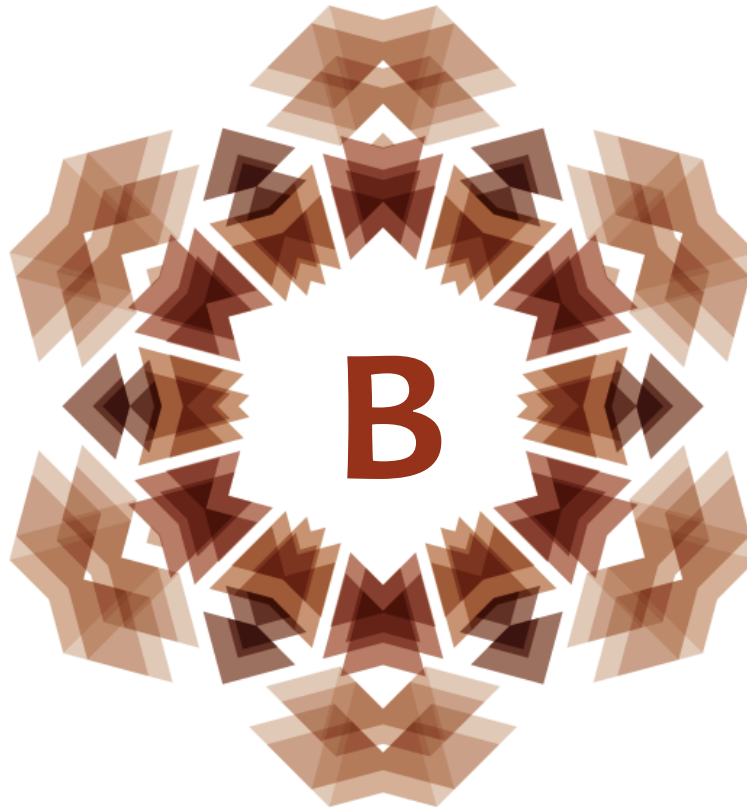




ESTABLISHING CHINA'S GREEN FINANCIAL SYSTEM

Background Paper B: International Experience of Green Finance



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Background Paper B: International Experience of Green Finance

Green finance had its roots in Western countries, which were the first to face widespread environmental problems from consumption of fossil fuels and industrialization. China will benefit greatly from drawing on their experiences with synergizing financial policies, building institutions and facilitating product innovations to promote green investment. The following is a brief overview of some of the typical practices to promote green finance internationally.

(I) Categories of green financial products

1. Green lending

Green lending policy usually refers to supportive products such as preferential interest rates offered by banks for environmentally friendly projects or restrictions of projects with negative environmental performance. Green lending includes personal housing mortgage loans, motor-vehicle loans and green credit card services, along with project financing, construction lending and equipment leasing for enterprises.

Regarding corporate loans, the Equator Principles are internationally popular principles of voluntary green credit. According to the Equator Principles, banks should refuse to provide financing to borrowing companies that are not in compliance with the social and environmental standards of the Equator Principles. For the first time in history, the Equator Principles provide quantitative, explicit and specific environmental and social criteria for project financing. By 2013, the Equator Principles were accepted by a total of 78 financial institutions from 35 countries and regions with total project financing accounting for more than 86 percent of the market total.

Currently, China has already promulgated some regulations and policy documents on green credit (including *Opinions on the Implementation of Environmental Protection Policies and Regulations for the Prevention of Credit Risks*, *Guiding Opinions on Credit Issuance for Energy Conservation and Emission Reduction* and *Green Credit Guidelines*). These green credit policies aim to limit the offering of loans to polluting and energy-intensive enterprises with limited emphasis on measures for the promotion of loan issuance to environmental protection industry and environmentally friendly companies. To promote the Equator Principles, the Ministry of Environmental Protection has published the translated version of *International Experience in Promoting Green Credit: the Equator Principles and IFC Performance Standards and Guidelines* (IFC/MEP, 2008). Nevertheless, the Equator Principles are yet to be widely adopted by Chinese commercial banks and the China Industrial Bank (CIB) is currently the only Chinese bank that has become a signatory of the Equator Principles (Equator Principles, 2014).

2. Green private equity and venture investment fund

Large-scale green direct investments are currently dominated by well-known international financial conglomerates with the participation of some professional investors. There have also been several experiments in investment targeted at scaling up investment in environmentally sustainable entrepreneurship. In 1999, the World Resources Institute launched the ‘New Ventures’ project with the financial support from Citibank. This project is dedicated to investing in small and medium-sized enterprises of the environmental industry in emerging market economies. Between 1999 and 2012, this project had assisted 367 SMEs that “generated significant environmental benefits” in receiving venture investments totalling US\$370 million and contributed to a cumulative reduction of 3.3 million tons of CO₂, protection of 4.5 million hectares of arable land, and conservation and purification of 5.7 billion litres of water.¹ Dedicated providers of green industry investment and financing services, such as Environmental Capital Partners are also emerging.

Between 2007 and the first half of 2013, Chinese VC/PE funds made a total of 694 lots of investment in the area of clean energy with a total volume of US\$8.2 billion, which resulted in the successful IPOs of many companies in Mainland China and abroad (ZeroIPO, 2013). Strikingly, the number of clean energy projects has reduced the recent couple of years, which reflects the following issues in the development of China’s clean technology industry: first, insufficient policy support and inadequate return of green industry projects with a long cycle to recoup investment; second, inadequate market-based operation and infrastructure (such as barriers to grid connection for wind power and solar power) and dependence on exports for certain products with wild fluctuations of demand; third, investors and consumers have yet to develop a favourable awareness and sense of social responsibilities for clean technologies and products.

