

SNAPFI CASE STUDY

# China

## *Transforming the finance sector with technical assistance*

JUNE 2021



UNIVERSITY OF CAPE TOWN  
IYUNIVESITHI YASEKAPA • UNIVERSITEIT VAN KAAPSTAD



SÃO PAULO SCHOOL OF  
BUSINESS ADMINISTRATION  
Center for Sustainability  
Studies



Supported by:



based on a decision of the German Bundestag

## About this report

Published in June 2021

### Project

Strengthen National Climate Policy Implementation: Comparative Empirical Learning & Creating Linkage to Climate Finance – SNAPFI

Website: <https://www.diw.de/snapfi>

This case study serves as an input to the thematic study 2021.

### Project number

820043

### Financial support

This project is part of the International Climate Initiative (IKI). The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) supports this initiative on the basis of a decision adopted at the German Bundestag.

[www.international-climate-initiative.com](http://www.international-climate-initiative.com)

Report design and cover by Wilf Lytton [wilflytton@gmail.com](mailto:wilflytton@gmail.com)



Download the report

<http://newclimate.org/publications/>

SNAPFI CASE STUDY

# China

## *Transforming the finance sector with technical assistance*

---

JUNE 2021

AUTHORS

**Julie Emmrich**

**Katharina Lütkehermöller**

WITH CONTRIBUTIONS FROM

**Silke Mooldijk, Frauke Röser and Swithin Lui**

© NewClimate Institute 2021

# Contents

---

<b>Introduction</b>	<b>1</b>
<b>China's green bond regulatory framework</b>	<b>5</b>
<b>Enablers and barriers to the Chinese green bond market</b>	<b>11</b>
<b>3.1 Enablers</b>	<b>12</b>
<b>3.2 Barriers</b>	<b>14</b>
<b>Technical assistance activities and their contribution to transformative change</b>	<b>19</b>
<b>Lessons learned</b>	<b>25</b>
<b>References</b>	<b>29</b>

## List of figures

Figure 1	Timeline of key regulations in China's green bond market	9
Figure 2	Cumulative investment volumes between 2016 and 2019 through green bonds, green credits, and fossil fuel investments by the "Big Four" in the same time period	20
Figure 3	Use of proceeds in the Chinese green bond market between 2016 and April 2019. Source: (CPI, 2020a)	23

## List of tables

Table 1	Overview of China's key regulators in the green bond market, their role and main policies. All operate under the State Council of the People's Republic of China, the chief administrative authority of the People's Republic of China.	7
---------	---	---

The view of Lujiazui from The Bund  
by Freeman Zhou



CHAPTER ONE —————>

# Introduction

China is the largest emitter of carbon dioxide (CO<sub>2</sub>) emissions accounting for nearly one third of total global CO<sub>2</sub> emissions (IEA, 2020). Under the Paris Agreement, China has pledged to reduce its carbon intensity by up to 65% below 2005 levels by 2030 (People's Republic of China, 2016). In 2020, China further announced intentions to achieve carbon neutrality by 2060 (Pike, 2020). To reach this goal, it is estimated that China will need investments in the order of USD 14 trillion (CPI, 2020b).

Considering the size of the country's domestic finance sector, its investment activities abroad, and a strong foreign demand to invest in China, changes to the Chinese financial sector have global repercussions. China's finance sector is one of the largest and most rapidly growing worldwide. For example the Shanghai Stock Exchange is expected to rank among the global top three exchanges in terms of total funds raised, and China's four largest banks - the "Big Four"<sup>1</sup> - are the largest worldwide (CPI, 2020b; KPMG, 2020). Further, China provides considerable foreign investments, notably under the government's Belt and Road Initiative that dedicates USD 1 trillion to foreign infrastructure in 126 countries over the next ten years (ASIFMA, 2019; Jun et al., 2019; CPI, 2020b; World Bank, 2021).

For China to meet its climate goals, the finance sector needs to be fit for purpose to (re)direct investment flows to the greening of all economic sectors. The Chinese government recognised the need for green investment guidelines and a definition of what constitutes green economic activities early on. Notably, the China Banking and Insurance Regulatory Commission (CBIRC) adopted the Green Credit Guidelines in 2012, providing China's 21 largest commercial banks with a definition of green activities (CBI, 2020a; Lin, Yunhan and Yue, 2021). In the subsequent years, China enacted a number of finance sector reforms to ease green finance flows (CPI, 2021). As a result, China has rapidly scaled green finance volumes. At the same time, the country is also one of the largest funders of high-emitting assets. China's "Big Four" alone contributed USD 240 billion to the fossil fuel industry between 2016 and 2019 of which USD 106 billion went towards coal mining and coal power (CPI, 2020b).

Building on the efforts and first achievements of the Green Credit Guidelines and as part of sectoral reforms, China launched a green bond market in 2016. A year earlier, the People's Bank of China (PBOC) and the National Development and Reform Commission (NDRC) released first green bond guidelines (Zhang, 2020).

To establish a green bond market, a country might need to overcome a number of barriers. In China these include(d) lack of awareness of climate risks, knowledge barriers on green bonds as a finance instrument and capacity barriers to issue green bonds, among others. Technical assistance, as an instrument used by international donors in particular for knowledge transfer and capacity building, can support countries in reducing these barriers.

---

1 The four public and largest banks Industrial and Commercial Bank of China, China Construction Bank Corporation, Agricultural Bank of China and the People's Bank of China are often referred to as China's "Big Four".

In this report we assess **whether and to what extent technical assistance provided by international donors to China's green bond market contributed to transformative change in the finance sector.**

To gauge the impact of the technical assistance activities, we use the framework of transformative change put forward by Vivid Economics (Vivid Economics, 2020). We elaborate on this framework in Chapter 4.

To gauge the impact of the technical assistance activities, we use the framework of transformative change put forward by Vivid Economics (2020). We elaborate on this framework in Chapter 4.

#### BOX 1

### Green Bonds

Green bonds are a fixed-income debt instrument aimed to raise capital to fund green projects and assets. They can be used to mobilise (additional) resources for (large-scale and long-term) climate mitigation or adaptation projects, beyond bank lending and equity financing. Green bonds differ from traditional bonds by the commitment of the issuer to use the bond's proceeds exclusively for green purposes. The explicit labelling of bonds as green can facilitate the connection between green projects and the increasing demand for green investments (European Commission, 2016).

There are different types of green bonds, including sovereign and corporate green bonds. **Sovereign green bonds** are issued by a national government, whereas a **corporate green bond** is issued by a private company.

The main actors in the green bond markets are:

- › **Green bond issuer:** Any entity (company, government agency, financial institution) that develops, registers and sells a bond.
- › **Green bond underwriter:** Financial institution that organises the issuance of the green bond.
- › **Green bond investor:** Individuals, companies or institutional investors who buy a green bond with the expectation to receive a financial return.
- › **External reviewers or verifiers:** Entities that verify the "greenness" of the project/ asset or that verify compliance with green bond standards. This can include credit rating agencies, auditors and intermediaries (such as stock exchanges) and investors.



The green bonds issuer has an obligation to track, monitor and report on the use of proceeds which leads to additional costs. Therefore, a **minimum issuance volume** is usually required. At the same time, green bonds can have a **green premium** (interest rebate) meaning that capital providers might be willing to accept lower returns when compared to traditional bonds. This in turn means that issuers might be able to raise capital at lower costs (Löffler, Petreski and Stephan, 2021).

For this research study we conducted two confidential interviews with organisations that provided technical assistance to stakeholders in the context of China's green bond market. We complemented the interviews with desk research.

