BU Global Development Policy Center

The BRI at Ten

MAXIMIZING THE BENEFITS AND MINIMIZING THE RISKS OF CHINA'S BELT AND ROAD INITIATIVE

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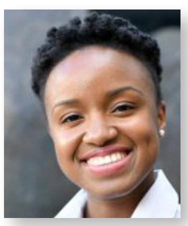

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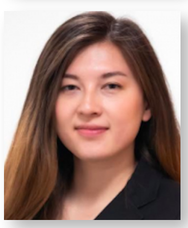

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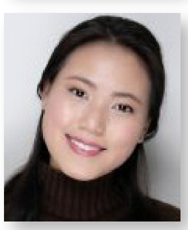

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EXECUTIVE SUMMARY

This year marks the tenth anniversary of China's historic Belt and Road Initiative (BRI), an ambitious global infrastructure platform to expand connectivity, economic integration, growth and cooperation across the globe.

This report synthesizes the work of the Boston University Global Development Policy Center (GDP Center) evaluating the promise of China's overseas economic activity in general, and the BRI in particular. Our policy-oriented research finds that the BRI has delivered significant benefits to the countries that China has engaged with, but has also accentuated real risks for China and host countries alike.

In short, China's global economic engagement has led to significant benefits:

- **New, additional resources for the Global South:** According to our data, from 2008-2021, China's development finance institutions (DFIs) provided approximately half a trillion dollars, and at least $331 billion during the BRI period of 2013-2021. In Africa, where we collect a broader set of data, Chinese DFI financing stood at $123 billion from 2008-2021, and $91 billion during BRI years. In addition, Chinese commercial and other actors provided $30 billion to African governments from 2008-2021, and $23 billion during the BRI period.
- **Co-creation of a new model of South-South cooperation and developing country agency for development:** Our data and research show that China has been at the forefront of providing financing for liquidity and development finance and creating Southern-led alternative institutions for these purposes. These institutions increase the role of the South in global economic governance and contribute additional and alternative sources of much needed financing that provide more opportunities for developing country agency. This significantly benefits recipient countries and China alike.
- **Significant economic growth:** Our research shows that Chinese overseas development finance has been much more focused on industrial and infrastructure lending, compared to traditional DFIs like the World Bank, which tend to focus on institutional capacity building. A growing literature shows that Chinese finance is thus more associated with economic growth, addressing infrastructure bottlenecks and increased energy access than World Bank lending. Borrowers have grown to approach China and the World Bank as complements, with each supporting different but necessary sectors.

Concomitantly, China's global economic engagement has also accentuated risks like:

- **Accentuated debt distress in developing countries:** Suffering from the compounded impact of multiple external shocks, developing countries are experiencing a debt crisis due to the COVID-19 pandemic, climate shocks and advanced economy interest rate policies. Many of the recipients of Chinese finance are subject to significant debt distress, with several countries owing China a significant share of their external debt. China has played a constructive role in the Debt Service Suspension Initiative, but all creditors remain in gridlock over more substantive debt reduction.
- **Increased carbon dioxide emissions and air pollution:** Our research finds China's overseas fleet of fossil-fuel power plants emits around 245 million tons of carbon dioxide per year, contributing to climate change. China's overseas infrastructure also contributes to

land use change that causes further greenhouse gas emissions and poses risks to biodiversity and Indigenous lands. Proper air pollution technology controls are essential to mitigating health costs from Chinese-financed fossil fuel power plants. China has recently pledged to shift from fossil fuel investments to stepping up clean energy development in future investment.

- **Risks to biodiversity hotspots and Indigenous lands:** Chinese development finance projects carry significantly higher risks to biodiversity and to Indigenous lands than projects financed by the World Bank. These differences are not simply due to differences in the sectors of projects that each lender supports but hold even with most sectors. However, recent trends show Chinese development lending shifting toward smaller and less risky projects, as China develops standards for a Green BRI in the future. Furthermore, Chinese investment does not show a preference for operating in contexts with weak standards, so host countries also have policy space to enact and enforce protections that serve their sustainable development goals.

The resource mobilization needs in the world economy are enormous, and China has made one of the largest contributions to closing that gap over the last decade. As the BRI and China's global experience have evolved over the last ten years, China and host countries alike have begun to develop several frameworks aimed at maximizing the significant benefits of China's economic activity and mitigating the attendant risks.

This report suggests pathways to ensure that the next decade is even more successful than the first.

For China, it will be important to shift its focus from a high volume to a high impact level of economic engagement overseas, to adapt its current approach to enable new forms of economic cooperation and opportunity for South-South cooperation, such as in establishing a new project pipeline facility to match with its unique business model, and to apply new policy frameworks that can help prevent and mitigate risk for China and global partners alike. Table 2 in the paper shows that China has already begun to make important BRI policy changes to this end.

Developing country partners can support this process by generating proposals that pair well with China's strengths and priorities and by tailoring risk management policies to work with Chinese investors.

Additionally, more coordination or outright partnerships with third-party countries in the Global North. At minimum, Western countries should capitalize and bolster parallel efforts such as the PGII and the Global Gateway to provide real and additional benefits and choices to developing countries to encourage healthy competition towards achieving shared climate and development goals for a sustainable future.

Sao Paulo, Brazil.
Photo by Guilherme Cunha via Unsplash.

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THE BRI HAS BROUGHT SIGNIFICANT BENEFITS TO HOST COUNTRIES AND CHINA ALIKE

According to our research and the broader literature, the BRI has been successful in several significant ways. First and foremost, the BRI and China's general increase in overseas economic activity have significantly increased the scale of development and liquidity finance in a world economy that needs to mobilize trillions of dollars on an annual basis to achieve shared development and climate goals. Second, China's overseas financing has catalyzed economic growth by increasing trade, unlocking infrastructure bottlenecks and paving the way for increased core infrastructure and energy access in recipient countries. Third, Chinese finance has brought a stepwise increase in the level of energy financing across the Global South, expanding energy access and demonstrating a capacity for significant green energy financing.