3. Green ETF and mutual funds

A considerable number of highly liquid green financial products are already available in overseas financial markets. Many of them are Exchange Traded Fund (ETF) indices and fund products while others are derivatives of carbon emission rights. These products have attracted extensive investors including individuals.

Currently, the main green indices traded internationally are: Standard & Poor’s Global Clean Energy Index (covering 30 major clean energy companies from around the world), NASDAQ Clean Edge Green Energy Index (tracking more than 50 US public companies in clear energy), and FTSE Japan Green Chip 35 (following Japanese companies in the environmental protection industry). These indices have spawned related investment funds. In addition, other indices and funds include: Deutsche Bank’s db x-trackers, Standard & Poor’s US Carbon Efficient Index and Barclays’

¹ <http://www.wri.org/project/new-ventures>

iPath Global Carbon ETN. China is a late entrant on this front. There are some fund products currently listed in China's A-share market (such as the Full Goal Low-carbon and Environmental Stock Securities Investment Fund and the Zhonghai Environmental Protection New Energy Fund) but most are relatively small and their investments are strictly limited to the environmental protection industry.

4. Green bonds

Green bonds are bonds issued by international financial organizations and government-backed financial institutions. Due to their high credit ratings, such issuers can raise funds at lower interest rates to support green projects. Institutions that have issued green bonds include the World Bank, the Asian Development Bank, and the Export-Import Bank of Korea. International investment banks usually serve as the underwriters of these green bonds; the investor base comprises large institutional investors and some high-net-worth individuals. The average maturity of green bonds is five to six years. Since 2007, around US\$18 billion worth of green bonds have been issued internationally, mainly by international financial institutions such as the World Bank, IFC and EIB (Kidney and Oliver, 2014). Green bonds are attractive to investors for the following reasons: (1) Their green vision and social value; (2) Their relatively short maturity and high liquidity. Most green bonds have a maturity between three to seven years and can be readily traded in the secondary markets; (3) Many green bonds are tax-exempt and thus present good investment returns; (4) They have relatively low risk. By investing in green bonds, investors can avoid the investment risk associated with individual environmental project. The issuer of a green bond will also have a stringent screening process for its candidate investment projects.

5. Green banks

The Green Investment Bank is a policy bank wholly funded by the British government. The British government injected £3 billion into the bank as its capital and holds one seat on its board, but the bank is otherwise operating independently from government control. The Green Investment Bank was created to address market failures in financing British green infrastructure projects, and through it, the British government hopes to stimulate private investments to accelerate the country's transition into a green economy. According to the Annual Report of the Green Investment Bank, every pound invested by the Green Investment Bank is able to invite private investments to the amount of almost three pounds (GIB, 2014).

The Green Investment Bank evaluates a potential project on its investment robustness, leverage effect and green effect, with priorities given to highly commercial green infrastructure projects. At least 80 percent of such investments will go to such sectors as offshore wind power, waste recycling, energy recycling from wastes and non-residential energy efficiency. The Green Investment Bank can make investments through such means as shares, bonds and guarantees, but does not provide soft loans, venture investment or subsidies.

6. Green insurance

Green insurance is also known as ecological insurance and serves as a tool for managing environmental risks in a market-based economy. Generally speaking, environmental insurance policies cover potential liabilities arising from the pollution of water, land or air by the policyholder. The significance of this type of insurance is twofold. Firstly, without ecological insurance, many companies will be unable to provide indemnities and restore the environment after an accidental pollution event. Secondly, compulsory insurance for certain industries will help internalize the environmental costs and curb investment activities with excessive environmental risks.

The EU has maintained a firm stance on the principle that ‘polluter pays’ through legislation and enacted the EU Environmental Liability Directive in 2004, which spurred the rapid development of green insurance services. In 1990, the German government passed the Environmental Liability Act, which requires the compulsory insurance of 96 sectors (including, among others, thermal power, mining and petroleum) across ten major industries. The Association of British Insurers has also coordinated the launch of similar insurance services by British insurance companies which, in the event of a pollution incident, will not only cover the cost of clean-up, but also penalties, damages to and losses on immovable properties, all legal expenses and medical costs.

In 2007, China began to carry out the pilot programs of environmental pollution liability insurance. In January 2013, the Ministry of Environmental Protection and CIRC jointly issued a document on the launch of compulsory liability insurance of environmental pollution for high-risk sectors including heavy metals, petroleum and chemical engineering and for the first time identified the concept of ‘compulsory’. However, this document remains a guiding opinion without legal efficacy.

(II) Leverage effect of fiscal measures on green finance

Incentives supported by fiscal funding represent a major means for the internalization of the externalities of environmental protection projects. According to research commissioned by UNEP, a fiscal fund of US\$10 billion is able to stimulate US\$100 billion of private investments in green industry and “public finance mechanism which could deliver between \$3 to \$15 of private investment for every \$1 of public money are part of the solution”(Ward et al., 2009). Below, we will identify the specific cases of a few countries for illustration.

1. Government offers interest rate discounts for green loans

An important characteristic of Germany’s green credit policy is state participation. The KfW Development Bank is a policy financial institution with state controlling shares but not affiliated with the government. It has played a decisive role in supporting the financing of SMEs, particularly SMEs in the area of environment. The KfW Development Bank has launched many programs

including 'KfW Environmental Loan Program', 'KfW Energy Efficiency Program' and 'KfW Energy Fund Transit Program', which offered loans at discounted interest rates supported by federal German government.

2. Government offers green loan guarantee

The British government mentioned in the research documents on SME financing that the government is not in the best position to decide whether individual SMEs can have access to financing (BIS, 2012). