CHINA SUSTAINABLE DEBT

STATE OF THE MARKET REPORT

2023

Climate Bonds INITIATIVE

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1. Report summary

This is the eighth iteration of the Climate Bonds China Sustainable Debt State of the Market Report, describing the shape and the size of the green, social, and sustainable (GSS) markets, plus sustainability-linked bonds (SLBs), collectively known as the GSS+ market. While earlier versions of this report covered just the green bond market, the expansion to cover the broader GSS+ market reflects a trend of utilising Chinese capital markets to finance environmental and social measures and projects. This report is co-produced by the Climate Bonds Initiative (Climate Bonds) CIB Economic Research and Consulting Co., Ltd. (CIB Research), with support from the **Standard Chartered Bank**.

In 2023, China's sustainable bond market made significant progress in policy guidance, standard setting, and regulatory measures, with market rules further integrated and supervision clearer. In terms of green bond issuance, as of the end of 2023, China has issued a total of USD616.2bn (approximately CNY4.46tn) of labelled green bonds in domestic and overseas markets, of which nearly USD372bn (approximately CNY2.7tn) meets the Climate Bonds' green definition. In 2023, China issued USD131.3bn (approximately CNY0.94tn) of labelled green bonds in domestic and overseas markets, of which the issuance volume that meets the Climate Bonds green definition is USD83.5bn (approximately CNY0.6tn). While the issuance volume has slightly narrowed, China has maintained its position as the world's largest green bond issuance market for the second consecutive year and has further integrated with the international market. At the same time, social and sustainability bond issuance also rebounded, demonstrating growing demand and recognition for these bonds.

At the policy level, the Chinese government has introduced a series of measures to support the development of the sustainable bond market. For example, the release of the guidelines for green bond disclosure (2023) has improved market transparency and credibility. The Shanghai and Shenzhen exchanges have issued sustainable information disclosure rules for listed companies based on the International Sustainability Standards Board (ISSB) standards framework, further promoting the standardisation of information disclosure. In addition, local governments have also begun to introduce transition financial policy guidelines and catalogues to provide financing support for the low-carbon transition of traditional industries. In terms of market practice, in 2023 Chinese issuers issued sustainability-linked bonds (SLBs) linked to broader goals, including those related to water resources and waste reduction. China's sustainable bond market has demonstrated maturity and resilience in 2023 and is expected to continue to play a key role in global markets in the future. Policy incentives and positive responses from market participants will be important factors in promoting further market development. Greater transparency regarding information disclosure and improved financial instruments for transformation will also be important.

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Chinese GSS+ aligned issuance scorecard (2014-23, USDbn)

	Green	Social	Sustainability	SLB
<2019	107.54	0.62	1.00	
2020	23.75	79.00	0.90	
2021	70.57	0.27	7.58	
2022	86.58	0.34	3.35	0.13
2023	83.51	0.54	3.02	
Grand Total	**371.95**	**80.77**	**15.85**	**0.13**

About the Climate Bonds Initiative

The Climate Bonds Initiative (Climate Bonds) is an international organisation working to mobilise global capital for climate action. It promotes investment in projects and assets needed for a rapid transition to a low-carbon, climate-resilient, and fair economy. The mission focus is to help drive down the cost of capital for large-scale climate and infrastructure projects and to support governments seeking increased capital markets investment to meet climate and GHG emission reduction goals. Climate Bonds conducts market analysis and policy research; undertakes market development activities; advises governments and regulators; and administers a global green bond Standard and Certification scheme.

About CIB Research

CIB Economic Research and Consulting Co., Ltd (CIB Research) is a member institution of the Industrial Bank. It is the first legally independent research company of the banking system in China. It operates in accordance with market-oriented mechanisms and lays out three research blocks around strategy, market, and industry, focusing on the macro market, green finance, financial industry, currencies and commodities, fixed income, and various industrial sectors. It aims to serve the high-quality development of China's economy as its mission and is guided by the five development concepts of innovation, coordination, greenness, openness and sharing. It is committed to integrating professional research into financial practice, contributing to China's economic transformation.

Climate Bonds' vision and mission is to mobilise capital towards efforts for climate action. Global warming induced climate change poses an existential threat to humanity. According to the United Nations, for the 1.5°C Paris target to be met, global greenhouse gas (GHG) emissions need to be reduced by 40% by 2030 relative to 1990 levels, before continuing to reach net zero by 2050. Ambitions of such urgency require efforts including further technological research and development (R&D), subsequent logistical support, as well as substantial upscaling in deployment of climate change mitigating elements such as low-carbon energy technologies and related infrastructures to be conducted on a global scale. Sufficient financial support is the precondition to making such efforts possible.

The following analysis is based on the Climate Bonds Databases as of 20 January 2024, unless otherwise specified. Historical data used in this report will differ slightly from previous iterations of this report, as Climate Bonds records more deals after their issuance date or after the cut-off date for the research in this report.

Note 1: Historically, Climate Bonds recorded but did not screen bonds bearing the transition label. As of January 2024, Climate Bonds stopped reporting transition bonds as a separate category but regards them as a sub-set of the green label. Climate Bonds now adds such bonds to the Climate Bonds green bond database, and screens them against its Green Bond Database Methodology.

Note 2: Historically, Climate Bonds reported both aligned and not-aligned SLBs. As of January 2024, Climate Bonds is pivoting towards reporting only aligned SLB volumes. The above scorecard refers to aligned SLB issuance volumes only, but analysis below separately refers to both 'aligned' and 'not-aligned' deals.

Note 3: Sometimes, a bond can bear two thematic labels, e.g., green and SLB, social and SLB etc. If the bond is aligned with one methodology, it will be added to the corresponding database. If the bond is aligned with multiple methodologies, the aligned bond will be added to all relevant databases. To avoid double-counting in the reporting of the labelled debt market, Climate Bonds exercises the following hierarchy of categorisation: SLB, green, and S&S. Data in this and other Climate Bonds reports references data to which this methodology has been applied.

Green bonds captured by Climate Bonds

Bonds meeting the requirements outlined in Climate Bonds screening methodologies qualify for inclusion in the databases and are classified as **aligned**.

Labelled bonds for which there is not enough information to determine eligibility for database inclusion are classified as **pending** until sufficient disclosure is available to decide.

Bonds failing to meet the requirements of the Climate Bonds screening methodologies are classified as **non-aligned** and are excluded from the databases.

Green bond volumes (USD)	Aligned	Pending	Non-aligned
Cumulative as of 31/12/2023	372.0bn	0.8bn	243.4bn
2023	83.5bn	0.05bn	47.7bn

GSS+ market snapshot

China's high-level strategic objectives have underpinned the proliferation of labelled themes in the bond market. Labelled themes attached to green, transition, social and sustainability reflect the overarching long-term strategic agenda in China's economic and social development. China views tackling climate change as an important angle for high-quality economic development, high-level environmental protection, and construction of ecological civilisation. The commitment to reaching carbon peaking by 2030 and carbon neutrality before 2060 propelled the growth of China's green bond market previously and its continued development into 2023. Meanwhile, the government's ambition for more balanced economic and social development, articulated in the common prosperity policy and rural revitalisation strategy, contributed to the proliferation of poverty alleviation and rural revitalisation-related bonds under the social theme.

While the volume of green bonds originating from China shrank slightly (-3.5%) in 2023 compared with 2022, China remains the largest source of aligned volumes for the second year running. The quality and credibility of such issuance has also increased, with the proportion of deals included vs. excluded in the Climate Bonds green bond database (GBDB) increasing from 57.3% to 63.6%. Returning issuers dominated the **onshore green bond market** (83.6%), with a record share using Second Party Opinions (66.4%) to demonstrate their credibility to investors. **Offshore green issuance** continued to play a key supporting role in China's green debt market, with most listings denominated in USD (64.2%), and listed on the Hong Kong Exchange (43.2%).

Chinese social and sustainability bond issuance and deal count both rebounded in 2023, up 19.6% and 126.5% respectively vs. 2022. Affordable infrastructure drove issuance volumes but alignment proportions in the Climate Bonds Social and Sustainability Bond Database (SSBDB) are still challenged by lack of market transparency, and much still includes financing for general working capital.

Chinese sustainability-linked bond deal count increased (8.2%) while volumes decreased (-29.1%) in 2023. China, as in the green bond market, remains the global leader on issuance count; a position maintained since 2021. However, just three issuers so far have utilised GHG reduction targets in SLB issuance, which is a pre-requisite for alignment with the Climate Bonds sustainability-linked bond database (SLBDB).

Acronyms:

GBDB: Green bond database
GBP: ICMA's Green Bond Principles
GHG: Greenhouse gas
GSS: Green, social and sustainability
GSS+: GSS and SLB bonds
KPI: Key Performance Indicator
S&S: Social and sustainability
SSBDB: Social and sustainability bond database
SLB: Sustainability-linked bond
SLBDB: Sustainability-linked bond database
SPO: Second party opinion
SPT: Sustainability Performance Target
UoP: Use of proceeds
YOY: Year-on-year

2. Green

Overview

Green bonds are debt instruments used to finance projects that have positive environmental or climate change benefits. Most of the green bonds or funds issued have green purposes or are linked to green assets, the proceeds or equivalent of which will be used to finance/re-finance eligible green projects. Internationally accepted green bond standards include the International Capital Markets Association Green Bond Principles (ICMA GBP) and the Climate Bonds Standard (CBS).

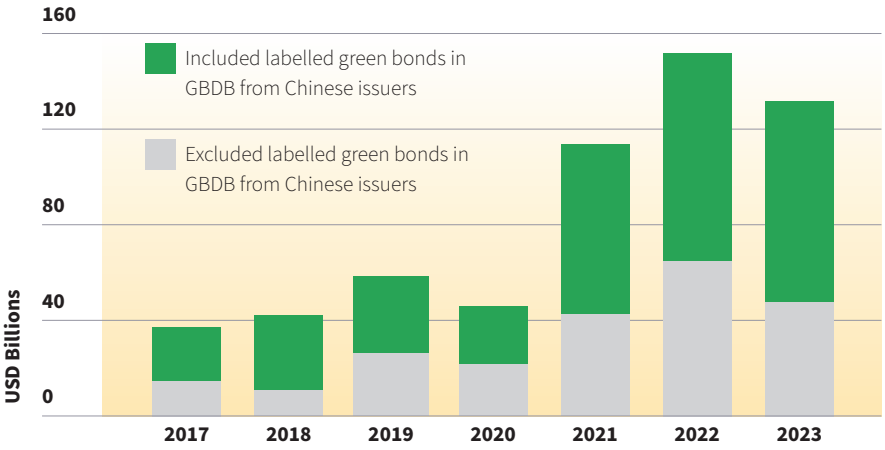
China's green bond market

Following the issuance of over USD151bn (CNY1tn) worth of onshore and offshore labelled green bonds in 2022, **Chinese issuers priced labelled green bonds valuing USD131.3bn (CNY0.94tn) in total** for both onshore and offshore deals in 2023, representing a YOY decline of -12.6%. While this is likely a result of general macroeconomic factors such as slowed economic growth and rising interest rates, China maintained its position as the largest source of green bonds.

In 2023, there was a notable proportional increase in inclusions, resulting in a higher inclusion rate of 63.6%, compared to 57.3% from 2022, after the strengthening of the GBDB methodology. This indicates that Chinese issuers are quick to adapt to guidance and regulation from supervisory bodies, and actively update practices to adhere to the newest relevant standards.

