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Green Finance in China and the EU

A starting point for cooperation

Sino-German Energy Partnership

giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH

Imprint

The report "Green Finance in China and the EU: A starting point for cooperation" introduces the background information on green finance development in Europe (Germany) in the context of the EU Green Deal, to enable informed discussions on further Sino-German cooperation potential in financing energy efficiency and energy transition. The report is jointly published by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and the China Energy Conservation and Environmental Protection (CECEP) Consulting Ltd., in the framework of the Sino-German Energy Partnership and Sino-German Demonstration Projects in Energy Efficiency, between the German Ministry for Economic Affairs and Climate Action (BMWK) and the National Development and Reform Commission of the People's Republic of China (NDRC). The Sino-German Demonstration Project in Cities also supports in its dissemination and application in energy efficiency projects.

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c/o

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
Torsten Fritsche
Köthener Str. 2
Berlin 10963

Project Management:

Yihui Wang, Yuxia Yin, Maximilian Ryssel

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Authors:

Nana von Rottenburg

Former Staff of German Energy Agency (dena)

Design

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Weng Fangping

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It is extremely important to keep the rise of average global temperature under 2°C – not only to preserve the natural environment that allows us to flourish on Earth but also to maintain our prosperity and economic growths in a sustainable manner. The technology and infrastructure revolution required to meet the 1.5°C target and fulfil the net-zero pledges made by many countries (e.g., China by 2060 and the EU by 2050) is not possible without a major shift in the current direction of investment capital flows. This paper explores the steps for greening the financial systems in Europe (and Germany) and in China, presents recent legislative proposals and regulations and finally outlines the outlook for further cooperation in this field as part of joint efforts against climate change.

Green Finance – Why finance matters for sustainable development

Again 2021 showed very clearly that the world is in the midst of climate change. Extreme weather events have characterized the summer worldwide. In Canada, the highest temperature ever recorded in the country was reached in the town of Lytton in British Columbia at 49 degrees. A new heat record of 49 degrees was also set in Sicily. Because of those high temperatures and droughts, massive forest fires are currently raging in Russia, Greece, America and Turkey. However, at the same time, there were massive floods in Germany and China. Those events not only cause the loss of property and assets for households and businesses, but also increases climate-related risks for the financial sector, including insurers and investors

Climate-related Risks for the Financial Sector

Extreme weather events are expected to become more frequent and increase in intensity as global climate change accelerates. Scientific studies show, that if the average temperature on earth were to rise by 3.2 degrees Celsius until mid-century, global economic output would fall by 18 percent, compared to 14 percent for a 2 – 2.6 degree Celsius scenario and only four percent loss under the Paris Agreement targets. In the tropical and poor regions even more exposed to the impacts of climate change, such as Africa, Asia and South America, the damage could be even greater (Swiss Re Institute, 2021, Matthias Kalkuhl, Leonie Wenz, 2018). This shows clearly that the risks arising from climate change have become significant economic and financial risks. The World Economic Forum's assessments of global risks confirms that global risks have shifted within ten years from predominantly economic risks to predominantly ecological ones (see Figure 1 Global risk from 2009 to 2019).

Figure 1: Top global risks from 2010 – 2020

WORLD ECONOMIC FORUM 2020:
TOP 5 GLOBAL RISKS

Top 5 Global Risks in Terms of Likelihood

2010	2020
Asset price collapse	Extreme weather events
Slowing Chinese economy (<6%)	Climate action failure
Chronic diseases	Natural disasters
Fiscal crisis	Biodiversity loss
Global governance gap	Human-made environmental disaster

Within 10 years risks changed by the majority from „economic“ to „environmental“

Top 5 Global Risks in Terms of Impact

2010	2020
Asset price collapse	Climate action failure
Deglobalisatioin	Weapons of mass distruction
Oil and gas price spikes	Biodiversity loss
Chronic diseases	Extreme weather
Fiscal crisis	Water crisis

Source: world economic forum 2010–2020, global risks report

In addition to the physical risks caused by climate change, which threaten companies and assets, there are also transitory risks for the economy. These arise from the transition to a climate-neutral economy. On the one hand, there are regulatory requirements regarding, for example, energy efficiency and the use of renewable energies; on the other hand, there may also be the introduction of a CO_2 price, technological innovations, or changes in consumer and investor behavior. If both physical and transitory risks are ignored, the value of companies, assets and portfolios can decrease sharply.

Risk of stranded assets

Assets that are permanently subject to losses in value or even total losses due to physical and transaction risks are known as **stranded assets**.

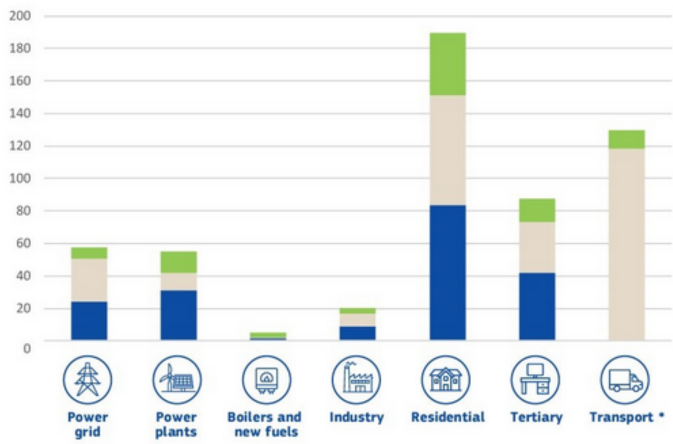
Source: LBBW

Global Energy Transition: the need to shift financial flows

To achieve the goals of the Paris Agreement on Climate Change, investments in energy-efficiency, renewable energies, low-carbon infrastructure, net-zero fabrication and construction methods are needed on a scale way beyond the current scope of government funding programmes. The International Energy Agency (IEA) calculates in the “Net Zero by 2050” analysis, that “To reach net zero emissions by 2050, annual clean energy investment worldwide will need to more than triple by 2030 to around EUR 3,5tn”. According to EU figures, now that countries have set even more demanding climate targets for 2030, over EUR 180bn will be required every year for the residential building sector alone. The technology and infrastructure revolution that the global community needs to meet the 1.5°C target and fulfil the net-zero pledges made by many countries (e.g. China by 2060 and the EU by 2050) is not possible without a major shift in the current direction of investment capital flows. This change must be accompanied and reinforced by a guiding political frameworks in addition to a change in the perspective on the part of the financial sector (IEA, 2021, EU Commission, 2020).

Figure 2: Annual average investments needed to fulfill 2030 goals

Annual average investment 2011-2020 and additional 2021-30 under existing policies and to achieve -55% greenhouse gas emissions reductions - in billions euros (2015)



* Transport only shows additional investment

	Additional to achieve -55% greenhouse gas reductions, 2021-2030
	Additional under current 2030 policies in 2021-2030 compared to 2011-2020
	Historic annual investments in the energy system 2011-2020

SOURCE: EUROPEAN COMMISSION 2020, STATE OF THE UNION: QUESTIONS & ANSWERS ON THE 2030 CLIMATE TARGET PLAN

Looking at these developments and scenarios in relation to the financial sector, two perspectives emerge:

1. First, financial market players are affected, as assets and investment portfolios are exposed to increasing physical risks caused by climate change.
2. Secondly, financial market players can play an active role and make significant contribution to the global climate action (not only mitigation but also adaptation) through investment decisions.

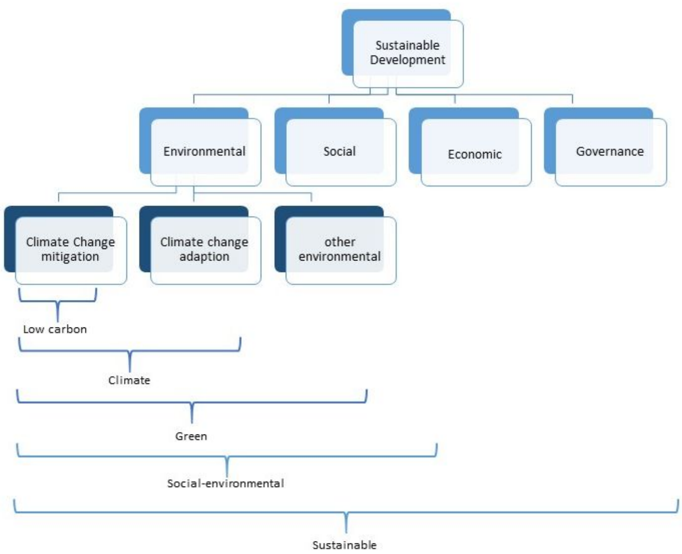
Since the adoption of UN Agenda 2030 for Sustainable Development and the Paris Agreement on Climate Change, the focuses of policy agenda worldwide have changed. For a long time, the climate and environmental policies focused on the real economy, but with the major leverage effect of a financial system aligned to climate mitigation and adaption as well as to sustainability, they have started to develop and to implement measures and regulations for the financial sector. Besides, it is not only at the political level that the perspective on the role of the financial sector in relation to climate protection and sustainability has changed. The financial sector is also beginning to change its attitudes toward sustainability risks, sustainability criteria, and opportunities from global energy transition. These are increasingly playing a greater role in investment and financing decisions.

Defining Green Finance

It is important to discuss the terms Green Finance, Sustainable Finance and Climate Finance, because of their frequent synonymous use. The distinction between the terms is very important, especially when comparing the different approaches adopted in Europe and China.

Although there is no precise or commonly accepted definitions of the three terms, the United Nations Environment Programme (UNEP) has produced a rough guide to help distinguish between the terms “low-carbon”, “climate”, “green” and “sustainable” the same rules of which can be applied to financial products. For example, investments that claim to be through “sustainable financing” and “sustainable financial products” should meet a range of environmental, social, economic, and corporate governance criteria. A “green” investment ought to reflect environmental criteria based on climate goals (including climate adaptation) and other priorities such as water resource conservation and biodiversity. Despite its broader scope, “green finance” often refers to financing energy-efficient and climate-friendly assets and to the associated financial products that stand all in the context to combat climate change without consideration of the other criteria. One of the reasons for this inaccurate use might be that in the international climate negotiations terminologies “climate finance” mostly refers to the provision of capital and funds for climate mitigation and adaptation activities (programmes, projects), that is provided by the industrialized nations for the emerging and developing countries (Climate Finance, Jason Fernando, 2020). The term is closely linked to international climate change negotiations. The United Nations Framework Convention on Climate Change (UNFCCC) defines climate finance as “aims at reducing emissions, and enhancing sinks of greenhouse gases and aims at reducing vulnerability of, and maintaining and increasing the resilience of, human and ecological systems to negative climate change impacts (UNFCCC Standing Committee on Finance, 2014). In China, “climate finance” is now used to highlight the financing needs for addressing climate change and as important part of “green finance”. Prior to that, as climate action is one of the many objectives of green finance, including fighting air pollution, resource conservation and efficiency, and waste management, it was not distinguished within in the term “green finance” (Climate Policy Initiative 2021).

Figure 3: Simplified diagram illustrating the different terms used within the broader concept of sustainability



SOURCE: UNEP (2016)

EU Sustainable Finance

In Europe, and thus also in Germany, there is great political interest in actively promoting the development of a sustainable financial sector. The EU Commission's goal of making Europe a sustainable financial location is set in the context of the goals and strategies for maintaining the competitiveness of the EU economy by transforming it into a climate-friendly economy (EU Commission 2018). 2020 and 2021 have been very dynamic years in the EU for the development of sustainable finance. Numerous proposals for regulations have been and will be published such as the "Sustainable Finance Disclosure Regulation (SFDR)" or the draft of a revision of the "Non-financial Reporting Directive (NFRD)", now called "Corporate Sustainability Reporting Directive". There are different stages of public consultations that are not yet completed. The real application and practical experience will start only in 2022 and it will be possible to evaluate the effectiveness only then.

The EU Action Plan: Financing Sustainable Growth

One of the first steps that the EU Commission took before the well-known "Green Deal" was published was to publish its Action Plan "Financing Sustainable Growth." The financial sector has a major impact on the development of a low-emission and climate-neutral economy through the granting of loans, insurance, the use of buildings as collateral. As the EU wants to make Europe's financial system more sustainable, the EU Commission published the "EU Action Plan: Financing Sustainable Growth" already back in 2018. The measures planned therein, some of which have already been implemented in the meantime, will affect the above-mentioned financial products and investment decisions.

In the EU, the climate protection and sustainability policies of the member states are steered by directives and regulations drawn up by the EU Commission. For a long time, the financial market was not considered in these ESG-related policies, and the regulations affecting the financial market only focused on the stabilization of the financial sector. This has changed fundamentally with the announcement of "EU Action Plan: Financing Sustainable Growth" and the EU Green Deal.

The Action Plan, which was amended by the Sustainable Finance Strategy by mid-2021 as part of the Green Deal, describes measures, activities and individual steps related to climate protection and sustainability that affect the entire financial system and thus also every form of financing, investment products and investments. In terms of content, the action plan focuses on three main objectives.

- A reorientation of capital flows toward more sustainable investments.
- Addressing financial risks due to climate change, environmental degradation, and social challenges
- Promoting transparency and long-termism in financial and economic activities.

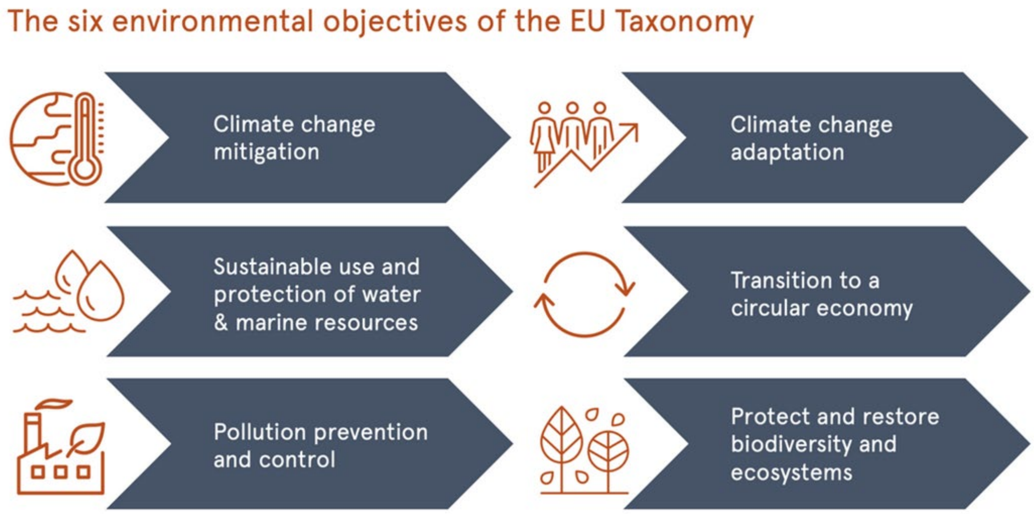
In May 2019, the Technical Expert Group on Sustainable Finance (TEG) convened by the EU Commission and adopted by the EU Council and Parliament following public consultation processes presented three draft pieces of legislation. This new legislation is intended to stimulate and guide private sector investment in sustainable economic activities and projects:

- A unified classification system for sustainable economic activities - Taxonomy.
- Sustainability-related disclosure requirements for financial market actors
- Climate benchmarks and ESG disclosure benchmarks

The EU Sustainable Finance Taxonomy

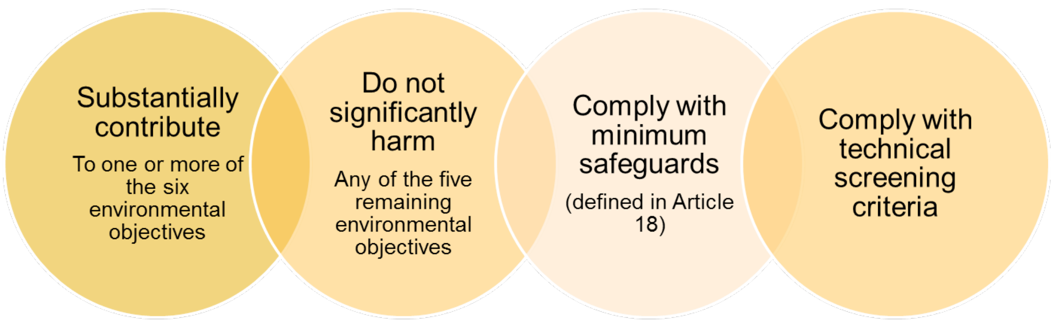
The EU Commission intends to use the Sustainable Finance Taxonomy (referred to below simply as the Taxonomy) to establish generally binding definitions for a wide range of economic activities in the field of sustainable development. The first step is to produce a taxonomy of climate-friendly economic activities. This will be followed by taxonomies for water, biodiversity, and waste. Once these are in place, the EU will address the issue of social well-being and develop a taxonomy accordingly. So the Taxonomy is actually a set of taxonomies For the Commission, the first of these taxonomies will speed up the process of determining whether an investment within the EU can be described as "green," i.e., climate- or environment-friendly. The Taxonomy will cover sectors ranging from manufacturing and power generation to buildings. Economic activities will be screened to assess their contribution to six defined goals and sets out four conditions that an economic activity must meet to be recognised as Taxonomy-aligned (see Figure 4 and Figure 5).

Figure 4: The six environmental goals of the EU Taxonomy



SOURCE: FUTURE FIT BUSINESS

Figure 5: The four required conditions to be qualify as Taxonomy aligned



SOURCE: EU COMMISSION – SPOTLIGHT ON TAXONOMY

EU Green Deal

At the end of 2019 the then newly elected, EU Commission President Ursula von der Leyen presented her plans for a "European Green Deal" to the European Parliament. The Green Deal serves as a roadmap, a "new growth strategy" so that Europe can achieve its transition to a modern, resource-efficient, and competitive economy. A key objective of the Green Deal is to make the European economy carbon-neutral by 2050 and to decouple economic growth from resource uses. To this end, the proposal for a European climate law was published in March 2020.

- the European "climate protection law" to legally anchor greenhouse gas neutrality by 2050
- raising the climate target for 2030 to at least 50 percent
- Adapting existing requirements and policies to achieve the raised 2030 climate target. (e.g. Renewable Energy Directive RED II, Energy Efficiency Directive EED, Buildings Directive EPBD)
- the initiation of a "renovation wave" for the building sector
- the Strategy for Financing the Transition to a Sustainable Economy (will elaborate on next page)

Legislative proposals and delegated acts for the transition of the financial system - the “April-Package”

Within the framework of the Green Deal the EU Commission presented on April 21, 2021, a package of measures to help channel more money into sustainable activities in the European Union - the so-called "April Package."

The measures are supposed to enable investors to reliably switch their investments to more sustainable technologies and companies without "greenwashing".

One of the most important decisions was the adoption of the delegated act on **EU Climate Taxonomy**. It compromises the regulation of technical assessment criteria on two of the six environmental objectives: climate change adaptation and climate change mitigation. Because of the extensive discussions ongoing about the status of natural gas and nuclear as green or at least transformative economic activities within the Taxonomy, these topics have been excluded for now. A separate legislative proposal will be presented in Q4 2021, specifically addressing how certain economic activities, especially in the energy sector, contribute to decarbonisation.

Another far-reaching proposal was the proposed revision of the directive on corporate sustainability reporting. The draft version, currently under consultation, is supposed to strengthen non-financial reporting by expanding from the current 11,000 companies to 50,000 companies subject to reporting requirements at the moment, and by setting standards for the reported data as well as linking the use of the taxonomy to the directive.

Sustainable Finance Strategy

Realizing one of the planned activities of the Green Deal the European Commission presented on July 6th, 2021, the draft of the “Strategy for Financing the Transition to a Sustainable Economy.” This strategy builds on the “Action Plan on Financing Sustainable Growth” and specifically addresses the transition of the economy towards greater sustainability in the context of the COVID 19 pandemic. It places a special focus on the fact that the path to greater sustainability also requires investments that finance transformative economic activities that are important to reach climate neutrality in the future. These economic activities might not yet meet the required thresholds or may not be Paris-aligned when considered individually. However, these activities are of great importance from a long-term perspective because they reflect the change and a development towards climate neutrality without damaging the economic performance through disruption. The transitional aspect for investors as well as companies and projects were underrepresented in the previous version of the Taxonomy. The strategy also addresses the need to improve the EU framework for sustainable finance. Important aspects include the completion of the EU taxonomy with four additional environmental targets (second quarter of 2022) or the development of more standards and labels (including for transformative activities and projects) to prevent greenwashing and creation of a general framework for transformative investments. A new aspect is that a stronger link between sustainable finance and digitization is also to be established.

The strategy also calls for improving the resilience of the financial sector proposes the implementation of the double materiality (inside out and outside in analysis) method into risk management as well as the obligatory performance of comprehensive climate stress tests by three EU financial supervisors (EU Commission 2021).

Sustainable Finance-Strategy – Germany

The Federal Government intends to position Germany as a leading hub for sustainable finance and thus ensure financial market stability and sustainable economic growth. In 2019, it therefore appointed the Sustainable Finance Advisory Council of Germany (SFAC), whose members come from the financial sector, the real economy and academia (Sustainable Finance Beirat 2020). In a 1.5-year process, they drew up over 31 recommendations, which they published in a final report in February 2021 called "Shifting the Trillions – a sustainable financial system for the big transformation".

The SFAC sees five areas for action on which it has developed recommendations (Sustainable Finance Beirat 2021):

1. A reliable policy framework in Germany and the EU
2. An integrated and forward-looking corporate reporting with transparency and comparability
3. Research and systematic knowledge building
4. Sustainability-effective financial products
5. Ensuring institutional permanence for ongoing support during the transformation process.

In May 2021 the German Federal Government also published its own "Sustainable Finance-Strategy". It is built upon the recommendations of the Sustainable Finance Advisory Council. The proposed measures include a sustainability traffic light system for investment of products, the strengthening of green bonds, more transparency with regards to federally owned capital investments and the enhancement of corporate reporting. The strategy is a commitment to the further development of Sustainable Finance.

Goals and measures:

Goal 1: Advance sustainable finance globally and in Europe

Goal 2: Seize opportunities, finance transformation, etc.

Goal 3: Improve risk management in the financial industry, ensure financial market stability

Goal 4: Strengthen Germany as a financial centre; build-up expertise

Green Bonds in Germany

In 2020, the Federal Republic of Germany published its first federal green bond in addition to framework for federal green bond in general. The federal green bonds are intended to create transparency about the federal government's "green" budget spending as well as to strengthen Germany as a sustainable finance location. The framework is based on the SDGs and the Green Bond Principles of the International Capital Market Association (ICMA). The green federal bond framework defines five key sectors as eligible:

- Transportation
- International cooperation
- Research, innovation, and information
- Energy and industry
- Agriculture, forestry, and natural landscapes.

By 2021 three green federal bonds have been issued. All bonds have received great interest on the bond market, thus benefiting from good financing conditions.

- On September 2, 2020, the federal government issued its first green federal security.
- The second issue took place on November 4.
- May 11, 2021 issue of first 30-year green federal bond

On April 20, 2021, the federal government presented the first allocation report for the green federal bonds. The "Green bond allocation report 2020" lists the federal budget expenditures recognized as green in 2019 and allocates them to the issue proceeds of the green federal securities issued in 2020 totalling 11.5 billion euros. The issue proceeds are matched by eligible green expenditures in the 2019 budget year totalling EUR 12.3 billion (Bundesfinanzministerium 2021).

The Federal Government intends to continue its green federal bond programme (Deutsche Finanzagentur 2021).

Green Finance in China

The origins of Green Finance in China, as mentioned earlier, are a little different from those in Europe and have a longer history than in Europe. After the 1978 economic reform in China, the country has experienced extremely strong economic growth. However, this has often been often accompanied by severe environmental pollution, such as heavy air pollution (smog), polluted rivers, biodiversity loss, contaminated soils etc. The Chinese government recognized these problems at the end of 1990s and acknowledged the impact that financial sector should have for the implementation of environmental protection goals (Climate Bond Initiative, 2020). Since the threat caused by climate change has become increasingly concrete and tangible, and since the announcement at the end of 2020, that China will be carbon-neutral by 2060, the question of financing a transition to a carbon-neutral economy has become an even greater focus of the Chinese public policy agenda.

The “Green Credit Policy”

As early as 1995, the People's Bank of China (PBoC) took the lead in issuing guidance on incorporating environmental factors into credit decisions. In 2007, China’s former Ministry of Environmental Protection and the China Banking Regulatory Commission announced a “Green Credit Policy” that was supposed to encourage banks to increase their environmentally friendly lending (Green Credit Guidelines in China, 2019). The next step was taken in 2012: the at that time still existing China Banking Regulatory Commission (CBRC) issued the "Green Credit Guidelines", which were at the point of issuance a non-compulsory normative document that implied no sanctions for non-compliance. These guidelines should encourage financial institutions to develop and offer green loans, to foster innovation and to integrate environmental criteria into their risk management as well as to improve the overall environmental performance of the bank - both domestic and overseas. In particular, the Green Credit Guidelines also oblige Chinese financial institutions to improve the environmental management of foreign projects. The intention was to ensure that Chinese regulations and laws for environmental protection are applied to project abroad, too (klimareporter 2019; Green Finance Platform 2012). The “CBRC's Notice on KPIs for Green Credit Implementation (2014)” complemented the guidelines by giving key performance indicators (KPI) to the banks to measure their environmental performance and to submit the results of the self-assessment to CBRC.