Chapter 2 outlines key actors and developments in China's green bond market. Chapter 3 provides an overview of the main enabling factors and barriers to the green bond market. Chapter 4 discusses whether and to what extent various technical assistance activities helped reduce these barriers, and we assess how these activities contributed to transformative change, following the six principles introduced above. Chapter 5 outlines lessons learned, thereby focusing on both policy-makers and providers of technical assistance.



CHAPTER TWO —————>

# China's green bond regulatory framework

## Regulatory framework and institutional set-up

In 2015, China started building its green bond market to raise capital in the wider finance sector. The regulatory framework has continuously developed since. Today, the regulatory landscape is complex, which can lead to confusion amongst market participants, particularly for foreign investors (CBI, 2020a, Interview 1, 2021, Interview 2, 2021). The Chinese green bond market is regulated by various institutions depending on the type of issuer. Chinese bonds are categorised as follow:

- › Financial bonds, issued by financial institutions, including policy banks and commercial banks, traded on the interbank market.
- › Corporate bonds, issued by listed companies on the Shanghai or Shenzhen Stock Exchanges.
- › Enterprise bonds, primarily issued by state-owned enterprises (SOEs) and more generally non-listed companies, typically traded on the interbank market but also on the Shanghai and Shenzhen stock exchanges.
- › Sovereign bonds, issued by public sector entities such as municipalities, provinces or the government. The Ministry of Finance is the regulating institution for this type of bond but has not published any regulations (CPI, 2020a).

We provide an overview of Chinese regulators in the green bond market, including a brief explanation of their role and key policies on green bond issuance in Table 1. We also summarise the timeline of key green bond regulations in Figure 1. We apply the same colour-code to regulators in Table 1 and Figure 1 to ease understanding of China's complex regulatory framework.

TABLE 1

**Overview of China’s key regulators in the green bond market, their role and main policies. All operate under the State Council of the People’s Republic of China, the chief administrative authority of the People’s Republic of China**

Regulator	People’s Bank of China (PBOC)	National Association of Financial Market Institutional Investors (NAFMII)	National Development and Reform Commission (NDRC)	China’s Securities and Regulatory Commission (CSRC)	Shanghai and Shenzhen Stock Exchanges
Market segment and role of regulator	Financial and corporate bonds		Enterprise bonds	Corporate bonds (securities and futures market)	
	As China’s central bank, the PBOC is responsible for carrying out monetary policy and regulation of financial institutions and maintaining national financial stability, as determined by People’s Bank Law and Commercial Bank Law.	NAFMII is an association of investors under the umbrella of the PBOC. It constructs the voluntary and self-regulatory rule system in the interbank market to enhance self-regulation.	As China’s macroeconomic management agency, the NDRC formulates and implements industrial policies, relevant laws and regulations concerning national economic and social development, economic system restructuring and market access to non-Chinese stakeholders.	CSRC performs a unified regulatory function: 1) formulates policies and development plans for the securities and futures markets, 2) supervises the following capital markets: issuance, listing, trading, custody and settlement of stocks, convertible bonds, bonds of securities companies, and bonds and other securities.	As the two independently operating Chinese stock exchanges, overseen by the CSRC, they operate the securities and futures markets platforms.
Key policies	<ul style="list-style-type: none"> <li>› Notice on Green Financial Bonds No.39, which includes the Green Bond Endorsed Project Catalogue (2015)</li> <li>› Announcement No. 20 on Green Bond Assessment and Verification Guidelines (2017)</li> </ul>	<ul style="list-style-type: none"> <li>› Guidelines on Green Note of Non-Financial Enterprises (2017)</li> </ul>	<ul style="list-style-type: none"> <li>› Guidelines on Issuing Green Bonds (2015)</li> <li>› Green Industry Guidance Catalogue (2019)</li> </ul>	<ul style="list-style-type: none"> <li>› The Code of Corporate Governance for Listed Companies in China No 06 (2017)</li> <li>› Announcement No. 20 on Green Bond Assessment and Verification Guidelines (2017)</li> </ul>	<ul style="list-style-type: none"> <li>› Shanghai &amp; Shenzhen each released a Notice on Launching the Pilot Programme of Green Corporate Bonds (2016)</li> </ul>

**Green Bond Endorsed Project Catalogue (2020)**  
Released by PBOC, NDRC and CSRC and in cooperation with the China Banking and Insurance Regulatory Commission (CBIRC) to align to green credit guidelines

Source: (CBI, 2020a; CPI, 2020a; Zhang, 2020; Lin, Yunhan and Yue, 2021).

The People's Bank of China (PBOC), the National Development and Reform Commission (NDRC) and the Securities and Regulatory Commission (CSRC) are the three key regulators of China's green bonds market. The PBOC released a "Notice on Green Financial Bonds" (PBOC Document No.39) in 2015. It defined what a green bond is, outlined green labelling requirements and defined eligible projects in the Green Bond Endorsed Project Catalogue (referred to as the "2015 Catalogue" hereafter) (PBoC, 2015; Zhang, 2020). Shortly after, the NDRC released the "Guidelines on Green Bond Issuance" (NDRC No. 3504) specifically targeted at state owned enterprises (SEOs). The Guidelines have different green bond requirements and are based on an alternative set of eligible projects (Zhang, 2020). In 2017, the Securities and Regulatory Commission (CSRC) published the "Guiding Opinions for Supporting the Green Bonds", based on PBOC's 2015 Catalogue (Zhang, 2020).

The Shanghai & Shenzhen stock exchanges and the National Association of Financial Market Institutional Investors (NAFMII) also released own green bond regulations applicable to their respective markets. In 2016, the Shanghai & Shenzhen stock exchanges each released a Notice on Launching the Pilot Programme of Green Corporate Bonds for any green bond issued through the stock exchange. In 2017, the National Association of Financial Market Institutional Investors (NAFMII), a voluntary association of institutional investors working under the umbrella of the PBOC, released their own voluntary Guidelines on Green Debt Financing Tools for Non-Financial Enterprises (NAFMII No. 10, 2017). The voluntary Guidelines apply to green bonds issued by financial institutions other than banks and traded on the inter-bank market (Zhang, 2020).

To strengthen the green bond regulatory framework, the PBOC and CSRC jointly released the "Green Bond Assessment and Verification Guidelines" in 2017 (Announcement No. 20 2017). The Guidelines introduced regulatory requirements for the verification of green bonds. They stipulate verification methods, reporting requirements and require green bonds verifiers and certifiers to have relevant qualifications and credentials (CBI, 2018b).

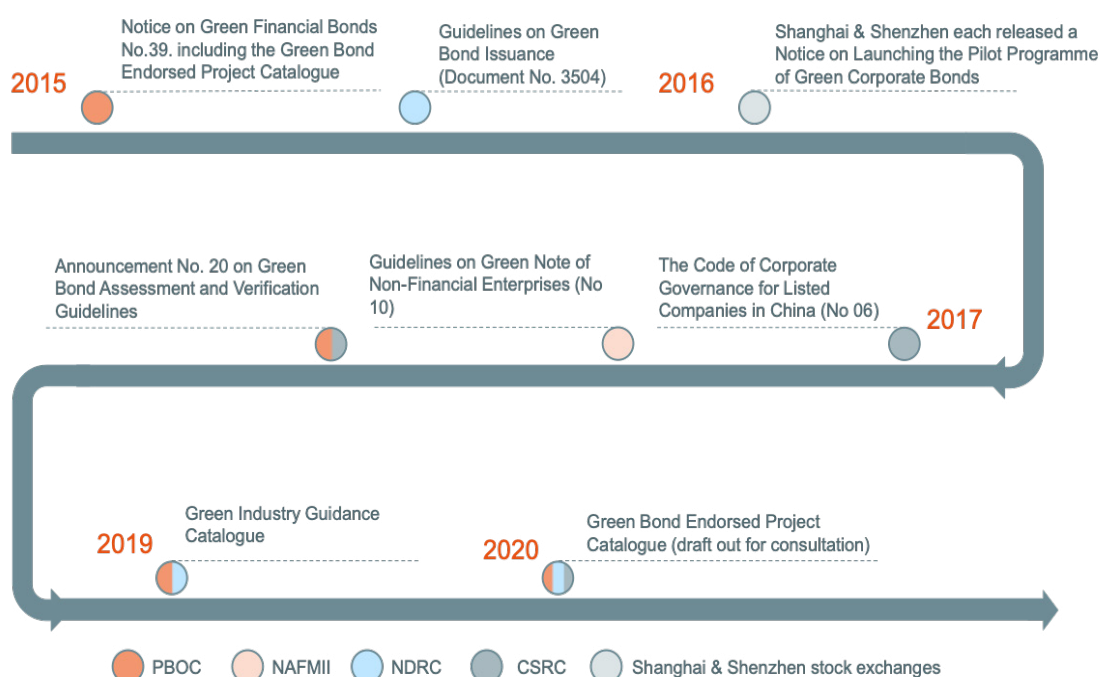
In a first effort to harmonise green bond regulations and the definition of green activities, the NDRC released the Green Industry Guidance Catalogue in 2019 with six other public institutions, including the PBOC (Lin, Yunhan and Yue, 2021). The Catalogue more clearly defined boundaries and encouraged the further harmonisation of standards both within China and with international standards, laying the foundation of a taxonomy - a classification system, establishing a list of environmentally sustainable economic activities.



To fully harmonise the definition of green activities between market segments, PBOC, NDRC and CSRC put forward a revision of the Green Bond Endorsed Project Catalogue (referred to as the 2020 Catalogue hereafter) for public consultation in July 2020 (Lin, Yunhan and Yue, 2021). The Catalogue was also developed in cooperation with the China Banking and Insurance Regulatory Commission (CBIRC) to align green bond regulations to green credit guidelines.

**FIGURE 1**

### **Timeline of key regulations in China's green bond market**



### **Green bond requirements and definition of green activities**

Green bond requirements and definitions of green activities diverge between regulations. On the one hand, the PBOC limits the proceeds of green bonds to specifically green assets and projects - in other words the raised capital cannot be spent for other, potentially non-green activities. To ensure this goal is being met, the PBOC provides rules on the allocation of proceeds including ring-fencing or earmarking, requiring robust environmental information disclosure and encouraging issuers to arrange an independent party to review or certify the bond in terms of its use of proceeds and environmental performance (Lin, Yunhan and Yue, 2021). On the other hand, the NDRC guidelines allow up to 50% of proceeds to be used for general purposes (CBI, 2020a). This is problematic because investors do not know what half of the raised capital is used for and thus have no guarantee these proceeds fund green activities.

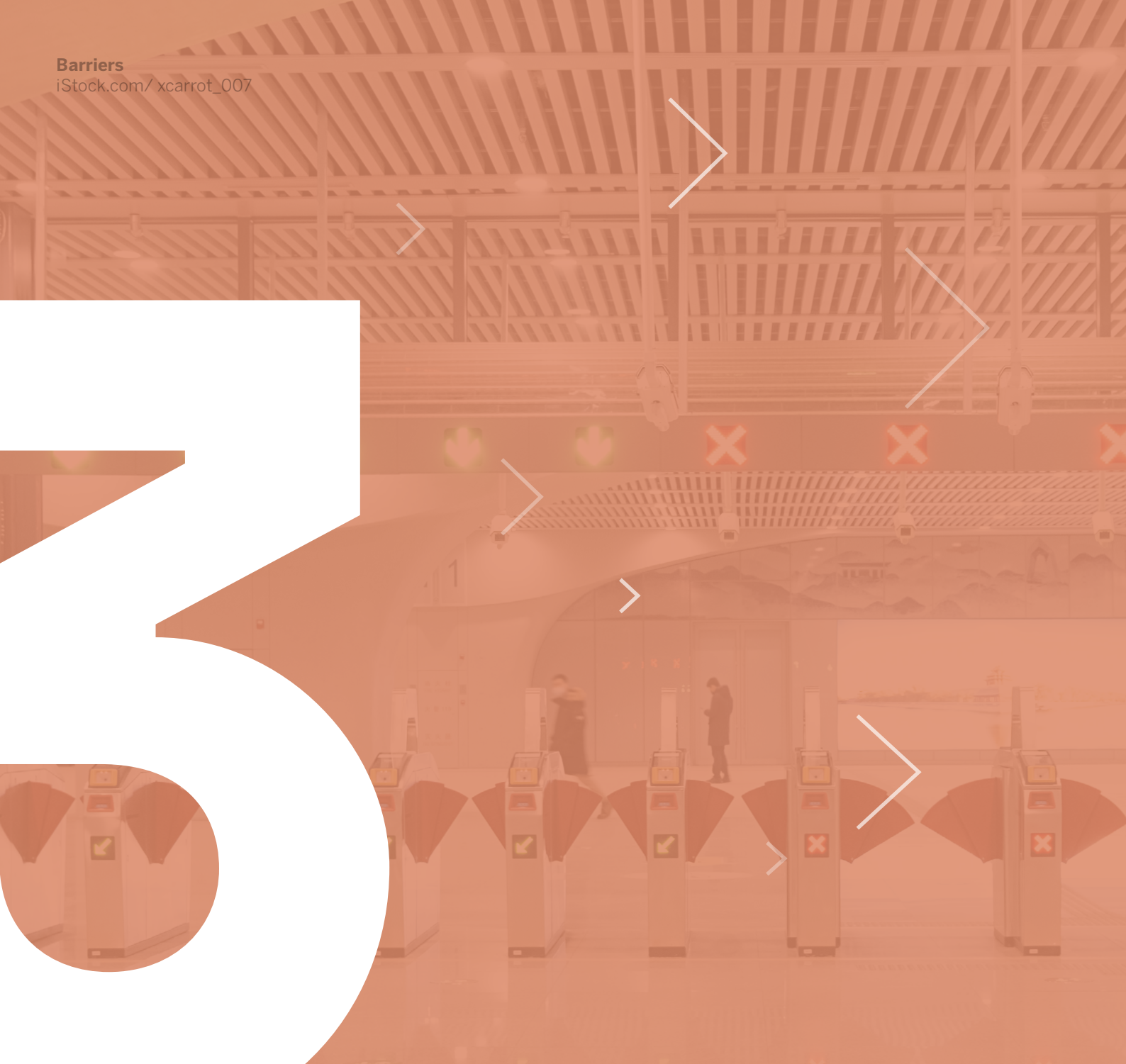
Furthermore, current Chinese green bond guidelines deviate from international green bond standards. Most notably three sub-categories of the 2015 Catalogue allow coal-related activities, including efficiency-related improvements for coal-fired power generation (CPI, 2020a). As a result, international investors have so far lacked confidence in the ambition of Chinese green bond standards. At the same time, China is interested in attracting foreign (green) investments. Therefore, the three key regulators (PBOC, NDRC and CSRC) put forward the 2020 Catalogue (a list of eligible green activities) to harmonise green bond regulations amongst China's green bond markets as well as with international green bond guidelines (Lin, Yunhan and Yue, 2021). The 2020 Catalogue provides clear definitions of sustainable economic activities in China, and in line with international green bond guidelines (for example the Green Bond principles<sup>2</sup> or CBI's green bond standard<sup>3</sup>), and the recently released European Taxonomy<sup>4</sup> (Lin, Yunhan and Yue, 2021). It is based on PBOC's 2015 Catalogue but aligns with the Green Industry Guidance Catalogue (2019) issued by the NDRC. One major change in the proposed 2020 Catalogue is the exclusion of clean coal investments in green bonds. Once the 2020 Catalogue is adopted by regulators, any bond (or loan) that meets the criteria of the 2020 Catalogue will be recognised as green, no matter in which market it is issued or what type of bond it is (CBI, 2020a).

---

2 The Green Bond Principles (GBP) are voluntary process guidelines that recommend transparency and disclosure and promote integrity in the development of the green bond market by clarifying the approach for issuance of a green bond: <https://www.icmagroup.org/sustainable-finance/the-principles-guidelines-and-handbooks/green-bond-principles-gbp/>.

3 The Climate Bonds Standard and Certification Scheme is a labelling scheme for bonds and loans, where bonds and loans that are consistent with the 2 degrees Celsius warming limit in the Paris Agreement are certified: <https://www.climatebonds.net/standard>.

4 The EU taxonomy is a classification system, establishing a list of environmentally sustainable economic activities: [https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/eu-taxonomy-sustainable-activities\\_en](https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/eu-taxonomy-sustainable-activities_en).



CHAPTER THREE —————>

# Enablers and barriers to the Chinese green bond market



# 3.1

## Enablers

---

In this section, we outline the enabling factors that played an important role in the implementation of China's green bond market.

### **Political buy-in and national commitment to environmental protection**

Severe air and water pollution and soil degradation has led to environmental concerns amongst the public, and public concerns, in turn, have increased political buy-in for environmental protection (Interview 1, Interview 2, 2021). China was one of the first countries to sign the Paris Agreement and thus committed to the goal to keep global warming to 2°C and pursue efforts to limit it to 1.5°C (UNFCCC, 2015).

Further, China's 13th Five Year Plan laid down the strategy and pathway for the country's development between 2016 and 2020. It includes concrete environmental and energy efficiency targets and combined the goal of economic growth (GDP growth rate of 6.5-7% per annum) with environmental protection. In 2020, China further announced intentions to achieve carbon neutrality by 2060 (Pike, 2020) and China's 14th Five Year Plan draft released in 2021 is generally aligned to the previous Five Year Plan. This suggests continued commitment to environmental protection and climate action, but also no enhancement of that commitment (Climate Action Tracker, 2021).

China also led international efforts to promote green finance. It initiated the G20 Green Finance Study Group and co-founded the Central Bank and Supervisor's Network for Greening the Financial System (Lin, Yunhan and Yue, 2021). These high-level commitments directly impacted key regulators, major state-owned enterprises (SEOs) and senior executives across the economy and enabled the uptake of green bonds (Interview 1, 2021).

## **Domestic and international demand for green investments**

Political buy-in for green finance has led to domestic demand for green bonds. Further, peer pressure amongst investors throughout Asia enabled a quick uptake of green bonds amongst finance sector participants. Issuers pursued first mover benefits and the rapid gain of market shares (Interview 1, 2021). International investors are also increasingly looking at green investment opportunities in China (Interview 1, 2021). This demand ensured a certain level of willingness-to-change and a continuous interest in capacity building by various stakeholders in the green bond market (Interview 1, Interview 2, 2021). The implementation of the green bond market faced a number of barriers. In this section, we highlight the main obstacles.

# 3.2

## Barriers

---

### Lack of awareness of climate risks and benefits of green bonds

A **lack of awareness of climate risks** in the Chinese finance sector limits the interest for green finance products, including green bonds (Interview 1, 2021, Interview 2, 2021). Climate change risks can broadly affect financial assets twofold: 1) they can have a physical impact on assets for example through more frequent floods and 2) transition risks which can lead, among others, to an early shut down of assets before the end of their financial lifetime for example due to market or technological reforms. Both physical and transition risks can lead to material financial risks for an investor and, in the worst case, insolvency. The lack of awareness and monitoring of these risks means that investment decisions may lead to the financing of new assets prone to physical or transition risks, with significant repercussions on the Chinese economy (Harper Ho, 2018).

There is also a **lack of understanding of what green finance consists of** (Interview 1, 2021, Interview 2, 2021). Many finance actors associate green finance with environmental, social and governance (ESG) reporting, the latter also not being well understood in the finance community (Interview 2, 2021). In addition, many credit officers are not aware of green finance products, do not know when to use them and do not know about their benefits (Interview 2, 2021). As a result, they usually do not consider green bonds as a debt instrument when advising clients.

### Knowledge barriers

A **perceived trade-off between economic viability and green projects** hinders the uptake of green bonds (CBI, 2020b, Interview 1, 2021, Interview 2, 2021). Financial institutions often associate green finance with profit loss in comparison to other finance instruments they offer to their clients. This is also due to the fact that green bonds tend to have higher transaction costs and lower interest rates (green bonds often comprise of low risk investments) (CBI, 2020b). This shows that the **benefits green finance and more specifically green bonds can entail are not well understood.**

As a result, most banks are reluctant to invest in the required resources to acquire comprehensive understanding of the green bond market (Interview 1, 2021).

The initial **economic slowdown due to the COVID-19 pandemic reinforced the perceived trade-off**. In 2020, some banks lowered the stringency of their due diligence procedures to rapidly provide credits to carbon-intensive companies, based on the belief this would boost economic growth (Interview 2, 2021). In contrast, green bond issuance decreased in China while international green bond markets have seen a surge in green bond issuance in 2020 (CBI, 2020c). China issued a bit over 10 billion USD by the third quarter of 2020 compared to almost 60 billion USD in 2019 (CBI, 2020c).

There is a lack of **empirical evidence** assessing the extent to which the greening of financial assets would undermine or improve financial performance in China (Interview 2, 2021). Such evidence is important to enable informed decision-making. However, sustainable finance considerations are not incorporated or taken up by academia, larger businesses or local NGOs. There are for example few Chinese economists and finance sector consultants with expertise in green bonds. Currently, many finance sector stakeholders are reluctant to develop and use green bonds and green products more generally (Interview 2, 2021).

## Capacity barriers

The Chinese government committed to the greening of its economy and its finance sector. It launched a domestic green bond market with two key policies by the end of 2015 (see Section 3). There was however a **lack of capacities** within the Chinese finance sector to implement the green bond market guidelines. To seize the potential of the green bond market capacities had to be built amongst key market stakeholders: green bond issuers, underwriters, investors and external reviewers or verifiers.

## Regulatory barriers

The Chinese government put regulatory pressure on state-owned enterprises to deleverage, or in other words **reduce debt**. State-owned enterprises were encouraged to reduce their debt levels (CPI, 2020a). Such measures constrain the issuance of new debt that might be needed to finance a green transition, including for the issuance of green bonds. However the Chinese government has recently announced it would focus on maintaining debt levels at the largest state-owned enterprises rather than further reducing it (Bloomberg, 2021). This shift allows SEOs to take on new debt when existing debt expires.



CHAPTER FOUR —————>

**Technical assistance  
activities and their  
contribution to  
transformative change**

Technical assistance is an important instrument to support climate action. It can take the form of information sharing, training programmes, capacity building workshops, best practice sharing and other consultation services (Vivid Economics, 2020). International donors can complement technical assistance activities with financial support, including concessional loans, but this does not necessarily have to be the case.

Technical assistance is typically used to address institutional capacity issues, but can more generally spur change by drawing on existing know-how and international best practices. Technical assistance activities can contribute to lowering barriers that constrain potential financial sector reforms, including the development of a green bond market. International donors can provide technical assistance to the public sector, including government authorities and central banks, or to other entities, such as private banks, companies or civil society organisations.

To gauge the impact of technical assistance on the green bond market and the wider finance sector in China, we use the **six principles of transformative change** put forward by Vivid Economics, noting that not all six principles need to be met to lead to transformative change (Vivid Economics, 2020).

The principles stipulate that actions and investments should **strategically** target key priorities and action areas needed to achieve a low-carbon and climate resilient development path to ensure transformative change. Building a knowledge and regulatory foundation with key stakeholders can spur **systemic** change and drive broad and deep changes within key markets and policy environments. Aggregated smaller actions or fewer, larger actions can deliver **high-impact** large-scale mitigation or adaptation benefits and actions or investments that have the potential to increase in **scale** themselves or that are replicable in other contexts are also most likely transformative. Further, actions or investments that are able to continue after any initial support is withdrawn or in the face of changing future conditions lead to **self-sustaining change** and actions or investments that are long-lasting or permanent lead to **enduring change**. Both are more likely to lead to transformative change.

## Awareness raising and know-how transfer

By invitation of the Chinese Government, technical assistance activities to raise awareness of green finance instruments started well before the establishment of the green bond market in 2015 (Interview 1, 2021). For instance, as early as 2006, the International Finance Corporation (IFC) launched the Energy Efficiency Finance Programme aimed at stimulating energy efficiency investments in China through technical assistance, a loan guarantee mechanism, and outreach and dissemination activities (IEG-World Bank, 2010).

Further technical assistance activities included raising banks' corporate clients' awareness and understanding of direct and indirect climate change impacts on their economic activities through tools and guidance materials and how to incorporate such risks into financial decision-making. For example, the United Nations Environment Programme Finance Initiative (UNEP FI) and the German international cooperation agency, GIZ, launched the Natural Capital Finance Alliance. They offered a tool that enabled banks to quantify the potential impact of drought on corporate loan portfolio performance (UNEP Finance Initiative, 2016).

Towards 2015, interviewed providers of technical assistance focussed their activities at raising awareness of green bonds as a finance instrument, the importance of transparency to ensure investor confidence and the benefits of green bonds for various stakeholders. Technical assistance took the form of trainings, workshops, and stakeholder conferences, directed at bankers, underwriters, investors, certifiers, providers of insurance and asset managers. Over 200 financial institutions have since participated in such activities (Interview 2, 2021). Providers of technical assistance combined in-house expertise and international best practice experiences. For example, they used the Green Bond Principles, used for voluntary green bond certifications and published by the International Capital Market Association (ICMA).

Due to support of technical assistance providers, environmental risks to financial assets as well as the benefits of green bonds are now well understood in a number of financial institutions and companies. Providers of technical assistance report that today financial institutions understand the risk that climate change poses to their assets and how to translate these risks into financial risks (physical and transition risks), notably the potential impact of future carbon pricing. Climate change is however not yet mainstreamed in the wider finance sector, despite long-term technical assistance to raise awareness of climate change risks on the economy and financial assets (Harper Ho, 2018, Interview 1, 2021, Interview 2, 2021).

The extent to which technical assistance raised awareness and built know-how on green bonds is difficult to assess. Providers of technical assistance report having contributed to building a consensus amongst stakeholders, creating the required understanding on the role of green bonds, and brought in international expertise on key elements required for a functioning and credible green bond market (Interview 1, 2021, Interview 2, 2021). Whilst green bonds are understood better amongst financial institutions, there is still limited awareness of green finance options outside of those departments specifically targeting green finance (Interview 2, 2021). Creating the knowledge foundation amongst key stakeholders is an essential requirement for systemic change, however raising awareness alone does not lead to transformative change.

## Supporting first movers and building a green bond market eco-system

Providers of technical assistance **strategically** supported the implementation of China's green bond market by raising awareness and building know-how amongst key stakeholders necessary to build the green bond eco-system (Interview 1, Interview 2, 2021). They focussed their efforts on building capacities with ambitious financial institutions to enable them to become first movers in China's green bond market. First movers take on more risk and supporting them can help to kick-start a new market. Capacity building also led the foundation for the creation of China's green bond market and first movers spurred **systemic** change: the green bond market successfully launched in 2016 and gained traction in the following years.

Specifically, technical assistance helped financial institutions to develop green finance products by drawing from international best practice tailored to the country context. For example, one of the interviewed providers of technical assistance cooperated with a well-established European green bond underwriter to merge best practice know-how and knowledge of the Chinese context in training sessions and workshops (Interview 1, 2021). However, initial Chinese green regulations were not as stringent as international best practice. As a result, green bonds issued in China entail controversial investments such as "clean coal". It is thus difficult to assess whether the green bond market leads to **high impact** change to green the Chinese economy. China continues to strengthen the regulatory framework, for instance with the introduction of the Green Bond Assessment and Verification Guidelines in 2017 or the draft 2020 Catalogue. This is a promising sign to encourage **high-impact** green activities to spur transformative change.

Providers of technical assistance further supported financial institutions to identify corporate clients and build a pipeline of green projects. Technical assistance activities also targeted the development of public-private partnership projects to further mobilise the private sector in the green bond market (Interview 1, 2021).

A green bond regulatory framework, top-down high-level commitments by banks coupled with newly built bottom-up capacities quickly led to the issuance of first green bonds in 2016 (Interview 1, 2021). Within the first year of its launch, the Chinese green bond market raised over USD 25 billion (CBI, 2020a). The issuance of the first green bonds by a few financial institutions created traction amongst peers to enter the green bond market (Interview 2, 2021). As a result, the green bond market has seen continued growth since its launch in 2016.

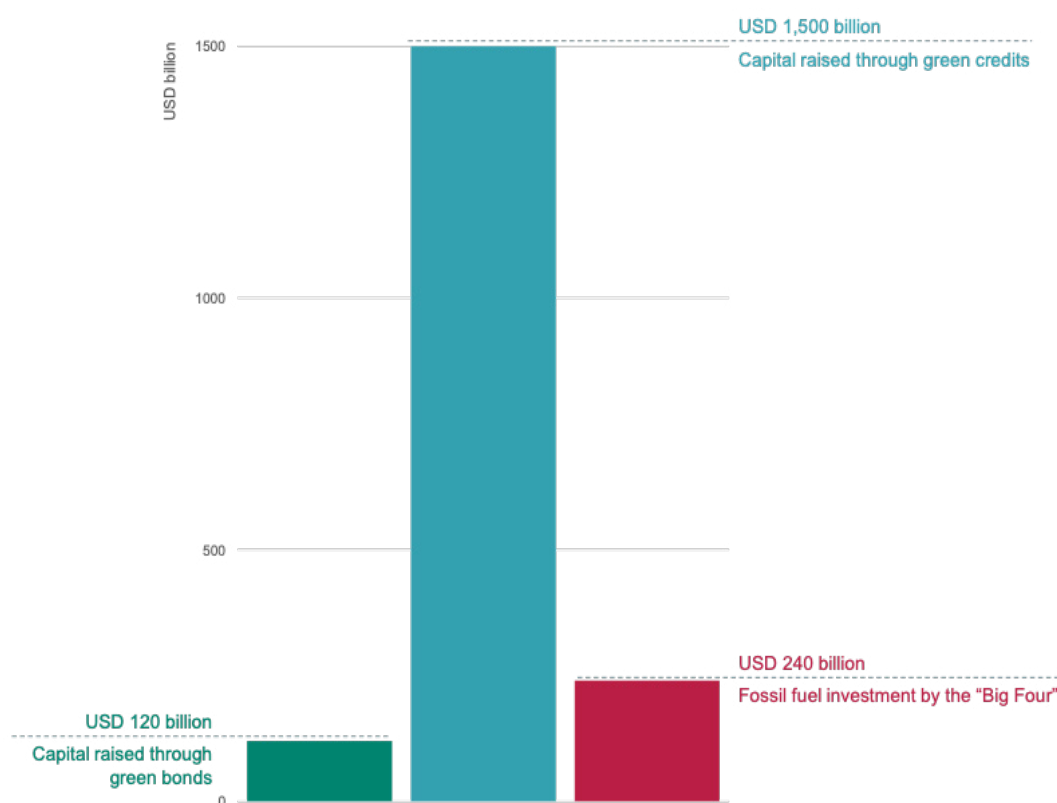
While green bond figures are sizable, capital raised through green bonds is still relatively small compared to other green finance products or traditional finance instruments (CPI, 2020a).