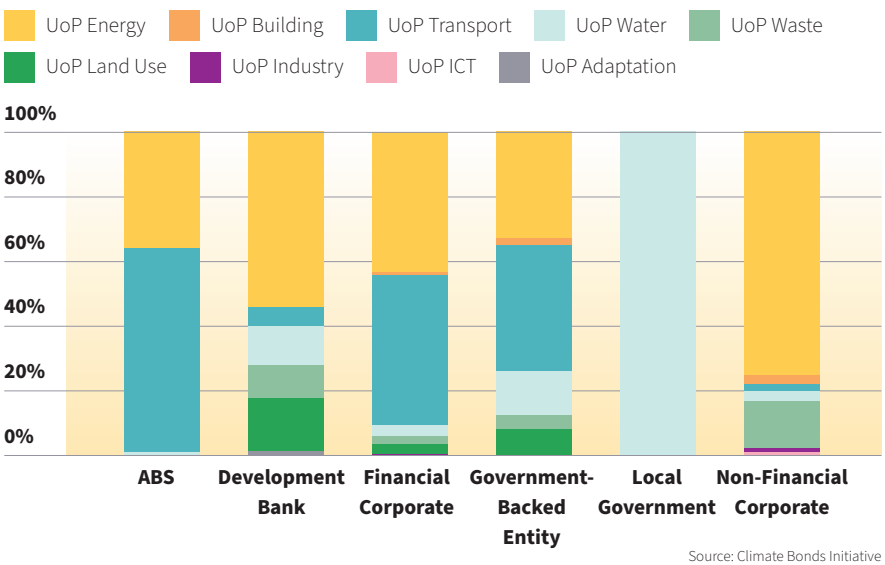
Green debts with Use of Proceeds (UoP) financing energy and transport projects dominate the volume of debts that are aligned with Climate Bonds' green bond database methodology in the year 2023. Nearly USD13bn of asset-backed securities (ABS) were securitised by transport projects including public transit systems and electric vehicles. Climate Bonds included one bond from **Guangdong Provincial Government** for CNY1bn (USD136.9m), making it the only local government deal included with UoP earmarked for water management projects. Energy is a dominant category in green capital mobilisation efforts from both development banks and non-financial corporate issuers, accounting for 54% and 65% of the UoP, respectively.

While green issuance volumes shrank slightly, deal quality improved



Source: Climate Bonds Initiative

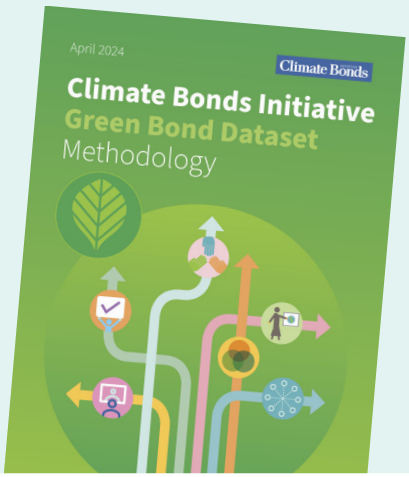
Energy and Transport dominate use of proceeds



Source: Climate Bonds Initiative

Climate Bonds green bond database and green bond indices

Various index providers have created green bond indices based on inclusion in the Climate Bonds GBDB. Examples include the J.P. Morgan ESG (JESG) indices, Solactive Green Bond indices, FTSE Chinese (Onshore CNY) Green Bond Index, and the Ping An Asset Management China Green Bond fund.[1,2,3,4] Inclusion in the GBDB indicates the securities' general alignment with the Climate Bonds Taxonomy, an internationally recognised standard for green projects, activities, and expenditures. By doing so, it ensures that all bonds are assessed on the same basis.



Market analysis

China maintained its lead as the largest source of green bonds in 2023 for the second consecutive year, recording aligned volumes of USD83.5bn from onshore and offshore issuance. Meanwhile, Germany moved to second place with USD67.5bn, and the UK rose from seventh to fourth with USD32.6bn of green debt issued.

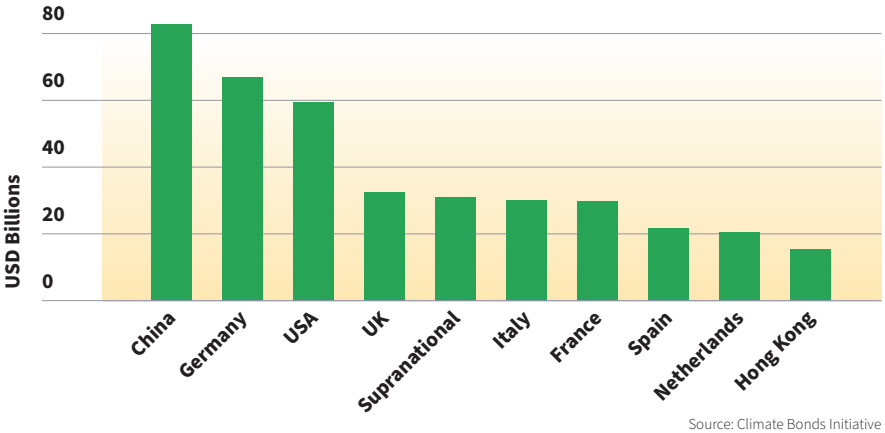
Among the top ten issuance jurisdictions, China, the USA, the Netherlands, and supranational issuers were among the key markets where volumes shrank. China's decline in volume can largely be explained by macroeconomic headwinds and turbulence in debt markets, and as such the issuance count shrank in China from 790 deals in 2022 to 697 in 2023. Slowing American issuance is explained by a rising interest rate environment and political controversies over climate policies in finance.[5] Hong Kong SAR was the market with the largest increase, entering the top ten leaderboard for the first time, and growing by 173.3% YOY.

Despite recent anti-ESG legislation and controversy, the USA remains the largest cumulative issuer of green bonds, with approximately USD454.4bn of self-labelled green debt issued to date. China maintained its position as the second largest source of cumulative volume, with USD372bn of debt issued to date.

Chinese issuers continue to prefer shorter term debt with the majority (64.4%) of aligned debt maturing before 2027. Overall, 93.8% of aligned green debt has a maturity of five years or less.

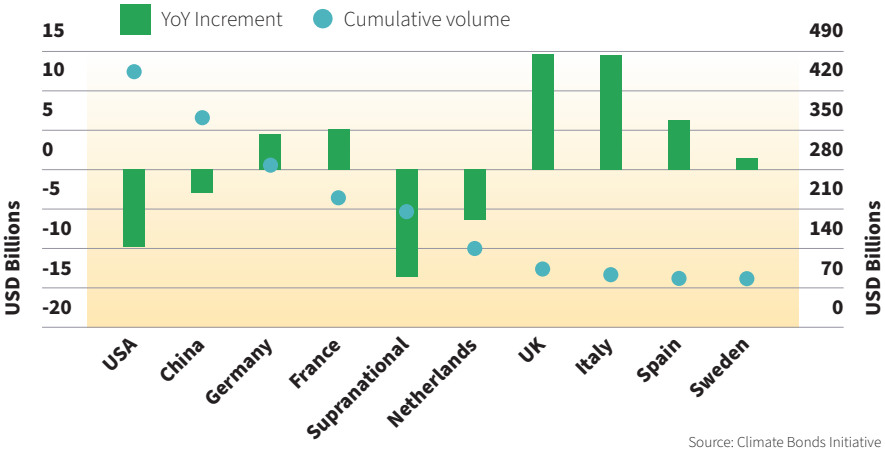
Second party opinions (SPOs) continued to gain prominence in the Chinese green bond market, with the proportion of deals with an SPO disclosed by the issuer increasing to a historical record of 66.4% (by issuance volume, 55% by deal count). This proportion is much higher for bonds included in the GBDB, reaching a record three quarters (75.5%) in 2023, indicating that Chinese issuers are increasingly keen to demonstrate their deal credibility to investors through methods such as SPOs. However, the share of excluded issuance with SPOs soared in 2023 to just under half of all deals (44.6%).

China was the largest source of green debt for the second consecutive year, HKSAR debuts in top 10



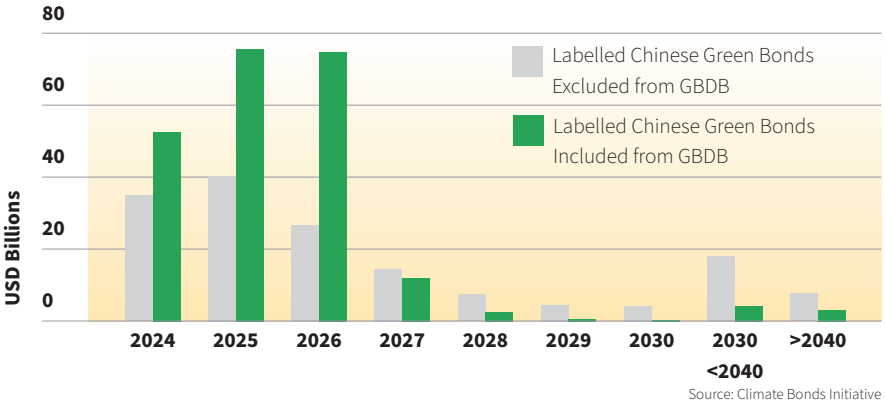
Source: Climate Bonds Initiative

China maintains second place for cumulative green bond volume



Source: Climate Bonds Initiative

Chinese issuers prefer short-dated paper



Source: Climate Bonds Initiative

Two thirds of green bonds now come to market with SPOs

Source: Climate Bonds Initiative

Transition bonds and updates to Climate Bonds' screening methodology

Historically, Climate Bonds recorded but did not screen bonds bearing the transition label. As of January 2024, Climate Bonds stopped reporting transition bonds as a separate category but regards them as a sub-set of the green label. Climate Bonds now adds such bonds to the Climate Bonds green bond database, and screens them against its GBDB methodology. For more information on this and other methodological updates, please refer to Appendix A.

While transition bonds were originally specifically intended for issuance by hard-to-abate sectors like cement, steel, mining, and others, Climate Bonds has expanded its' Taxonomy to define green assets, activities, and measures for these hard-to-abate sectors. Accordingly, the Climate Bonds GBDB methodology was expanded to reflect the new coverage of the steel, cement, and basic chemical sectors.

Since then, some governments and regulators inside and outside China have launched dedicated transition finance programmes, engaging with hard-to-abate issuers, and utilising a combination of sovereign and corporate bond issuance to raise financing for their transition. One notable example of this is in Japan, where corporates and the national government alike have used the transition label for this purpose.

In February 2024, Climate Bonds announced that the JPY1.6tn (USD11bn) Japanese sovereign 'Climate Transition' bond is certified under the Climate Bonds Standard, and thus is also included in the Climate Bonds GBDB.

Regardless of the label used, or the issuer's sector classification, as long as the instruments are labelled 'green' or 'transition' and meet the UoP requirements of the Climate Bonds GBDB methodology, they are eligible for inclusion.

In 2023, Climate Bonds recorded 19 transition labelled deals worth USD3.3bn globally, of which 3 deals worth USD560m were issued in China. This brings the cumulative global total to 83 deals worth USD15.2bn.

Onshore

Climate Bonds included onshore green bond volumes of USD73.4bn (CNY531bn) in 2023, a YOY increase of 2.6%. The volume for UoP earmarked for Energy remained similar to the previous year with a decrease of less than USD1bn; UoP for Transport experienced significant growth with an increase by over a third compared to 2022. Together, energy and transport-related financing accounted for a significant 84% of total onshore green UoP for 2023, over 10% more than 2022.

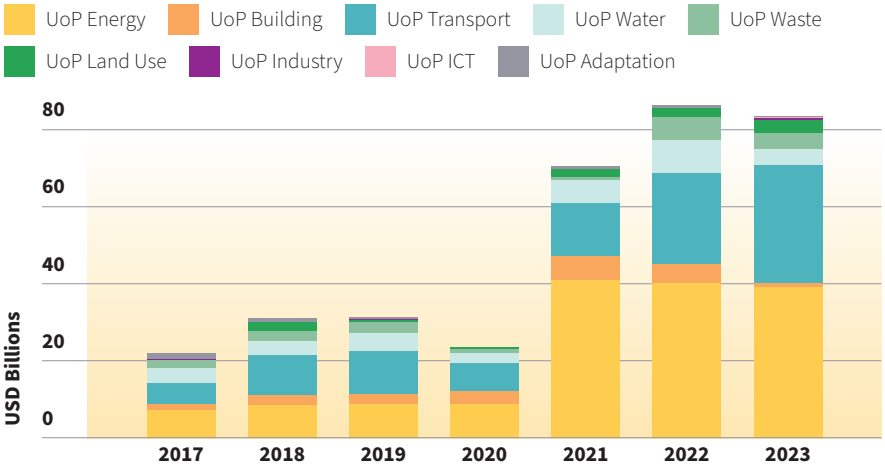
This is attributable to China's fourteenth five-year plan announced in 2020 to rapidly transform the country's energy sector into one increasingly dominated by low-carbon solutions and further cultivating electric vehicle (EV) development (further details on energy in the spotlight). Of the USD73.4bn in aligned onshore green bonds, Energy UoP formed almost half the recorded volume this year.

The largest aligned deals recorded with UoP exclusively for both Renewable Energy and Low-Carbon Transport originated from the **Shanghai Pudong Development Bank**, **Bank of China**, and the **Industrial & Commercial Bank of China**. These top three deals financing wind, solar, energy storage, as well as low-carbon public transport infrastructure projects are valued at USD4.4bn, USD4.3bn, and USD4.2bn, respectively. Meanwhile, the automobile corporate **BYD Auto Finance Co.** issued two of 2023's largest onshore green ABS deals with 100% UoP designated for EV development, totalling USD2.2bn.

Inclusion for UoP destined for Buildings fell substantially for the second consecutive year from USD4.82bn from 2022 down to less than USD1bn this year. Strengthened Climate Bonds GBDB criteria for eligible green building projects resulted **in the 2 Star China Green Building Label no longer being considered sufficiently ambitious, instead a 3 Star rating is now required.** Some 23 deals worth USD4.79bn were excluded because of this update.

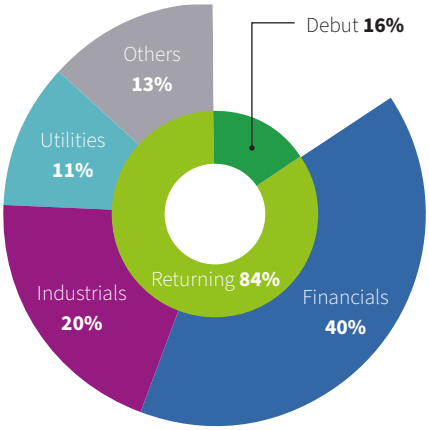
Repeat issuers dominate 2023's green bond market and account for near 84% of included volumes, a spike of almost 40% YOY, while debut issuers account for just over 16%. Debut issuers have either not previously issued green bonds or have green-labelled bonds that are determined by Climate Bonds to be eligible for inclusion within its GBDB for the first time. Examples of debut issuers this year include **Fujian Jinjiang Rural Commercial Bank Co., Ltd** from the financial corporate sector with one deal financing solar energy and water treatment facilities; **China Green Electricity Investment of Tianjin Co., Ltd** with one deal financing wind energy development; and **Changsha Metro Group Co.**, with four deals earmarked for low-carbon transport infrastructure.

Energy and Transport received the largest share of UoP



Source: Climate Bonds Initiative

Returning issuers dominate 2023 volume



Source: Climate Bonds Initiative

The domination of the green bond market by existing issuers suggests macroeconomic uncertainties, slowing sectoral growth, and the gap between domestic and international interest rates, is deterring new and offshore issuance. The loan prime rate (LPR) was lowered in 2023 and the green credit cost advantage of bank lending widened. Potential debut issuers may have chosen to finance in the loan market as a result. Over 70% of recorded volume this year from repeat issuers is from the financial, industrial, and utilities sectors, of which close to 40% is attributed to financials.

Beijing remains the leading region nationally for green bond issuance in 2023, with an inclusion volume of USD37.4bn, or a YOY increase of just over 10%. In Guangdong province, volume fell by 60% from USD10.5bn to USD4.2bn, the impact of which is diluted by impressive growth from the rest of the country. Shanghai, for example, experienced a 170% increase in green bond volume compared to 2022, contributing to an impressive overall end of year total volume nationally of over USD83.5bn, a YOY increase of over USD7.7bn.

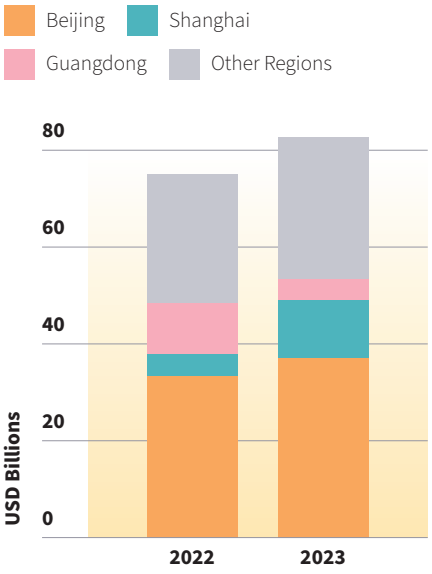
A large portion of green bonds come from state-owned enterprises (SOEs) each year and in 2023, provincial SOEs accounted for over USD42bn, a YOY increase of over 24%. Examples include **Suzhou Communications Investment Co., Ltd** and **Beijing Jingneng Clean Energy Co., Ltd**, which are categorised as Provincial SOEs under the WIND company nature classification. The contribution of non-SOEs declined by about 4% YOY.

Offshore currencies and use of proceeds

Climate Bonds included offshore Chinese green bond volumes worth USD10bn in 2023, accounting for 10.9% of the year's total recorded volume. Annual volume decreased by USD3bn compared to last year with most offshore deals denominated in USD; followed by offshore CNY; while the remaining 1% were EUR, AUD, and JPY.

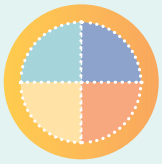
The Hong Kong Stock Exchange (HKEx) remained the largest venue for offshore Chinese green bonds at 43% of listings, followed by the Singapore Stock Exchange (SGX) at 11%. The third place formerly occupied by the German stock exchanges was taken this year by the Luxemburg Stock Exchange (LuxSE), accounting for 9% of listings. Of recorded offshore deals, 55.3% were deemed aligned in 2023.

Beijing leads in issuance, while Shanghai expands drastically



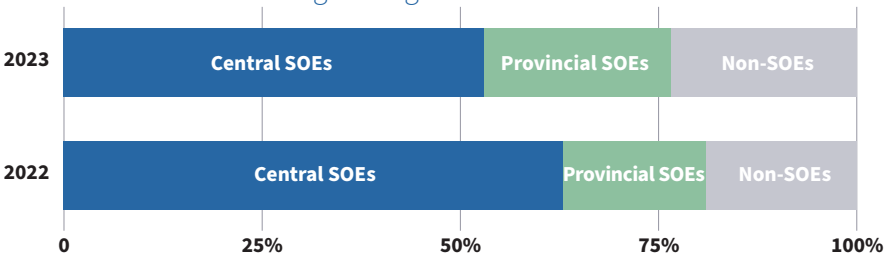
Source: Climate Bonds Initiative

Sectors and UoP categorisation



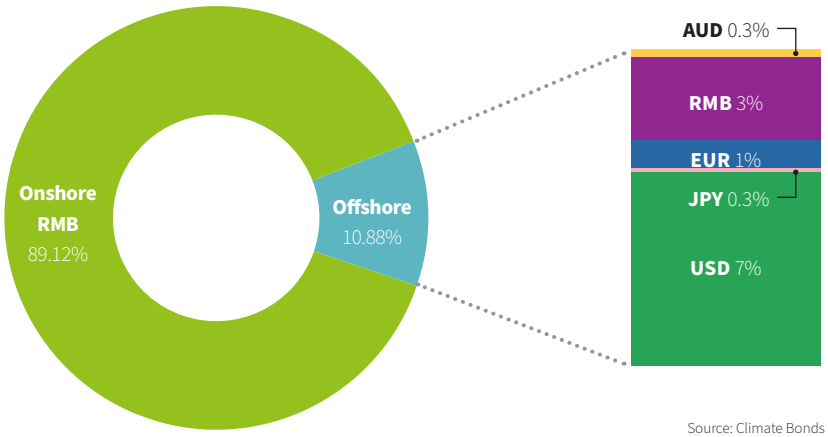
The Global Industry Classification Standard (GICS) and WIND Industry Classification are examples of sector classification standards which categorise every public company to a specific economic sector that best defines its industry. In contrast, the UoP category describes how the funds raised from the sale of the instrument will be deployed and taxonomies provided by organisations such as Climate Bonds, the EU, and China provide examples of UoP categorisations. Therefore, the sector of a bond issuer is independent of the UoP categories so that an entity such as a bank operating in the finance sector can issue green bonds with UoP earmarked for Energy and Transport.

Provincial SOEs mobilising more green bonds in 2023



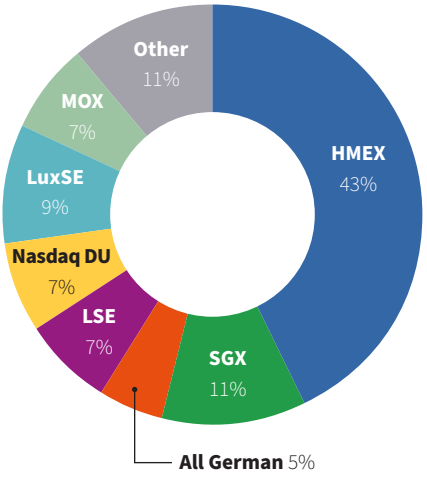
Source: Climate Bonds Initiative

Offshore volumes made up nearly 11% of total supply from Chinese issuers in 2023



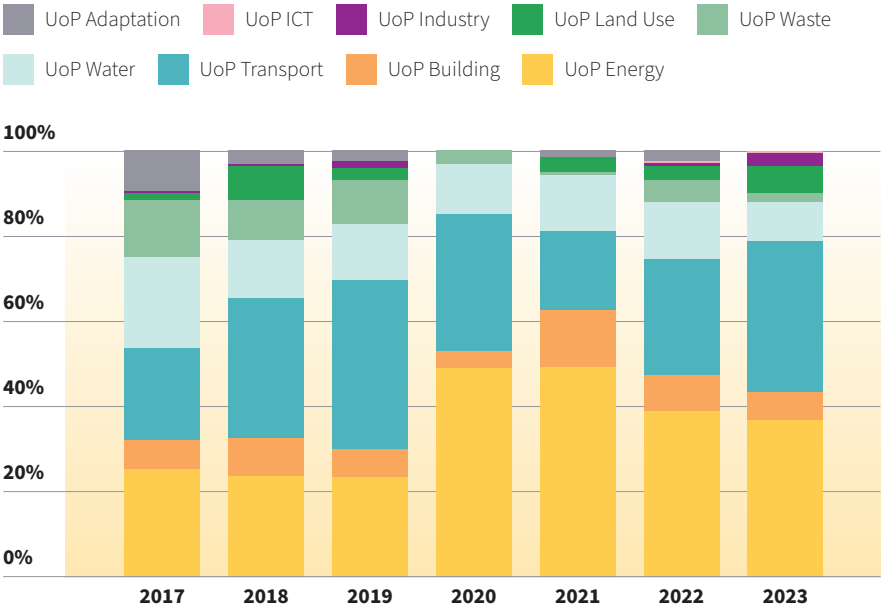
Source: Climate Bonds Initiative

HKEX is the preferred venue for offshore Chinese green bond listings in 2023



Source: Climate Bonds Initiative

Transport rivals energy for top offshore green UoP category



Source: Climate Bonds Initiative

Chinese offshore green bonds UoP

Almost three quarters (72%) of the UoP of offshore listings is earmarked for Energy and Transport, slightly less than the 80% recorded for onshore bonds.

