms are needed to ensure that China's overseas clean energy investments support sustainable development in host countries.

Lastly, China alone cannot bridge huge financial gaps in clean energy transition in the Global South. Financial and geopolitical contexts in many Global South countries have caused investors to generally view renewable energy development as high risk, so that in 2024 only 15% of the global clean energy investments went to developing countries outside of China (Yang and Shi 2025). Such risks have been exacerbated by economic recession and growing geopolitical turbulence after the COVID-19 pandemic, which led to a further decline in energy investments in the Global South. With US-China rivalry and growing geopolitical tensions, there has been also a trend of tightening restriction of cooperation with Chinese entities, including in the financial sector, in many Global North countries (Hancock & Jopson 2025). In this context, it seems very challenging for Chinese companies and financial institutions to enhance cooperation with their international counterparts to jointly mobilize more investments for global energy transition.

4.4 What reforms are needed from China?

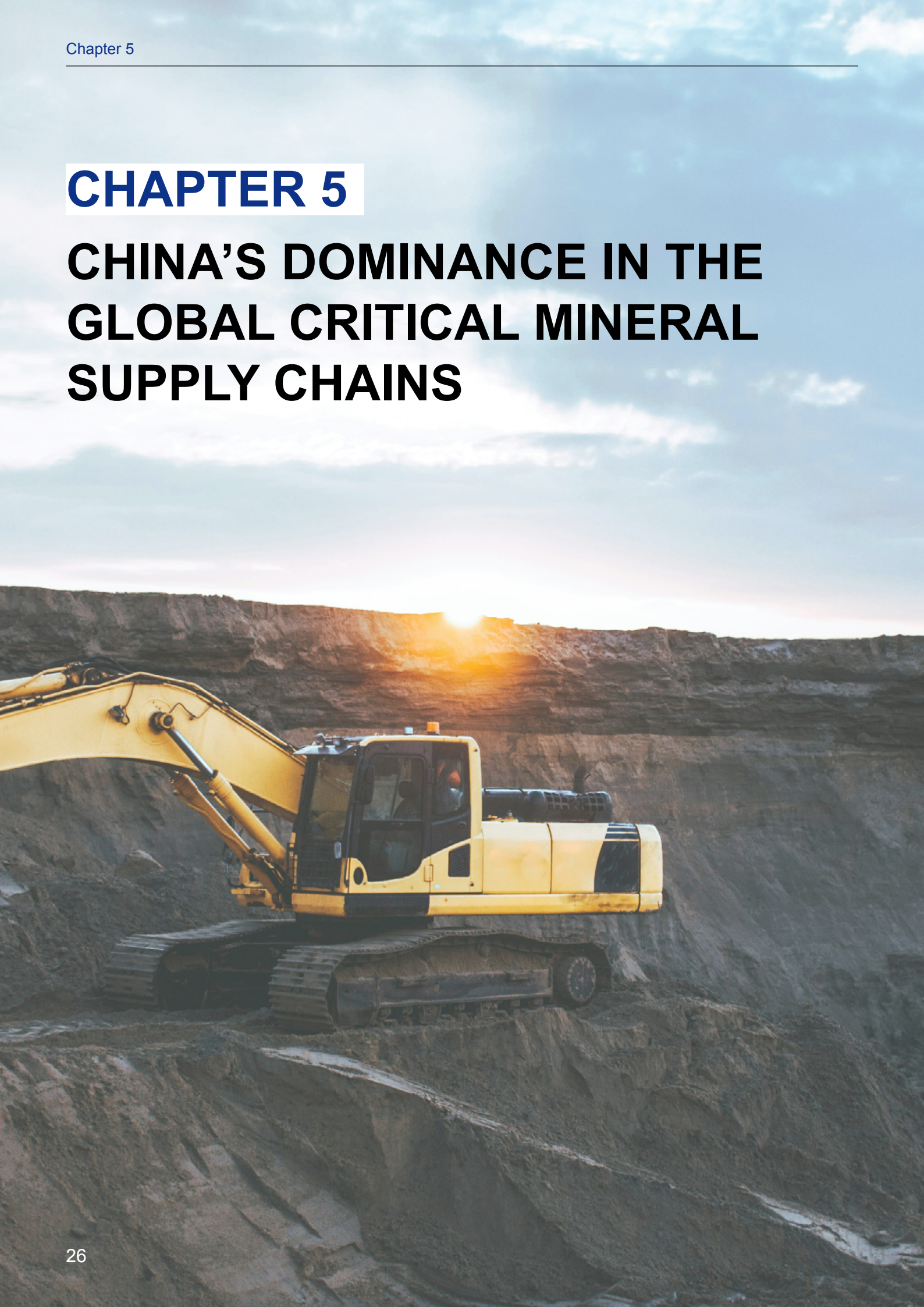
To combat these abovementioned barriers, the relevant Chinese actors can make several reforms to improve its position as a trusted investor in clean energy. To begin with, Chinese financial institutions, including its policy banks and state-owned commercial banks, should aim at greater alignment with international frameworks and standards on sustainable and green finance and investment. For example, China's export credit agencies (ECA's) can align its lending activities with the Paris Agreement goals to increase its credibility as a green investor (Jia et al 2025). Similarly, Chinese financial institutions should also improve their standards on environmental, social and governance (ESG) issues and align them with international best practices. In recent years, the Chinese government has strengthened their requirements on ESG reporting, so that financial institutions and companies in China began to pay greater attention to ESG issues and adopt higher standards. However, ensuring the full implementation of ESG standards by Chinese businesses requires more transparency and robust monitoring systems. Improving transparency would also help Chinese companies avoid greenwashing claims, improve engagement with overseas stakeholders, and enhance their global reputation as champions of green investment. In doing so, Chinese financial institutions can also seek to join or coordinate with related international alliances such as Net-Zero Export Credit Agencies Alliance and Science Based Targets initiative, to facilitate collaboration with their international peers.