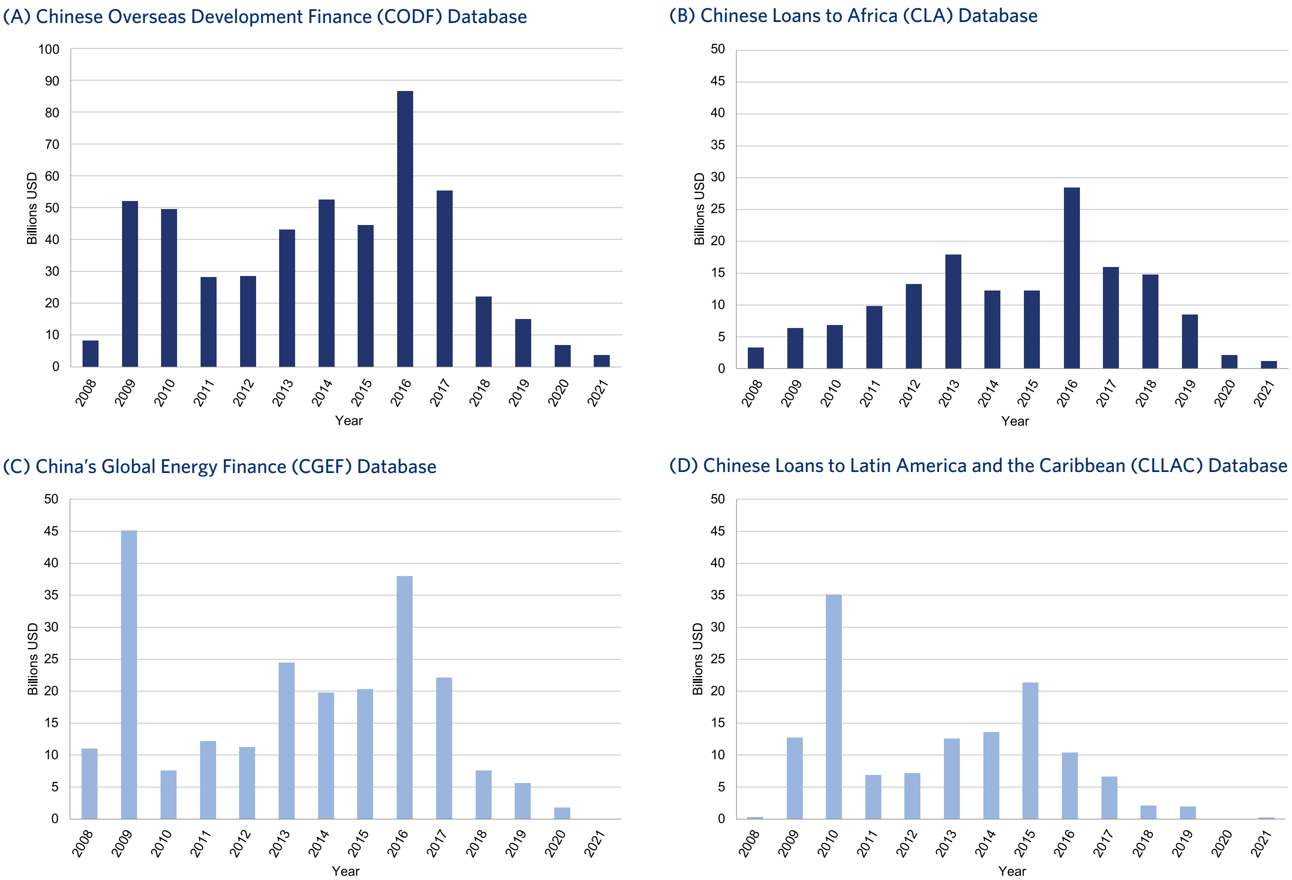
INCREASED SCALE OF DEVELOPMENT AND LIQUIDITY FINANCE

To achieve the United Nations 2030 Sustainable Development Goals (SDGs) and align with the Paris Agreement on Climate Change, countries need to mobilize $2.4 trillion annually, of which $1 trillion is from external sources (Songwe et al. 2022). Chinese overseas development finance (ODF) has contributed to addressing this finance gap.

From 2008-2021, China's two main DFIs – the China Development Bank (CDB) and the Export-Import Bank of China (CHEXIM) – provided $498 billion in development finance to sovereigns, which was 83 percent of finance provided by the World Bank's International Development Association (IDA) and International Bank for Reconstruction and Development (IBRD) loans in the same period (Ray 2023). Of this total amount, at least $331 billion was given during the BRI period (2013-2021) (GDP Center 2023). CDB and CHEXIM extended $227 billion in energy finance to countries across the globe from 2008-2021 (GDP Center 2022a). For Latin American and Caribbean countries, these DFIs supplied $130 billion from 2008-2021 (Ray and Meyers 2023). CDB, CHEXIM, state-owned commercial banks, Chinese companies and other Chinese financiers provided $153 billion in loans to African governments and regional institutions from 2008-2021 (GDP Center 2022c). These trends are shown in Figure 1. During the BRI period, Chinese DFIs supplied $91 billion to African sovereigns, which was more than double the amount they provided in the 2000-2012 period. Additionally, commercial lenders supplied $12.5 billion, and other lenders supplied $10.3 billion to African governments during the BRI years (GDP Center 2022c).

The increased scale of Chinese development and liquidity finance can be explained by the push and pull framework. The interactions between supply "push" and demand "pull" factors within country and sector-specific contexts have driven the vast amount of Chinese overseas lending and development finance (Kong and Gallagher 2021; Li et al. 2022). Push factors are domestic forces driving Chinese ODF. China's current account surplus, paired with overcapacity in key infrastructure sectors in China and the need to secure imports, have led to several government policies and mechanisms that encouraged overseas financing. Pull factors refer to the factors outside of China driving the demand for its ODF, such as the need for addressing

Figure 1 Trends in China's Overseas Lending and Development Finance



Note: In Figures 1A, 1C and 1D, the data depicts loans supplied by China's DFIs, CDB and CHEXIM. In Figure 1B, the data shows loans given by China's DFIs, state-owned commercial banks, companies and other government entities.

Source: Boston University Global Development Policy Center, 2022-2023.

finance gaps, responding to core infrastructure needs and a preference for Chinese finance (Horigoshi et al. 2022).