13th Five Year Plan – “ecological civilisation”

In 2016, China increased its activities in the field of green finance even further. To begin with, the 13th Five-Year Plan (FYP) (2016-2020) firmly embedded climate and environmental protection in its agenda: the term “ecological civilization” used in this context shifted the focus to enhancing the quality of Chinese products, promoting environmental technologies and the holistic, sustainable development of society. Targets and indicators were defined for air and water quality and overall pollutants (Climate Bonds Initiative 2020). The 13th FYP defined Green finance as one of the most important measures for building an “ecological civilization” and emphasized the need to build a green financial system. In Part III: *New Systems for Development*; *Chapter 16: Accelerate Financial Reform* a green financial system was recognized as an essential support for an ecological transformation of the economy as well as technological innovations (dena 2019). Green Finance was not only addressed in relation to the financial sector, but it is also a theme throughout the government’s overarching policy design. Among others, *Chapter 48: Developing Green Environmental Protection Sectors*, mentioned the following measures:

- The development of energy-efficient and environment-friendly industries
- Encouraging non-governmental investment in the construction of environmentally friendly infrastructure
- Green labelling and certification

There is also a reference in *Chapter 49: Improve Strategy for Opening Up* and *Chapter 50: Improve New System for Opening Up*:

- Increasing the level of Opening-up of the financial market
- Mutually opening up the insurance, reinsurance and accounting market
- Attracting foreign capital, new technologies for energy saving and environmental protection

As soon as 2016, the Chinese central bank PBoC, together with six other state agencies and ministries, published the "Guidelines for Establishing the Green Financial System". The Guidelines stress that the most important task of Green Finance is to mobilize and create incentives for private capital to be invested in environmentally friendly sectors and economic activities (PAGE 2016). Another important aspect is to restrict investments in environmentally polluting economic activities. China thus became the first country to promote the establishment of a green financial system based on the top-down principle. The guidelines include a variety of requirements, provisions and instruments related to green loans, green bonds, green incentive programs, green securitization, green insurance and sovereign wealth funds. They call for the development of uniform standards, rating systems and indices, as well as disclosure requirements for environmental information.

Figure 6: Environmental targets in China's 13th FYP

Environmental targets in China's 13th Five-Year Plan[9]

	12th FYP Targets (2010 baseline)	12th FYP Achievements	13th FYP's Targets (2015 baseline)
Energy consumption per Unit of GDP	-16%	-18.2%	-15%
Carbon emissions per Unit of GDP)	-17%	-20%	-18%
Non-Fossil Fuel Percentage	11.4%	12%	15%
Sulfur Dioxide (SO2)	-8%	-18%	-15%
Nitrogen Oxides (NOX)	-8%	-18.6%	-15%
Ammonia Nitrogen	-10%	-13%	-10%
Chemical Oxygen Demand (COD)	-10%	-12.9%	-10%
Forest Coverage	21.7%	21.63%	23.04%