Moreover, Chinese investors, especially companies responsible for project implementation, can support local communities to ensure that those who are most affected by clean energy development benefit more directly from projects. In this aspect, Chinese companies and research institutions can use their experiences on clean technology development to support host countries of Chinese green investment, to acquire suitable technologies and develop necessary human capital, which would ultimately help to empower communities to meet their local sustainability needs. For example, when market demand exists, Chinese cleantech companies should try to localize the production of some clean energy equipment, such as solar panels and batteries, in other Global South markets to create local jobs and new opportunities for economic development (Sun et al. 2025). In fact, the new direction of the Belt and Road Initiative towards "small yet smart" projects can further facilitate such localization processes as Chinese overseas investments began to focus more on livelihood provision and human development of local communities (Xinhua 2023).

Finally, China should reform its communication and collaboration mechanisms with non-state stakeholders in host countries. Although the Chinese government has developed some processes to engage with non-state actors for promoting green development in its overseas investments, such processes are not always easy to access by all non-state actors especially civil society groups who are outpowered by business actors. As a result, concerns of some actors in host countries may not be heard by Chinese investors and government actors, and this can become the cause of misunderstanding and undermine the effectiveness of Chinese investments. For this reason, Chinese actors should design more open and robust mechanisms that can incorporate views of different stakeholders in host countries to ensure investments are mutually beneficial and support local needs.

CHAPTER 5

CHINA'S DOMINANCE IN THE GLOBAL CRITICAL MINERAL SUPPLY CHAINS



Chapter 5: China's dominance in the global critical mineral supply chains

The third area is China's role in global governance of critical minerals, which are an essential component of clean technologies. Over the past two decades, China has gained a dominant position in the global supply chains of many critical minerals, especially in the mid-stream and downstream segments, and has increasingly invested in mining extractions around the world. As countries began to intensify their competition in securing the supply of critical minerals, there is an urgent need to establish an effective global governance framework in the related supply chains. Our analysis shows that China is well positioned to lead the development of such a framework, but uncertainty remains on the extent to which the Chinese government and businesses can make more efforts to strengthen global governance for sustainable production and sourcing of critical minerals.