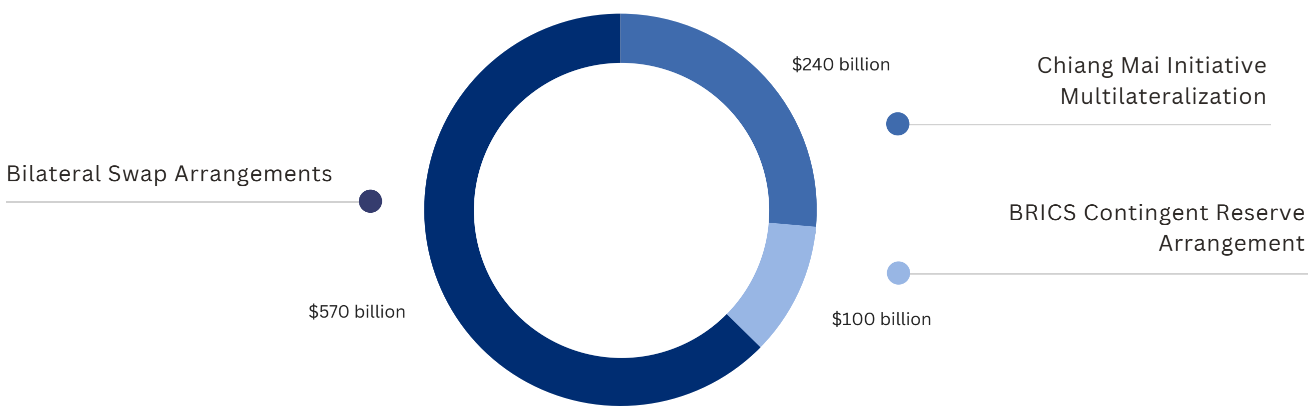
In addition to loans, China's financing includes other types of finance, such as equity finance. China's overseas development investment funds (ODIFs) hold a capitalization of $155 billion in equity financing for several regions and sectors accrued between 2007-2019 (Moses et. al. 2022). These funds are dedicated to the infrastructure sectors that also received financing from ODF, such as energy and resources, general infrastructure, manufacturing, agriculture, technology, financial services, green development, social, consumer goods and services and capacity building. Some ODIFs focus on projects across the globe, such as the Silk Road Fund, while others are region specific, such as the China-Latin America and Caribbean Cooperation Fund.

Chinese development finance also offers a unique and potentially successful model of crowding in commercial and private sector financing. To help Chinese finance and firms go global, CDB and CHEXIM consciously create the coordinated credit spaces (Chin and Gallagher 2019) for China's commercial financiers and firms to participate as investors or service providers (i.e., construction or logistics on projects) across the globe. By providing lower cost non-concessional financing for developing country governments and associated projects, CDB and CHEXIM 'de-risk' diverse Chinese investors and exporters' efforts to go abroad. The attempts of Western financiers such as multilateral development banks (MDBs) to de-risk projects and mobilize private finance have been limited, with MDBs attracting 1.2 times the amount of private finance (equity and debt) for every dollar invested, and the World Bank only 60 cents for every dollar. Hopes that other private sector creditors from advanced economies will follow suit have not been met (International Monetary Fund (IMF) 2023). China's approach of coordinating DFIs, state-owned commercial financiers and commercial and private sector firms into projects under one roof is unique.

Lastly, through this vast amount of financing, countries have access to increased amounts of liquidity beyond traditional lenders (Sundquist 2021; Horn et al. 2023). Some of this financing has been in the form of liquidity for budgets, trade finance, banking or even support during the COVID-19 pandemic (GDP Center 2023). In response to China's ODF engagement, several development initiatives, such as the Group of Seven (G7) Partnership for Global Infrastructure and Investment (PGII), have been established to counter the BRI (Moses and Zhu 2022). However, many recipient countries prefer not to choose between China and other development partners. Rather, recipient countries see these initiatives as increasing the pool of development partners and initiatives to support their development.

Through the creation of alternative forms of liquidity finance, China has contributed approximately $910 billion to the diversification and deepening of the Global Financial Safety Net (GFSN), the set of institutions and arrangements that provide external short-term finance to prevent or backstop a financial crisis. While the total resources of the GFSN amount to approximately $3.5 trillion, Figure 2 highlights how $910 billion of these liquidity resources are come from institutions where China is a major player through RFAs and bilateral currency swaps. In addition to approximately $570 billion in bilateral swap arrangements, China and its partners have co-created new multilateral liquidity institutions, commonly referred to as regional financial arrangements, that provide an additional $340 billion of liquidity finance. (Kring and Gallagher 2019; Kring and Grimes 2019; Mühlich et al. 2023).

Figure 2 China-led Contributions to the Global Financial Safety Net



Source: Adapted from Muhlich et al, 2023.

China's efforts have also spurred the multilateral system to grant more voice and representation for China and other developing economies. In addition to China's efforts to provide liquidity and development financing outside of the traditional Bretton Woods Institutions, China has promoted the internationalization of the renminbi (RMB) and called for fundamental reforms of the IMF. In addition to calling on the IMF to include the RMB in the Special Drawing

Rights (SDR) currency basket (*Reuters* 2015a), China played a role in edging the IMF's major shareholders to approve the IMF's reforms to quota and governance (*Reuters* 2015b). China successfully secured the RMB inclusion in the IMF's SDR basket and in December 2015, the US ratified the 2010 quota reforms that doubled IMF quota resources and shifted more than 6 percent of quota shared to dynamic EMDEs (Merling and Kring 2022).

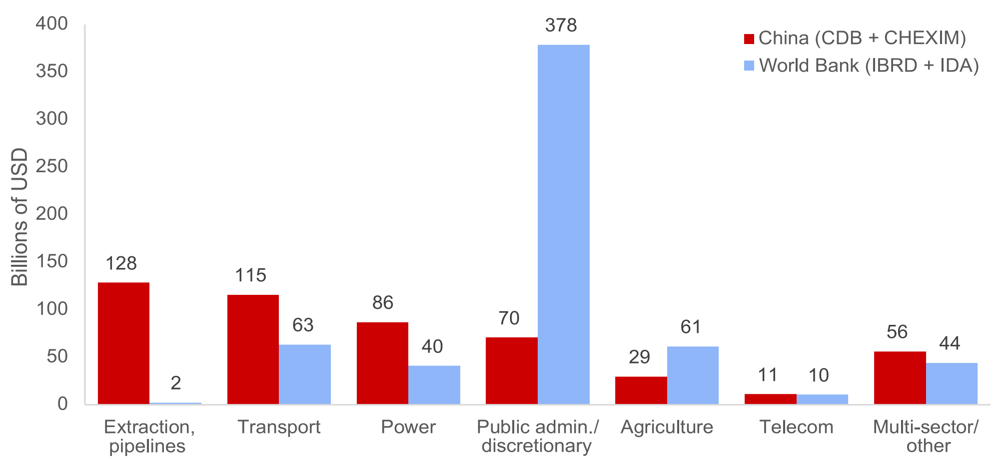
ECONOMIC GROWTH, INFRASTRUCTURE FINANCING AND THE COMPLEMENTARITY OF CHINESE ODF

Beyond increasing the scale of development and liquidity finance, Chinese finance has contributed to economic growth in recipient countries and played a crucial role in filling infrastructure and industrial investment gaps across the Global South.

