



The green investment principles: from a nodal governance perspective

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Abstract

China's Belt and Road Initiative is now the world's largest infrastructure initiative, with long-term climate change effects, and the Green Investment Principles (GIPs) for Belt and Road have been promoted as a key instrument to green the Belt and Road. This article focuses on the question: What role do the GIPs play in building a green Belt and Road and addressing relevant regulatory challenges? Based on the theory of nodal governance, it is argued that the GIPs' two-layered networks facilitate China to influence investment decisions over many countries along the Belt and Road indirectly through fund providers as key nodes to transition toward green investment. China also avoided direct interference with the domestic policies of host countries through the GIP network. As a framework agreement, the GIPs also provide opportunities for signatories to contribute to the design and negotiation of specific implementation standards, enhanced capacity building, and the prospect of more stringent and prescriptive environmental standards in the future.

Keywords Green investment principles · Belt and road initiative · Green finance · Framework agreement · Nodal governance

List of Abbreviations

BRI	Belt and Road Initiative
B&RCs	Belt and Road Countries
BRBR	Belt and Road Bankers' Roundtable
BRIGC	BRI International Green Development Coalition
CERAT	Climate and Environment Risk Assessment Toolbox
COP26	26th UN Climate Change Conference of the Parties
CSR	Corporate social responsibility
EPs	Equator Principles
ESG	Environmental, Social and Governance
GFC	Green Finance Committee
GFI	City of London's Green Finance Initiative
GIPs	Green Investment Principles for Belt and Road
GVCs	Global supply chains

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GW	Gigawatts
ICBC	Industrial and Commercial Bank of China
IFC	International Finance Corporation
IPSF	International Platform on Sustainable Finance
ISO	International Organization for Standardization
PRIs	UN Principles for Responsible Investment
SOEs	State Owned Enterprises

1 Introduction

China's Belt and Road Initiative (BRI) is now the world's largest infrastructure initiative, with long-term climate change effects. The BRI started from the *Silk Road Economic Belt* and the *21st Century Maritime Silk Road*, expanding later to the *Arctic Silk Road* and *Digital Silk Road*. According to its National Development and Reform Commission, China has signed 200 cooperation documents on the joint construction of the 'Belt and Road' with 140 countries (Fig. 1) and 30 international organizations and jointly carried out more than 2,000 cooperative projects.¹ In 2015, 126 Belt and Road Countries (B&RCs) jointly contributed 28% of global carbon emissions. Should they continue along conventional growth pathways, B&RCs could account for 66% of global emissions by 2050 (Ma & Zadek, 2019, p. 3). B&RCs may be locked into fossil fuel dependency for the coming decades (Seto et al., 2016). The continuous carbon-intensive development of the BRI will hamper B&RCs from reaching Paris Agreement's climate goals (Tong et al., 2019).

China has emphasized 'green' investment along the BRI. Many domestic regulations have been issued in the past five years (Sect. 2.1), and specific initiatives to promote green investment have been implemented. From 2013 to June 2020, total Chinese investments toward B&RCs amounted to US\$755 billion. Over 40% of these investments were directed

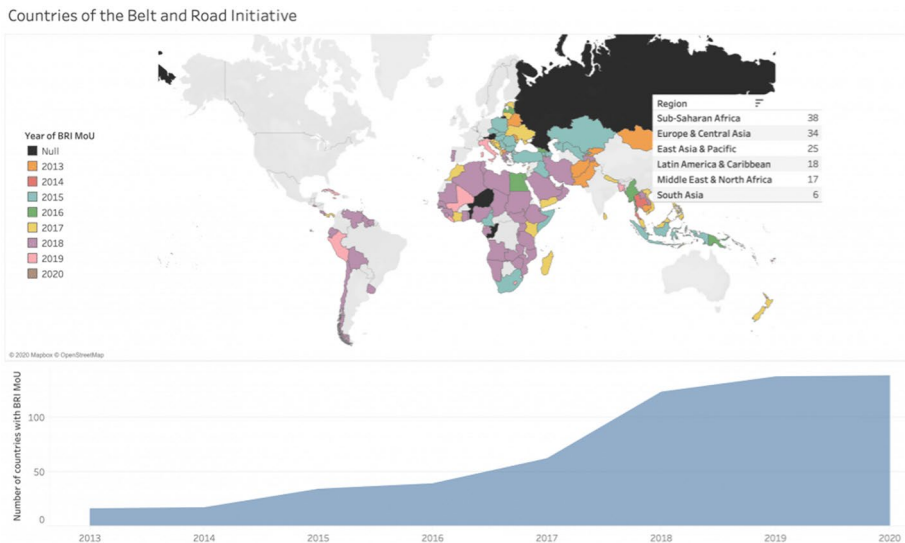


Fig. 1 Map of the countries of the BRI (Nedopil Wang, 2021c)

¹ BRI official website <http://www.yidaiyilu.gov.cn/>.

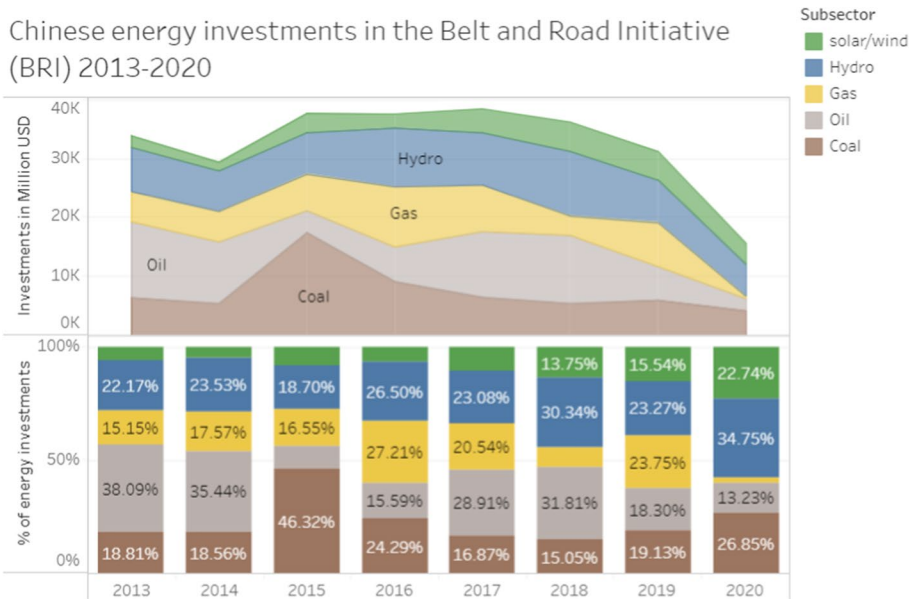


Fig. 2 Sector share of BRI investments (Nedopil Wang, 2021b)

to the energy sector (Fig. 2). Among the energy investments, it was reported that in the first half of 2020, China's non-fossil fuel energy investment (56%) exceeded its fossil fuel energy investment for the first time (Nedopil Wang, 2021a).

It is argued that China is the world power best positioned to lead the paradigm change to lead the restoration of ecological systems (Drahos, 2021). For instance, in 2015, coal investment peaked at 46% of the total energy investment. Investment in coal-fired power plants with Chinese financing has rapidly decreased, and about half of China-backed coal-fired plants were shelved between 2014 and 2020. Most of these shelved projects are located in Zimbabwe, Russia and Cambodia. No new Chinese-backed coal-fired power project was announced in 2020 (Nedopil Wang, 2021b). Part of the explanation for the decrease can be the increased cost of finance for the high-emitting assets and the increased stranded asset risks with the prospect of carbon pricing in the future (Research Center for Green Finance Development Tsinghua University, 2020). It may attribute to China's position on phasing out coal-fired projects in its international investment. Chinese President Xi announced at the United Nations General Assembly in 2021 China will "step up support for other developing countries in developing green and low-carbon energy, and will not build new coal-fired power projects abroad." (Xi, 2021). However, how this announcement can be implemented and whether the trajectory will continue are not clear.

China has issued various climate policies concerning the Belt and Road, and the Green Investment Principles (GIPs) are one of them. Co-proposed by the Green Finance Committee (GFC) of China Society for Finance and Banking and the City of London's Green Finance Initiative (GFI) in November 2018, the GIPs include seven principles: (1) embedding sustainability into corporate governance; (2) understanding Environmental, Social and Governance Risks (ESG); (3) disclosing environmental information; (4) enhancing communication with stakeholders; (5) utilizing green financial instruments; (6) adopting green supply chain management; and (7) building capacity through collective action. Although the environmental

risks and imperativeness of decarbonizing the BRI by better governance have been discussed in current literature (Ma & Zadek, 2019; Coenen et al., 2021; Hughes et al., 2020), it is also found that English and Chinese language literature on greening BRI in disciplines of law and policy have little overlap and are constrained by their own paradigms of analysis (Teo et al., 2020). For instance, various commentators have proposed that China should set legally binding environmental standards for the B&RCs (Ascensão et al., 2018; Boer, 2019; Coenen et al., 2021). Such a proposal has an insufficient understanding of the international environmental agreements and the challenges that China faces, and the Chinese approach to regulating the BRI. In terms of treaty obligations, the Paris Agreement only has nationally determined contributions of carbon emissions reduction. The lack of binding commitment at the multilateral level requires bilateral momentum to decarbonization, and this is why there has been a call for China to push B&RCs to have higher environmental standards via bilateral treaties. On the other hand, BRI is not a treaty-based system, and China is constrained by its foreign policy of non-interference (Shaffer & Gao, 2020). Therefore, it is necessary to have a lens to see what China has done or has not done enough in greening the Belt and Road beyond formal engagement with state actors. If the focus is on setting environmental standards through formal multilateral or bilateral agreements, China's announcements of quitting coal-fired power stations can be simply dismissed as window dressing (Coenen et al., 2021) or completely invisible.

This article provides a more inclusive and in-depth understanding of the role that China plays in the environmental governance of the BRI, an understanding that is beyond the doctrinal analysis of formal international environmental agreements between states. It examines the Belt and Road Green Investment Principles (GIPs) through an analytical framework based on nodal governance.

BRI is a network focusing on connectivity (Yu, 2017) which has covered not only building physical inter-regional connections of transport, communications, and energy infrastructure but also complex intangible connections through policy cooperation, information exchange, and further connecting non-state actors through project financing, project implementation, and operational management. This concept of connectivity makes nodal governance an appropriate theory to underpin analysis. As pointed out by Burris et al. (2005), nodal governance is an elaboration of contemporary network theory that explains how a variety of actors operating within social systems interact along networks to govern the systems they inhabit. A theory of nodal governance has the advantage of capturing these regulatory efforts beyond formal international agreements and beyond state actors. The application of nodal governance has made visible the nuanced networks along the BRI, formal and informal, public and private, hierarchical and market-based. This article also contributes to the extant literature in global climate governance a novel understanding of how the decarbonization objectives along the Belt and Road are implemented and how the GIPs can be engaged as the basis for more stringent environmental standards along the Belt and Road.

Through the lens of nodal governance, this article reveals China's efforts to use nodal networks, including the GIPs, as regulatory steering (beginning with a principles phase) instead of the command of treaties. The GIPs aim to promote green investment among financial institutions that invest and operate in the Belt and Road. It is argued that the Chinese government has promoted the GIPs as a framework agreement where both state and non-state nodes can exert influence to achieve China's climate pledge, in particular, its divestment from coal-fired power stations. As a framework agreement, the GIPs become the starting point to develop more specific and sophisticated rules to build green investment along the BRI. There are two layers of the network—the first layer is the Chinese domestic green finance regulation, where Chinese state and

Chinese financial institutions are key nodes, which is also a part of other China-led green BRI initiatives; and the second layer is the more visible network of the GIPs itself, encompassing its steering committee, secretariat, working groups, and signatories (Sect. 4.2). The two-layered networks enable China to influence investment decisions over many B&RCs indirectly through funders without intervening in the domestic environmental law of these countries. The two-layered networks are particularly important to understand how private banks and other financial institutions are involved in responding to the decarbonization pledge by the Chinese government. Therefore, there needs to be a more in-depth understanding of how the GIPs as a network of nodes can forge more stringent environmental standards globally instead of simply being dismissed as ‘too voluntary to be effective, too duplicative to be adding value, and too opaque to be adequately assessed’ (Carey & Ladislaw, 2019).

The rest of this article proceeds as follows: Sect. 2 reviews Chinese policy to build a green Belt and Road, which shows both China’s willingness to promote a green transition along the Belt and Road and its regulatory challenges. Section 3 discusses the contents of the GIPs, comparing them with other similar investment principles. Section 4 explains how the GIPs can address the regulatory challenges China faces and how they could make a difference. Section 5 concludes.

2 Challenges for greening up the Belt and Road

2.1 China’s willingness to promote a green BRI and its criticisms

China started its BRI in 2013, but the ‘green’ feature was not included initially. With increasing concern about the existential environmental challenge (Coenen et al., 2021), China’s investment overseas is under enormous pressure to get greener (Hughes et al., 2020). While connectivity has still been the focus of the BRI to build six channels along six corridors,² China started to emphasize the ‘green’ features of the BRI in 2017. In the *Guidance on Promoting Green Belt and Road*,³ enterprises are called to abide by international economic and trade rules, ecological and environmental protection laws, regulations, policies, and standards of host countries, and attach great importance to local communities’ ecological and environmental protection demands. The Ministry of Environmental Protection further formulated the *Plan for B&R Ecological and Environmental Protection Cooperation*⁴ as a concrete implementation roadmap. The key message is that China, as a dominant player in global green industries such as renewable energy, is willing and well-placed to deliver a green BRI through consultation and collaboration, which conforms with the benefits of China, the host countries, local communities, and the environment per se.

China has been criticized, in terms of the environmental standards of the B&RCs, for both not intervening enough and intervening too much. In order for green investment

² The six corridors refer to the New Eurasian Land Bridge, and the China–Mongolia–Russia, China–Central Asia–West Asia, China–Indochina Peninsula, China–Pakistan, and Bangladesh–China–India–Myanmar economic corridors.

³ Ministry of Environmental Protection, Ministry of Foreign Affairs, National Development and Reform Commission, and Ministry of Commerce, No. 58 2018. *Guidance on Promoting Green Belt and Road*. http://english.mee.gov.cn/Resources/Policies/policies/Frameworkp1/201706/t20170628_416864.shtml.

⁴ Chinese Ministry of Environmental Protection. *Belt and Road Ecological Environmental Protection Cooperation Plan*, May 2017.

and development to occur in host B&RCs, environmental law scholars propose that the highest environmental standards must be incorporated into environmental laws by China and the host countries (Boer, 2019). Non-legal scholars, after presenting severe environmental consequences, also propose that the BRI can become a unique opportunity to raise the bar, setting higher standards for best practices (Ascensão et al., 2018). The criticism is, therefore, that ‘all identified BRI-specific and BRI-related environmental rules are legally non-binding’ (Coenen et al., 2021). Essentially, this line of criticism questions China’s inadequate intervention—why has China not imposed the highest environmental standards on the B&RCs through bilateral treaties? Without the command of a treaty, the current capacity building and cooperation is “mere window dressing, designed to improve China’s international image, rather than ensure environmental protection” (Coenen et al., 2021). Scholars from B&RCs, on the other hand, have questioned on what terms the green is conceptualized, negotiated, and for whose benefit, with inherited suspicion of development interventions that purport to be green or win–win (Harlan, 2020, p. 203).

2.2 Practical challenges

2.2.1 No established practice to follow

Prior practices of industrial countries did not face the environmental challenges that China faces. Historically, industrial countries have taken advantage of lower host country environmental standards to relocate dirty industry sectors (mainly raw materials processing and energy production) to developing countries or change the global division of labor to reduce their ecological burden. This is often referred to as the *dirty industry migration hypothesis* or *pollution haven hypothesis* (Mani & Wheeler, 1998). The pollution haven hypothesis has two implications: First, pollution rises in the environmentally laxly regulated country and falls in the environmentally tightly regulated country; secondly, total pollution rises worldwide along with trade. A recent example demonstrating the pollution haven hypothesis is the carbon leakage problem, where emission-intensive industries are relocated to a place without a carbon price (Balistreri et al., 2018). A variant of the pollution haven hypothesis is environmental dumping, where hazardous product wastes from an industrialized country are exported to a developing country. While it has long been the case that developed countries are the exporters of these products, China and India are emerging as new exporters (Andersen et al., 2018).

China’s model of investing overseas is not completely new. “It has its forebearers with those of former colonial empires that built ports, railroads, roads, and bridges around the world to extract natural resources and create new markets for their manufactured products” (Shaffer & Gao, 2020, p. 609). However, the environmental criticism confronting China is new. This does not deny the imperative of tackling climate change collectively but reveals that China faces a new problem, one that it cannot follow the established practice of any other country to tackle. The reasons are as follows.

Industrial countries face different legal problems, compared with China, in the BRI. They have used bilateral agreements or planned unilateral mechanisms to set up a ‘level playing field’ in terms of environmental standards. For instance, the USA has promoted

higher environmental standards for imported goods in the WTO shrimp-turtle dispute.⁵ The EU is also considering border carbon adjustment to prevent carbon leakage.⁶ However, these measures are only used for *imported goods*, for which the WTO has jurisdiction.

The proposed environmental standard-setting in B&RCs, in its essence, requires China to incorporate stringent environmental standards for outbound investment in the form of binding bilateral agreements. Although sustainable development has also been mentioned in investment treaties in recent years, they are usually declarative provisions.⁷ No country in the world regulates its outbound investment by imposing its own higher environmental standards on the host country. In other words, such a requirement is groundless in customary international law.

Imposing standards on a host country of any kind is difficult for China in the case of the BRI, not only because of the inclusive spirit of the BRI (Liu & Dunford, 2016) but because the BRI is not a treaty-based system. Instead of bilateral treaties between governments, Chinese outbound investment is primarily based on private infrastructure contracts⁸ which are regulated by private international law. China is also constrained by its non-interference foreign policy.

2.2.2 China's non-interference principle and applicable green finance standards

Pursuant to the principle that nation-states mutually recognize each other's sovereignty, including the exclusive authority of each to make and apply law within its borders, they are free from interference in their 'internal affairs.' While what is perceived as 'internal' differs in issues and by states, China generally considers environmental standards and energy mix as a sovereign decision of B&RCs. Facing an energy trilemma (Gunningham, 2013), many B&RCs prioritize solving electricity poverty and energy security over negative environmental impacts. In the case of the Thar Coal-fired Project of Pakistan where Pakistan was keen to use its coal resources to solve energy poverty, China did not object to these decisions and assisted with engineering and construction (Carey & Ladislaw, 2019).

China has generally refrained from imposing environmental standards on other countries, following the non-interference principle. With China's increasing global influence, the relationship between non-interference and China's national interest has been debated. The evolution of the BRI brings more uncertainty to the principle of non-interference—it is envisaged that the principle may be abandoned, strengthened, or made more flexible in the future (Zheng, 2016). For instance, in conflict management, China has become more active in responding to overseas security crises to safeguard its overseas economic interests and personal safety (Khudaykulova, 2019). Despite China's relatively non-interventionist approach to environment-related issues as compared with Western liberal interventionism (Dunn et al., 2010), recent research has shown that China has begun to apply its own environmental standards than the host country standards in green finance (Nedopil, 2021).

⁵ The USA resorted to GATT Article XX exception to justify its import ban on shrimps due to the impact on sea turtles, which was eventually supported by the WTO Appellate Body. 2001. *United States — Import Prohibition of Certain Shrimp and Shrimp Products, — Recourse to Article 21.5 of the DSU by Malaysia*. WT/DS58.

⁶ Yet there will be controversies in applying the BCAs to developing countries. See Mehling et al., 2019.

⁷ EU-China Comprehensive Agreement on Investment concluded in principle even confirms the host countries' regulatory power in the area of environmental protection. See Section IV, SubSect. 2, Article 1. https://policy.trade.ec.europa.eu/eu-trade-relationships-country-and-region/countries-and-regions/china/eu-china-agreement/eu-china-agreement-principle_en

⁸ For instance, engineering, procurement, and construction (EPC) contracts, build, operate, transfer (BOT) contracts, or low-to-zero interest loans as a form of foreign aid.

Nonetheless, B&RCs are still skeptical of development interventions that purport to be green—discursive claims about degradation, carbon emissions, and green development are often employed by powerful actors to maintain and extend resource control (Harlan, 2020).

2.2.3 Commercial feasibility and greener BRI projects

As mentioned, a second way to enhance environmental standards along the BRI is to operate more stringent environmental standards at the project level. This would not openly defy the regulatory sovereignty of the host country, but the challenge remains how to get the project implementer, in particular state-owned enterprises, to obey higher environmental standards. While SOEs are often considered agencies of the Chinese government and implementing BRI projects as a mission by the state, commercial feasibility is an important concern. As Chinese investors (including SOEs and private companies) are heterogeneous, some will provide the most cost-effective renewable energy installation, while others may take advantage of BRI to relocate the surplus of inefficient productivity before policies such as carbon taxes in host countries are in place.

Interaction between host countries and SOEs may also lead to a race to the bottom. In most cases, BRI projects have to go through a bidding mechanism according to the laws and regulations of the host countries. There may be a race to the bottom if climate concerns of Chinese SOEs are de-risked by public institutions (Ma & Zadek, 2019), and the primary concern of the host country is commercial feasibility. Conversely, if the environmental considerations are dominant, there can be a race to the top. Chinese SOEs are capable of providing an environmentally friendly solution. In the Cattle Hill Project in Tasmania, Australia (which is not a B&RC), the Chinese company winning the bid to build a wind farm also installed smart detection equipment to protect the local endangered wedge-tailed eagles in the area as required by the environmental assessment report.⁹ The contract-based BRI approach means that the host country can monitor the environmental impact of projects, choosing the most suitable bidders among Chinese and foreign companies.

2.3 Summary

Despite its willingness to build a green Belt and Road, the Chinese government has confronted many challenges, both rhetorical and regulatory. The Chinese BRI is essentially outbound infrastructure investment without a treaty basis. What the EU and the USA have done bilaterally or unilaterally to enhance the environmental standards of other countries on imported goods is not replicable in the BRI case. As compliance with more stringent environmental standards differs depending on the relative cost of such compliance (Aisbett & Silberberger, 2021), China faces heterogeneous demands from different host countries along the Belt and Road and refrains from an interventionist approach. B&RCs can, therefore, further steer the level of greenness of the projects through implementer selection. The next sections will introduce the GIPs and how the GIPs could help China manage these challenges by converting environmental risks into financial risks and incorporating environmental requirements as part of funding requirements.

⁹ Section 6.1 Cattle Hill Wind Farm Environmental Assessment Report.

<https://epa.tas.gov.au/Documents/NP%20Power%20Cattle%20Hill%20Wind%20Farm%20EAR.pdf>.

3 The green investment principles

Globally, financial institutions and their networks have started to play an important role in the green transition. Investment decisions have far-reaching impacts across all sectors and geographies and on the environment. Investors are increasingly active in taking responsibility for regulating green or sustainable finance (Park, 2018). Also, government policies responding to climate change, in particular, carbon prices and border carbon adjustments, will impact the default probabilities of fossil fuel investment by transforming environmental risks into financial risks (Research Center for Green Finance Development Tsinghua University, 2020). At the international level, international organizations and commercial banks have already initiated various principles, including the Equator Principles and the Principle of Responsible Investment, to be discussed in this section.

3.1 Content and current membership

According to the official interpretation, the first two principles focus on internal corporate governance, encouraging signatories to incorporate sustainability and ESG factors into corporate strategies and management systems. Principles 3 and 4 focus on broader scales of stakeholders at the operational level, encouraging signatories to undertake ESG disclosure. The last three principles apply beyond individual corporations, aiming to build green supply chains, leveraging green finance instruments, and fostering concerted efforts to promote green finance across the network.

The following table shows the current subscribers of the GIPs. So far, GIPs have attracted 39 signatories (Appendix 1), including 17 Chinese subscribers, 22 non-Chinese subscribers, and 11 supporters. Although the GIPs aim primarily to serve the BRI, non-Chinese subscribers include many banks whose headquarters are located outside of the B&RCs, for instance, Deutsche Bank and the Mizuho Bank of Japan. The supporters are mainly non-financial institutions whose practices are related to environmental, social, and governance (ESG) factors, including the Big Four accounting firms.

3.2 GIPs and other green investment principles

The GIPs and other existing core principles in the area, such as the Equator Principles (EPs) and the UN Principles for Responsible Investment (PRIs), share common features of voluntarism and take the form of a framework agreement. The EPs were initially developed by the International Finance Corporation (IFC) and a group of commercial banks in 2003. As of February 2021, EPs have been adopted by 118 financial institutions from 37 countries.¹⁰ Designed for facilitating responsible risk decision-making, the EPs further set up specific minimum standards for due diligence and monitoring to assess whether the purpose of the principles is met. These minimum reporting standards make the EPs more stringent. In addition, the EPs have incorporated robust standards for indigenous peoples and labor standards.

The PRIs were developed under the auspices of the United Nations.¹¹ Initiated in 2006 by investors with further support from a larger group of experts from the investment

¹⁰ Equator Principles Membership. See <https://equator-principles.com/members-reporting/>.

¹¹ Principle of Responsible Investment. See <https://www.unpri.org/>.

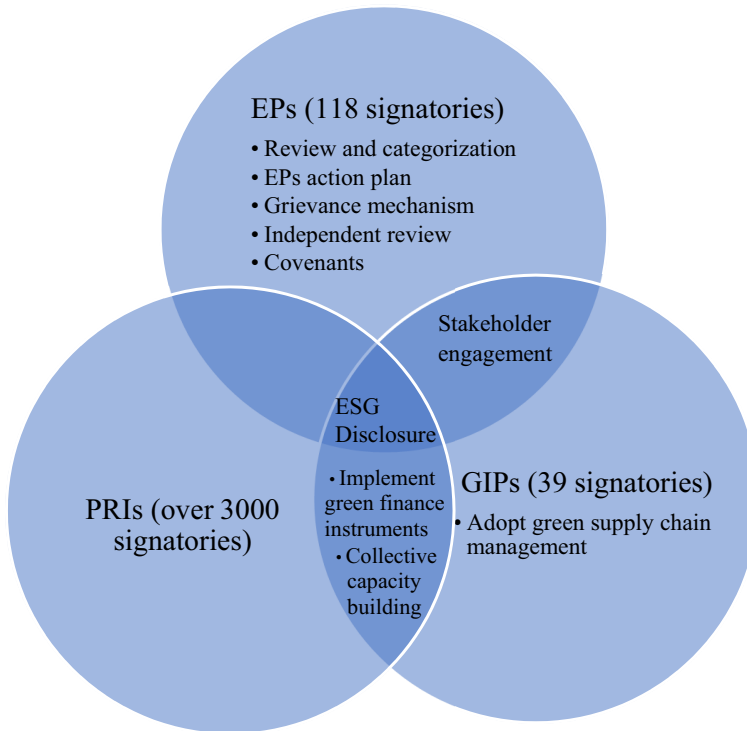


Fig. 3 Relationship between the GIPs, EPs, and PRIs

industry, intergovernmental organizations, and civil society, the PRIs now have attracted over 3000 signatories. The PRIs aim to enhance understanding and implementation of the investment implications of ESG.

While a comprehensive comparison of the three sets of principles and their regulatory impacts (Conley & Williams, 2011; Meyerstein, 2013) is outside the scope of this article, overlaps and differences in their contents are illustrated (Fig. 3). While all three sets incorporate elements of ESG and reporting, the stringency varies. The EPs set up minimum standards for compliance, with mechanisms to reassess and re-establish compliance where a client fails to comply initially. They also incorporate a grievance mechanism that affected communities can use to facilitate the resolution of negative consequences. The obligations of the GIP signatories include completing a baseline assessment tool to evaluate whether their institutional processes and activities follow the principles and submitting mandatory GIP annual reports. While it is not clear at the moment what information needs to be disclosed, the GIPs set up a working group to guide implementation of the disclosure requirement, which includes comparable indicators, can be adapted to local conditions, and encourages gradual disclosure.¹²

Concerning ESG, the focuses of the principles are different. Although the GIPs also incorporate ESG risks, they emphasize environmental risks and impacts of the investment

¹² GIP. *Work Plan for GIP WG2 – Environmental & Climate Information Disclosure*. <https://gipbr.net/upload/file/20200103/6371366753051636078225987.pdf>.

(as manifested by the ‘green’ feature). It is not clear at the moment how social elements, for instance, labor standards and the impacts on indigenous communities, are measured in the GIPs. As compared with the UN PRIs, the scope of the GIPs is broader with consideration of green supply chain management. The focus on supply chains is critical because global supply chains (GVCs) can enable carbon leakage when activities are orchestrated among different jurisdictions along the GVCs, possibly allocating environmentally harmful activities to places with weaker environmental policies (Moran et al., 2018).

The comparison between GIPs and the existing principles may explain why some commentators think that the GIPs would be too duplicative to add value. The GIP initiative was proposed by China as a response to the call to decarbonizing its investment along the Belt and Road, facing practical challenges (Sect. 2.2) and having the unique advantage of mobilizing various Chinese stakeholders. Next section will discuss how the nodes and the networks of GIPs could add value to the decarbonization of the Belt and Road.

4 Nodal governance: how the GIPs could make a difference

The comparison of the GIPs, EPs, and PRIs in Sect. 3.2 demonstrates that GIPs are not more voluntary than other similar principles. This section explores the value that the GIPs could bring in greening the Belt and Road from the perspective of nodal governance, with China being the central node in a nodal network (Burris et al., 2005). GIPs enable the Chinese government to address the regulatory challenges discussed in Sect. 2, in particular China’s reluctance to impose an environmental standard through bilateral treaties, host countries’ defense of regulatory sovereignty, and SOEs’ concern about commercial feasibility. Furthermore, the networks of the GIPs integrate two layers, enabling them to gain an advantage from both government regulation and business self-regulation concerning implementing corporate social responsibility (CSR) (Jackson et al., 2020) by both Chinese and foreign corporations.

4.1 The nodes

The theory of nodal governance sees governance as substantially constituted in nodes— institutions with a set of technologies, mentalities, and resources that can mobilize the knowledge and capacity of members to influence the course of events (Burris et al., 2005). In this case, the outcome to be generated in the BRI projects is ‘Green Belt and Road,’ including environmental across many dimensions, in particular GHG emission reduction. Within this network, the key nodes include the Chinese state, B&RCs, financial institutions, and SOEs as project implementers.

The Chinese state is the most important node in a network that is oriented toward action by the GIPs. It is essentially at the center of two networks. The first is the domestic network, where the Chinese government can set up green finance standards and motivates green finance through its pressure-driving mechanism (Cheng & Drahos, 2018), where every domestic entity, in particular domestic banks, should follow these standards to direct investment in green projects. The second network is the BRI as a vast regional order with China as the focal point. Although China does not want to use coercion as a strategy to impose higher environmental standards on B&RCs through bilateral treaties, China is at the center of this network as the BRI primarily creates bilateral connections between China and these B&RCs. The vast BRI network has created complementary networks and

capacity-building initiatives (for instance, the BRBR mechanism in Sect. 4.3). However, as discussed in Sect. 2.3, China encounters challenges in promoting higher environmental standards for BRI projects from other actors.

The B&RCs as nodes in the GIPs network are diverse, and environmental challenges in these 140 countries vary greatly (ICBC & Oxford Economics, 2020). As most BRI investments are directed to energy sectors, B&RCs, as host countries for this investment, strive to retain regulatory sovereignty through investment approval and make strategic decisions concerning the energy trilemma of the environment, energy poverty, and energy security (Gunningham, 2013). With the concern of ‘green for whose benefit’ (Harlan, 2020), less developed countries in the region have not been interested in low-carbon investment. Even if they are interested, a critical issue is their regulatory capacity. Decarbonization cannot be achieved only by relying on market mechanisms, while industrial policymaking requires careful navigation of the twin dangers of market and governance failure. Designing green industrial policies requires a deep understanding and delicate design of policy tools and close monitoring of policy impacts. Ill-designed industrial policies not only waste resources but also foster corruption and capture, and distort competition against the most promising development options, sectors, and technologies (Hallegatte et al., 2013).

One important group of nodes is the Chinese SOEs. Some SOEs specializing in renewable energy see building the green BRI as an opportunity to expand their network globally. For instance, the China Three Gorges Corporation has constructed hydropower projects in 47 countries and regions, with a total overseas installed capacity of more than 15 million kilowatts by the end of 2017. However, as nearly half of China’s BRI energy investments are still directed to fossil fuels (Nedopil Wang, 2020), SOEs engaging in these projects may consider BRI projects as opportunities to relocate emission-intensive industries to the B&RCs. This will be particularly problematic in the short term as China’s clear goal of carbon emissions peaking in 2030 and carbon neutralization in 2060 (Xi, 2020) and relatively lax standards in these countries may motivate carbon leakage.

Financial institutions are increasingly considered regulators to catalyze climate transition (Park, 2018). China has built domestic green finance institutions to encourage banks and other financial institutions to fund green projects.¹³ Before the GIPs were initiated, multilateral or non-Chinese banks, as part of syndicate loans, were already important nodes to safeguard ESG standards in BRI projects. For instance, in the Karot Hydropower Project in Pakistan, International Finance Corporation (IFC), and the Silk Road Fund under the World Bank were part of the special business investment platform for Pakistan and South Asia. The IFC is required, as a member of the World Bank, to adhere to higher standards of environmental protection and social impacts (Zhang, 2018). Through partnering with these multilateral banks and institutional investors, the Karot Hydropower Project significantly reduced its ESG-related financing risks, and the Chinese banks have learned better green finance practices through such a banking group.

In the case of the GIPs, a nodal governance approach makes non-state actors visible, in particular, financial institutions as fund providers and SOEs as implementers of various BRI projects. It enables a better understanding of the roles of B&RCs, their concerns, and constraints. Despite the Chinese state being the central node in the BRI, it is constrained by its internal non-interference foreign policy principle and external resistance of the host

¹³ People’s Bank of China, Ministry of Finance, National Development and Reform Commission, Ministry of Environmental Protection, China Banking Regulatory Commission, China Securities Regulatory Commission, and China Insurance Regulatory Commission. 2016. *Guidelines for Establishing the Green Financial System*. Unofficial English translation available at <http://rcecf.cufe.edu.cn/info/1002/1385.htm>.

countries to directly introduce higher environmental standards to these countries. Consequently, China has influenced other key nodes through the GIPs through webs of dialogue instead of webs of coercion (Braithwaite & Drahos, 2000).

4.2 Networks: GIPs and beyond

In nodal governance theory, networks are a prime means through which nodes exert influence. China has been under the spotlight regarding how its BRI could be genuinely green and contribute to the imperative objective of decarbonization. Although the Chinese government is willing to build a 'green' Belt and Road, the regulatory challenges discussed in Sect. 2 make it difficult. The GIPs can be seen as China's strategy to mobilize and facilitate resources to produce a green BRI, taking advantage of its central location of nodal assemblages and their associated networks. Within China, the authoritarian Chinese governance is at the top of the hierarchy, capable of designing and implementing green industrial policies with state intervention and running SOEs in critical sectors. Outside of China, however, the norm of sovereignty means that China respects non-hierarchical international order and may not impose environmental standards on other states. Between the home-abroad disparity of power, China identifies the crucial nodes of financial institutions, which play an essential role in investment decision-making and have their own domestic and international networks. China initiated the GIPs as a network to mobilize these financial institutions to green the BRI.

China's influence exerted through this GIP network can be seen in two layers. The first layer is the domestic network in which the Chinese state and domestic financial institutions are key nodes. China has initiated green investment principles with its domestic financial institutions as major signatories, which include the four big commercial banks and three major policy banks of China (Appendix 1). The second layer is the visible network of the GIPs, encompassing financial institutions, project tenders, and SOEs. This network does not differ much from the network of the EPs or the PRIs. As the GIPs require that signatories incorporate ESG as part of corporate governance and implement environmental information disclosure, signatories will implement ESG as part of due diligence in the investment approval procedure. In this way, China could indirectly achieve its decarbonization and other environmental goals without directly intervening in setting environmental standards for host countries. While GIPs are criticized as it could be too voluntary to be effective and too duplicative to add value (Carey & Ladislav, 2019), the first layer of the GIPs has demonstrated its distinct value—waving Chinese state regulation on green finance as part of the GIP network requires major Chinese banks to comply with the GIPs, which differs the GIPs from the existing principles such as PRI or EP.

There are three conditions for the GIP network to work effectively. The first is the authoritarian logic of implementing green finance within China which financial institutions and SOEs must abide by¹⁴; the second is the vast foreign currency reserves controlled by the central bank of China (He, 2019); third, Chinese public funds account for the majority (86% in 2018) (ICBC & Oxford Economics, 2018) of funding sources for the BRI project.

It is worth noting that half of the GIP signatories are non-Chinese banks. Attracting international signatories as part of the network serves the additional purpose of positioning China as an active node in international green finance standard-setting. China promoted a green BRI as part of global environmental and climate governance. The GIPs are part

¹⁴ Ibid.

of this Chinese solution. More importantly, having international signatories will generate extra external momentum to promote the GIPs to conform to the general international practice of green finance standards. This ‘international’ feature is also manifested by its governance structure. Although the Chinese government has promoted them as formal official principles, GIPs was jointly initiated by the Research Center for Green Finance Development at Tsinghua University in collaboration with the London Financial City.

In addition, GIPs have played a ‘bridging’ role, connecting Chinese financial institutions to other international sustainable investment principles. Many Chinese banks are learning about green investment from participating in the GIPs. Once Chinese banks adhere to more stringent green finance standards, they can expand their participation to other core standards and principles. For instance, seven Chinese banks have endorsed the Equator Principles, which set clear minimum standards for ESG. Before the promotion of the GIPs, only two Chinese banks were equator banks.¹⁵

GIPs are only one network within the BRI to promote green investment. Among the financial institutions, the Industrial and Commercial Bank of China (ICBC) initiated the ‘Belt and Road Bankers’ Roundtable’ (BRBR mechanism) in 2017 to jointly promote a greener ‘Belt and Road’ with financial institutions from both China and other countries. Different from the GIPs’ focus on principles, the BRBR mechanism is a network of financial institutions to enhance capacity, communicate best practices, and solve technical problems in green financing. In nodal governance terms, super-structural nodes¹⁶ of convening like the BRBR can quietly and efficiently overcome many information and technical problems.

Another example is the BRI International Green Development Coalition (BRIGC), which focuses on categorizing BRI projects in terms of their environmental impacts. The 2020 report of the BRIGC established a screening system of projects based on a traffic light classification system where projects are graded as ‘red’ (environmentally harmful), ‘yellow’ (environmentally neutral), and ‘green’ (environmentally beneficial) (BRIGC, 2020, p. 2). In addition, the BRIGC has supported the building of the BRI Environmental Big Data Platform, conceived as a portal for information sharing, supporting domestic decision-making, and serving the needs of enterprises.

Beyond the BRI, China proposed launching the Green Finance Study Group during its G20 Presidency in 2016, which was later adopted by the G20. China has been the co-chair of this group since 2016. China participated in the sustainable standard-setting at the International Organization for Standardization (ISO) Technical Committee on Sustainable Finance (ISO/TC 322).¹⁷ China is also one of the founding members of the International Platform on Sustainable Finance (IPSF), which was jointly initiated with the EU, Argentina, Canada, Chile, India, Kenya, and Morocco in 2019. Before the 26th UN Climate Change Conference of the Parties (COP26) in Glasgow in November 2021, IPSF issued a Common Ground Taxonomy—Climate Change Mitigation on the basis of the EU and Chinese sustainable finance standards (IPSF, 2021).

¹⁵ Equator Principles are targeted at project finance transactions over US\$10 million, or project-related corporate loans over US\$100 million, and are therefore not normally applied to smaller-scale lending.

¹⁶ A super-structure node brings together representatives of different nodal organizations to concentrate members’ resources and technologies for a common purpose but without integrating the various networks (Borris et al., 2005, p. 12–13).

¹⁷ China was closely involved in two sustainable finance standards: ISO 32210 Framework for Sustainable Finance, and ISO TR 32,220 Sustainable finance – Basic concepts, Key initiatives.

These networks share key nodes with the GIPs, in particular, the Chinese financial regulators and Chinese and multilateral banks. They contribute to consensus building about what constitutes 'green' in green investment and facilitate information about best practices flowing from one node to another. For instance, if the ISO standards set more specific rules for sustainable finance, given that there are Chinese entities closely involved in the standard-setting process, some GIP principles can draw on these ISO standards, standards with which a host country may be more inclined to comply.

The GIPs, with their own networks and other networks, can facilitate the implementation of China's quitting coal-fired projects overseas following President Xi's, 2021 UN statement on phasing out of overseas coal projects (Xi, 2021). Prior to China's announcement, over 65 gigawatts (GW) of coal-fired power plants was planned to be built in Asian countries outside of China and India. The pipeline for new coal in Asia could drop to only one-third (22 GW) with China's withdrawal from overseas coal (Suarez & Russell Gray, 2021). Prominently, most of the projects are financed by Chinese banks, in particular the Chinese Development Bank and Export-Import Bank of China (Ray et al., 2021). While GIPs can play a role in both banks' coal phasing-out, the more important role of these principles is on the Chinese and overseas commercial banks that are not directly affiliated with the Chinese government to align with the Chinese government's commitment. For instance, Liu Guiping, deputy governor of the People's Bank of China, expressed at a press conference that China will strictly control overseas investment in new coal power projects as part of the implementation of the GIPs. Specifically, ICBC withdrew from financing Zimbabwe's planned 2,800 MW coal-fired power plant at Sengwa (Yang, 2021).

4.3 Framework agreement, participation, and capacity building

The GIPs are by their nature open-ended and so can accommodate some diversity of views and positions. While the GIPs are indeed abstract and voluntary, this can be an advantage from a nodal governance perspective because more actors may be encouraged by virtue of their flexible and low-cost nature to connect to the central nodes, thereby increasing the connectivity of the system. Moreover, as a framework agreement (Braithwaite & Drahos, 2000), it is a baseline for building prescriptions and compliance. Considering that the PRIs were established for more than one decade and the principles and associated parameters are already mature and fixed, the signatories only have the choice of taking or leaving. Once specific metrics are consolidated, compliance may transform into a series of practices to meet minimum standards, sometimes to the detriment of the original objectives. By contrast, the BRI has a principle of 'building capacity through collective action,' indicating opportunities for signatories to contribute to designing and negotiating specific implementation standards.

The GIPs have focused on capacity building. One important way to persuade relevant stakeholders to engage with green investment is to show them to what extent they could be exposed to 'transition and physical risks due to shifting global and regional environmental and climatic policies and technological changes.'¹⁸ This is particularly relevant in addressing concerns of commercial feasibility by some Chinese SOEs as it provides a methodology to convert and calculate environmental risks as financial risks. The outcome of the first working group of the GIPs on environmental and climate risk assessment is a user-friendly

¹⁸ GIP Secretariat. 2019. *Business Plan for GIP WG1 (2019–2020)*. <https://gipbr.net/upload/file/20200103/6371366760884449047754071.pdf>.

online tool, the Climate and Environment Risk Assessment Toolbox (CERAT), that aims to assist signatories in undertaking the ESG due diligence by measuring emissions, energy consumption, and water usage. All three aspects, framework agreement, the opportunity for participation, and capacity building, have demonstrated the GIPs' energy and potential for development.

4.4 Toward more stringent environmental standards

Most of the Chinese infrastructure investments in the B&RCs are in the emission-intensive energy and transport sectors. Substantively, a salient issue for a green BRI also relates to what "green" means for a green BRI investment in the Chinese and international contexts. Without an internationally agreed definition of the scope of "green" projects or activities in green finance (Nedopil et al., 2021), the "green" standards can be both broad and generic and technical and specific, as has been revealed by Inderst et al. a decade ago (Inderst et al., 2012). The EU's sustainable finance taxonomy includes six environmental objectives, including climate change mitigation, climate change adaptation, sustainable use and protection of water and marine resources, protection of healthy ecosystems, pollution prevention and control, and transition to a circular economy (European Commission, 2020). Nonetheless, only the two-climate change-related objectives have established technical screening criteria. In the 2016 Chinese Guidelines on Establishing a Green Finance System, the scope of "green" projects is defined broadly as "in fields of environmental protection, energy conservation, clean energy, green transportation, and green buildings" (People's Bank of China et al., 2016). The GIPs as principles have not yet prescribed specific requirements as the EPs do, but the CERAT discussed in Sect. 4.3 may play a similar role as the EU's technical screening criteria.