5.1 China's dominant role in global critical mineral supply chains

Critical minerals such as lithium, cobalt, nickel, and rare earths are indispensable to the global net zero transition, and as such their demand will increase significantly in the coming decades. According to some estimates, the production of cobalt and lithium will likely increase 500% by 2050 to meet demand (Kalantzakos 2020). China is currently the largest producer of 28 metal and mineral commodities and shares 63% of global rare earth's production (Mellsop 2025). Moreover, through its growing investments in mineral-rich countries in the Global South, Chinese companies hold a share of around 11% copper and cobalt production, 13% of lithium production and 6% nickel production (Zhou et al 2025). This puts China at the centre of global critical mineral supply chains with a notable influence on how these resources are produced and distributed.

Over the past two decades, China has been able to leverage its position in the related global supply chains as both an exporter of critical raw materials as well as an investor of mining activities (Park 2023). In particular, the Belt and Road Initiative has facilitated China's investments in extractive sectors ranging from South America to Africa (Gallagher 2016). More importantly, China's leading role in refining and downstream technologies (e.g., batteries) has further increased the country's control over the demand and supply of these key materials for clean energy technologies.

However, growing geopolitical tensions have led many Global North countries to increasingly adopt policies aiming to "de-risk" their supply chains from China (Zhou 2024). This trend started around 2018 when rare earths became subject to the US-China trade war, triggering a global awareness of China's critical mineral dominance (Kalantzakos 2020). As a result, the US and European countries began to see their dependence on China for their critical mineral supply as a security issue, a concern further exacerbated by the COVID-19 pandemic and the global geopolitical divide resulting from the Russia-Ukraine War (Park 2023). The EU has since sought to strengthen their capacity on mining and refining of critical minerals, by developing partnerships with "like-minded allies" (Zhou et al 2025). That said, these efforts to de-risk from China have not changed China's dominance in the global critical mineral supply chains.

5.2 What contributions does China make to global critical mineral governance?

To date, there is not a strong framework of international governance on critical minerals, however growing global demand for clean technologies is creating more competition among countries to secure the supply of these minerals, which tends to prioritize extractivism over regulations for sustainable production and sourcing (Kramarz et al. 2021). Due to China's dominant position in global critical mineral supply chains, relevant Chinese stakeholders are poised to lead the development of global governance initiatives promoting sustainable critical minerals. In fact, some government agencies and companies in China have already started to take important steps in this area. Domestically, the Chinese government introduced several national plans to promote responsible production and use of some critical minerals such as rare earths, including environmental regulations of extractive activities (Zhou et al 2025; Kalantzakos 2020). Building on such experiences of developing a robust national governance framework, China can promote globally a governance model for responsible mining.

More recently, the Chinese government has shown a growing interest in supporting and even leading new international initiatives to govern sustainable production and trade of critical minerals. At the latest G20 summit in Johannesburg in 2025, China has shown strong support for the G20 Critical Mineral Framework and even launched an International Economic and Trade Cooperation Initiative on Green Mining and Minerals (Xinhua 2025). Through such diplomatic engagement especially with its Global South partners, China has taken on a leadership position in promoting international cooperation for sustainable production and consumption of critical minerals.

Additionally, Chinese businesses in the critical supply chains have been involved in several transnational governance initiatives seeking to tackle environmental, social, and governance (ESG) issues associated with the extraction, production and trade of critical minerals. According to Park's (2023) research, as of 2020, 208 Chinese companies had joined 24 transnational extractive governance initiatives. Notably, some Chinese business actors, such as China Chamber of Commerce of Metals, Minerals, and Chemical Importers and Exporters (CCCMC), have proactively promoted ESG standards and even began to develop their own standards that can be applied in their supply chains (Deberdt et al 2024). Although the extent to which such Chinese standards can actually protect communities and the environment in mining countries remains to be seen, this new trend suggests that some Chinese actors are emerging as global standard setters eager to promote global ESG standards in the critical mineral sector.

5.3 Key challenges for China to lead global critical mineral governance

Despite China's important role in global critical mineral supply chains and some recent efforts to promote sustainable production and sourcing, several challenges remain for the relevant Chinese stakeholders to establish effective governance arrangements to address social and environmental risks posed by growing extraction and production of critical minerals across the globe. To begin with, Chinese companies in the critical mineral supply chains – including extractive industries but also battery producers – are increasingly investing in large-scale industrial mining in developing countries, which can cause significant social and environmental impacts if proper safeguards are not in place. Many of these mineral-rich areas are also biodiversity hotspots and Indigenous lands, which can further increase socio-ecological risks of Chinese overseas investment (Yang et al. 2021). Despite Chinese businesses' growing interest in ESG issues, it remains to be seen if companies can fully implement related standards to properly protect local communities and the environment.

There is also a risk of greenwashing if robust accountability mechanisms do not exist to monitor standard implementation and set up compensation if harms are made. However, most Chinese mining companies are not under the scrutiny of civil society due to the lack of Chinese NGOs working in this area, as well as the very limited access that foreign NGOs have to Chinese companies. As a result, many China-supported critical mineral extraction projects are operated in an opaque way, without necessary engagement with local communities and civil society (Chen 2025). This not only increases the likelihood of greenwashing but also undermines the reputation of Chinese businesses, and even China as a country in many Global South countries.

Lastly, from the perspective of the Chinese government, it is also very difficult to directly regulate overseas activities of Chinese extractive industries. Until now, the Chinese government has only encouraged companies to follow international best practices for environmental governance in their overseas operations (De Boer et al. 2022), remaining reluctant to develop any extraterritorial rules to directly regulate Chinese companies' overseas activities. This is partially due to the long-standing principle of non-intervention in China's foreign policy, but also due to the practical challenges in monitoring companies' activities and enforcing regulations beyond China's borders. In addition, the fact that many Chinese companies in the critical mineral sector are privately owned businesses has further increased the difficulties in regulation by the Chinese state. Without an effective regulatory framework to manage social and environmental risks in China's critical mineral supply chains, it remains unclear how the Chinese government can take further action to strengthen global governance.

5.4 How can China strengthen global governance for sustainable critical minerals?

While China's dominance in the global critical minerals supply chains has generated concerns about potential social, environmental and security risks, this role has provided the Chinese government and relevant Chinese businesses with the opportunity to develop or shape stronger governance mechanisms in the related supply chains for sustainable production and sourcing. Actions in three key areas seem important for China to take a more active role in this endeavour.

First, the Chinese government can initiate diplomatic engagement and multilateral coordination to improve sustainability governance in critical mineral supply chains. Beijing can provide further support for existing multilateral initiatives such as the UN Secretary-General's Panel on Critical Energy Transition Minerals and G20 Critical Mineral Framework. At the bilateral level, it can also use the BRI and other China-led global initiatives as platforms to promote cooperation on sustainability standards, green mining, and just transition strategies. More institutions, networks, and dialogues can be developed to facilitate joint planning, monitoring, and enforcement of environmental and social safeguards with its Global South partners. The International Economic and Trade Cooperation Initiative on Green Mining and Minerals recently launched at the 2025 G20 Summit is a promising example. Meanwhile, China can also increase its engagement with multilateral development banks, regional fora, and transnational public-private partnerships to promote sustainable production and trade of critical minerals.

Second, Chinese businesses should support higher and more rigorous ESG standards while making their global operations more transparent. On standard stringency, the standards and codes of conduct developed by key Chinese business actors like the CCCMC should be aligned with international best practices to improve their credibility and attract more adopters globally. On standard implementation, Chinese companies can lead by example by embracing a "thicker" version transparency that includes independent verification, robust disclosure, stakeholder inclusivity, and comprehensive reporting to avoid greenwashing and address the concerns of affected communities.