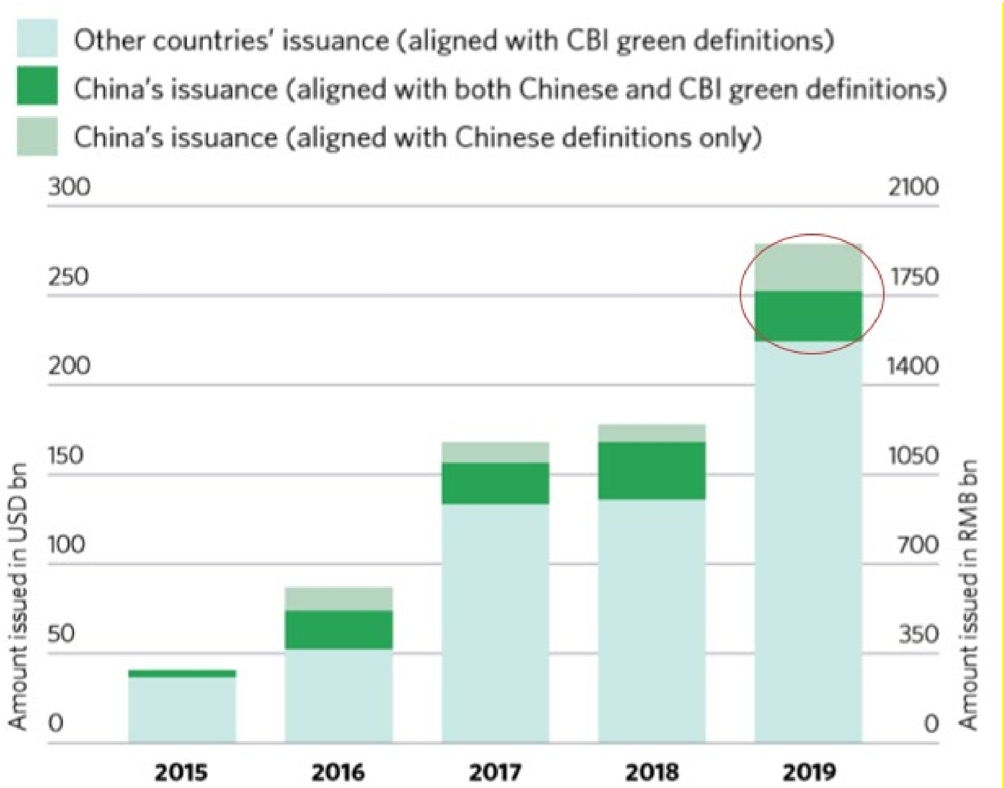
SOURCE: CLIMATE BOND INITIATIVE 2020

Green Bonds

Green bonds play an important role as green financial products in China. Already in 2015, the PBoC published the first "Green Bond Endorsed Project Catalogue", which stipulates which projects can be classified as "green". In addition, requirements for reporting and use of funds are given (PAGE 2016). The Catalogue had the goal of strengthening industries declared as "green" and preventing pollution without considering other targets. The catalogue thus represented a list of industries and projects that were considered green per se. Due to the relatively simple requirements for structure of the Green Bonds, the only slightly higher costs and not too strict transparency requirements, green bonds have become a widespread financing instrument in China. It helps to fill the financial gap. China needs green investments of Euro 40tn to realise the 2030 environmental and climate goals.

Since 2016, China has been one of the largest issuers of green bonds. The chart below shows that China's green bond volume is at a continuously high level. At the same time, one can see that in 2019 only half of China's green bonds were compliant with internationally recognized standards, according to Climate Bond Initiative (CBI), an NGO working in this field. In 2020, which is not yet shown in the graph, the volume has fallen for the first time since 2015 due to the global pandemic.

Figure 7: Green Bond Development in China



SOURCE: CLIMATE BOND INITIATIVE 2020: CHINA'S GREEN BOND ISSUANCE AND INVESTMENT OPPORTUNITY REPORT, 2020

In 2020, China tightened its Green Bond requirements when PBoC, the China Securities & Regulatory Commission (CSRC) and the National Development and Reform Commission (NDRC) jointly published the new version of the Green Bond Endorsed Project Catalogue. It excludes the often criticized and questioned financing of clean coal and harmonizes with the NDRC "Green Industry Guiding Catalogue (2019 version). The new version is also more in line and consistent with widely recognized international Green Bond Standards. In addition, the PBoC has indicated that it will review banks' performance in the green finance sector (as a share of their total business mix) on a quarterly basis.

Green Loans

Over the last few years, developments in green loans, just like the developments in green bonds, have been very positive. The annual growth rate of green loans is about 14%, which is significantly higher compared to the rate of traditional loans. This development is largely due to the large number of subsidies and incentives in the field of renewable energy deployment, energy efficiency initiatives, and environmental protection projects through China's public finance. The Chinese government offers many supportive measures, thus ensuring strong growth - the inclusion of green finance performance in the macro-prudential assessment of banks, interest rate subsidies from local governments, government promotions and capacity-building actions to mention a few.

On a positive note, despite the expansive issuance of green loans, their quality has not suffered from that growth (non-performing loan ratio has remained constant).

There are three different guidelines for issuing a Green Bond, depending on the status of the issuer:

Green bonds issued by financial entities are subject to the People's Bank of China (PBOC) Green Bond Endorsed Project Catalogue

Green domestic corporate bonds, (and in general non-listed companies), are subject to the National Development and Reform Commission (NDRC) Green Bond Guidelines

Green bonds issued by listed companies and corporate asset-backed securities are subject to the China Securities Regulatory Commission (CSRC) Guidelines for Supporting Green Bond Development

SOURCE: GREEN FINANCE PLATFORM

Green Finance Pilot Zones

Worth mentioning is China's unique approach of launching "Green Finance Pilot Zones" in 2017 - in Guangdong, Guizhou, Jiangxi, Zhejiang, and Xinjiang provinces in 2017, each with its own thematic focus, to support a hands-on experience. In 2019, Lanzhou in Gansu was added to the list of active green finance pilot zones

Xinjiang, Hami City, Changji Prefecture and Karamay City	• Support of modern agriculture
	• Loans focusing on
	  ○ Renewable and clean energy
	  ○ Sustainable transportation
	  ○ Protection of natural habitat
	  ○ Ecological restoration
	• Prevention of environmental disasters
	• Monitoring projects

Zhejiang, Huzhou und Quzhou Cities	Industrial Transformation: • From a conventional industry to a green industry
Jiangxi, Ganjiang New District	• Establishment of a fully functional green financial system with numerous products and services
Guangdong, Guangzhou City, Huadu District	• Energy saving • Emission Reduction

	• Green fintech and green financial market with HK and Macau capital markets.
Guizhou, Gui'an New District	• Agricultural waste treatment • Environmental Protection • Infrastructure construction for Big Data, information sharing, environmental protection and poverty reduction through Green Finance
Lanzhou	• Green insurance • Improving green finance information accessibility

The Green Pilot Zones appear to be a promising model for developing a greener financial system. The data and results generated there are important foundations for the Chinese government to further develop its policies in this area (The Paulson Institute, 2021).