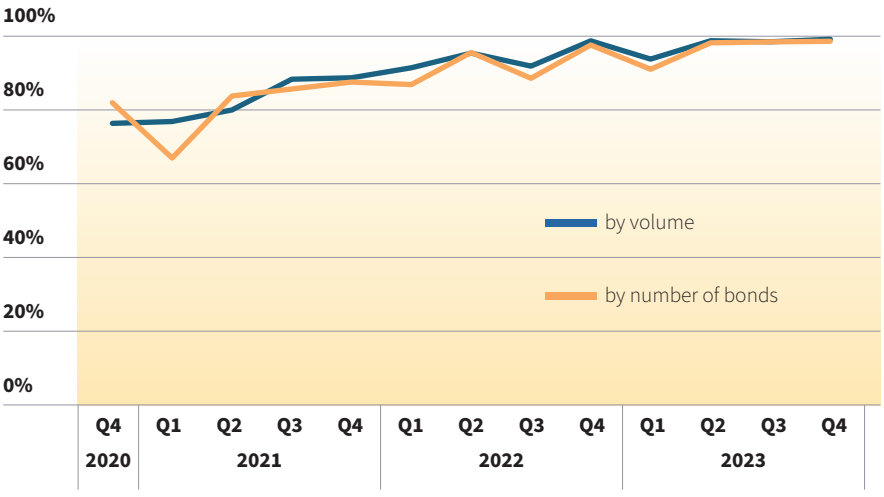
Macro trends

China's green bond market moving toward 100% use of proceeds alignment

The China Green Bond Principles (CGBP) were published in July 2022 by the Green Bond Standards Committee, designed to support ambitious green bonds in China and align the domestic green finance market with international standards.

Two key tenets of the updated CGBP were the adoption of the 100% UoP approach, and the harmonisation of the different green bond regulations. This has led to further standardisation in the Chinese green bond market, and greater recognition among international investors. Since CGBP's launch, the alignment rate of Chinese green bonds with the 100% UoP rule has improved materially, to over 98% in 2023. Climate Bonds hopes the Social and Sustainability Bonds Principles in China will add the 100% UoP rule, and have a similar impact (see more in the S&S section).

The CGBP has resulted in a larger number of green bonds with 100% dedicated UoP



Source: Climate Bonds Initiative

Continued adoption of the Common Ground Taxonomy

As a joint initiative of the **People's Bank of China** (PBOC) and the **European Commission**, the Common Ground Taxonomy (CGT) was an in-depth comparison exercise between the green classification systems (taxonomy/green bond catalogue) of China and the European Union (EU). It mapped out the commonalities and differences between the two taxonomies, creating an important piece of policy infrastructure.

Example use case of CGT in 2023

Issuer	Issuance Date	Funded projects
Postal Savings Bank of China Co.,Ltd.	March 2023	Low-carbon rail projects
Nanchang Railway Group Co.,Ltd	Jan 2023	Low-carbon rail projects (Metro construction)
CPI Ronghe Financial Leasing Co.,LTD	Feb 2023	Low-carbon energy (wind and solar projects)
Xinhua Hydropower Company Limited	June 2023	Low-carbon energy (wind and solar projects)

This has resulted in more use cases of the CGT being incorporated into onshore and offshore green products. Since the first mention by the **Construction Bank of China Macau Branch** in its December 2021 green bond, there have been 219 green bonds that meet the CGT standards, with combined volume of CNY297.4bn (USD41.9bn).[6] Among those, 59 deals worth CNY54.1bn (USD7.6bn) were priced in 2023.

Climate Bonds expects more market applications of the CGT as it is further integrated into policy measures. In July 2023, China Foreign Exchange Trade System (CFETS) begun publishing lists of certified CGT green bonds to support the growth of CGT-compliant issuance and secondary market financial product development.[7] In May 2023, the Hong Kong Monetary Authority launched a discussion paper, with Climate Bonds' support, proposing a green taxonomy, positioning itself as the first jurisdiction to incorporate the CGT.[8]

It is encouraging that all but one of the CGT-compliant green bonds issued in 2023 listed by CFEC are considered aligned in Climate Bonds' GBDB.[9] This demonstrates the credibility of the CGT, and its alignment with international standards.

Spotlight: energy

Energy policy from China's five-year plan accelerates renewable energy development

The fourteenth five-year plan (FYP) announced in 2020 has set ambitious targets for China's energy sector by 2025, whose consumption of fossil fuels is predicted to decrease or stagnate by 2025, indicating that fossil fuels' relevance in the country's energy system is set to diminish.[10] Projected demands are peaking at 3,200Mtce, and 450bcm by 2025 for coal and natural gas respectively, meaning that China's carbon emissions could begin to experience gradual annual reductions from 2025 onwards. This suggests that China is on track to meet its FYP target of peaking its carbon emissions by 2030.

This provides new opportunities for achieving key objectives regarding the expansion of low-carbon energy systems, including the upscaling of renewable energy technologies to occupy a quarter of the country's energy sector by 2025.

China installed near 50GW of solar capacity within the first four months of 2023, which was nearly as much as 2021's total solar capacity increase, contributing to an impressive total growth of 217GW in 2023.[11] China makes up between 80 to 95% of the global solar energy supply chain and has therefore been contributing to the decline in overall prices for solar photovoltaic (PV) systems. Globally, the spot prices for solar PV modules have effectively halved YOY in 2023, while the technology's manufacturing capacity has reached triple its 2021 level.[12]

Despite global high inflation, interest rate rises, and supply chain disruptions, the Chinese wind sector has demonstrated great resilience with a momentous capacity increase of 76GW.[13]

This is likely due to interest rates being comparatively lower within the Chinese domestic market than the rest of the world, resulting in reduced project capital expenditure (capex) due to the lower cost of domestic borrowing. Moreover, China's strong manufacturing sector is well supported by a domestically integrated supply chain that is less reliant on imports. The result is a high availability of locally based manufacturing and lower project expenses, making Chinese wind manufacturing more resilient amid ongoing global economic challenges.

China has a consistent track record of outperforming its climate targets for renewable capacity building, having installed 300%, 42%, and 66% more renewable energy capacity than initially targeted for the eleventh, twelfth, and thirteenth FYPs, respectively.[14]

Growth of such scale suggests that China is on path to meet its 2030 Nationally Determined Contribution (NDC) of establishing at least 1,200GW of solar and wind energy capacity.

Energy sector-related policies in China's fourteenth five-year plan

- **Upscaling renewables to occupy 25% of the energy sector by 2025.**
- **Mobilising 1,200GW of wind and solar capacity by 2030.**
- **Peaking carbon emission by 2030.**

New instrument: blue bonds

The blue bond label is being applied to sustainable finance instruments with increasing frequency. Blue bonds are screened for inclusion in the Climate Bonds GBDB or if the eligible project categories are environmental and social, Climate Bonds SSBDB.[16] Climate Bonds has recorded both green and sustainability bonds bearing the blue bond label. In 2023, Climate Bonds recorded eight blue bonds from Chinese issuers in the Climate Bonds GBDB, of which four were aligned, with a combined volume of USD6.3bn. Reasons for exclusion centred on insufficient disclosure of framework or relevant projects for assessment.

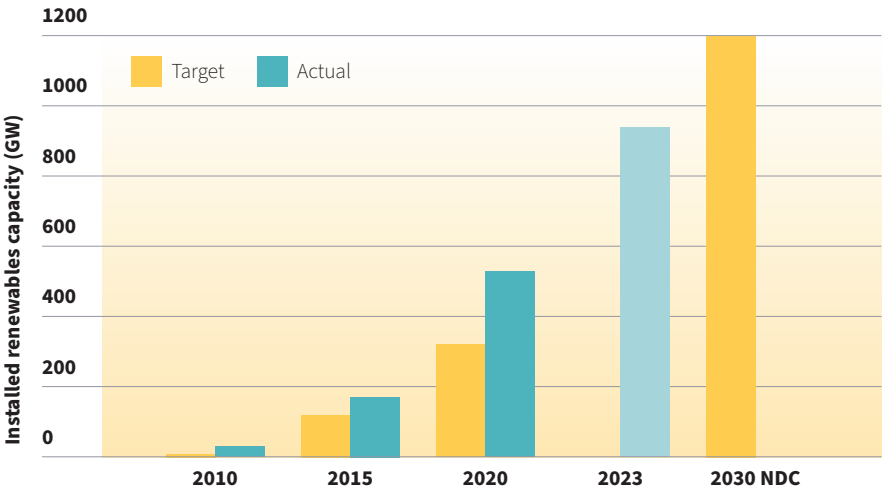
Blue bond best practice case study

China Merchant Bank issued a USD400m blue bond in June 2023 with a three-year maturity, which was aligned with the GBDB methodology.

Green UoP categories:

Issuer	Funded projects
Energy	**Renewable Energy**, including but not limited to offshore wind power projects, which promotes the development of marine renewable energy.
Water	**Sustainable Water and Wastewater Management**, including but not limited to wastewater treatment projects in coastal cities, which reduced the discharge of untreated wastewater to the seas and coastal areas

China is on track to exceed its renewable energy targets again in 2030



Source: Carbon Brief, IEA

Renewable energy expansion fuels green bond mobilisation

Unlike fossil fuel energy, which has a relatively low initial capex and higher long term operational costs (opex), renewable energy systems tend to have comparatively higher capex and lower opex.[15] Their more expensive initial capital investment highlights the opportunity to capitalise on the utility of green debt financing to help achieve climate targets. Furthermore, creating a well-established renewable energy system promotes expansion in other parts of the energy and industrial sectors to accommodate the transition towards a more renewables-dominated, low-carbon energy system. Implementation of a higher capacity, more flexible grid infrastructure; as well as upscaling energy storage to offset intermittencies, will help stimulate growth across the energy value chain in areas such as the mining of critical minerals and metals; battery/permanent magnet manufacturing; as well as encouraging EV infrastructure development.

In 2023, Climate Bonds recorded deals from issuers including **CGN Wind Energy Limited** with three green bonds plus one blue bond with a combined volume of CNY5bn (USD700m) with UoP earmarked for Solar, Energy Storage Infrastructure, and Offshore Wind. Climate Bonds also included green bonds financing hydropower projects eligible under its GBDB methodology from issuers including the **China Three Gorges Corporation**, with seven bonds totalling USD1.46bn designated exclusively for hydropower development; as well as green bonds from issuers financing wind and energy storage projects such as **CNNC Rich Energy Corporation Ltd**. One bond for USD96.6m with UoP exclusively earmarked for grid infrastructure expansion from **China Southern Power Grid Co. Ltd** was also recorded.

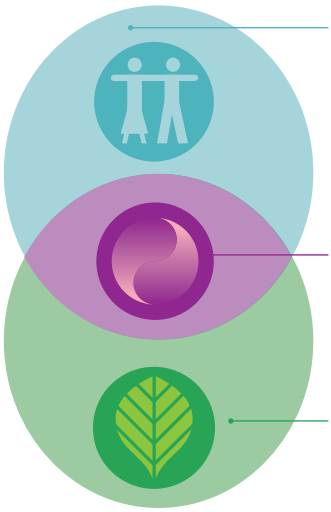
Green ABS volume reached USD10.2bn which is an impressive 45.5% YOY increase with a substantial 70.6% of the proceeds being exclusively earmarked for EV financing/leasing, adding to a cumulative total of USD33bn. Climate Bonds recorded the first green loan from **China Three Gorges Corporation** as well as a USD297m deal financing 411MW of overseas wind and solar installations in Egypt and Jordan.

2. Social and sustainability

While Climate Bonds traditionally focuses on climate-related investments and issues, climate change also exacerbates social inequalities with disadvantaged groups vulnerable to the physical and transition risks.

To ensure a global just transition to a low-carbon economy and fulfil the 17 United Nations Sustainable Development Goals (SDGs), a range of persistent inequalities need to be addressed. A rapid transition to a sustainable economy requires the support of all sectors of society and substantial financing, for which the capital markets can be mobilised through social or sustainability bonds.

Following the ICMA Social Bonds Principles, social bonds are those with UoP exclusively earmarked to finance or refinance eligible social projects.[17] Sustainability bonds refer to bonds with proceeds earmarked to support a combination of green and social project categories.