Finally, improving environmental and social outcomes of Chinese-backed critical mineral projects requires greater investment in local capacity building and value addition. China has already demonstrated experience in technology and knowledge transfer through its green cooperation in sectors like water, agriculture, and forestry, and can extend such collaboration to the extractive industries. Skills training, technology transfer, and co-development of sustainable practices can empower host country governments, businesses and workers in the supply chains. Ensuring local voices are integrated into project design and oversight, especially indigenous and rural communities affected by mining, is essential to enhancing projects' legitimacy and long-term benefits. This can include localising parts of the supply chain by working with diverse local partners – such localization processes can help developing countries climb the value chain and reduce dependency of cleantech imports, creating more equitable partnerships with China. Ultimately, promoting inclusive cooperation is not only conducive to sustainable development, but can strengthen China's soft power and reputation as a responsible investor.

CHAPTER 6

CONCLUSION: HOW CAN CHINA BETTER CONTRIBUTE TO GLOBAL SUSTAINABILITY TRANSITION?

Conclusion: How can China better contribute to global sustainability transition?

The recent geopolitical shifts marked by Trump's America First policy has led to a leadership vacuum in global sustainability governance. With its growing economic and political influence, China has the potential to become a new leader of sustainability transition for the world, as shown by our expert survey. Our analysis on China's roles in three key areas for sustainability transition – international environmental cooperation, global investments in energy transition, and supply chains of critical minerals – suggests that China has already made important contributions to global environmental and climate governance. However, it also reveals that the extent to which China is willing and ready to lead the development of new international governance processes, rules, and standards to accelerate sustainability transitions is uncertain. In some cases, Chinese actors are eager to drive global transition through their initiatives, but in others they remain reluctant to allocate more resources to support others. Despite such inconsistency, existing evidence overall shows China's growing interest – from both its state and non-state actors – in becoming an environmental leader and assuming more international responsibility (Harlan et al. 2025). Considering these trends, and the reforms identified above under each area, we highlight four broad policy recommendations that can help Chinese actors to better contribute to global sustainability transition.

First, building on its commitments to multilateralism, the Chinese government should **provide more support to strengthen multilateral cooperation** on pressing environmental issues. This means China needs to more actively coordinate the positions of different countries, to improve the effectiveness of existing multilateral environmental agreements such as UNFCCC and Convention on Biological Diversity. It also means China should more proactively support the development of new institutions and initiatives in various multilateral platforms including the UN processes (e.g., the negotiations for an international treaty on plastics pollution) and also G20 and BRICS. China's dual identity as a major economy as well as a developing country offers a unique advantage to bridge the gaps between the Global North and South.

Second, both Chinese state and non-state actors should **enhance transparency of their policies and activities**, especially those related to overseas engagement, so that their international partners can better understand China's efforts and concerns. Although progress on sustainability transitions in many parts of the world can be attributed to the support from China, such contributions are often not recognized due to the lack of open and accessible information. In many cases, this lack of transparency can raise concerns over the motivations and impacts of related actions, such as the false accusation of "debt trap diplomacy". Hence, enhancing transparency on China's support for global sustainability transition would allow China to better explain its governance approach to the world, improve the effectiveness of its policies, and improve its international reputation. A key area to begin with can be China's finance for climate action in the Global South.

Third, through their overseas engagement, various Chinese actors including businesses, financial institutions and even civil society groups, should **promote a just transition around the world**. While equity and justice are critical to the success of sustainability transitions, China has not yet developed any formal policies on just transition. This has led to insufficient attention of many Chinese actors, including financial institutions and clean energy developers, to justice issues in their work. Without taking proper measures to support a just transition, China's overseas engagement would cause discontent and even opposition in many Global South countries. In this context, Chinese actors need to better integrate justice principles in their activities and use their economic influence to support a just transition in different host countries. In doing so, related actors can also draw lessons from China's own domestic transition.

Fourth, the Chinese state and businesses should **establish robust communication channels to engage with international stakeholders**. One of the most significant criticisms of China's overseas engagement by host country stakeholders is the lack of access to the Chinese actors operating on the ground. As a result, in many cases local communities' concerns cannot be shared with the Chinese actors responsible for project design or implementation. This existing system would prevent many China-backed projects from providing necessary benefits or proper compensation to the affected communities. Therefore, improving communication is essential for Chinese actors to understand local contexts, and accordingly, design suitable engagement strategies to maximize their positive impact on sustainability transition.

