



中央财经大学绿色金融国际研究院  
INTERNATIONAL INSTITUTE OF GREEN FINANCE, CUIE



# ESTABLISHING CHINA'S GREEN FINANCIAL SYSTEM: PROGRESS REPORT 2017

构建中国绿色金融体系：进展报告 2017

SUMMARY



**Inquiry:** Design of a  
Sustainable Financial System

## The International Institute of Green Finance, Central University of Finance and Economics

The International Institute of Green Finance (IIGF) of the Central University of Finance and Economics (CUFE), is an independent and non-profit think tank in China whose goal is to promote the development of green finance. The IIGF grew out of the Research Centre for Climate and Energy Finance (RCCEF), which was founded in September 2011, and is partially financed by donations from Tianfeng Securities. IIGF is specialized in green finance as well as climate finance and energy finance. It conducts research within a range of areas such as credit, bonds, insurance, carbon-trading, information disclosure and risk assessment at a national and local level and additionally conducts research internationally. IIGF is one of the executive member institutions of the Green Finance Committee (GFC) of the China Society of Finance and Banking and has also built an academic relationship with the Ministry of Finance. The IIGF aims to spread the word of green finance and solidify its status as one of the world's leading financial think tanks.

More information on the IIGF is at: <http://iigf.cufe.edu.cn> or from:

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## UN Environment

UN Environment is the leading global environmental authority that sets the global environmental agenda, promotes the coherent implementation of the environmental dimension of sustainable development within the United Nations system and serves as an authoritative advocate for the global environment. It initiated the Inquiry into the Design of a Sustainable Financial System to advance policy options to improve the financial system's effectiveness in mobilizing capital towards a green and inclusive economy—in other words, sustainable development. Established in January 2014, the Inquiry published its first global report, 'The Financial System We Need' in October 2015, with the second edition launched in October 2016. The Inquiry has worked in around 20 countries and produced a wide array of briefings and reports on sustainable finance.

More information on the Inquiry is at: <http://web.unep.org/inquiry> and [www.unepinquiry.org](http://www.unepinquiry.org) or from:

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SUMMARY



# FOREWORD



Since the first steam engine of the industrial revolution, our planet has seen and experienced the stresses caused by exploiting resources and the environment, all in the name of economic growth. How to achieve sustainable economic and social development while protecting and preserving our environment has become the question that we need to answer now.

China has become the second largest economy in the world, with the corresponding environmental problems caused by rapid economic transformation becoming increasingly clear. Air, water and soil pollution, and other environmental problems have negative effects on people's everyday life. In the recent 19th National Congress of the Communist Party of China, President Xi Jinping emphasized that the construction of an "ecological civilization" and the maintenance of ecological security are the keys to China achieving stable and sustainable development. Meanwhile, in the context of supply-side structural reform and overall planning for economic and social development, the themes of green development and building an ecological civilization that respects the environment have begun to reveal a new and brighter path for China's economic and social transformation and development. We no longer have to choose between economic growth and environmental protection as in the past; these two goals can now be simultaneously achieved, with economic prosperity and a preserved environment.

As an innovative policy and financial instrument, green finance has developed rapidly during this process. China's achievements in the field of green finance have become consolidated proof of the country's promotion of ecological civilization construction, strategic layout of green development and engagement in the global response to climate change. In global policies and important agendas such as the construction of the Belt and Road, the G20 and the foundation of the Asian Infrastructure Investment Bank, China is becoming recognized by the international community for its leading role in worldwide green finance development with its innovative, yet effective, approaches. The achievements of China in the field of green finance have created a "Chinese Solution", which has become a pattern for reference in developing green finance.

The cooperation between the International Institute of Green Finance of the Central University of Finance and Economics and UN Environment shall present the history of China's green development and deliver detailed, concrete and objective research results to those who are interested and engaged in, promoting the development of green finance. Our aim is to better summarise, innovate, extend and explore China Solutions to both domestic and global green finance development. Green development is the future, not only in China, but also across our beautiful yet fragile planet.

**Shi Jianping**

Vice president, Central University of Finance and Economics  
Chairman, International Institute of Green Finance - Central University of Finance and Economics





# PREFACE



China and the global community's future development depends on its transition to an inclusive, environmentally friendly, low carbon economy. Making this transition will require political will, continued technological innovation, international cooperation, and a rapid scaling of business and economic innovation focused on realizing the Sustainable Development Goals, and meeting commitments under the Paris Agreement on climate.

Mobilizing finance at scale is a pre-requisite to success, yet today's global financial and capital markets are not yet fit-for-purpose. UN Environment through its Inquiry into the Design of a Sustainable Financial System has mapped both the need for change and innovative progress. In particular, it has highlighted the need for improvements in green-related information flows, appropriate capacities and incentives, and developments in financial policy, regulation and standards, as well as fiscal and judicial measures.

China has today more than any other country taken policy commitments, advanced practice and mobilized international action on green finance. The State Council's adoption in August 2016 of a set of recommendations for action in greening China's financial system has inspired others around the world to act. Its leadership in taking green finance to the G20 has, likewise, raised awareness and catalysed other G20 governments, regulators and market actors to advance the agenda in practice.

The International Institute of Green Finance in Beijing and UN Environment have partnered in preparing this progress report as the first, systematic documentation of efforts in China to translate policy commitments into practice. The report considers progress made against the recommendations adopted by the State Council, highlighting success and mapping challenges to progress.

There is much to learn in moving from awareness-raising to policy and then to practice. The report is the first annual review of progress, and we hope will contribute to continued developments in China and internationally.

## **Wang Yao**

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Central University of Finance and Economics

## **Simon Zadek**

Co-Director, UN Environment Inquiry into the  
Design of a Sustainable Financial System

# ACKNOWLEDGEMENTS

This report is prepared by a joint team from IIGF and UN Environment, with immense support from many experts and scholars in green finance that have been consulted.

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Special thanks also go out to Mr. Mark Halle who led the International Institute for Sustainable Development (IISD), which contributed enormously to the breakthrough research work on China's green financial system. We are also grateful to the UN Environment Inquiry team, led by Dr. Simon Zadek who initiated the original idea for such a publication, and Ms. Kelly Yu who has undertaken significant coordination work and provided insight on the revision and translation of the report. Mahenau Agha, Iain Henderson, Olivier Lavagne d'Ortigue, Felicity Perry, Nader Rahman and Nick Robins have provided great support to this publication.

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In preparing for the report, the team has conducted extensive data collection, research, methodology analysis, workshop and consultation, followed by several months of repeated deliberation and numerous revisions, trying to be comprehensive and objective in reflecting the status quo of China's green finance development. The final result is the achievement of everyone's efforts, and we are thankful to every member involved in the process.

We understand it is difficult to reflect every single view and opinion in this report, and there are certainly some omissions and errors due to lack of the most complete data and limitation of the authors. We welcome any comments, feedback and corrections.

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## EXECUTIVE SUMMARY



World economic growth is bearing the costs and negative consequences of environmental pollution, natural resource depletion and climate change. According to estimates by the International Energy Agency (IEA), the Organisation for Economic Co-operation and Development (OECD), the World Bank and the World Economic Forum (WEF), green sectors, such as clean energy, efficient building and construction, green infrastructure, water and pollution treatment, will require several trillion dollars of global investments in the coming decade.<sup>1</sup> To propel the transition towards a green economy, green finance needs to be scaled up. In 2016, the G20 chaired by China, included green finance in the *G20 Summit Communiqué*<sup>2</sup> for the first time as a financial solution to bridge the funding gap, generating a consensus on jointly promoting the development of green finance.

China is at a crucial stage of maintaining steady economic growth and promoting structural adjustments. Meanwhile, green development and ecological civilization have come to the forefront as key national strategic objectives. According to estimates, in order to achieve these objectives, China needs a minimum of RMB3-4 trillion each year in green investments from 2015 to 2020, at least 85% of which needs to come from private capital.<sup>3</sup> However, as environmental externalities are still yet to be internalized, China is faced with major challenges in restraining polluting investments, attracting sufficient private investments to green sectors and promoting the leveraging effect of government funds as part of its efforts to achieve sustainable development.

China's work on green finance stretches back a decade. This was strengthened when in 2016, China unveiled its policy framework for the green financial system. On 31 August 2016, seven ministerial agencies including the People's Bank of China (PBoC) and the Ministry of Finance jointly released the *Guidelines for Establishing the Green Financial System* (the "Guidelines"), setting out, for the first time, the official definition of green finance, incentives, disclosure requirements, development plan for green financial products, as well as risk mitigation. This document marked the official initiation of supply-side financial structural reforms aiming to promote green development. The *Guidelines* also included green finance into China's policy and regulatory framework, putting an end to its previously fragmented development. Meanwhile, as the first country in the world with clearly stated government policy support to create an all-encompassing green financial system, China has also seen rapid development in green financing and green financial product innovation, spurred by policy incentives.

Since the release of the *Guidelines*, aside from continuous policy implementation at central and local levels, China has made major progress in areas including green financial products, institutions, standards and methods, and has been playing an increasingly important role in facilitating international cooperation in green finance. In the future, China's green finance development process will not only determine the level of green development in China, but also exert considerable influence on the green transition of the world economy at large.

This report takes stock of and reviews China's development of green finance over the past year in various dimensions including policies, products, and market infrastructure and offers recommendations and an outlook on future development.

## GREEN FINANCE IN CHINA: THE PAST DECADE

Before reviewing the implementation of the *Guidelines* in the past year, this report includes an overview of the development of green finance in China in the past decade, covering the following three stages.

- **The Initial Stage (2007-2010):** Various green finance policies on green credit, green securities and green insurance were released. The main focuses of these policies include encouraging green credit, carrying out environmental reviews for listed companies and piloting environmental pollution liability insurance.
- **The Consolidation Stage (2011-2014):** Efforts were made to pilot carbon emission allowances trading, establish green credit guidelines and green credit statistics system, and promoting an environmental pollution liability insurance pilot. During and around this period, international think tanks and organizations, such as the International Institute for Sustainable Development (IISD), the Climate Bond Initiative (CBI) and many others, played an active role in promoting and conducting green finance research in partnership with Chinese institutions. The Green Finance Task Force, which was initiated by the PBoC Research Bureau and the UN Environment Inquiry in July 2014, released *14 Recommendations on Establishing China's Green Financial System*.<sup>4</sup>
- **The Implementation Stage (2015 till now):** Most of the proposals made by the Green Finance Task Force were approved by the Central Committee of the CPC and the State Council and included in the “Integrated Reform Plan for Promoting Ecological Progress”, released in September 2015, as the strategy to “establish the green financial system”. Building on this, in August 2016, seven ministerial agencies including the PBoC promulgated the *Guidelines for Establishing the Green Financial System*, the world's first systematic green finance policy framework. At the domestic level, the green bonds market experienced rapid development and new breakthroughs were made in the innovation of various green financial products. The Green Finance Committee of the China Society for Finance and Banking (GFC) was formed along with other competent institutions to promote green finance; marked progress was made in the R&D of green finance standards, evaluation mechanisms and environmental risk analysis; and capacity-building and training on green finance were carried out extensively. At the international level, as G20 president, China included green finance into the G20 agenda in 2016, an agenda that was retained and further explored by Germany in 2017, gradually forming the global consensus on developing green finance. Backed by concrete top-down policy measures and proactive market actions, China was able to implement the notion of green finance in all aspects of the industry with remarkable efficiency and became the leading force in green finance across the globe.

### TOP-LEVEL DESIGN: COMPREHENSIVE POLICY SUPPORTED BY IMPLEMENTING RULES

As noted in the *G20 Green Finance Synthesis Report 2016*,<sup>5</sup> the development of green finance requires clear policy signals. China has developed a sound top-level design for green finance that will encourage market stakeholders to ‘green’ the financial system and advance the transition towards a green economy. This top-level design encompasses national strategic documents, special policies and implementing rules. The latest progress and characteristics of China's green financial system are:

- **Established strategic framework and policy guidelines for the green financial system.**
  - » Comprehensive plan for the top-level design: Seven ministerial agencies<sup>6</sup> jointly released the *Guidelines*.
  - » Green finance reform and innovation pilot zones: Zhejiang, Jiangxi, Guangdong, Guizhou and Xinjiang.
  - » Implementing rules for different sectors: Seven ministerial agencies will release specific implementing rules for different sectors.