The **Social Bond** label includes bonds where proceeds have a focus on delivering positive social outcomes. The labels used to describe the bond may range from 'Pandemic' to 'Gender inclusion' but all are covered within the Social label.

The **Sustainability Bond** label covers bonds with proceeds directed to a mix of both green and social projects. Labels include Sustainable Development Goals, Sustainable and Responsible Investments etc,

The **Green bond** label describes bonds with proceeds dedicated to environmental and climate outcomes. Labels may include 'climate, green, etc'

Market analysis

The total issuance volume of social and sustainability (S&S) bonds originating from China rebounded in 2023 to USD13.7bn (CNY106.4bn) compared to a relative lull in 2022 (USD11.5bn). The deal count in 2023 also reached 154, exceeding the 2021 peak (124 deals). S&S volume peaked in 2021 as the labels were deployed to support the COVID-19 recovery, followed by a dip in 2022 as pandemic measures eased and higher interest rates caused an overall decrease in bond issuance. In 2023, volumes were driven by a combination of public and private sector sources.

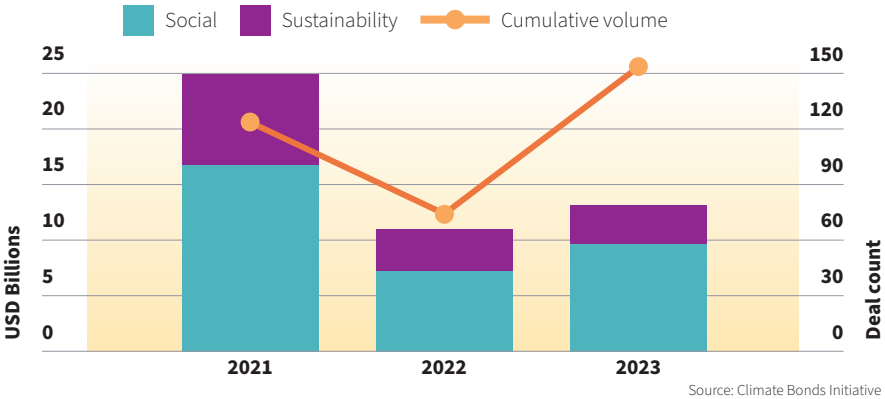
In December 2023, an infrastructure company **Fujian Zhangzhou City Investment Group** priced the year's largest aligned sustainability bond in the Chinese market. The UoP of the CNY3.9bn (USD537m) deal was earmarked to support Pollution Management, Green Buildings, Affordable Infrastructure and Housing, and Healthcare projects. China's second largest sustainability deal was a CNY3bn (USD411.2m) bond from **Province of Hainan China** with UoP earmarked for Education, Healthcare, Social Adaptation and Resilience, among other projects.

Social UoP Affordable Infrastructure and Equality were earmarked to receive the largest UoP volume in 2023. Affordable Infrastructure received USD1.58bn making up 24% of total volumes. From the total of aligned bonds, 61.9% included funding Affordable Infrastructure, which typically includes projects such as social housing or large public facilities. Equality refers to projects that advance gender or income equality, with 11.6% of volumes, and 42.8% of the deal count.

Climate Bonds SSBDB and social and sustainability bond indices

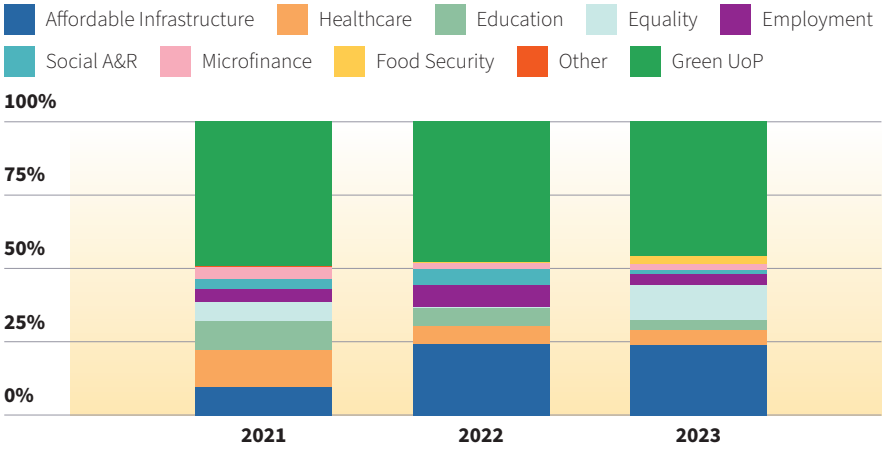
Climate Bonds' social and sustainability bond database (SSBDB)is used to inform inclusion in social and sustainability bond indices, an additional reason for issuers to align with the Climate Bonds SSBDB methodology. Examples include J.P. Morgan ESG (JESG) indices, Solactive Social and Sustainability Bond indices and others.[19,20,21] Additionally, Climate Bonds database inclusion also increases visibility in the global market, and remains a key indicator of credibility.

Total issuance of social and sustainability volumes rebounded in 2023, while deal count exceeded 2021 peak



Source: Climate Bonds Initiative

Affordable Infrastructure made up the largest (24%) use of proceeds for S&S by volume



Source: Climate Bonds Initiative

SDG mapping for social and sustainability bonds

A key feature of Climate Bonds's SSBDB is the identification and labelling of each deal's alignment with the 17 UN Sustainable Development Goals (SDGs). Since their launch in 2015, the SDGs have been increasingly utilised by financial markets to help identify projects with environmental and social benefits.[18] Given their direct parallel with the types of projects that S&S bonds finance, this mapping allows for a more granular understanding of financing priorities within the labelled debt market. One project can align with two or more SDGs. For example, an infrastructure project that empowers vulnerable groups can be counted under SDG 1 (No poverty) as well as SDG 11 (Sustainable cities and communities).

No poverty (SDG 1) and sustainable cities and communities (SDG 11) were the most frequently supported SDGs for Chinese S&S by deal number, while clean water and sanitation (SDG 6) was the third. Named UoP typically include Sustainable Water and Wastewater Management projects, and sometimes Terrestrial and Aquatic Biodiversity Conservation. SDG6 is also reflected in resilient city projects, such as sponge city (see below).

Offshore vs onshore issuance

In 2023, offshore S&S bonds accounted for 28.2% of total Chinese issuance volumes. Volumes remained steady compared to 2022 levels, and the number of deals declined slightly. Over 98% of the total offshore volume from 2021 to 2023 bore the sustainability label.

The alignment rate of offshore bonds is higher than their onshore counterparts for two key reasons:

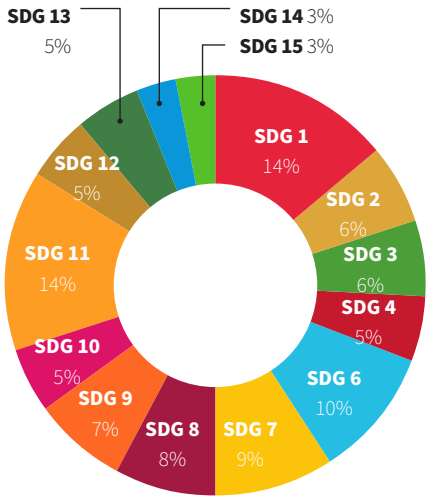
1. Chinese social bond guidelines do not yet require 100% UoP allocation while international S&S bond standards do (see below);

2. Offshore bond issuers tend to consult international bond standards and obtain SPOs, increasing the likelihood of alignment.

Examples of SDG mapping

Climate Bonds SSBDB UoP categories	SDGs
Education	**G4**: Quality education
Healthcare	**G3**: Good health and well-being
Employment & Training	**G8**: Decent work and economic growth
Microfinance	**G1**: No poverty
Food Security	**G2**: Zero hunger
Non-green Affordable Infrastructure	**G6**: Clean water and sanitation **G7**: Affordable and clean energy **G11**: Sustainable cities and communities
Equality	**G5:** Gender equality **G10**: Reduced inequality
Social A&R	**G16**: Peace and justice, strong institutions

SDG1 and SDG11 were the most popular SDGs by deal count in the Chinese S&S market



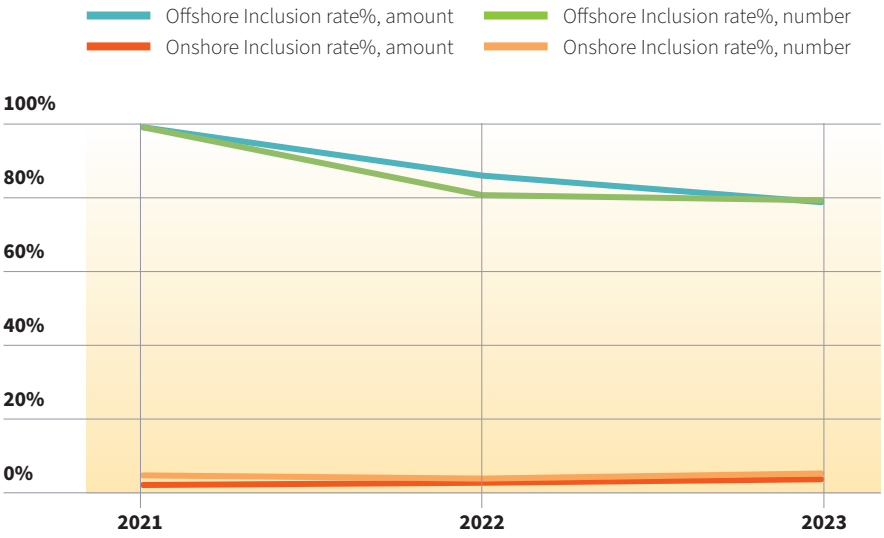
SDG 1: No poverty
SDG 2: Zero hunger
SDG 3: Good health and well-being
SDG 4: Quality education
SDG 6: Clean water and sanitation
SDG 7: Affordable and clean energy
SDG 8: Decent work and economic growth
SDG 9: Industry, Innovation, and Infrastructure
SDG 10: Reduced inequality
SDG 11: Sustainable cities + communities
SDG 12: Responsible consumption and production
SDG 13: Climate action
SDG 14: Life below water
SDG 15: Life on land

Source: Climate Bonds Initiative

Sustainability theme dominated offshore issuance

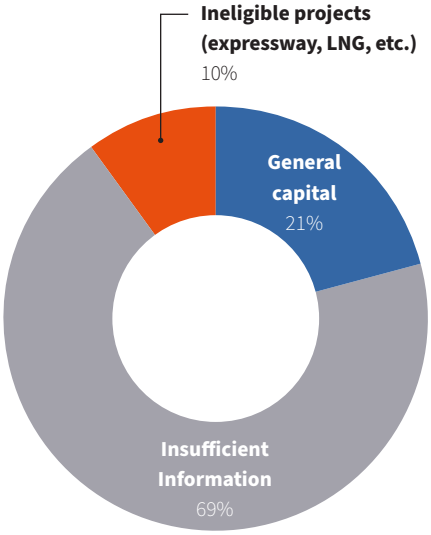
Source: Climate Bonds Initiative

Most offshore issued Chinese S&S bonds were aligned with the SSBDB



Source: Climate Bonds Initiative

Insufficient disclosure was the main reason for SSBDB exclusion in 2023



Source: Climate Bonds Initiative

In 2023, two thirds (68.9%) of excluded deals did not have sufficient disclosure. This reduced transparency prevents Climate Bonds and other market stakeholders from assessing the credibility and consistency of the market. Climate Bonds encourages issuers and their underwriters to demonstrate their commitment to market transparency, in order for the S&S bond market to strengthen and mature, following the model of the Chinese green bond market.

The second most common cause for exclusion is a lack of 100% UoP allocation (21.2%). The SSBDB methodology requires deals to use 100% UoP on eligible projects, where general working capital is not allowed. **UoP on ineligible projects such as fossil fuel financing, and roads or expressway construction is the third largest cause for non-alignment**. Exceptions are made in Climate Bonds SSBDB Methodology for road infrastructure that 1) is based in less-developed economies and 2) enables access to basic amenities and services. These instances are assessed on a case-by-case basis, and such deals have a history of inclusion in the SSBDB.

The model of the CGBP for increasing UoP allocation to 100% of proceeds can and should also be applied to social and sustainability bonds. While nearly a quarter of green deals in 2020 were excluded from the GBDB for not reaching 100% UoP allocation, almost all bonds (98%) in 2023 met the 100% UoP allocation rule after the launch of the CGBP guidance in 2022. This demonstrates that issuers are responsive to guidance and regulation that improves market credibility and consistency and shows the potential for similar guidance in the Chinese S&S market.

Regulations on UoP in China	Bond type	Guidelines
National Association of Financial Market Institutional Investors (NAFMII)[22]	Rural revitalisation bond	**No less than 30% of the funds raised** by rural revitalisation notes should be used for rural revitalisation purposes, covering project construction, repayment of project loans, and replenishment of project operating funds.
Exchanges (Shanghai and Shenzhen)[23]	Rural revitalisation bond	Corporate bonds for rural revitalisation should meet one of the following conditions: 1. The company is registered in a key county for rural revitalisation or an area that has been lifted out of poverty for less than five years in accordance with relevant national regulations and the proceeds are mainly used for rural revitalisation-related areas; 2. The proceeds are mainly used for construction, operation, acquisition, or repayment of project loans for rural revitalisation-related projects, on which no less than **70% of the total should be used**.
	One Belt One Road corporate bond	The proceeds are mainly used for investing, constructing or operating Belt and Road projects, repaying the interest-bearing debts of such projects, or carrying out business in the countries (regions) along the Belt and Road, with the proportion of the proceeds used in construction no less than **70% of the total**.

Sustainability bond best practice case study

Sustainability bond proceeds are exclusively applied to finance or re-finance a combination of both green and social projects.

The following elements of sustainability bond issuance can be considered best practice:

1. Adherence to the ICMA Social Bond Principles (SBP) or Sustainability Bond Guidelines (SBG), disclosing and reporting on core components in thematic bonds (UoP, process for project evaluation and selection, management of proceeds, and reporting);

2. Detailed account involving a comprehensive mix of projects that describes how each one supports sustainable development;

3. Clear and detailed description of the projects, including information such as the location of the project, targeted recipients for the designated green and social projects, and outcomes;

4. Planned project impact evaluation, and regular reporting, preferably with a Second Party Opinion or other external review;

5. Satisfy the minimum climate safeguard requirements, no investment in fossil fuel or fossil fuel enabled projects (already mentioned as a major cause for exclusion from the SSBDB).

Sustainability bond best practice examples of 2023

Issuer	Province of Hainan China	Bank of China (Hong Kong)
Issue Date	20/09/2023	27/03/2023
Maturity Date	27/03/2023	27/03/2025
Amount Issued	CNY3bn (USD411.2m)	CNY1bn (USD145.6m)
UoP(Social)	Healthcare, Employment, Education, Affordable Infrastructure, Social A&R, Affordable Housing	Employment, Education, Microfinance, Affordable Infrastructure, Healthcare
UoP (Green)	Water, Waste, Land, Buildings, Transportation, Energy, Biodiversity	Energy, Buildings, Transport, Water, Waste, Land
SDG Mapping	SDG1: No poverty, SDG3: Good health and well-being, SDG4: Quality education, SDG6: Clean water and sanitation, SDG7: Affordable and clean energy, SDG8: Decent work and economic growth, SDG9: Industry, innovation, and infrastructure, SDG11: Sustainable cities and communities, SDG12: Responsible consumption and production, SDG13: Climate action, SDG14: Life below water, SDG15: Life on land.	SDG1: No poverty, SDG3: Good health and well-being, SDG4: Quality education, SDG6: Clean water and sanitation, SDG7: Affordable and clean energy, SDG8: Decent work and economic growth, SDG9: Industry, innovation, and infrastructure, SDG10: Reduced inequality, SDG11: Sustainable cities and communities, SDG12: Responsible consumption and production.
Project evaluation and regular reporting	Department of Finance of Hainan discloses the allocation of proceeds and the environmental or social impacts of the funded eligible projects on an annual basis on its official website. External reviewer(s) engaged to confirm the alignment of the debt instruments with the relevant ICMA principles and guidelines as well as the UN principles.	Bank of China discloses the allocation of the proceeds, and the environmental or social impacts of the funded eligible projects on an annual basis on its official website.

Spotlight: resilient cities

Resilience financing focuses on addressing climate risks by undertaking risk-reduction measures and adopting flexible management plans that take account of inherent uncertainties around climate change. To date, investments have been primarily in physical assets and projects, often in combination with mitigation measures in water management and sustainable land use.

Traditional cities have roads, buildings, and pavements that are impermeable hardened structures which interfere with the natural water cycle. In contrast, sponge cities mimic and support the natural water cycle, adopting nature-based solutions. These can include rain gardens, green roofs, artificial wetlands, permeable paving, etc., that allow for natural rainwater storage, runoff mitigation, and rainwater filtration.

Spotlight: sponge city development in China

According to China's State Council, a sponge city is an urban development scheme that utilises built infrastructure and natural ecosystems to absorb, store, and slow the release of rainwater. Such green spaces and water systems help to effectively control rainwater runoff and enhance the resilience of built environments and population centres to extreme weather events.[24]

In 2015, China's State Council announced an ambitious goal to minimise the impact of urban development and construction on the ecological environment in the Guiding Opinions on Promoting Sponge City Construction, by ensuring that 70% of rainfall is absorbed and utilised on-site. By 2020, more than 20% of the urban built-up areas had met this target with more than 80% of urban built-up areas expected to meet these criteria by 2030. In the guiding opinions, **eligible corporates are encouraged to raise capital for resilience city projects via issuing bonds**. More frequent flood events due to climate change have accelerated the pace of sponge city construction in China, especially since the Henan flood in summer of 2021.

As of the end of 2023, China had carried out pilot sponge city projects in 30 cities, such as Shenzhen, Zhuhai, Pingxiang, Ningbo, Kunshan, and Xi'an new district. These cities have adopted measures such as water seepage, stagnation, storage, and drainage to mitigate urban flood risk. Within this programme, 130 cities have been identified to develop their water conservation and utilisation capacity, which represent 58.5% of national water consumption.[25]

One of the two challenges identified in building sponge cities at scale is the need for massive investment. The World Resources Institute estimated in 2018 that every square kilometre of sponge city construction requires CNY100m–150m (USD14.12m–21.23m) of investment, and the total area of sponge city projects under construction in the first 16 pilot cities already exceeded 450 square kilometres.[26] While the central government has provided generous subsidies to pilot cities, there is a shortfall in funding which can be met by issuing S&S bonds to attract private investment to finance resilience investments. By the end of 2023, Climate Bonds had recorded USD2.51bn of such investment, USD400m of which was financed in 2023.

Sponge city case study

Issuer	**Changde Urban Development Group**
Issue Date	29/12/2023
Maturity Date	29/12/2026
Amount Issued	CNY1.4bn (USD197m)
Sponge City UoP	• Investment, acquisition, and expenditures related to the construction, development, upgrade, installation, operation, and maintenance of water supply infrastructure, wastewater treatment infrastructure, urban drainage systems, flood control and defences, pumping stations, distribution networks, water recycling systems (i.e., recycling or reusing water, rainwater collection) to save water; improving water leakage performance and efficiency. • Investment, acquisition, and expenditures related to river, lake, water system and environment management projects (i.e., remediation and treatment of urban black and malodorous water, waste removal from water, and carry out dredging activities), restoration of public wetland reserve, conservation of terrestrial and river biodiversity and ecosystems, and greening of landscapes. • Investment, acquisition, and expenditures related to the construction, refurbishment, and operation of infrastructure for urban flood protection and mitigation such as river works, dams and dykes, sponge city projects and others for flood control, waterlogging prevention in order to mitigate the physical climate change risk and improve the environmental resilience.

3. Sustainability-linked bonds

Market analysis

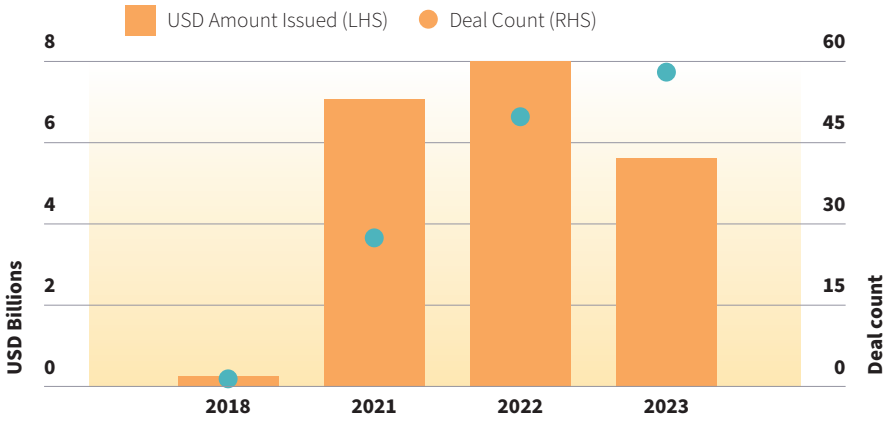
Since the first SLB was issued in China in 2018 by **Beijing Infrastructure Investment Co**, the number of deals originating from China has increased each year, reaching 53 in 2023. However, issuance volume shrank to USD5.7bn, from USD8bn in 2022, likely due to the macro-economic environment that slowed the growth of volumes in the green bond market too. In 2023, the most frequent issuer was financial lessor **Haitong Unitrust**, which priced four deals totalling CNY1bn (USD140.5m) tied to targets relating to investment volumes for green and social purposes.

This year **China** maintained its status as most prolific source of SLBs, with 53 deals of a combined volume of USD5.7bn. China has maintained pole position since 2021, which it shared with Brazil at 26 deals. China placed third for SLB volumes, behind Italy which is supported by deals from **Enel SpA**, and Chile bolstered by its sovereign debt.

Much the same as the Chinese debt market overall, most Chinese SLB debt has relatively short tenors with 85.6% of cumulative SLB volumes maturing and having sustainability performance targets (SPTs) set before 2030, compared to 55.5% for SLBs overall. Some Chinese SLB issuers have deployed perpetual structures (11.9%), issued without a fixed maturity date, compared to just 1.0% of SLB volumes globally.

The largest SLB issuer by volume was lens manufacturer **Sunny Optical Technology**, which priced a USD400m bond tied to GHG scope 1 and 2 reduction targets. It was the only SLB from China this year tied to GHG reduction targets, which Climate Bonds encourages issuers to use in order to demonstrate their decarbonisation commitment to investors and stakeholders.