In conclusion, making reforms on these four areas will help Chinese state and non-state actors gain more support from their international partners to promote sustainability transitions around the world. In turn, these reforms will increase sustainability benefits of China's global engagement, making China as a responsible global power. As our planetary crises continue to worsen, China, as an emerging power with leadership aspirations in the area of sustainability transition, must seize this unique opportunity to make further contributions for our common future.

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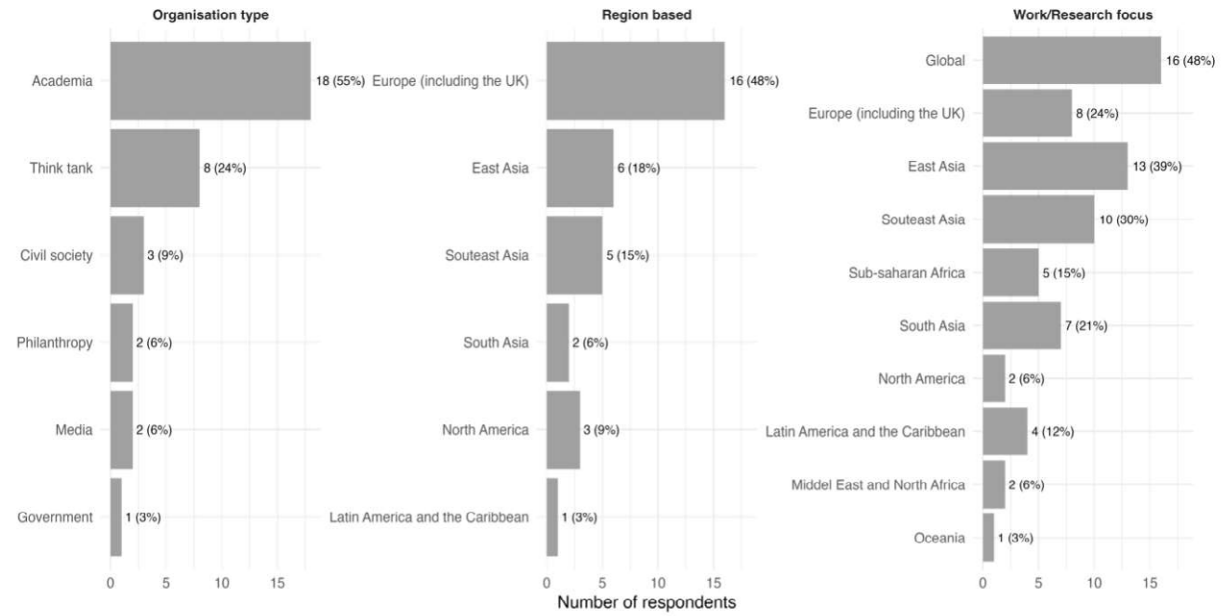
Annex: Survey sample

Figure A1 provides an overview of the participants in our expert survey conducted around the Bath Conference. Over half of the respondents are from academia (53%), followed by think tanks (24%). Smaller proportions were from civil society organisations (9%), media (6%), and government agencies (3%). Geographically, the largest share of respondents is based in Europe (including the UK) (16 participants), with notable representation from East Asia (6) and Southeast Asia (5). However, no respondents are based in Sub-Saharan Africa. In terms of the geographical scope of their work, most respondents focus on “Global” (24%) and “East Asia” (19%). In total, the geographical focus of our respondents covers all world regions, which offers comprehensive inputs into global and region-specific perspectives on China’s role in sustainability transition.

Figure A1. An overview of the survey participants



SGAIN

Sustainability Governance of China's Global Infrastructure Investments (SGAIN) is a long-term research initiative at the University of Bath, supported by the UKRI Future Leaders Fellowship. The project explores how China promotes green development through its overseas infrastructure investments and examines the environmental and social impacts of key projects across the Global South. By combining innovative research methods and international collaboration, SGAIN contributes to advancing global understanding of sustainable development and governance, with work helping policy practitioners to develop suitable strategies to align international investments with local sustainability needs.

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