- **Included the theme of ecological civilization in the 13th Five-Year Plan, and clarified green investment and financing needs.**
- **Publicized green investment and financing concepts extensively in China.** Digital finance has further promoted green finance among the general public.
- **The Green Finance Committee (GFC) of the China Society of Finance and Banking has played a crucial role.** Since its inception in April 2015, all major banks and many large and medium-sized funds, insurance and securities companies joined the GFC. Currently, GFC members are managing two thirds of all financial assets in China and are playing a key role in facilitating the release of new policies, promoting the notion of green finance, product innovation and capacity-building.

Green finance is a systematic programme involving multiple sectors and relying on supporting policies in different fields. Despite the establishment of the green finance policy framework in China, it still have a long way to go to ‘green’ the financial system. In the future, the top-level design for green finance needs to improve in the following aspects, in order to provide solid support for practical implementation.

- **Incorporating green elements into laws and regulations, and promoting policy consistency.** Regarding legislation, green elements should be incorporated into the *Law on Commercial Banks*, the *Securities Law* and the *Insurance Law*. Regarding creating a policy support system, green finance development requires coordination among fiscal and taxation, monetary, credit and industry policies, thus strengthening either incentive or restrictive mechanisms for investment and financing on all fronts. As for the organizational structure, steady interdepartmental coordination mechanisms based on information sharing should be established in the future to ensure uniformity and stability of green finance policies.
- **Facilitating the internalization of environmental costs with restraints and incentives.** On the one hand, China should continue to expand the application of environmental stress testing in bank credit, asset management and credit rating, and strengthen the internalization of environmental costs (profits) with the support of environmental credit trading scheme and sterner law enforcement. On the other hand, more fiscal funds and government integrity should be applied as incentives for market-based green finance supply, maximizing the role of fiscal credit and fiscal and taxation policy in leveraging private capital.
- **Enhancing assessment of green finance activities and their impact.** Unified statistical standards and development assessment systems for green finance should be applied in green finance standardization, environmental information disclosure and activity monitoring, to guide green investment and assist policymakers and regulators in assessing the effectiveness of policies.
- **Sharing China’s experience in green finance development.** China’s unique development model in the overall planning of green finance, policy framework establishment and implementation and product design can serve as a useful experience for other countries, especially developing countries. Meanwhile, by actively participating in international policymaking and regulation on green finance, China can take the initiative in facilitating the formulation and application of international green finance standards, thus promoting international best practice.
- **Strengthening capacity-building among stakeholders.** The improvement of the top-level design not only relies on raising the awareness and deepening the understanding of green development among governments at all levels, but also depends on gaining knowledge about green finance as well as improving capacities for governments, investees and investors, and intermediaries. Furthermore, the media’s promotion and the public preference for innovative green products will also serve to propel top-level design for green finance in China. Therefore, the role of the GFC, think tanks and other relevant institutions should be highlighted to help build stakeholders’ capacities.



## GREEN FINANCE PILOT ZONES: IMPLEMENTATION WITH DIFFERENTIATED LOCAL PRACTICES

On 14 June 2017, the State Council decided to set up pilot zones for green finance reform and innovation in Zhejiang, Jiangxi, Guangdong, Guizhou and Xinjiang, followed by overall plans for each pilot zone jointly released by seven ministerial agencies. By establishing these five distinct pilot zones, China aims to explore different development models for the local green financial system against different backgrounds, thus offering diverse practical samples for promoting green finance across the country.

- **The five pilot zones achieved initial progress.** At present, all pilot zones have made progress in supporting policies, organizational structures, products and services innovation, market construction and institutional development.
- **Other provinces/regions released policies on green finance.** In response to the national top-level design for green finance, over 10 provinces and autonomous regions not covered by the pilot programme have released policy frameworks on green finance.
- **Local GFCs played an active role in resource integration and coordination.** Supported by national regulatory authorities, research institutes, medium and large financial institutions, the GFC has called on local financial institutions to carry out relevant training, exchange and cooperation, and has promoted best practices, exemplary cases and experiences in developing green finance. Currently, Xinjiang, Guangdong, Zhejiang and Gansu have all set up their own local green finance committees.

Despite the initial progress, local green financial systems are faced with the following problems in pursuing the goals of local economic development and ecological civilization:

- The lack of a clear definition for “green” makes it difficult to identify green projects, with greenwashing risks on the rise;
- Due to the fragmented development of green finance, the majority of local financial regulators are inadequately informed of the latest development in green finance; and
- With a shortage of institutions and professionals dedicated to green finance, local capacity-building has yet to be improved.

To bring into full play the positive role of green finance in transforming the local economy, local governments should focus their efforts on:

- **Clearly defining the term “green”, thus lowering the identification costs of green projects.** On the basis of a nationally unified definition of “green”, local governments should establish local evaluation standards and screening procedures for green projects.
- **Setting up statistical systems for green finance.** Local governments should set up sound statistics arrangements and data release procedures for green bonds, green stocks, green insurance and green funds, providing data support for policy evaluation, performance evaluation in relevant institutions and policy amendments in the future.
- **Constructing the performance evaluation system for local green development.** Local governments should link local environmental performance with the performance evaluation of key government officials at the municipal and county level.



- **Adopting incentive measures to attract green finance institutions and professionals.** Local governments should adopt a range of supporting policies, including relocation packages, tax preferences, land use and reward for business contribution, to encourage financial institutions to set up their headquarters or regional headquarters within their administered regions, and improve the policies on attracting and training green finance professionals.

## GREEN CREDIT: SOLID FOUNDATION AND SOUND DEVELOPMENT

Credit is at the core of financial resources allocation in China's financial system. As the field that pioneers green finance in China, green credit also serves as the foundation of China's green financial system. Currently, China's green credit has made the following progress:

- **The policy system for green credit has been established.** At the national level, an institutional framework consisting of guidelines, statistical system and evaluation system has been created. More efforts are being made to include green credit performance evaluation into the Macro Prudential Assessment (MPA) system. In addition, relevant green economy sectors have adopted various incentive policies to guide the investment of credit funds. At the local level, several pilot zones and some other provinces/autonomous regions have suggested the use of monetary policy instruments including re-lending and re-discount to encourage green credit.
- **The size of green credit remains stable.** By the end of 2016, the outstanding green credit of 21 major banking and financial institutions in China amounted to RMB7.51 trillion, a year-on-year increase of 7.13%, and accounted for 8.83% of all outstanding loans.
- **Banks have been active in promoting green transformation and products innovation.** Since the signing of the *Joint Undertaking of the Chinese Banking Industry Regarding Green Credit* by 29 major banks in 2014, financial institutions in the banking industry have been active in offering green credit services and formulating their own policy framework. Under such a framework, they have developed over 50 green credit products, covering services such as accepting green assets as collateral or pledges, and financing energy efficiency, emission reductions, and new-energy projects. Meanwhile, China Industrial Bank and the Bank of Jiangsu successively adopted the Equator Principles, helping them align with international standards on green credit.

During the past decade, China has made some progress in implementing policies on green credit. However, to establish a long-term green credit development mechanism, China still faces the following challenges:

- Insufficient use of interest discounts, guarantees and other incentives with maturity mismatch to be solved;
- Underdeveloped capacity to identify and evaluate environmental risks, underlying the need of improving environmental information disclosure and sharing mechanisms; and
- Poor alignment between the green credit definitions and other green standards, which requires prudent monitoring for incentivized green loans.

Taking international experiences into consideration, this report presents the following outlook for green credit development in China:

- **Clarifying lenders' environmental liabilities.** Relevant authorities could clarify lenders' responsibilities, litigation eligibility, and joint and several liabilities by improving laws and regulations on environment protection, thus urging commercial banks to incorporate environmental risk analysis into the loan application process;

- **Reducing the cost of green credit through incentives and differentiated management.** Relevant authorities could study the feasibility of applying differentiated risk supervisions and monetary policies for green loans, and make efforts to release incentive policies including interest discounts and guarantees based on unified green standards;
- **Encouraging banking self-regulatory organizations to establish a green evaluation mechanism.** Relevant organizations could establish a green credit performance evaluation system for the banking industry by drawing upon international practices;
- **Promoting green credit asset securitization.** On the basis of a sound information disclosure mechanism, banking institutions could develop more asset securitization products, therefore revitalizing the stock of green credit assets and further increasing the size of green credit issuance.

## GREEN SECURITIES: GREEN BONDS PROMINENT IN A STRENGTHENING MARKET INFRASTRUCTURE

Establishing a green securities market is a major step in the transition towards a green economy. With the release of the *Guidelines* and the increasing need for the Chinese economy to go green, China's green securities market has witnessed significant development as evidenced by the following aspects:

- **China has become a new growth driver in the global green bonds market, thanks to various green bonds incentive measures.** With improved policy systems for green bonds and an increasingly pressing need to pivot towards a green economy, China has become one of the world's largest green bonds markets. In 2016, China issued a total of RMB230 billion worth of green bonds in both the domestic and overseas market, accounting for 39% of global green bond issuance. In the first half of 2017, China issued 36 green bonds worth RMB77.67 billion.<sup>7</sup> Of these bonds, the issuance number and size (34 bonds worth RMB67.79 billion) of the debentures and rate bonds experienced an increase of 278% and 28% respectively compared with 2016 (9 bonds worth RMB53 billion).<sup>8</sup>
- **Among the diversifying green bond market, financial bonds make up the largest proportion of issuance.** China's green bond market has expanded from the original product range of financial bonds and corporate bonds to green corporate bonds, green structural financing instruments, green debt financing instruments of non-financial enterprises, with financial bonds still accounting for the majority in the green bond issuance. In 2016 and the first half of 2017 respectively, green financial bonds accounted for 70% and 76% of all the green bonds issued domestically.
- **Third-party verification and rating market grows rapidly with increasing market credibility.** Third-party verification for green bonds has become the common practice, supported by a group of third-party verification agencies including accounting firms, credit rating agencies and consulting companies. In terms of credit rating, Golden Credit Rating International developed China's first green bonds credit rating method that quantifies the positive and negative impacts of environmental elements.
- **Multiple green bonds index instruments emerged.** The release of the ChinaBond Green and Climate-Aligned Bond Index,<sup>9</sup> the CUFE-CNI Green Bond Index Series,<sup>10</sup> the Shanghai Stock Exchange (SSE) Green Bond Index Series<sup>11</sup> and the green bond index-linked wealth management products<sup>12</sup> has provided investors with the performance benchmark as well as new targets for green investment.
- **Green stock indexes start taking shape.** By 30 June 2017, there were 22 green stock passive index funds totalling RMB7.391 billion;<sup>13</sup> and 25 green open-end index funds<sup>14</sup> totalling RMB25.284 billion.<sup>15</sup>
- **Environmental information disclosure has progressed steadily.** Following the release of the *Guidelines*, the Ministry of Environmental Protection along with the China Securities Regulatory Commission

and other competent authorities, have jointly facilitated environmental information disclosure for listed companies, and signed official cooperative agreements to promote mandatory environmental information disclosure, incorporating green securities into the institutional and legislative structure.

- **Green enterprises are enthusiastic about Initial Public Offering (IPO) financing and follow-on offerings.** With increasing policy support for the listing of environmental enterprises, in the first half of 2017, China has witnessed a significant increase in the number of green enterprises engaging in IPO financing, particularly in the field of pollution control.
- **Awareness of green investment<sup>16</sup> has gradually increased.** Despite the shortage of funds in China's bond market in 2016, green debt financing that incorporated the notion of "green investors"<sup>17</sup> was 1.77 times oversubscribed.

In spite of the great growth potential, China's green securities market is still in its infancy and faces a plethora of pressing issues that need to be addressed:

- Difficulties in the implementation of green bond incentives, especially preferential measures;
- Lack of a unified standards for third-party verification of green bonds, making it difficult to compare different verification results;
- Lack of a unified green bond standard under the supervision of multiple regulators;
- Without a specified and binding framework for environmental information disclosure, the majority of listed companies have yet to fully disclose their key information;
- Investors just began to develop awareness of Environmental, Social and Governance (ESG) investment and generally lack the ability to identify environmental risks.

To ensure the sound development of the green securities market, more effort needs to be made regarding the following aspects:

- **Standardizing criteria for green bonds.** Via strengthening coordination between competent departments and policies, a unified standard should be adopted to reduce the transaction costs for investors. The formulation of the *Green Industry Catalogue* led by the National Development and Reform Commission (NDRC) will lay the foundation for a unified definition of "green".
- **Urging government at all levels to implement preferential policies for green bonds.** All levels of government should support green bond development through offering discounts and investment subsidies to green projects, or granting tax incentives and fiscal discounts to green bond investors.
- **Improving the mandatory disclosure requirement on environmental information of listed companies.** Relevant authorities should improve indicator systems and strengthen restrictions to enhance the mandatory environmental information disclosure framework, and encourage listed companies to disclose more environmental information on a voluntary basis through the designing and developing of green stock indices.
- **Raising green investment awareness in the market.** In addition to diversifying green investment products, more efforts should be devoted to developing ESG third party ratings, establishing green investor networks and strengthening media coverage and public education of green investment, to help foster green investment concepts in the market.

## GREEN FUNDS AND PUBLIC-PRIVATE PARTNERSHIPS (PPP): RAPID DEVELOPMENT WITH EFFECTS TO BE SEEN

In areas with strong positive externalities such as the green industry and green projects, China's public bodies are shifting their roles from traditional funds and service providers, to service buyers as well as institutional guarantors and market supervisors. Private capital has begun to play an increasingly important role within the field of green investment and financing. As the main sign of this change, China's green funds and the PPP model have developed the following features during the last few years:

- **Green funds are thriving, dominated by market-based operations.** At the national level, the Clean Development Mechanism Fund (CDMF) of the Ministry of Finance invested in a total of 223 green and low-carbon projects, which have reduced emissions by the equivalent of 46.5462 million tonnes of carbon dioxide.<sup>18</sup> At the local level, many provinces and cities have established regional green development funds for further urban greening. Some private green investment funds, including the US-China Green Fund, have also been set up. By the end of 2016, a total of 265 green funds were registered with the Asset Management Association of China, of which 215 were green industry funds and 121 were established in 2016.<sup>19</sup>
- **Extensive application of the PPP model in the green industry.** The Ministry of Finance and the NDRC released a host of documents to support and guide the PPP model, resulting in its broader adoption in public service fields such as green infrastructure, pollution control and resource efficiency. By the end of June 2017, 7,826 green and low-carbon projects, with a total investment of RMB6.4 trillion, were included in the national PPP projects catalogue, accounting for 57.7% of the projects and 39.3% of the investments in that catalogue.<sup>20</sup>
- **The investment return mechanism for green PPP projects has been improved.** The combined development of resources, the performance management of environmental contracts, the recycling of waste and other pollution rights trading mechanisms have begun to receive policy support from central and local governments.
- **Green funds have supported PPP projects in various ways.** The early development of the green PPP projects has been supported by green funds in the form of debt, equity or guarantees. In particular, the China Public-Private Partnership Financing Fund (China PPP Fund) was officially established to support key national PPP projects including green PPP projects.

Green funds and the PPP model have already become an important tool in attracting private capital. However, some obstacles remain that still discourage the participation of private capital to some degree. This can be seen from the issues below:

- The unclear positioning of public funds in green funds, which gives too much weight to fixed returns and has no clear understanding of environmental goals;
- A lack of substantial incentive measures for projects financed by green funds, which in turn influences the attractiveness of green projects;
- The absence of high-level legislation leads to an increased compliance risk of the PPP model and unexpected risk returns on projects; and
- The lack of a regulated and market-based exit mechanisms for private capital.

This report offers the following solutions to these issues:

- **Improving the market-based management system for green funds.** Currently, green development funds under the PPP model are managed as general funds, with the fund evaluation and review focusing more on the added value generated by green projects investment rather than the performance of environmental objectives. Meanwhile, the extremely low risk tolerance makes it difficult to make any strategic investment. The system and mechanism design of green funds should focus more on striking a balance between environmental goals and sustainable operations, and making further institutional innovations applicable to such funds.
- **Establishing and improving laws and regulations concerning PPP.** The official release of the *Regulations on the Public and Private Partnership in Infrastructure and Public Service Sectors* is expected to further advance the systematic legislation regarding PPP in China, and offer a legal basis to solve current problems and difficulties encountered during the implementation of PPP projects.
- **Advancing the asset securitization of green PPP projects.** For those PPP projects with a steady cash flow or return on investment, the right to their future incomes can be converted to marketable standardized products through asset securitization, thus providing proper exit channels for private capitals invested in green PPP projects.

## GREEN INSURANCE: AN INNOVATIVE MARKET SEEKING GREATER COVERAGE

In the narrow sense, green insurance usually refers to environmental pollution liability insurance, while in the wider sense, it can be extended to cover a variety of insurance schemes related to environmental risk management, including climate insurance that highlights environmental risk resilience and innovative insurance products that provide safeguards for low-carbon solutions. By internalizing the cost of environmental risks, green insurance is intended to help address environmental degradation and ecological protection, reduce the socioeconomic consequences of natural disasters, as well as support green investments through its insurance credit enhancement and financing functions. As a long-term mechanism to address environmental risks, China's green insurance system has seen constant improvement.