The scope of green also relates to another concern that GIPs, as non-binding principles, may be susceptible to 'greenwashing,' where a project invested under the GIP framework claims that the investment is toward green projects while it is not, or they conceptualize 'green' in a way that is not conducive to addressing the existential environmental problem. Such greenwashing may not only damage the reputation of both lenders and borrowers but also undermine the credibility of the GIPs under which a loan is issued. This issue of greenwashing boils down to what sort of 'green' standards the GIPs are associated with.

China has been known for its lax environmental standards in the past. For instance, Chinese green bonds can be invested in projects including the renovation of fossil fuel power stations, clean use of coal, and hydropower larger than 50 MW under the Green Bonds Guidelines 2015. Such standards will have an impact on China's BRI investment because, as discussed, Chinese banks will follow domestic green finance standards when screening their foreign investment. Although the initial green bond definition was broader than those defined internationally, China has adopted an authoritarian top-down system with hard laws to regulate green bonds (Huang & Yue, 2020). In the Green Industrial Catalogue in 2019, the clean use of coal was eliminated from the Catalogue, which was further confirmed by the Green Bond Guidelines in 2021.¹⁹

¹⁹ National Development and Reform Commission, Ministry of Industry and Information Technology, Ministry of Natural Resources, Ministry of Ecology and Environment, Ministry of Housing and Urban-Rural Development, People's Bank of China, and National Energy Administration. 2019. *Green Industry Guidance Catalogue (2019 Edition)*. People's Bank of China, National Development and Reform Commission, China Securities Regulatory Commission. 2021. *Catalogue of Projects Eligible to Be Supported by Green Bonds*. http://www.gov.cn/zhengce/zhengceku/2021-04/22/content_5601284.htm.

In the GIP network discussed above, it is clear that the Chinese state plays a central role in setting green standards for its domestic banks and financial institutions. The financial institutions internalize these Chinese standards and further apply them in an overseas investment where the tenderers and project implementers are involved in BRI projects. This process is an important channel for the diffusion of more stringent climate finance standards and environmental standards in general. For instance, the exclusion of fossil fuels from the 2021 green bond list is more stringent than China's announcement at the UN in terms of divestment from building new coal-fired power stations. Should the Chinese banks be required to follow the same protocol for domestic and international investment in the first layer of the GIP network, they can further contribute to decarbonizing the Belt and Road than China has pledged. For another instance, China's announcement of divestment from coal can be vague, as the definition of "new" project is not specified, and coal gasification can also generate considerable carbon emissions. If the indirect use of coal is interpreted as being excluded from the pledge as indicated in the recent China-Indonesia coal gasification project (Coca, 2022), the commitment to the pledge will be substantially undermined. In these issues, the GIPs can be engaged as a framework agreement by various stakeholders to gradually enhance the environmental standards along the Belt and Road and substantiate China's coal-quitting announcement.

5 Conclusion

From a nodal governance perspective, this article extends the research of international environmental agreements beyond formal agreements to framework agreements. It specified the context that China has situated in global environmental governance, analyzed the function of informal networks and framework agreements, including the GIPs in implementing China's pledge to divest from coal-fired power stations, and discussed opportunities for GIPs to be engaged to set more stringent standards along the Belt and Road.

China faces considerable regulatory challenges to promote higher environmental standards in B&RCs as called for by academic publications, including the lack of established practices to follow and China's own reluctance to take an interventionist approach to enhance the environmental standards of the B&RCs. The BRI is not a treaty-based system. Instead of resorting to bilateral treaties, China prefers signing MOUs with B&RCs, most of which do not include binding environmental obligations. The GIPs have enabled China to mobilize a network of financial institutions which avoid direct contracting with B&RCs concerning their environmental standards. Including SOEs and financial institutions as nodes in the GIPs also enables a new perspective when it comes to considering capital allocation between 'green' and 'brown' infrastructures and technologies as a coordination problem among investors and project implementers, not only between China and the host countries. With domestic banks as major signatories and fund providers to BRI projects, the GIPs enable Chinese green finance standards to diffuse through this and other networks to the host countries.

As a framework agreement, the GIPs are open to incorporating more stringent and prescriptive environmental standards in the future. By presenting the methodology for measuring environmental risks as financial risks as a user-friendly tool, the GIPs not only provide signatories with a technical tool for ESG due diligence but also weave certain China-originated regulatory instruments into the calculation. In this sense, the GIPs are similar to the regulatory export from the EU, which has created the Brussels effect (Bradford, 2012).

With China continuing to enhance its domestic green finance standards, the impact will continue to diffuse through the GIP network to key nodes.

As principles guiding more sustainable and climate-friendly investment, the GIPs are not more voluntary than other principles such as the EP or the PRI. In the context of investment in the B&RCs, the GIPs indeed have added value to mobilize Chinese private financial institutions to implement China's decarbonization pledge other than the duplication of existing principles. Entering into its fourth year, more data about GIP's regulatory structure and implementation are available. In this sense, this paper further paves the way for a future research agenda on GIPs, both toward qualitative analysis of the transparency and dynamics of the networks and quantitative assessment of the effectiveness of the GIPs, individually or as compared with other existing principles.

Appendix 1 Signatories of the GIPs (as of June 2021)

Chinese subscribers (17)	Non-Chinese subscribers (22)	Supporters (11)
Agricultural Bank of China	Al Hilal Bank (UAE)	APEC network on green supply chain Tianjin pilot center
Agricultural Development Bank of China	Astana international exchange	Carbon trust
Bank of China	Bank of East Asia (Japan)	CDP worldwide
China construction bank	France Orient CAB	China Beijing environmental exchange
China development bank	DBS Bank of Singapore	Climate bond initiative
China foreign contractors association	Deutsche Bank	Deloitte
China international capital corporation	First Bank of Abu Dhabi	Ernst & young
Export-Import Bank of China	Pakistan Habib Bank	KPMG
Hong Kong stock exchange	Mizuho Bank of Japan	PwC
Industrial and Commercial Bank of China	Khan of Mongolia Bank	Refinitiv
Industrial Bank of China	Luxembourg stock exchange	Starquest capital
Ping an insurance (GROUP) company of China, Ltd	Natixis Bank	
China merchants port holdings Co., Ltd	Standard chartered bank	
Ant financial services group	Mongolian trade development bank	
China international contractors association (CHINCA)	Union Bank of Switzerland	
Xinjiang goldwind science & technology	Bank of Bangkok	
Silk road fund	BMCE Bank of Africa	
Chinese reinsurance	Commerzbank AG	
	Trade & Development Bank of Mongolia (TDB)	
	BNP Paribas	

Chinese subscribers (17)

Non-Chinese subscribers (22)

Supporters (11)

Swiss reinsurance

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