Ex-ante World Bank projections show that the BRI has the potential to bolster global trade between 1.7 and 6.2 percent, unlocking 0.7-2.9 percent of global economic growth (Ruta et al. 2019). Those projections are proving to be coming to fruition in the ex-post literature. Lin and Wang (2023) find that BRI infrastructure finance is associated with significant increases in exports due to a reduction in trade costs. Research from the IMF and scholarly work published in the *American Economic Journal* show China's ODF is positively associated with economic outcomes in recipient countries and boosts short-term economic growth (Mandon and Woldemichael 2023; Dreher et al. 2021).

Chinese overseas development finance is also significantly correlated with shoring up historically under-financed infrastructure sectors and overcoming development bottlenecks in both hard and soft infrastructure (Wang and Xu 2023a). While traditional MDBs like the World Bank focus their lending capacity on the fundamental soft infrastructure of public administration, Chinese DFIs have focused their lending power on equally necessary hard infrastructure in transportation and power, as well as industrial development, particularly in the minerals sector. As Figure 3 shows, the majority of World Bank lending from 2008-2021 supported the public administration sector or was discretionary in nature, while most Chinese overseas development finance (ODF) supported transportation and power infrastructure or the minerals extraction industry.

Figure 3 Sector Distribution of Chinese ODF and World Bank Lending, 2008-2021



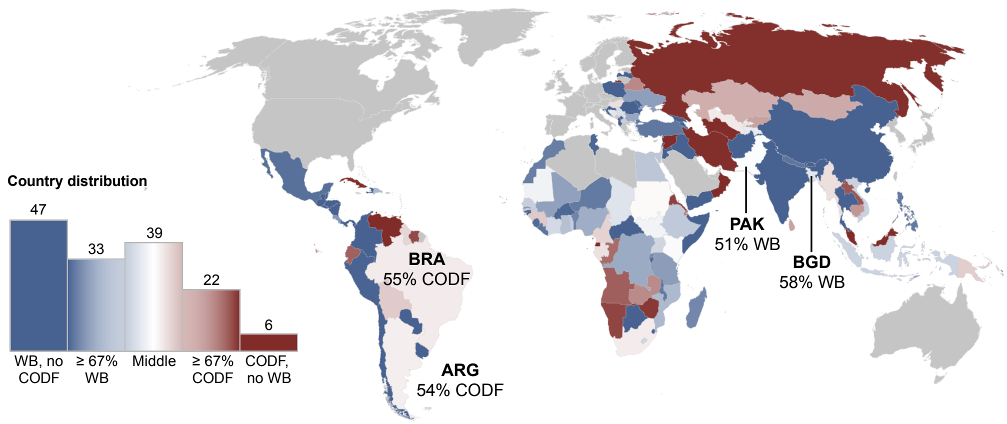
Note: World Bank lending includes the IBRD and the IDA.
Source: Ray 2023.

Specifically, GDP Center research shows that finance from CDB and CHEXIM was mostly directed to infrastructure sectors such as extraction, transmission pipelines, transport, power and manufacturing (Ray 2023). In comparison, World Bank finance largely went to the public administration sectors for social projects pertaining to education and health. This difference in financing allocation demonstrates how Chinese finance filled infrastructure financing gaps for countries also eligible for World Bank financing. Due to the unique focus of Chinese ODF on infrastructure and industrial investment, it is not surprising that a growing literature shows that Chinese development finance is significantly associated with borrower gross domestic product (GDP) growth (Dreher et al. 2021; Ruta et al. 2019).

INCREASING PARTNER-COUNTRY AGENCY

Due to the differing specialties between Chinese and traditional development finance, low- and middle-income countries have come to rely on Chinese ODF as a complement to traditional DFIs, borrowing from each for distinct purposes. Figure 4 shows this tendency in detail, with countries that have borrowed from the World Bank but not Chinese DFIs in dark blue, countries that have borrowed from Chinese DFIs but not the World Bank in dark red and those that have borrowed from both in lighter colors, depending on the relative amount of financing they borrow from each source.

Figure 4 Country Borrowing from the World Bank and Chinese DFIs, 2008-2021



Notes: Gray countries did not borrow from either source. World Bank lending includes the IBRD and the IDA.
Source: Ray 2023.

As Figure 4 shows, of the 100 countries who have borrowed from Chinese DFIs, 72 have borrowed more from the World Bank or about the same from each. Only six have borrowed exclusively from China. The four labeled countries – Argentina, Bangladesh, Brazil and Pakistan – are among China's top ten borrowers, but each has opted to borrow from China and the World Bank at about the same rate. Thus, this tendency to use China as a complementary source of development financing holds even among China's top borrowers. Developing countries around the world have come to approach China as a complement to traditional DFIs, thereby broadening their options for development support.

China's actions have also triggered positive changes at international institutions and beyond. China's infrastructure-led overseas development finance model helped steer the World Bank and other actors to step up financing for infrastructure. In Africa, Zeitz (2021) finds that the

World Bank allocates a greater share of finance to infrastructure in countries that receive more Chinese development finance. Moreover, China's actions have helped increase the level of policy autonomy that developing countries have at the World Bank. Hernandez (2017) found that countries who are recipients of loans from China had 15 percent fewer conditions for every percentage-point increase in Chinese development finance.

CLEAN AND LOW-CARBON ENERGY ACCESS

In recent years, Chinese investment in green energy has increased significantly. As world leaders agreed in recent years to limit global warming, China started investing heavily in clean energy technology abroad. Direct financing of low-carbon energy and electricity can contribute to sustainable development in BRI countries, while avoiding harmful air and climate pollution. Concomitantly, China's massive solar industry can have global spillover effects that benefit BRI countries by bringing lower-cost solar technology, with opportunities for technology transfer (Jackson et al. 2021; Ratan Forthcoming).

China has initiated projects in over 100 countries to develop low-carbon electricity generation. The share of renewable energy finance and investment in total BRI-related financial commitments has steadily increased (Zhao et al. 2022). In 2022, Chinese financial institutions committed around $6 billion for the renewable energy sector, though the numbers vary greatly across sources (Nedopil Wang 2023; Liu et al. 2020; Zhao et al. 2022; X. Chen et al. 2021).