- **The mandatory pollution liability insurance system continues to make steady progress.** At the national level, the *Measures for the Administration of Mandatory Pollution Liability Insurance*, jointly released by the Ministry of Environmental Protection and China Insurance Regulatory Commission (CIRC), are undergoing public consultation and will soon be promulgated as China's first systematic regulations on mandatory pollution insurance. At the local level, a total of 30 provinces have initiated pilot programmes for mandatory pollution liability insurance, with many localities introducing guidelines or piloting implementation schemes. In 2016, the premium income of environmental pollution liability insurance reached approximately RMB280 million with a risk coverage worth over RMB26 billion.
- **Catastrophe insurance starts to play an important role in the disaster relief system.** The Chinese government has identified catastrophe insurance systems as a key priority in government service and fiscal reforms. Since July 2016, Heilongjiang, Guangdong and Xiamen have successively launched pilot schemes for a catastrophe insurance system.
- **Product and service innovation increasingly drive the green economy.** Product innovation is reflected in the innovative extension of the insurance coverage of environmental risk (such as index-based climate insurance, technology insurance and solar radiation index insurance) and the established linkage between green insurance and other green-related qualifications so as to fulfil credit enhancement functions for green products (such as green building insurance, "government-bank-insurer" cooperative agricultural loans and guarantee insurance for patent pledge financing).

- **The environmental risk management capacity of the insurance sector continues to improve.** The application of new technology has allowed insurers to develop an environmental risk assessment model for quantitative analysis based on historical claims data, as well as employ real-time risk monitoring and control technologies, such as drones and satellite remote sensing.
- **The social management functions of green insurance are coming to the forefront.** Aside from claims settlement, green insurance is taking on the function of offering services by introducing third-party professional service institutions to periodically carry out “environmental health examinations”, and creating a data-sharing mechanism among environmental authorities, insurers, third-party institutions and insured companies.
- **The green investment potential of insurers is being explored.** At the regulatory level, the CIRC issued official guidelines on the use of insurance funds to support projects. At the market level, the People’s Insurance Company of China (PICC) and China Life have already provided direct financing support to green industries through equity or debt. According to the CIRC, by the end of March 2017, the cumulative direct investment by insurance funds into key infrastructure construction and social welfare projects via debt investment plans, equity funds and trust funds amounted to over RMB4 trillion.

Overall, China has continued to lead the way in green insurance innovation and has developed a diverse range of products and services. However, the following issues remain to be addressed:

- Innovative green insurance products have yet to increase their market coverage and cannot meet the law of large numbers for insurance operations;
- The insurance sector is at a preliminary and experimental stage of green investment practices and lacks environmental risk analysis capacity;
- Insufficient public environmental data development has resulted in a lack of necessary data support for the research and development (R&D) of green insurance products.

In light of these challenges, this report further proposes the following suggestions:

- **Increasing the coverage of green insurance through legal measures and policy incentives.** In terms of legislation, China should strengthen the mandatory requirements for green insurance in its environmental legislation, and establish systematic and specific regulations to support environmental pollution liability insurance and other green insurance. In terms of policies, China should improve long-term incentives and restraint mechanisms for green insurance by offering premium subsidy, tax preferences, enforcing environmental laws, and requiring companies to purchase green insurance as a prerequisite for certain qualifications.
- **Creating a re-insurance system and other multilayer market risk diversification mechanisms to enhance the solvency and stability of insurance businesses.**
- **Improving the environmental risk analysis skills of insurance companies.** It is recommended that ESG capacity-building be extensively carried out and environmental risk quantification tools be developed and deployed for insurance asset management. This would increase environmental risk awareness and the analytic skills of insurance companies, and fully explore their green investment potential.
- **Enhancing data availability through technology.** It is recommended that the data availability in the R&D process of green insurance products be enhanced by improving environmental and meteorological data monitoring systems, and creating cross-department data-sharing platforms.



## ENVIRONMENTAL CREDIT TRADING: EXPLORING AND IMPROVING THE GREEN PRICING MECHANISM

As a crucial component of the green financial system, environmental credit trading can fundamentally support the risk management of the financial market environment by establishing a public, transparent environmental cost qualification and pricing mechanism. Since the release of the 12th Five-Year Plan, China has successively introduced four major environmental credits, namely carbon emission allowances, pollution rights, energy savings/energy use certificates and water rights. At present, the discrepancies between different environmental credit trading schemes are huge, with the carbon trading market being relatively mature, the pollution trading market in the middle of license-based reform, and the energy savings/energy use trading and the water trading market still at the early stage of institutional development.

- **Imminent launch of a national carbon market.** As the market infrastructure – including total quota setting and allocation schemes, registration system and trading system – is being gradually established, a national carbon market is expected to be officially launched by the end of 2017. A nationwide carbon trading platform will also be set up, which will become the largest carbon trading scheme in the world.
- **Carbon trading pilot programmes provide valuable experience for the establishment of a national carbon market.** Since June 2013, China has carried out pilot carbon trading in Beijing, Tianjin, Shanghai, Chongqing, Hubei, Guangdong and Shenzhen. In 2016, the total quotas of the seven provinces and municipalities reached 1.2 billion tonnes, covering 2,391 enterprises, which ranks as the second largest in the world. This indicates that the market mechanism has succeeded in promoting emission reduction.
- **Carbon pricing mechanisms are developing constantly.** The relevant government authorities have begun to use the carbon pricing mechanisms as a policy tool for adjusting the industrial structure, such as the carbon emission quota policy for electric vehicles. Personal carbon accounts have also gradually emerged.
- **Energy-related trading mechanisms have progressively improved.** In terms of meeting energy efficiency targets at a project level, China's energy savings certificate trading has entered a new phase combining provincial pilot schemes with an enterprise-side voluntary trading market. However, it is yet to achieve significant progress. In terms of meeting the total energy consumption target, China's energy use trading market has been conducting pilot exploration in the provinces of Zhejiang, Fujian, Henan and Sichuan since 2017. The relevant construction work in each pilot province is currently studied. For green power certificate (GPC) trading as a pricing mechanism compensating for environmental benefits of renewable energy, relevant subscriptions have started in July 2017; renewable electricity quota assessment and compulsory trading of GPC will be implemented starting 2018 in light of actual subscription results.
- **The pilot trading of pollution rights has entered a challenging phase.** As a leading institutional innovation in China's environmental management, the paid use and trading system of pollution rights has been implemented in 11 pilot provinces, municipalities and autonomous regions. The pollution permit system was launched in 2016, allowing enterprises to further fulfil their responsibility of controlling their total emissions through cap-and-trade.
- **The water trading scheme has entered a pilot stage.** China has preliminarily built up a water resource management framework centring on the water rights system in terms of initial allocation, ownership, transfer and other aspects of water rights, while also continuously advancing exploratory and pilot practices in a number of provinces and autonomous regions. However, the institutional system and technical support of water trading has not been fully developed, so the construction of a water trading market is yet to undergo long-term research and exploration.