EU – China: International cooperation on green finance

As previously mentioned, green finance is one of the keys to financing a transition to a carbon-neutral economy, in which a massive mobilization of global capital is necessary. Unfortunately, different standards and requirements across administrative borders often constrain global capital flows and add to the transaction costs of investments and projects through green finance. However, China and the EU are working on harmonizing their green finance approaches as well as on the harmonisation on a global scale (EASTASIANFORUM 2021). One example of the Chinese – European cooperation is the joint publication of a white paper on green finance by the Green Finance Committee (GFC) of the China Society for Finance and Banking and the European Investment Bank (EIB) in 2017. The aim of the white paper was to compare and harmonize the use of terminology in the field of green finance. This white paper laid the first milestone for cooperation for developing a common Green Finance System (EIB 2017). Currently China and the EU are working on harmonizing their taxonomies on green economic activities (Nordsip 2021).

Both China and the EU are active in different formats of multilateral cooperation. These are important activities. If China and the EU take the lead and align their sustainability taxonomies and tools, this could set the basis for the much-needed global standards.

China and the EU together with Argentina, Canada, Chile, India, Kenya, and Morocco, are founding members of an initiative to promote global exchange on Sustainable Finance. They launched the "International Platform on Sustainable Finance (IPSF)" at the IMF-World Bank meeting in Washington DC on October 18, 2019. IPSF is intended to serve as a forum for exchange among its members, to help share information and promote best practices (CRIC 2019). To mention is, that China and the EU now are jointly leading the working group on taxonomies (Seneca 2021).

As it held the presidency of the G20 in 2016 the Chinese Government launched the Green Finance Study Group (GFSG), chaired by the People's Bank of China and the Bank of England, and supported by the UNEP Secretariat. Principles and objectives of this study group include general broad definitions of green finance and a catalog of green finance and financial services. In 2016-2018, the working group pushed sustainable finance at the global level and published 24 input papers. Regrettably, the work of the GFSG was on hold for several years, partly due to different approaches by the US. Now, however, Italy (which currently holds the presidency of the G20) announced that it would reactivate the GFSG as Sustainable Finance Working Group (SFWG) and invited China and the U.S. to co-lead it. The United Nations Development Programme will again provide the secretariat. The SFWG now holds the status of a working group, which implies an upgrade (G20 2021).

Another example of China-EU joint actions is the "Central Banks and Supervisors Network for Greening the Financial System (NGFS)". Announced at the "One Planet Summit" in Paris in 2017, with PBoC as the co-founder, the NGFS is a global network of central banks and regulators that promotes a more sustainable financial system. It aims to analyze the impact of climate change on the financial system and redirect global financial flows to enable low-carbon economic growth.

There are also bilateral dialogues between China and European countries (e.g., the UK and France) on green finance.

> *“This group will be central for coordinating international efforts to mobilize sustainable finance, which is crucial to achieve a global green and sustainable recovery. The working group will make it possible to develop a long-term G20 agenda that can help to drive the policy change needed to further align the financial system to the Paris Agreement and SDGs.”*

- *Marcello Ranucci, representative from Italy's Ministry of Economy and Finance:*

Conclusion

The investments needed to transform to a carbon-neutral economy and the associated infrastructure investments are enormous. The two major economies, China and the EU, have recognized that green finance is an important element in meeting the challenges of climate change and achieving the global energy transition. Both China and the EU have mainly adopted a top-down approach to financial system change. Both are trying to mobilize capital for green investments in different ways and to remove the various economic hurdles. In the EU, however, this approach is much more characterized by the involvement of the EU Council and Parliament, as well as public consultation processes. In comparison in China there is in an additional bottom-up" strategy in ground-level experimental work and implementation.

China and the EU are each seeking to develop definitions of "green" through the introduction of taxonomies. In China's case, this is a kind of project catalog, while the EU taxonomy assesses the environmental impact of various economic activities based on thresholds and compliance with environmental goals. It is very positive that the EU and China are working on a "common ground taxonomy" and will thus simplify economic cooperation. Also, through their cooperation in the International Platform on Sustainable Finance and the Network for Greening the Financial System, they have the opportunity to influence and support global financial markets towards more climate protection.

China has started to set standards with its green credit system and green bond market and has already tightened them step by step. The EU Commission is currently setting standards by introducing the Financial Disclosure Regulation or the Non-Financial Reporting Directive, for example. However, practice shows that there are still many questions regarding the implementation and application of the requirements, the collection and analysis of data and the monitoring. The alignment of environmental and financial policy objectives, capacity building in the field of green finance and the financing not only of green investments but also of a transformation process are further issues that need to be addressed in the future.

China and the EU (and thus also Germany) will jointly benefit from an expansion of practical cooperation and projects and technologies that find it hard to attract private capital including energy efficiency programs or immature but promising energy technologies. Besides, the exchange of experiences in the form of China-Germany/Europe dialogues and capacity-building in the field of green finance would also be helpful. For both economies, the common goals for climate action and energy transition as well as the focused cooperation in green finance could lead to more stability, a valuable contribution to the implementation of the Paris climate agreement and a positive influence on global financial markets towards greater sustainability.

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List of diagrams

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