For instance, China's green loans had reached a cumulative total of over USD 1500 billion in 2019, accounting for around 10% of the country's total credit balance (CPI, 2020a). In contrast, Chinese green bond issuance reached a cumulative total of USD 120 billion by the end of 2019, or less than 1% of total green credit volumes (Figure 2) (CBI, 2020a; CPI, 2020a). Whilst the credit and bond market encompass different stakeholders, the difference in green finance volumes raised is significant. It is also noteworthy to mention that whilst finance volumes raised through green bonds increased rapidly, China's "Big Four" alone contributed twice the size of the green bond market (USD 240 billion) to the fossil fuel industry between 2016 and 2019 (Figure 2), of which USD 106 billion went towards coal mining and coal power (CPI, 2020b).

**FIGURE 2**

***Cumulative investment volumes between 2016 and 2019 through green bonds, green credits, and fossil fuel investments by the "Big Four" in the same time period***



**Data source:** CBI, 2020a; CPI, 2020a, 2020b

## Building capacities with SMEs and smaller or rural banks

In more recent years, the mandate of providers of technical assistance has shifted towards small and medium sized enterprises (SMEs) and smaller or rural banks (Interview 1, 2021, Interview 2, 2021). This is an indication that the market has reached a certain scale. Larger companies, banks and investors have understood the role of green finance products and have the human and financial resources to prepare for the uptake of new finance models such as green bonds. For those stakeholders, support shifted from grant-based technical assistance to advisory services.

Today, the public sector is still very involved in the transformation of the finance sector. The green bond market is dominated by public entities such as public banks, state-owned enterprises or other government-backed entities (CBI, 2020b). There is thus potential to scale the green bond market by tapping into private sector finance flows. For example, today over 500 private equity funds exist, exceeding USD 8 trillion (Asset Management Association of China, 2020), Interview 2, 2021).

Therefore, technical assistance has been supporting smaller, rural and non-government backed banks that have more difficulties in investing required resources to shift to green finance products such as green bonds (Interview 1, 2021, Interview 2, 2021). Building capacities in the wider finance sector is important to ensure a long-lasting uptake of the green bond market and to avoid that know-how and first mover benefits remain within large banks and corporations. For example, the Ma'anshan Rural Commercial Bank, a smaller and rural Chinese bank, received technical assistance from the IFC to green its financial products (Maanshan Rural Commercial Bank, 2019). The Bank issued its first green bond in June 2020 to finance solar and water sewage treatment infrastructure projects amounting to USD 57 million (CBI, 2021).

There are encouraging signs that China's green bond market scales clearly labelled green finance flows. Annual bond issuance data suggests that capital raised through the green bond market may have been additional to the capital that would have been raised without the existence of the green bond market (CPI, 2020a). Additionality of finance flows is however difficult to clearly assess, as funded projects may have been financed through other finance instruments but not reported as green. Whilst there has been a continuous increase of capital raised through green bonds (with a green label) since 2016, unlabelled green activities in bond issuances have also continuously increased (CPI, 2020a).

## Supporting credible certification schemes

Technical assistance efforts also focus strongly on the establishment of the “second opinion” principle in green bond certification schemes. Third-party certification by external reviewers or verifiers ensures that assets and projects are reviewed by an independent entity. Such entities verify the “greenness” of proposed projects and assets and/or verify compliance with green bond standards. Such schemes are important to avoid greenwashing and build investor confidence.

Providers of technical assistance organised separate and more targeted trainings for know-how transfer and capacity-building activities on the second opinion principle and on the concept of the shades of green (Interview 1, 2021). These trainings specifically targeted domestic verifiers and certifiers. In such trainings, providers of technical assistance drew from existing international best practice experiences, for example by bringing in the expertise of a well-established green bond verifier (Interview 1, 2021). Technical assistance was also provided in the form of training series by the Sustainable Banking Network (IFC, 2021).

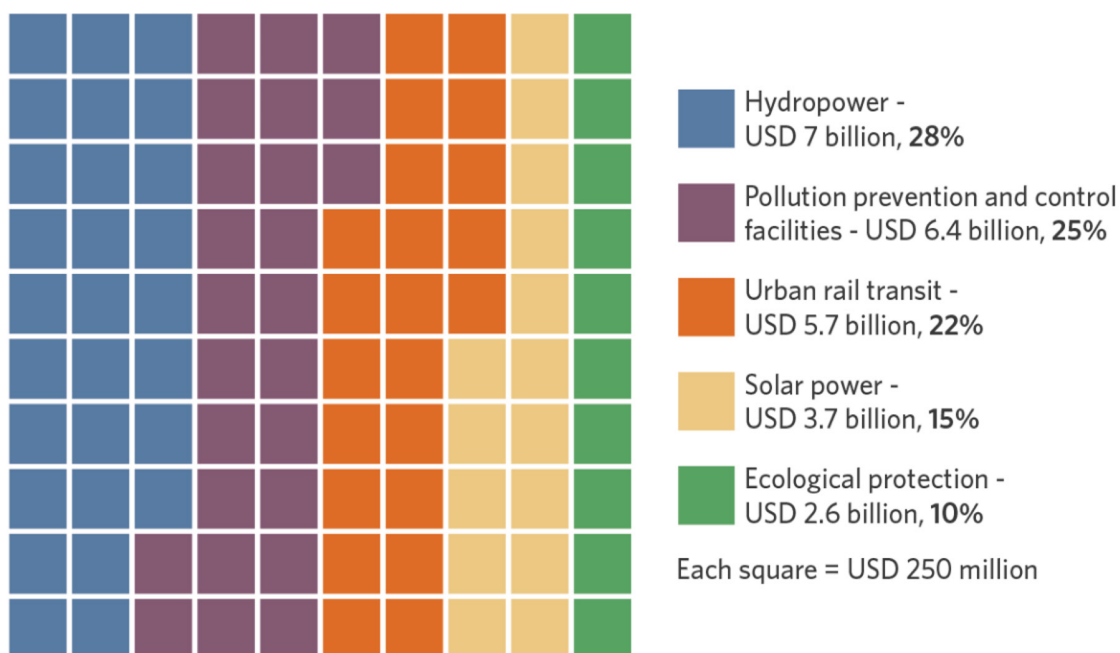
Whilst many green bonds in China’s are certified, including by the Climate Bond Initiative, more than a quarter of issued bonds do not have any certification (CBI, 2020a; Lin, Yunhan and Yue, 2021). Further, as discussed in Chapter 2, domestic definitions of green activities currently differ from international best practice. To better understand the potential impact of Chinese green labelled bonds, we assess the type of projects financed by green bonds (Figure 3).

Green bonds have mainly raised capital for “clean energy” and “clean transport” accounting for around half of total capital raised through green bonds (CBI, 2020b). Some funded activities such as solar power or urban rail transit have a clear transformative impact. This suggests **high impact change**.

On the other hand, the impact of other funded activities such as hydropower or pollution prevention and control facilities need a more careful assessment. For example, PBOC’s 2015 Catalogue allows three sub-categories with coal-related activities under *pollution prevention and control*. This includes efficiency-related improvements for coal-fired power generation (CPI, 2020a). Such investments are more likely detrimental to climate goals and do not foster transformative change. Between 2016 and April 2019, *pollution prevention and control* activities accounted for a quarter of proceeds, possibly undermining China’s transformation to a low carbon economy (Figure 3). Further, around a third of raised capital through China’s green bond market was not clearly labelled, mainly due to green bonds issued by financial intermediaries, that incorporate funds not yet allocated to specific end-uses (CPI, 2020a).

FIGURE 3

## Use of proceeds in the Chinese green bond market between 2016 and April 2019



Source: (CPI, 2020a).

Despite technical assistance to share international expertise and best practice, the Climate Bond Initiative reported that 38% of total issuance volumes in 2017 did not meet their standards (CBI, 2018a). The share of non-aligned capital was mainly due to “clean coal” investments and use-of-proceeds not yet allocated to specific projects (CBI, 2019, 2020b; CPI, 2020a). Efforts to harmonise Chinese definitions of green activities with international standards (see Chapter 2 for more information on China’s regulatory framework), led to a drop of non-aligned capital raised to 26% in 2018, and 25% in 2019 (CBI, 2019, 2020b). However, non-aligned capital raised increased in absolute terms, as China’s green bond market continues to grow.

## Supporting research and empirical evidence

Providers of technical assistance also provided support to research and empirical evidence in China’s green bond market (Interview 1, 2021). Notably, the Climate Policy Initiative and the Climate Bond Initiative have released several reports on China’s green bond market, partly in cooperation with Chinese organisations. Such evidence is important for informed decision-making and can increase confidence. However, many economists and finance experts still lack knowledge on green bonds (Interview 2, 2021).

Technical assistance activities supporting research and empirical evidence help to overcome the barrier of a perceived trade-off between economic viability and green projects. This suggests **strategic change**.

## Prospects of China's green bond market

As the Chinese green bond market is still quite young, it is difficult to assess whether the change is **enduring** and **self-sustaining**. Providers of technical assistance do not expect the Chinese government to revert key green bond regulations in the future. This is due to high-level political buy-in and a strong interest from investors seeking green finance options in the Chinese market. China continues efforts to harmonise green bond guidelines internationally and has committed to decarbonising its economy in the long term, suggesting lasting political buy-in for the green bond market. The recent Green Bond Endorsed Project Catalogue 2020 draft jointly released by China's key green bond market regulators, will most likely come into force soon. Once in place, there is little room to "downgrade" the proposed guidelines as there is strong investor pressure from within China as well as from foreign investors to issue ambitious green bonds.



CHAPTER FIVE —————>

# Lessons learned



## Top-down commitments and bottom-up action is key for the rapid development of a green bond market

**Top-down commitments** at the highest political levels and the development of strategic visions ensure that strong signals guide the finance sector. Such commitments can also create incentives to overhaul existing business-models and develop and use green finance instruments, including green bonds. Aligning the strategic visions of banks, investors and companies with the goals of sustainable, low-carbon and resilient development by raising awareness and understanding amongst top executives can have a strong impact on the scale and speed of change of their respective organisations. Anchoring this vision with senior management, including through personal involvement in the transformation, enables stakeholders to act as first movers.

Driving **bottom-up action** is essential to implement this top-down vision. Change needs to be enabled bottom-up by raising awareness, and creating know-how and capacities across operational teams including underwriters or investment officers. These actors need to understand the added value of green bonds to implement transformative change in daily decision-making.

In China, top-down commitments led to the launch of the green bond market at an extraordinary speed, however bottom-up action is lagging behind and the full potential of green bonds is not fully seized.

## A holistic approach engaging all relevant stakeholders is needed for the implementation of a green bond market

Technical assistance should include support to all key stakeholders that build a green bond market to enable successful green bond issuances and market growth. Key stakeholders needed to build the green bond market include regulators to provide the needed policy framework, bond issuers such as banks or companies, underwriters that assess risks institutional investors such as insurance companies to buy green bonds, certifiers to ensure third-party certification of green bonds and avoid greenwashing.

## **Technical assistance should be dynamic and able to adapt to changing requirements**

Political buy-in and regulatory support, coupled with public environmental concerns, enabled a certain “willingness to change” amongst key financial stakeholders such as banks and (green bond) certifiers. Since first technical assistance activities started more than 15 years ago, technical assistance has gone through several phases. Technical assistance should adapt to the evolving barriers and needs in the process to establish a credible and functioning green bond market.

## **Sharing international best practice can be useful to drive change**

In-depth expertise of green bonds and the Chinese finance sector in the technical assistance team and the collaboration with issuers and certifiers from other countries was key for successful technical assistance. Providers of technical assistance deployed experts and collaborated with leading international green bond partners, such as banks, certifiers or think tanks.

## **Technical assistance providers should ensure local presence**

As ownership by local stakeholders is important, providers of technical assistance need to invest time in building good relationships and acquiring trust. Dedicated on-site teams to provide technical assistance ensure close collaboration with local institutions, a good understanding of the domestic market and a tailored integration of international best practice expertise to develop local know-how.

## **Technical assistance can help to identify first movers and build their capacity**

First movers have a crucial role to play in the transformation of the finance sector as they lead by example. A useful entry point for technical assistance is the identification of a few leaders that have the potential to be first movers and spur transformative change. Two examples of first movers that fully transitioned to green finance are the Industrial and Commercial Bank of China (ICBC), one of the 21 largest Chinese banks, and the Ma'anshan Rural Commercial Bank, a smaller Chinese bank that received technical assistance to green its financial products (Maanshan Rural Commercial Bank, 2019; CPI, 2020b). These banks have issued certified green bonds compliant with stringent definitions of green projects.



## **Technical assistance can support transformative change, however it cannot create it**

Technical assistance to green China's finance sector started well before the creation of the green bond market. Many efforts were required to raise awareness amongst key regulators and ministries to create the required political buy-in. Technical assistance helped to build the required consensus to reform (parts of) the finance sector; however local actors were the agents of change. Once political buy-in was in place for the green bond market, the green bond policy framework was implemented quickly (Interview 1, 2021).