Chinese SLB deal count continues to increase



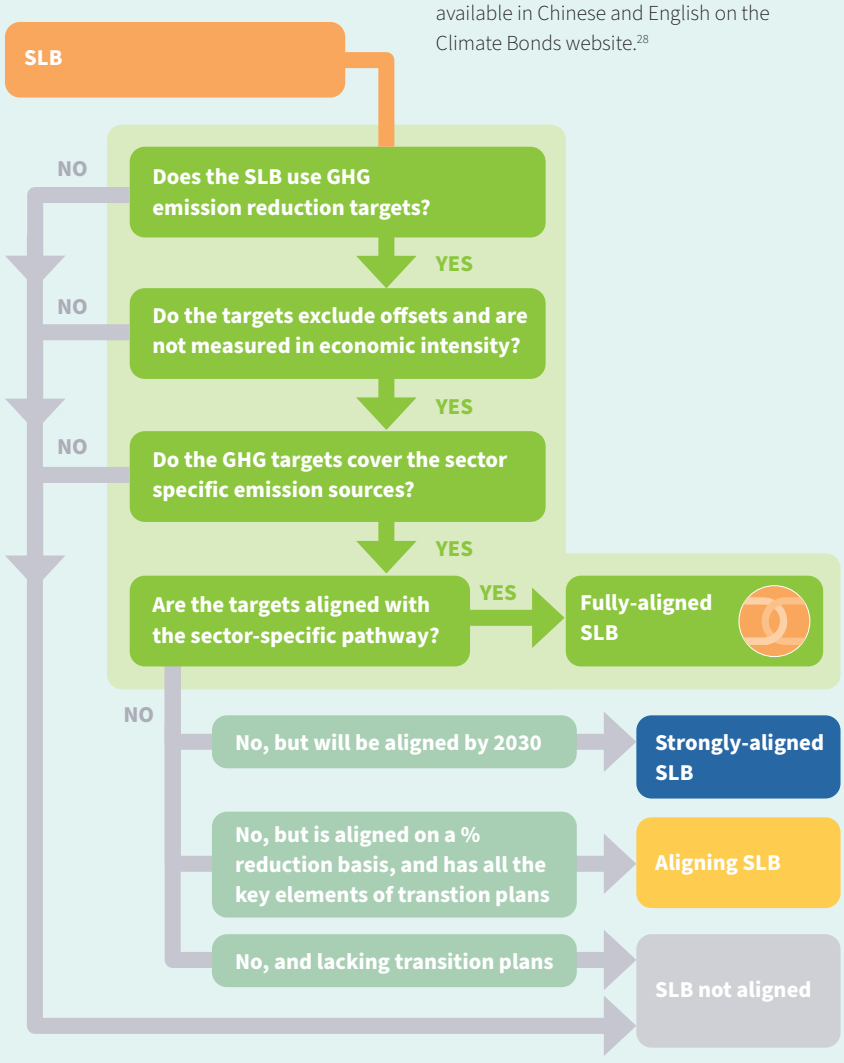
Source: Climate Bonds Initiative

Climate Bonds sustainability-linked bond database

Climate Bonds screens self-labelled sustainability-linked bonds (SLBs) from all jurisdictions against the Climate Bonds sustainaility-linked bond database (SLBDB) methodology to inform the size, credibility, and ambition of deals in the SLB market globally.

Aligned deals in the SLBDB reflect issuers who tie their cost of capital to credible and ambitious decarbonisation targets, in line with a 1.5°C transition.

A summary of the assessment process is illustrated below, with the full methodology available in Chinese and English on the Climate Bonds website.[28]



In 2023, the Chinese Chemicals and Technology sectors issued SLBs for the first time with a CNY400m (USD54.7m) deal from chemical manufacturer **Juhua Group** tied to coal consumption intensity targets. The share of such industrial issuers shrunk slightly from 36.8% the previous year to 28.3%, while financial issuers priced USD1.5bn of SLBs. **Jiangyin New Guolian Group**, for example issued two SLBs with a combined volume of CNY1.3bn (USD180.3m) tied to energy efficiency targets.

KPI selection and alignment with SLBDB methodology

Historically, Chinese SLB issuance has centred around three types of targets: renewable energy, energy efficiency, and sustainable financing but in 2023, issuers utilised a broader range of targets relating to water and waste reduction among others. There was also a larger proportion of private placement deals in 2023 with undisclosed targets representing almost one in five deals in 2023, compared with one in 20 in the preceding five years. This contrasts with international SLB issuance where a vast majority of deals (81.2%) in 2023 include at least one GHG reduction target.

So far, **Huaxin Cement**, **Shui On Development**, and **Sunny Optical Technology** are the only Chinese issuers to have used GHG emission reduction targets in their SLBs. Climate Bonds strongly encourages the use of GHG emission reduction targets in SLBs, as this helps demonstrate issuer's commitment to both its own decarbonisation efforts, and the central government's 30:60 decarbonisation targets. The development and publication of transition finance guidance and pathways by various provincial governments should support the setting, development, and use of such targets as issuers look to align with governmental guidance.

When assessed against Climate Bonds' SLBDB methodology, only two deals from Huaxin Cement's in 2021 are in alignment. Huaxin Cement:

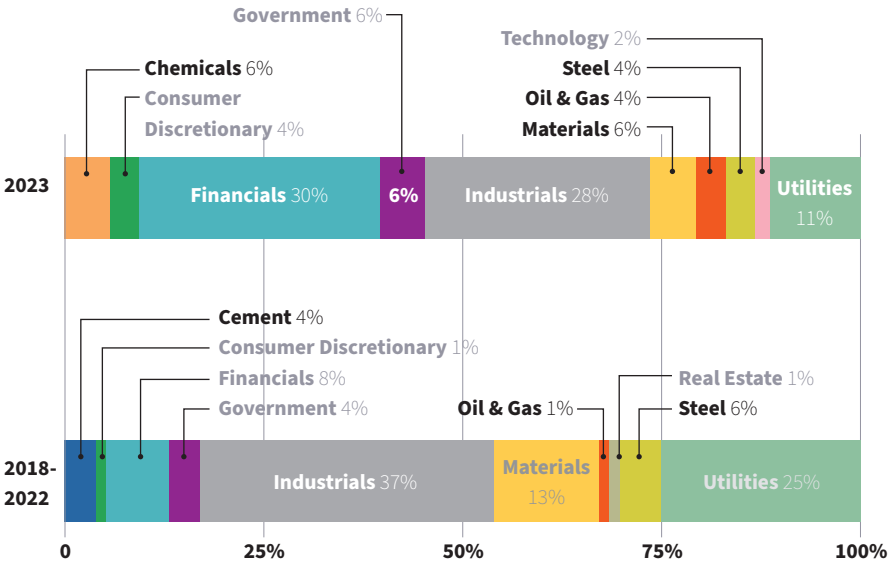
1. Set GHG emission reduction targets that covered all material scopes of emissions for their sector (Cement: scope 1);

2. Set targets that were not reliant on offsets (<10% of footprint), nor did it use an economic intensity metric (e.g. t CO_2e/revenue, t CO_2e/profit, etc.);

3. The targets were assessed to be in line with the sector specific pathway (Climate Bonds Cement sector emission pathway);[27]

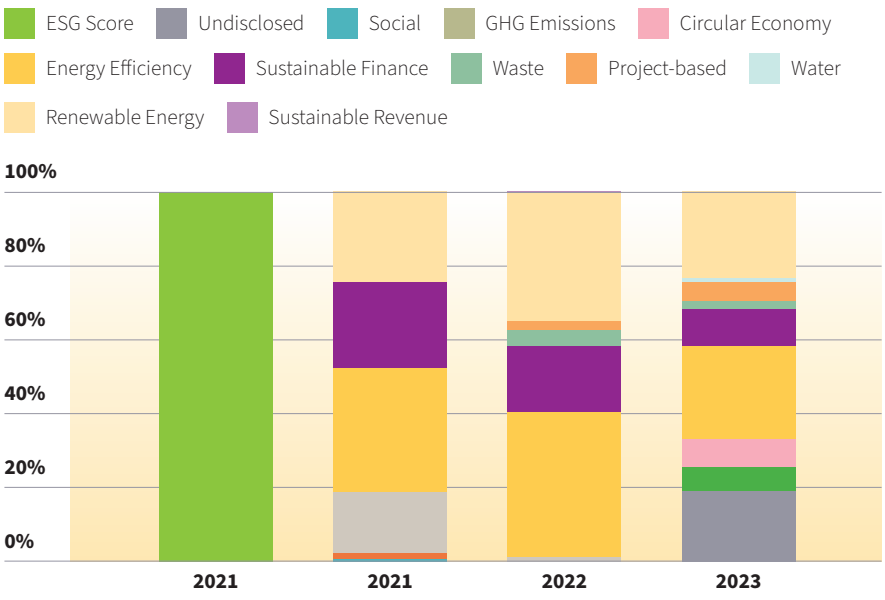
4. The issuer developed a public and detailed transition plan, detailing the action plan, financing plan, and governance mechanisms used to deliver its transition.

Chemical and Technology issuers debuted SLBs in 2023



Source: Climate Bonds Initiative; Note: Hard-to-abate sectors are greyed

A broader range of SLB targets appeared in 2023, GHG targets remain a minority



Source: Climate Bonds Initiative

Best practice case study: Huaxin Cement

The Huaxin Cement Co. Ltd (Huaxin Cement) is a Chinese domestic cement producer. It issued a CNY900m dual-tranche SLB deal in July 2022 and its KPIs were tied to GHG scope 1 and 2 emission reduction targets by 2024. It was the first low-carbon transition-linked corporate bond from the cement industry listed on the Shanghai Stock Exchange. The deal was well received by 21 institutional investors and obtained the lowest interest rate at issuance among bonds of the same tenor within the industry.

Climate Bonds' summary view: Huaxin Cement's SLB has set a strong precedent in the domestic Chinese market for the use of GHG targets in SLBs. Climate Bonds urges Huaxin Cement and other issuers to raise the level of ambition in their GHG targets, by calibrating targets against 1.5˚C pathways, including all material scopes of emissions, and providing further transparency to investors.

Amount issued: CNY450m x2 (USD66.6m x2)

Issue date	**19 July 2022**	**Maturity date**	**19 July 2025, 19 July 2027**
Financial mechanism type: Step-up	FM amount: 10bps		
Key Performance Indicator	GHG Emissions Intensity (scope 1)	**Sustainability Performance Target**	829.63 t CO_2e/t (vs. 2020 baseline 853.6 t CO_2e/t)
SLBDB assessment: Aligning			
Emission sources required by SLBDB Methodology for sector			**Scope 1**

Climate Bonds' summary view

Climate Bonds Five Hallmarks of a credibly transitioning company	Assessment
1. Paris aligned targets	Huaxin Cement has set detailed short-,mid- and long-term scope 1 emission intensity targets for both its cement and concrete business streams in its Low-Carbon Development White Paper (LCD White Paper). These targets (against a 2020 baseline) are five-yearly until 2035, as well as 2050 and 2060 targets. While carbon capture utilisation and storage (CCUS) will play an important role in the business decarbonisation, Climate Bonds commends Huaxin Cement for not including reductions from CCUS and Bioenergy and CCUS (BECCUS) in the calibration of these targets. Climate Bonds recognises Huaxin Cement's ambitious scope 1 emission targets, as well as the use of the SLB format to reinforce its commitment to decarbonisation. Climate Bonds encourages Huaxin Cement to 1) standardise its SLB targets with cement pathways; 2) include scope 2 emissions; 3) and conduct a relevant scope 3 emission assessment.
2.Robust plans	Huaxin Cement's transition strategy and action plan is documented in detail in its LCD White Paper, including itemised carbon-reduction potential estimates for cement sector-specific decarbonisation technologies and activities, the main ones being alternative use, clinker substitution, carbon capture, and low-carbon clinker development. The same paper also estimates an investment plan of CNY10.5bn in R&D and production facility upgrades between 2020 and 2030 to facilitate this transition. More recently, the company announced an expected CNY12.2bn capital expenditure in 2022, up 68% from the previous year, for its overall and low-carbon development.
3. Action	Since the issuance of these two SLBs in 2022, Huaxin has reduced its scope 1 emission intensity from 853.6 t CO_2e/t cementitious material in its 2020 baseline, to 820 t CO_2e/t in 2022, thus meeting and exceeding its target of 829.6 t CO_2e/t. If it maintains this emission intensity through to FY2024, it will meet the SPT of these bonds.
4. Governance	Huaxin has governance mechanisms in place to manage these environmental risks and manage the company's decarbonisation, including involvement from the board of directors, managers, and working groups.
5. External Reporting	Huaxin Cement has committed to continuing annual scope 1 and 2 absolute emissions and emission intensity reporting as part of this SLB. Such disclosure was included in its 2021 ESG report, and H1 and FY2022 report.