China's support for solar and wind projects abroad takes various forms. Historically, China mainly served as an equipment supplier and engineering contractor. However, in recent years, Chinese companies have increasingly provided foreign direct investment (FDI), including greenfield investment and mergers and acquisitions (M&As). Additionally, CDB and CHEXIM, along with commercial banks, offer loans, guarantees, underwriting and grants (Li et al. 2020).

Supported by lending from commercial banks and DFIs, as well as equity in the form of FDI, renewable energy projects with financial support from China have significantly increased, totaling 25.3 GW (GDP Center 2022b; Zhou et al. 2022), with FDI supporting 90 percent of renewable capacity.

Given the focus of the BRI on improving connectivity through infrastructure investment, it is important to note that China's DFIs have provided $15 billion in loans for grid construction and upgrades and electricity transmission and distribution infrastructure. In addition, China's DFIs have provided $550 million for overseas energy efficiency projects (GDP Center 2022c). Modern and smart grid infrastructure is necessary for the integration of variable renewable energy sources and the expansion of reliable electricity access in developing countries. China has also increased investment in battery storage facilities, with projects realized in Hungary, Germany and the US (Nedopil 2023).

In September 2021, Chinese leader Xi Jinping announced at the 76th United Nations General Assembly that China would not build new coal-fired power projects abroad and pledged to step up support for other developing countries in developing green and low-carbon energy. Guidance issued in March 2022 added specificity to the announcement's parameters and the types of clean energy that would be supported. "Green energy" is considered one of nine key areas for greening the BRI, among green infrastructure, green transport, green industry and green finance (NDRC 2022). The focus on green energy includes low-cost renewable energy generation, such as solar and wind, smart grids and energy storage. This emerging green BRI framework shows promise for how China can help host countries improve sustainable development outcomes.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Buenos Aires, Argentina.
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CHINA'S OVERSEAS ECONOMIC ACTIVITY IS ALSO ASSOCIATED WITH RISKS

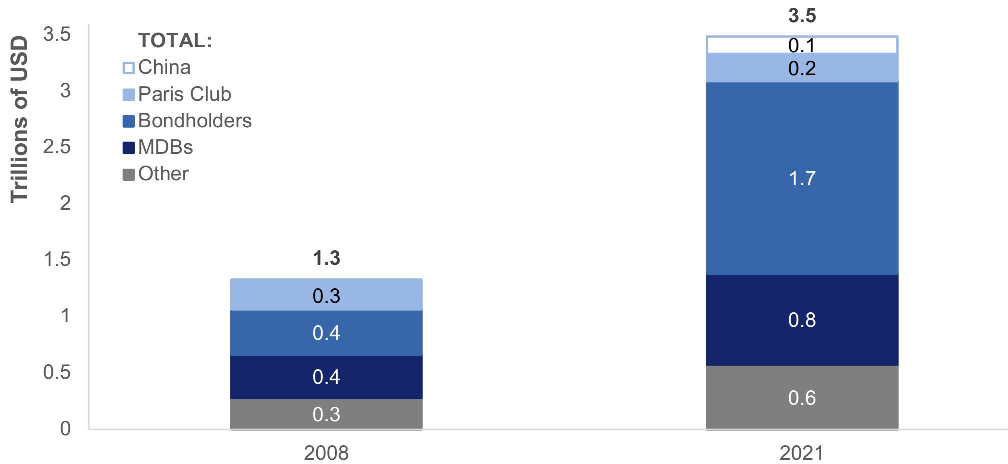
The BRI has also accentuated risks in the global economy. While China is far from the cause of the current debt crisis in the Global South, and nor is it engaging in so-called "debt-trap diplomacy," much of China's overseas financing is associated with debt distress. Resolving the current debt crisis has proven cumbersome due to the emergence of new creditor classes, namely private bondholders and China; such fragmentation has accentuated the crisis. Chinese development finance has also been associated with carbon and land intensive economic activity that has increased pressure on the world's fragile ecosystems, including biodiversity, Indigenous lands and the global climate.

DEBT DISTRESS, FRAGMENTATION AND LACK OF TRANSPARENCY

An increasing number of emerging market and developing economies (EMDEs) are facing a debt crisis. This crisis is largely a function of prolonged expansionary monetary policy in the United States and other advanced economies. As is inherent in the global capital cycle, ultra-low interest rates led to surges in capital flows from advanced economies (and China) to EMDEs (Miranda Agripino and Rey 2021; Q. Chen et al. 2021; Hoek et al. 2021). While this surge in capital flows led to many of the growth benefits outlined previously, it also played a role in appreciating developing country exchange rates and expanding bank balance sheets, creating a sense of collateral that led creditors and host countries to expand lending and borrowing alike (Korinek 2011). The so-called "polycrisis" of COVID-19, Russia's war in Ukraine, climate shocks, inflation and rising interest rates in advanced economies has unwound this process with slowed growth, depreciated currencies and ballooning debt levels (see, for example, Bjerde 2023; Georgieva 2023; Kozul-Wright 2023; Ocampo 2023). Indeed, debt levels in EMDEs have more than doubled since the 2008 global financial crisis. Between 2008-2021, EMDE sovereign debt increased by 177 percent, from $1.3 trillion to $3.5 trillion (Ramos et al. 2023). As Figure 5 shows, EMDE debt levels are growing rapidly and are owed to a wide composition of creditor classes, including China, though the lion's share of debt is owed to private bondholders and MDBs. The IMF and United Nations Development Programme (UNDP) identify a combined 69 countries that are at or near debt distress. China represents a larger share of their debt stock, as Figure 6 shows.

The Group of 20 (G20) created two mechanisms to address these problems, the Debt Service Suspension Initiative (DSSI) and the Common Framework for Debt Treatments beyond the DSSI. The DSSI was designed to suspend debt payments by bilateral official creditors, as the private sector was unwilling to participate and multilateral official creditors were exempt. The Common Framework was designed to engage with countries on more comprehensive restructuring.

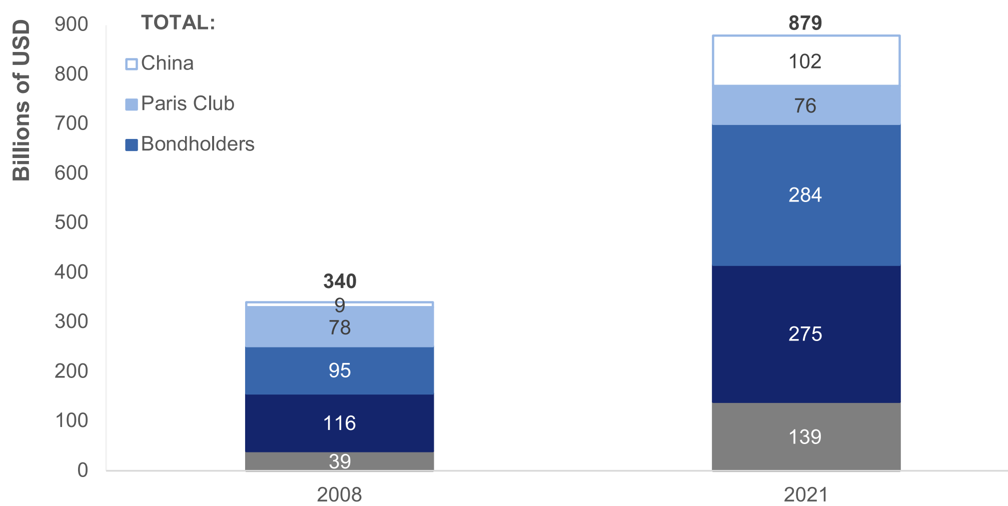
Figure 5 EMDE External Public and Publicly-Guaranteed (PPG) Debt by Creditor, 2008-2021



Note: China and Paris Club debt exclude commercial creditors. Other debt includes commercial creditors and other bilateral creditors. Does not include use of IMF credit.

Source: Ramos et al. 2023.

Figure 6 External Public and Publicly-Guaranteed (PPG) Debt by Creditor, Countries at or Near Debt Distress, 2021



Note: China and Paris Club debt exclude commercial creditors. Other debt includes commercial creditors and other bilateral creditors. Does not include use of IMF credit.

Source: Ramos et al. 2023.

GDP Center and other research shows that China has not seized assets in the event of non-repayment and that Chinese ODF does appear to be associated with debt distress (Acker, Brautigam and Huang 2020; Moses et al. 2023; Kratz et al. 2020). In 2019, the World Bank estimated that because Chinese lending was likely to flow to countries already close to debt distress, it had the potential to exacerbate current debt levels (Ruta et al. 2019). China was the largest and most active participant in the DSSI, though its participation was concentrated in a small number of countries. Within the Common Framework, however, China and other creditors have not been able to agree on the scale of debt reduction necessary or the relative amount of relief that should be applied across creditor classes (Brautigam and Huang 2023; Mingey and Wright 2023).

Multilateral efforts for liquidity finance have also been fragmented. As noted, China has been providing liquidity support in the form of bilateral swaps to countries in distress throughout the "polycrisis." Despite the much-needed benefits associated with the proliferation of alternative forms of liquidity finance in the global economy, there are some potential risks that should be monitored. First, data shows that countries have increasingly drawn on bilateral swap arrangements as opposed to multilateral institutions like the IMF or RFAs for liquidity finance (Mühlich et al. 2022; Kring et al. 2023). While any additional forms of liquidity finance are a welcome development for financial stability, the G20 must ensure that bilateral forms of liquidity finance do not displace the role of multilateral institutions in ensuring financial stability for the global economy.

If bilateral forms of lending displace the key multilateral role of the IMF in providing liquidity resources to countries in need, there is a heightened risk that the GFSN further fractures and contributes to financial instability (Mühlich et al. 2022). While some have suggested that China's swaps could exacerbate debt distress, evidence demonstrates that China's lending behavior in part corrects "for the enormous inequalities in the Global Financial Safety Net (GFSN) that offers a temporary balance of payments liquidity" (Gallagher et al. 2023).

This fragmentation has been accentuated by a lack of transparency in China's overseas lending and development finance. The Chinese government does not release finance statistics about its overseas lending at a disaggregated level. It also does not make loan contracts public and many contracts include non-disclosure clauses (NDCs). Although NDCs are also used in contracts of other official lenders, China's NDCs are often broader in scope, from the concealment of terms to the very existence of the loan contract (Gelpern et al. 2021). This lack of transparency allows for speculation of the scale and impact of Chinese lending. It has also caused public discontent with Chinese lending in host countries, as the public of some countries have called for greater loan transparency, such as in Kenya (Chaudhury 2022).

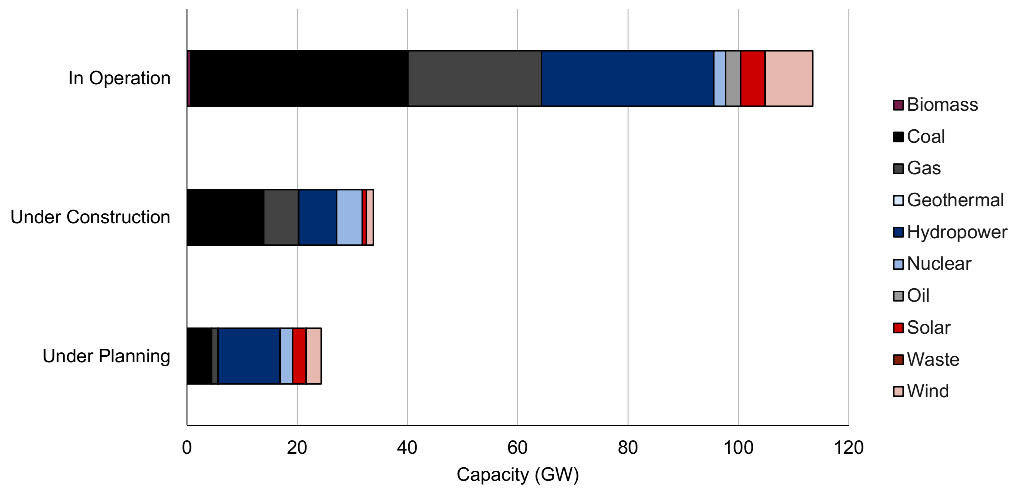
Second, financing under the BRI adheres to host country project and policy standards that may not always be reflective of the best practices in public finance. Regarding transparency, loan contracts include clauses stating that the level of transparency is subject to the host country's domestic law (Gelpern et al. 2021). While this may be beneficial in countries with requirements to publicize contracts or make loans public, in other less transparent countries, opacity is the default approach. The inconsistency in outcomes is far from the best practices of how MDBs publicize sovereign debt management and specific information about loans they provide.

AIR POLLUTION AND CLIMATE CHANGE

While China is supporting renewable energy abroad, the vast majority of China's overseas energy sector finance in the past has supported fossil fuels. In the energy sector, China has committed $235 billion in overseas development finance from 2000-2021, and two-thirds of this finance has been for fossil fuel infrastructure (GDP Center 2022c). In the power sector, coal-fired power plants make up the largest share of Chinese-financed generating capacity overseas.

This fossil fuel infrastructure contributes to a significant amount of greenhouse gas emissions. Annual emissions from operating Chinese-financed power plants around the world total roughly 245 million tons of carbon dioxide per year. Emissions from Chinese-financed power plants will add 12 gigatons of carbon dioxide to the atmosphere over their lifetime, which could consume 1.7 percent of the global carbon budget for a 50 percent chance of limiting global warming to 1.5 degrees Celsius (Springer et al. 2022). China's overseas infrastructure also contributes to climate impact through indirect channels, such as the clearing of forested areas to build infrastructure or the increase in overall fossil fuel supply through exploration and extraction activities.

Figure 7 Energy Composition of Chinese Overseas Finance



Source: Boston University Global Development Policy Center, 2022a.

In addition to releasing carbon emissions, China's overseas facilities are associated with higher climate risk for some metrics, including sea level rise and hurricane risk across host countries, compared with non-Chinese facilities (Li and Gallagher 2022).

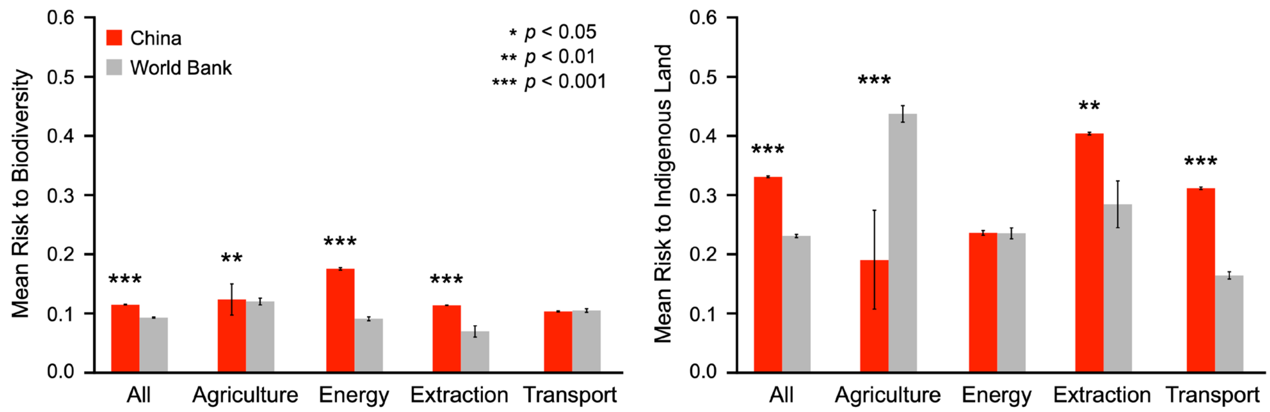
China's overseas power plants also release air pollution. For the pollutant sulfur dioxide, subcritical Chinese-supported plants in Southeast Asia perform significantly worse than non-Chinese peers (Li and Gallagher 2019). While research has shown that fully functional air pollution controls can nearly eliminate health impacts and social costs from particulate matter associated with a Chinese-funded coal-fired power plant, there is a lack of transparency in regulation and operation of these control technologies (Radford et al. 2021).

RISKS TO BIODIVERSITY AND INDIGENOUS LANDS

Given Chinese ODF's sectoral preference for hard infrastructure and industrial lending, higher levels of environmental and social risks would be expected in comparison with World Bank lending. In fact, GDP Center research shows that Chinese development finance in the energy sector is associated with lower rates of natural capital formation in borrowing countries which could erode the economic benefits of Chinese ODF given the importance of natural capital for sustained economic growth (Wang and Xu 2023).

GDP Center research also finds that Chinese ODF carries significantly higher risks to biodiversity and Indigenous lands in the aggregate and in the energy sector, as well as within almost every major sector. Figure 8 compares World Bank and Chinese lending on their risks to critical

Figure 8 Risks to Biodiversity and Indigenous Lands from World Bank and Chinese Development Finance



Source: Yang et al. 2021.

habitats and threatened species (left) and Indigenous lands (right) across sectors. In almost every case, Chinese ODF carries significantly higher risk levels.

In part, the higher risks are associated with China's relative newcomer status in global development finance and its early stages of developing environmental and social risk management (ESRM) due diligence policies and procedures. Table 1 compares Chinese DFIs to peer regional and national DFIs in Africa and Asia across four stages of project lifecycles and demonstrates that Chinese DFIs have room to continue developing their protocols.

Table 1 "Whole Lifecycle" Environmental Governance among Chinese and Peer DFIs

	Regional DFIs		China DFIs		Peer National DFIs		
	ADB	AIIB	CDB	CHEXIM	DBSA	JICA	JBIC
Preparation							
Exclusion/inclusion lists	X	X	X	X	X	X	X
Technical support for developing green projects	X	X			X	X	
Financial support for developing green projects	X	X			X	X	
Design							
Use of risk/impact rating system	X	X			X	X	X
Conditions for use of host country standards	X	X	X	X			
Implementation							
Disclosure of lender documents		X				X	X
Facilitation of disclosure of borrower documents	X	X			X	X	
Use of independent/third-party monitors	X	X			X		
Operation and Completion							
Project completion provisions	X	X	X	X	X		
Independent accountability mechanism	X	X			X	X	X

Note: ADB: Asian Development Bank; AIIB: Asian Infrastructure Investment Bank; DBSA: Development Bank of Southern Africa; JICA: Japan International Cooperation Agency; JBIC: Japan Bank for International Cooperation.

Source: Adapted from Guo, Gallagher and Zhang 2022.

Given these differences, it is not surprising that case study evidence has found a pattern of borrower governments requesting Chinese assistance for projects that have not received financing from traditional sources of development finance (Ray et al. 2020). However, Chinese investors do not appear to show preference for countries with lower domestic social and environmental standards, nor do host countries that relax their protections enjoy subsequent booms in Chinese investment. Thus, host countries have the policy space and obligation to set and enforce their own environmental and social protections based on domestic development strategies (Ray et al 2018; 2022).