# References

---

- ASIFMA (2019) *China's Capital Markets The Pace of Change Accelerates*. Available at: <https://www.asifma.org/wp-content/uploads/2019/06/final-english-china-capital-markets-report-2019.pdf> (Accessed: 18 February 2021).
- Asset Management Association of China (2020) *Homepage*. Available at: <http://www.afca-asia.org/Portal.do?method=memberDetailView&returnChannelID=29&resourceID=5> (Accessed: 30 March 2021).
- Bloomberg (2021) *China Signals Easing Deleveraging Stance on Big State Firms*. Available at: <https://www.bloomberg.com/news/articles/2021-01-19/china-says-state-firms-to-shift-from-deleveraging-to-stable-debt> (Accessed: 19 February 2021).
- CBI (2018a) *China Green Bond Market Annual Report 2017*. Climate Bonds Initiative (CBI). Available at: <https://www.climatebonds.net/2018/02/china-green-bond-market-annual-report-2017-issuance-record-usd371bn-jointly-published-cbi> (Accessed: 26 February 2021).
- CBI (2018b) *Chinese regulators introduce supervisory scheme for green bond verifiers - Further step in building market frameworks*. Climate Bonds Initiative (CBI). Available at: <https://www.climatebonds.net/2018/01/chinese-regulators-introduce-supervisory-scheme-green-bond-verifiers-further-step-building> (Accessed: 24 February 2021).
- CBI (2019) *China Green Bond Market 2018*. Climate Bonds Initiative (CBI). Available at: <https://www.climatebonds.net/resources/reports/china-green-bond-market-2018> (Accessed: 26 February 2021).
- CBI (2020a) *China's Green Bond Issuance and Investment Opportunity Report Climate Bonds Initiative China's Green Bond Issuance and Investment Opportunity Report*. Climate Bonds Initiative (CBI). Available at: [https://www.climatebonds.net/files/reports/cbi\\_gfo\\_china\\_05b.pdf](https://www.climatebonds.net/files/reports/cbi_gfo_china_05b.pdf) (Accessed: 18 February 2021).
- CBI (2020b) *China Green Bond Market - 2019 Research Report*. Available at: <https://www.climatebonds.net/resources/reports/china-green-bond-market-2019-research-report> (Accessed: 26 February 2021).
- CBI (2020c) *Green Bond Market Summary Q3 2020*. Climate Bonds Initiative (CBI). Available at: <https://www.climatebonds.net/resources/reports/green-bonds-market-summary-q3-2020> (Accessed: 24 February 2021).
- CBI (2021) *Ma Anshan Rural Commercial Bank*. Available at: <https://www.climatebonds.net/certification/maanshan-rural-commercial-bank> (Accessed: 30 March 2021).
- Climate Action Tracker (2021) *CAT comment on China's 14th Five Year Plan*. Available at: <https://climateactiontracker.org/press/cat-comment-on-chinas-14th-five-year-plan/> (Accessed: 31 March 2021).
- CPI (2020a) *China Green Bonds: the state and effectiveness of the market*. Available at: <https://www.climatepolicyinitiative.org/china-green-bonds-the-state-and-effectiveness-of-the-market/> (Accessed: 18 February 2021).

- CPI (2020b) *Green Banking in China-Emerging Trends With a spotlight on the Industrial and Commercial Bank of China (ICBC)*. Climate Policy Initiative (CPI). Available at: <https://www.climatepolicyinitiative.org/wp-content/uploads/2020/08/081220Green-Bankin-trends.pdf> (Accessed: 18 February 2021).
- CPI (2021) *The Potential for Scaling Climate Finance in China*. Climate Policy Initiative (CPI). Available at: [www.climatepolicyinitiative.org](http://www.climatepolicyinitiative.org).
- European Commission (2016) 'Study on the potential of green bond finance for resource-efficient investments'. doi: 10.2779/234777.
- Harper Ho, V. E. (2018) 'Sustainable Finance & China's Green Credit Reforms: A Test Case for Bank Monitoring of Environmental Risk', *SSRN Electronic Journal*, 609. doi: 10.2139/ssrn.3124304.
- IEA (2020) *Global CO2 emissions in 2019*. Paris, France: International Energy Agency. Available at: <https://www.iea.org/articles/global-co2-emissions-in-2019> (Accessed: 17 June 2020).
- IEG-World Bank (2010) *Assessing the Impact of IFC's China Utility-based Energy Efficiency Finance Program*. Washington. doi: 10.1596/978-0-8213-8450-3.
- IFC (2021) *Sustainable Banking Network*. International Finance Corporation (IFC). Available at: [https://www.ifc.org/wps/wcm/connect/topics\\_ext\\_content/ifc\\_external\\_corporate\\_site/sustainability-at-ifc/company-resources/sustainable-finance/sbn](https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/company-resources/sustainable-finance/sbn) (Accessed: 18 February 2021).
- Interview 1 (2021) *Interview with provider of technical assistance to the Chinese financial sector by author* (04 February 2021)
- Interview 2 (2021) *Interview with provider of technical assistance to the Chinese financial sector by author* (08 February 2021)
- Jun, M. et al. (2019) *Decarbonizing the Belt and Road - A Green Finance Roadmap*. Available at: <https://www.vivideconomics.com/wp-content/uploads/2019/09/Decarbonizing-the-Belt-and-Road--Final-Report-English.pdf>.
- KPMG (2020) *Mainland China and Hong Kong 2020 review: IPOs and other market trends*. Available at: <https://assets.kpmg/content/dam/kpmg/cn/pdf/en/2020/12/china-hk-ipo-2020-review-and-outlook-for-2021.pdf> (Accessed: 18 February 2021).
- Lin, C., Yunhan, C. and Yue, W. U. (2021) 'Green Finance in China: Overview, Experience and Outlook'. Available at: <http://eng.pbcscf.tsinghua.edu.cn/upload/default/20210120/a9d979c5405c2e5b461afa03f7925b36.pdf> (Accessed: 18 February 2021).
- Löffler, K. U., Petreski, A. and Stephan, A. (2021) 'Drivers of green bond issuance and new evidence on the "greenium"', *Eurasian Economic Review*, 11(1), pp. 1–24. doi: 10.1007/s40822-020-00165-y.
- Maanshan Rural Commercial Bank (2019) 'Maanshan Rural Commercial Bank Green Transformation Annual Report'.
- PBoC (2015) *The People's Bank of China Announcement No.39*. The People's Bank of China.
- People's Republic of China (2016) *Enhanced actions on climate change: China's intended nationally determined contributions*. Beijing, China. Available at: [https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/China First/China's First NDC Submission.pdf](https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/China%20First/China's%20First%20NDC%20Submission.pdf) (Accessed: 13 March 2017).
- Pike, L. (2020) *China's climate change commitment to become carbon neutral by 2060, explained - Vox, Vox*. Available at: <https://www.vox.com/21455941/china-climate-change-carbon-neutrality-net-zero-solar-electric-vehicles>.

- UNEP Finance Initiative (2016) *UNEP FI Annual Overview 2016*. Available at: <https://www.unepfi.org/wordpress/wp-content/uploads/2017/05/UNEPFI-2016-ANNUAL-OVERVIEW.pdf> (Accessed: 18 February 2021).
- UNFCCC (2015) *Paris Agreement*. Paris: United Nations Framework Convention on Climate Change. Available at: [https://unfccc.int/sites/default/files/english\\_paris\\_agreement.pdf](https://unfccc.int/sites/default/files/english_paris_agreement.pdf).
- Vivid Economics (2020) *Transformative Climate Finance: A framework to enhance international climate finance flows for transformative climate action*. London: Vivid Economics. doi: 10.21475/ajcs.20.14.06.
- World Bank (2021) *International Debt Statistics 2021*. World Bank Group. Available at: <https://datatopics.worldbank.org/debt/ids/> (Accessed: 28 February 2021).
- Zhang, H. (2020) *Regulating Green Bonds In The People's Republic Of China: Definitional Divergence And Implications For Policy Making*. Asian Development Bank Institute. Available at: <https://www.adb.org/publications/regulating-green->.