5. Policy drivers behind market growth

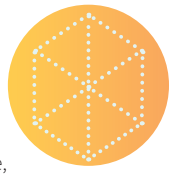
Throughout 2023, China's market regulators continued to press for market consolidation, and further fostered high-quality growth of the GSS+ bond market by issuing measures that impact disclosure and greenwashing risks.

Aspiration for international alignment and interoperability continues to play a critical role in driving China's GSS+ market evolution

Since 2021, Chinese regulators have made significant efforts to increase the alignment and interoperability of taxonomies and facilitate mutual recognition of labelled debt instruments between Chinese and international markets, with notable work including the Chinese Green Bond Principles, the China-EU Common Ground Taxonomy, and the 2023 Guidelines for Green Bond Disclosure.

There are still areas requiring further clarification, such as gaps between national and regional policy in transition finance, and gaps between international and domestic social and sustainability bond expectations, which will help further align domestic practice with international standards.

Regulators and the market reacting to greenwashing risks with detailed guidelines and demand for enhanced market transparency



Concerns over greenwashing risks in the global ESG markets have spurred global development in the sustainability-related information disclosure regime, led by the International Sustainability Standards Board (ISSB) and the EU's Sustainable Finance Disclosures Regulation (SFDR) in 2023.

China's regulators and market infrastructure institutions were quick to adapt to this trend. The three major exchanges released a mandatory sustainability reporting scheme for listed companies, in Feb 2024, which is roughly based on the ISSB framework. In the bond market, the Shanghai and Shenzhen Stock Exchanges further refined their guidelines for issuing green corporate bonds in 2023, aligning them with the recently released China Green Bond Principles (CGBP), with notable updates including raising the minimum UoP requirement for green projects from 70% to 100% (now fully aligned with international practice) and new disclosure requirements for project evaluation and selection.[29,30]

China's Green Bond Standards Committee (GSC), a coordination mechanism for the self-regulation of green bonds, has steadily introduced rules for market practitioners, including requiring all eligible external review providers to conduct annual self-inspections of their green bond evaluation and certification business.[31] By the end of 2023, GSC further published *Guidelines for Information Disclosure on the Duration of Green Bonds* aiming to enhance transparency, improve data quality, and ensure full fund allocation for green projects during the lifespan of each bond. Subsequently in January 2024, the National Association of Institutional Investors (NAFMII) has asked all green issuers to adhere to this requirement and extended its application to all green financing instruments, including green asset-backed securities (ABS).[32,33]

China making moves on transitions

The concept of transition finance, namely measures to support investments aimed at reducing GHG emissions in hard-to-abate sectors, has been gaining popularity among China's financial regulators and market actors, despite relatively slow progress in standard development and building of consensus around how to ensure credible transitions.

In February 2024, led by the National Development and Reform Commission (NDRC), 10 government bodies jointly published the Guidance Catalogue for Green and *Low-Carbon Transition Industry (2024 Edition)*.[34] This is the first time that elements of low-carbon transition have been incorporated into China's national level taxonomies.

In the absence of national level transition finance standards, local transition finance pilots were popular. In 2023, subnational governments including Huzhou, Chongqing, Tianjin, Shanghai, and Hebei began to introduce transition finance policy guidance and taxonomies to support the low-carbon transition of their traditional industries.[35,36,37,38,39] This newly introduced local transition finance guidance, differs in its scope and granularity, but serves to pilot the much-anticipated national sector-specific transition finance standards led by the PBOC, initially covering steel, thermal power, construction materials, and agriculture.

The regional guidance tends to cover regionally relevant industries such as textiles, oil refining, chemicals, steel and other high-carbon emission sectors. The steel sector is included in most local guidelines while Chongqing stands out as the only city to include the agricultural sector.

Financing the steel decarbonisation in China

As the world's largest steel producer and consumer, China's steel industry accounts for approximately 15% of national GHG emissions and 60% of global steel emissions (2020).[42] Efforts to decarbonise the sector currently focus on transitioning production to low-carbon metallurgy using methods such as energy efficiency improvements, increasing scrap steel utilisation, hydrogen injection, and carbon capture. These measures are eligible for alignment with Climate Bonds' Steel Criteria but notably absent or diminished is the potential role of Electric Arc Furnaces (EAFs).[43] Research suggests a capital financing need of at least CNY1.6tn (USD220bn) to deliver this transformation. While Central and local transition finance departments have outlined policy guidelines for the steel industry to accelerate its decarbonisation, the financing of these measures can be achieved through sustainable debt markets.

While robust technical screening criteria and entity-level transition plans are still fairly scant among the existing local transition guidelines, this has development potential as China's regulators bid to align the nascent transition finance market with global market practices. The existing transition finance instruments would also benefit from robust impact reporting and incentive structures, such as preferential financing, guarantees, interest discounts, certification subsidies, and more; all of which would require effective policy coordination across government departments.

Debt instruments set to play a more prominent role in China's green transition

Debt instruments are increasingly recognised in China as an important tool for the low-carbon transition of economic entities, and society at large, with government now playing a central role in mobilising capital in areas including climate change mitigation, and resilience and social development, with a more diverse set of debt instruments.

In December 2023, the China Securities Regulatory Commission (CSRC) and the State-owned Assets Supervision and Administration Commission (SASAC) asked central government owned state-owned enterprises (SOEs) to use green bonds, particularly with medium and long tenors, to support green and low-carbon sectors and drive 'comprehensive economic and social transformation.[40] Just prior to this, the Ministry of Finance had introduced plans to issue CNY1tn (USD137bn) additional sovereign debt, by the end of 2023, to support the reconstruction of areas devastated by natural disasters and increase their resilience. While the move has been interpreted as part of Beijing's broader strategy to spur infrastructure spending and encourage economic growth, it was also seen a creative use of sovereign debt for climate adaptation.

In its 2024 Two Sessions report, China's central government re-affirmed that government-backed bonds, including sovereign and municipal bonds, will serve as effective instruments to stimulate market demand and accelerate the pace of industry transition.[41] Further policy guidance, however, is still required to launch the long-awaited labelled sovereign bond and municipal bond market.

	Policy document				
	Huzhou Transition Finance Support Activity Catalog (2023 trial)	**Catalogue of Chongqing Transition Finance Support Projects (2023 edition)**	**Implementation Guide for Transition Finance in Key Areas of Tianjin Chemical Industry**	**Shanghai Transition Finance Catalogue (trial)**	**Guidelines for Transition Finance of Iron and Steel Industry in Hebei Province (2023-2024 edition)**
	Publication Date				
Sector coverage	**July 2023**	**October 2023**	**October 2023**	**December 2023**	**December 2023**
Textiles					
Pulp and paper					
Chemicals	(differentiated by chemical raw materials, products, fibre)		(covers 10 key areas of chemicals industry)	(specifically, petroleum processing, raw materials, products)	
Non-metallic minerals					
Ferrous metals		(specifically, iron and steel)			(specifically, steel)
Non-ferrous metals					
Electric machinery and equipment					
Electric power		(specifically, coal power)			
Heat production					
Agriculture					
Cement					
Water transportation					
Automotive manufacturing					
Air transport					

6. Market outlook and recommendations

Highlight of 2023: China's sustainable debt market matures with further consolidation and regulatory clarity

Throughout 2023, China has advanced policy guidance, standards, and regulatory oversight for its green bond issuance, consolidating rules around disclosure, ESG ratings, and third-party assessments. Further efforts are underway to introduce clear guidelines for the social, transition, and resilience market.

Despite a slight decrease in issuance volume in 2023, China's sustainable debt market is expected to continue to lead global growth and play a crucial role in the country's green transition in 2024. China maintained its position as the largest source of green bonds, and moved to further align itself with the global green bond market, as reflected in the proportional increase in inclusions.

With the set of economic stimuli introduced in China and US Federal Reserve Bank anticipated to commence an interest rate cutting cycle in 2024, China's domestic financing environment is expected to be more moderate for onshore issuers of various types and sectors, while offshore issuance is also expected to recover. High carbon emission industries will benefit from clear policy guidance and credible transition plans, thereby receiving financing support from sustainability-linked bonds and transition bonds. Government departments support effective policy incentives for labelled bond issuers and investors, such as expanding the green and transition bond issuer base, granting certain tax incentives to labelled bond issuers, or encouraging local governments to issue green special bonds. This is achieved through setting measures such as minimum investment ratios to encourage institutional investors to invest in labelled bonds, which further promotes the high-quality development of China's sustainable debt market.

Appendix

Appendix A: Database Methodologies

Scope of analysis

This report includes four sustainable debt themes based on the projects, activities, and expenditures financed: green, social, sustainability, and SLB. The GSS+ themes can be described as follows:

Green: dedicated environmental benefits (captured since 2012).

Social: dedicated social benefits (captured since 2020).

Sustainability: green and social benefits combined into one instrument (captured since 2020).

SLB: changes in coupon (almost always step-ups) linked the fulfilment of key performance indicators (KPIs) against entity level sustainability performance targets (SPTs) (captured since 2021).

Green, social, and sustainability bonds	Aligned	Pending	Excluded
Cumulative USD billion as of 31 December 2023	4.4tn	79.8bn	751.7bn

SLBs	Fully aligned	Strongly aligned	Aligning	Not aligned
Cumulative USD billion as of 31 December 2023	40.3bn	2.2bn	4.7bn	278.9bn

Methodology overview

This report draws on three Climate Bonds databases:

1. Green Bond Database (GBDB)

2. Social and Sustainability Bond Database (SSBDB)

3. SLB Database (SLBDB)

Green, social, and sustainability bonds captured by Climate Bonds meeting the requirements outlined in its screening methodology qualify for inclusion in the databases and are classified as aligned. Labelled bonds for which there is not enough information to determine eligibility for database inclusion are classified as pending until sufficient disclosure is available to decide. Bonds failing to meet the requirements of Climate Bonds' screening methodology are classified as non-aligned and are excluded from the databases.

SLBs are assessed according to Climate Bonds Sustainability-Linked Bond Database Methodology (SLBDM) and classified according to four levels of alignment.[44]

1. Fully aligned: SLB targets cover all material sources of emissions and are aligned with the relevant pathway.

2. Strongly aligned: SLB targets cover all material sources of emissions and will be aligned with the relevant pathway by 2030.

3. Aligning: SLB targets cover all material sources of emissions, are aligned with the pathway on a % reduction basis, and the issuer has the basic tenets of a transition plan.

4. Not aligned: SLB targets fail to meet any of the above criteria, or do not meet the other requirements detailed in the SLB Database Methodology.

As Criteria are developed, Climate Bonds will update its GBDB methodology and then begin screening bonds from issuers in those sectors for inclusion, whether labelled as transition or as green. The Climate Bonds Taxonomy defines the assets and activities that are aligned with a 1.5-degree pathway, accepting financing with either label. In 2024, Climate Bonds will publish new sector Criteria for Electrical Utilities, Agri-food, Deforestation and Conversion Free Sourcing, Hydrogen Delivery and Production, and Basic Chemicals. Climate Bonds Buildings Criteria will also be updated to reflect the differences between new and existing buildings.

Transition bonds

Historically, Climate Bonds recorded but did not screen bonds bearing the transition label. As of January 2024, Climate Bonds stopped reporting transition bonds as a separate category but regards them as a sub-set of the green label. Climate Bonds now adds such bonds to the Climate Bonds Green Bond Database, and screens them against its Green Bond Dataset Methodology.[45]

Appendix B: Composition of labels in GSS+ themes

Composition of labels in GSS+ themes

Green	Social	Sustainability	SLB
Blue/Water	Affordable Housing	SDG	Sustainability-linked
Climate	Education	Socially Responsible Investing (SRI)	ESG-linked
Carbon Neutrality	Equality	Sustainable Development	SDG-linked
Transition/Climate Transition	Healthcare	Impact/Positive Impact	Low-carbon transition-linked
PACE	Rural Revitalisation	ESG	Transition-linked
Climate Resilience	Youth, Employment		

Source: Chinabond Green Bond Environmental Benefit Information Database (Chinabond Green Bond Database)

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