While the trading schemes of pollution rights, energy saving/energy use certificates and water rights are still in the pilot stage for mechanism design, for the carbon emission trading market, China has preliminarily established a cap-and-trade mechanism, regarding the coverage, total limit and quota allocation, accounting system, registration system and supervision of performance compliance. However, as a trading enabler, the current carbon market design still faces many challenges. In general, common concerns towards China's environmental credit trading include:

- The fundamental legal system for environmental credit trading requires further improvement;
- The current environmental trading market has yet to develop its price discovery function;
- The four environmental trading mechanisms are highly similar in terms of core principles, historical data, coverage and regulatory measures, but coordination mechanisms between policies and market principles are yet to be established.

In order to remove present obstacles and give full play to the role of environmental trading schemes in pricing environmental resources, this report offers the following suggestions:

- **Accelerating legislation for environmental credit trading.** The legal characteristics of environmental credits as transactable items along with the rights and obligations of the transaction parties involved should be clearly defined in the legal context. The legal ground for initial allocation, ownership and transfer of environmental credits should also be strengthened.
- **Boosting the financing capacity of environmental credits.** Accepting environmental credits as collateral or pledges will increase market liquidity to some extent, driving enterprises to actively manage environmental credits as an asset class.
- **Coordinating environmental trading schemes with other environmental management policies.** As a part of the policy framework for environment resource management, the environmental trading system is closely linked with policies concerning energy efficiency, emission reduction and new energy. The coordination and synergy between these trading schemes and policies will directly affect the implementation of such policy tools. Meanwhile, the targets of pollution rights trading and the upcoming environmental protection tax considerably overlap. It is essential to adopt an integrated design of these mechanisms, ensuring that an environmental protection tax covers what is left out by pollution rights trading.
- **Greater policy support to carbon trading, and improving the pricing mechanism of the carbon market.** Firstly, clearly position the carbon trading market, appropriately finance carbon emission allowances, and avoid excessive administrative intervention. Secondly, establish a sustained and stable policy framework to ensure predictable price signals. Thirdly, enhance the effective supervision over market participants and their trading behaviours to ensure orderly and healthy development.
- **Clarifying the transition mechanism from pilot markets to a nationwide market for carbon trading and energy-related trading.** Effectively convert local experiences to practical solutions applicable at a national level, and via institutional and mechanism innovation, carry over the remaining allowances in current pilot markets to the national carbon market.
- **Speeding up the trading scheme establishment for energy use certificates, water rights and pollution rights.** Drawing on experiences from the carbon market pilot programme, a series of supporting rules and technical guidance should be established in terms of quota allocation, measurement and verification, market trading and supervision, to provide institutional and technical support for local pilots of environmental trading.



## ENVIRONMENTAL RISKS IN THE FINANCIAL SYSTEM: A KEY RESEARCH SUBJECT TO BE PROMOTED

A sound environmental risk analysis system mainly consists of three elements: environmental information disclosure, a public environmental statistical system and an environmental risk analysis and management framework. With efforts increasing to cope with climate change and protect the environment, more and more countries are starting to focus on environmental risks faced by their financial systems and carry out methodology research. In this aspect, China has made the following progress:

- **Environmental information disclosure policies have progressed steadily.** Between 2008 and 2015, with a series of guidelines on environmental information disclosure released by competent authorities in China, environmental information disclosure has become more regulated. Following the release of the *Guidelines*, mandatory environmental information disclosure has been officially put on the agenda.
- **Sources of public environmental data have diversified.** The number of listed companies releasing their Corporate Social Responsibility reports in 2017 showed a significant year-on-year increase. The Institute of Public and Environmental Affairs (IPE) and other public environmental information disclosure platforms are increasing and effectively supplementing the conventional source of environmental data.
- **Piloting of environmental stress testing has generated preliminary results.** Between 2016 and 2017, the financial sector and research institutions carried out research on environmental risk analysis and management framework, covering credit, asset management, insurance, bond and the stock market. As a result, environmental stress testing is being incorporated into the investment practices of enterprises and financial institutions. The Industrial and Commercial Bank of China, for instance, carried out environmental stress testing for the impact of environmental elements on the credit risk of thermal power, cement, iron and steel industries. Using CSI 300 Index as an asset portfolio, the IIGF CUFÉ conducted environmental stress testing to measure the impact of carbon price risk, water resource risk and environmental penalty risk on the returns and market value of the index components.

Despite increasing efforts made by the financial industry and the academic world in conducting environmental risk analysis and establishing management frameworks, a variety of obstacles and challenges remain in the actual application:

- The poor quality and availability of public environmental data severely affects the soundness and credibility of environmental risk analysis.
- Financial institutions and individual investors have not been made aware of the impact of environmental risks on their return on investment (ROI).
- The lack of existing technology and experience to identify, assess and manage environmental risks for most market players.

In the future, China could strive to make breakthroughs in the following ways:

- **Establishing and improving the system for public environmental data.** The government should attach more importance to establishing public environmental data platforms and providing the necessary guidance and technical support for the environmental data-sharing platforms established by non-governmental organizations.

- ④ **Developing unified and industry-specific information disclosure framework and statistical standards.**
- ④ **Strengthening environmental risk analysis capacities in the financial industry and the more extensive investment community.** Regulators, self-regulatory organizations and the GFC should guide systemically important financial institutions to conduct environmental risk analysis and management before promoting it across the industry. Meanwhile, local financial institutions and investors should be encouraged to explore the field of environmental risk analysis in light of green finance developments.
- ④ **Facilitating the development of third-party green rating institutions.** To prevent greenwashing risks, it is imperative to help develop professional third-party green rating institutions to rate financing entities, and to strengthen the supervision of such rating institutions so as to avoid ethical risks.