These higher environmental and social sensitivities pose risks at the project, community and ecosystem level. Fortunately, in the last few years, Chinese development finance shows strong evidence of shifting away from large-scale, high-risk projects to a "small is beautiful" model that prioritizes management of environmental, social and financial risks (Ray 2023). Chinese institutions have begun to develop ESRM mechanisms to protect themselves from attracting high-risk proposals and to green their finance pipeline. In the last few years, the Chinese government has issued guidance promoting the development of ESRM procedures, including the major publications listed in Table 2. Among other highlights, this new guidance emphasizes the need for "whole lifecycle" ESRM, the use of international or Chinese standards when they are more stringent than host country standards and the development of local stakeholder consultation and accountability mechanisms. While these announcements consist of strictly voluntary guidance, investors are beginning to develop procedures to meet these standards. For example, the China Chamber of Commerce of Metals, Minerals and Chemicals (CCCMC) began developing its own accountability mechanism in late 2022 (Day and Liang 2023).

Table 2 Selected Recent Chinese Government Guidance on Greening the BRI

Guidance	Year	Issuer(s)	Highlights of encouraged activities
Green Development Guidelines for Foreign Investment and Cooperation	2021	MEE, MOFCOM	• Whole lifecycle ESRM policies • Local stakeholder consultation and complaint mechanisms • Adherence to international or host country standards, whichever are more stringent
Guidelines for Ecological Environmental Protection of Foreign Investment Cooperation and Construction Projects	2022	MEE, MOFCOM	• (Re)emphasizes whole lifecycle ESRM and international or host standards, whichever is more stringent • Special guidance for four environmentally sensitive sectors: energy, petrochemicals, mining and transportation
Opinions on Promoting the Green Development of the Belt and Road Initiative	2022	NDRC, other depts.	• BRI-wide coordination and cooperation on green industrial, energy, transportation and other sector development • Standardizing environmental performance of Chinese firms overseas
Green Finance Guidelines for the Banking and Insurance Industry	2022	CBIRC	• Environmental information disclosure • Developing independent accountability mechanisms

Notes: CBIRC: China Banking and Insurance Regulatory Commission; MEE: Ministry of Ecology and Environment; MOFCOM: Ministry of Commerce; NDRC: National Development and Reform Commission.

Source: Asia Society 2022; China Development Brief 2022; EU China Environment Project 2021; Jiang 2022; NDRC 2022; Nedopil Wang 2022; Nedopil Wang and Bing 2022.

It is important to note that when Chinese lending institutions co-finance with international bilateral and multilateral institutions, risks to air pollution and biodiversity decrease compared to projects that financed by China alone. For example, co-financing with international institutions leads to a 0.083 percent decrease in biodiversity risks and lowers power generation units' emissions by 2.7 percent (Lu et al. 2023).

Finally, heightened competition with the West has brought other risks as well. The G7 countries have largely viewed the BRI through a competitive lens, citing concerns about the BRI's challenge to the international rules-based order, environmental and social risks and human rights risks (Grieger 2021). G7 countries established the PGII, which includes the European Union's Global Gateway and adopts some principles of Japan's Partnership for Quality Infrastructure. While this "crowding in" of development initiatives is positive for developing countries at large, unhealthy competition that seeks to undermine the BRI or Western alternatives creates risks for recipient countries. Host countries forced to pledge their allegiance to one initiative or the other would be unable to maximize the amount of financing or support they can receive for their development.

Cape Town, South Africa.
Photo by Rohan Reddy.

CONCLUSION: MAXIMIZE BENEFITS, MINIMIZE RISKS

This report has synthesized the work of the GDP Center in its broader context. In many ways, the BRI and China's global economic engagement has been a significant success for China and partner countries by closing infrastructure gaps and spurring economic growth. The BRI has also been associated with social, environmental and economic risks. In the next ten years of the BRI, China and partner countries should work to create policy frameworks to maximize the benefits and minimize the risks of China's overseas engagement.

For China, it will be important to adjust from high volume to high impact engagement, adapt business models to enable new forms of economic cooperation and opportunity and apply new policy frameworks to help prevent and mitigate risk for China and its partners alike.

For example, China could:

- **Create a green and low-carbon energy project pipeline facility:** To adjust to high impact investment, China could create a green project pipeline platform where partner countries can work with Chinese actors to develop project proposals that meet green and low-carbon energy objectives of China's new policies.
- **Leverage China's unique business model:** A green project pipeline facility would not only help partner countries develop strong project proposals, but it would also help Chinese financial entities and investors identify various means to deploy China's unique ability to blend loans, equity, grants and business opportunities for Chinese financiers, investors and firms. Innovative financial instruments for decarbonizing certain countries through the early retirement of coal-fired power plants should also be explored, including by linking such efforts to China's burgeoning carbon market.
- **Establish compulsory ESRM criteria:** Such criteria could be developed for projects proposed into the facility and for overseas financiers and Chinese firms to follow overseas. These projects could result in low-carbon, socially inclusive and climate resilient growth pathways for partner countries, while also creating engagement opportunities in new overseas markets for Chinese firms and financial entities, with significantly lower risk potential than in previous years. One way that has already proven to reduce the economic, social and environmental risks of China's overseas financing is through co-financing with host country, regional and or other global entities (Lu et al. 2023).
- **Bolster and expand liquidity and debt management frameworks:** China has played a significant role in supporting financial stability by providing currency swaps, liquidity support and limited debt relief to overseas partners in debt distress. These programs could be expanded by building in mutually agreed upon financing strategies and transparency criteria that help partner countries recover from short-term constraints. These expanded programs would also support sustainable growth paths for partner countries and the balance sheets of Chinese financiers alike.

Developing countries in South-South partnerships with China should also work to maximize the benefits and minimize risks. New green project pipeline arrangements could successfully generate proposals that pair well with China's strengths and priorities. In addition, Southern partners should tailor and bolster their own ESRM frameworks for an influx of Chinese investment. Finally, many of China's developing country partners have location-specific assets, such as transition materials used in electric vehicles with strategic implications for China and other global investors. Developing countries should maximize the agency such comparative advantages offer and seek to leverage new demand to move value chains in a sustainable manner.

Finally, all parties should consider outright partnerships and coordination with third-party countries in the Global North. Co-financing and forms of triangular cooperation can build on the complementarities of different actors. Multilateralizing cooperation with China and the West through international financial institutions where both are a party, such as the Asian Development Bank, World Bank, IMF and others, is another way to indirectly cooperate on development finance. An important step in this direction would be to grant China an increase in its voice and representation in international financial institutions that is commensurate to its evolving status in the international system. In parallel, Western countries should capitalize and bolster parallel efforts such as the PGII and the Global Gateway to provide real and additional benefits and choices to developing countries to encourage healthy competition towards achieving shared climate and development goals for a sustainable future.

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