## INTERNATIONAL COOPERATION: LEADING THE GLOBAL GREENING PROCESS

It takes more than one country to develop green finance, tackle climate change and improve the environment. Multilateral cooperation on green finance could generate more win-win opportunities for domestic and overseas investment and financing activities, and also spur the development of local green financial markets. Through extensive international cooperation at various levels, China is exerting increasing influence on the global green finance arena.

- ④ **Proactively initiate international topics on green finance, leading a global greening process.** Since the beginning of 2016, China has been carrying out multilateral cooperation on green investment and financing on multiple platforms. At the G20 Summit in 2016, as the rotating chair, China included green finance in the G20 agenda for the first time, and proposed the establishment the G20 Green Finance Study Group co-chaired by China and the UK. Meanwhile, the Belt and Road Initiative has also identified green development and green finance as some of its main objectives.
- ④ **Engage multilateral organizations to promote global exchange and cooperation.** China has been deeply involved in the Sustainable Development Goals (SDGs), the Paris Agreement and other major international agenda setting initiatives and carried out green finance cooperation with multilateral and bilateral organizations, striving to establish a more extensive and universal infrastructure framework for global green finance development.
- ④ **Further expand bilateral cooperation in green finance.** China has worked with Germany, Luxembourg, the UK and the US in relation to green finance. This includes: the Green Finance Task Force set up by the GFC and London's Green Finance Initiative (GFI) to carry out joint research, provide policy suggestions for both governments, and prepare for the 2017 China-UK Economic and Financial Dialogue and COP23; index products jointly issued by an executive member of the GFC and the Luxembourg Stock Exchange; the US-China Green Fund jointly set up by the two countries; green bond capacity-building jointly carried out by the GFC and the German Agency for International Cooperation (GIZ); research on the globalization of green bond standards, which were carried forward by the GFC together with the European Investment Bank (EIB).
- ④ **Actively issue green bonds in overseas markets.** Since 2015, the Agricultural Bank of China, the Bank of China, the Industrial and Commercial Bank of China, Goldwind Science & Technology, Modernland Realty and Geely have issued green bonds in London, Luxembourg, Hong Kong SAR and Singapore respectively, attracting a large number of international investors.
- ④ **Facilitate international cooperation on index products.** Current practices have provided valuable experiences for cooperation in the international capital market, including the CUFE-CNI Green Bond Index and CSI 300 Green Leading Stock Index jointly launched by the IIGF CUFE and the Luxembourg

Stock Exchange, and the SSE Green Corporate Bond Index and SSE Green Bond Index jointly launched by the Shanghai Stock Exchange and Luxembourg Stock Exchange. By June 2018, A-shares will be officially included in the MSCI Emerging Market Index and MSCI World Index, placing China's green stock market development under international scrutiny.

- **Promote outbound green investment.** The Chinese government and the business community have started to attach great importance to developing a green industry chain for outbound investment. With the *Guidelines on Promoting Green Belt and Road* by the Ministry of Environmental Protection, the APEC Green Supply Chain Network jointly initiated by the environmental authorities in China and the US, and the *Initiative on Environmental Risk Management for China's Outbound Investment* by the GFC and six other agencies, China is going global in its green investment practices.

Despite China's remarkable achievements in international cooperation in green finance, the following concerns and obstacles remain:

- China's foreign exchange control not only affects the inbound investment of international capital, but also restricts Chinese institutions' participation in international green investment and financing.
- The definition of green varies from country to country and the different definitions are not comparable.
- China's bond rating system has yet to be recognized by the international community.
- International investors have limited access to information on China's green assets.
- The 'green' preference of China's institutional investors has yet to be improved.
- China's outbound investment institutions have yet to improve their capacity-building about environmental risk management.

Consequently, future efforts need to be directed towards the following issues in order to promote cross-border green capital flow and global green finance development:

- **Providing guidance on capital control policies.** Due to the lack of understanding of China's capital flow control policy, most international investors are concerned that their capital may not be able to flow out smoothly from the Chinese market. Therefore, it is imperative to release clear policies and offer transparent and detailed guidance on the inbound and outbound flow of foreign capital, to encourage more international investors to invest in China via effective channels.
- **Increasing transparency and comparability between the definitions and verification standards for 'green' among different countries.** Due to the differences between countries in their stages of development, industrial structures, as well as the conditions in tackling climate change and improving the environment, there may be discrepancies in the definition of green in different countries. Therefore, the transparency and comparability of these distinctive definitions should be improved, as well as efforts in harmonizing the fundamental framework of green definitions, while also striving to retain the uniqueness of each country.
- **Increasing the transparency of Chinese rating methods and standards.** This effort will better inform international investors about the rating methods and standards used by domestic rating agencies as well as the impact of governmental support on such ratings, thus boosting their confidence in investing in green bonds in China.

- ④ **Establishing a green finance database and developing green indexes aligned with international markets.** Efforts should be made to improve the green finance database, and expand channels for international investors to access the information of China's green finance market, to help boost their confidence. The Green index aligned with the international market should be developed as a benchmark to attract international investors to invest in green bonds and stocks in China. Furthermore, investor roadshows should also be conducted to increase international investors' understanding of China's green finance market.
- ④ **Enhancing green investor cultivation.** Regulators, self-regulatory organizations, the GFC and academic institutions should aid investors in capacity-building, urging them to take ESG elements under consideration during investment so as to raise awareness of green investment.

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- <sup>13</sup> Provided by the IIGF of CUF E based on public data by Wind.
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- <sup>15</sup> Provided by the IIGF of CUF E based on public data by Wind.
- <sup>16</sup> Green investment is a sophisticated investment concept and method. It incorporates environmental factors into the investment strategy and can provide higher and more stable long-term return as well as facilitate sound development of financial markets.
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- <sup>20</sup> Ministry of Finance (2017). *The 7th Quarterly Report of National PPP Integrated Information Platform Project Catalogue*. [http://jrs.mof.gov.cn/ppp/dcyjppp/201703/t20170327\\_2566491.html](http://jrs.mof.gov.cn/ppp/dcyjppp/201703/t20170327_2566491.html)







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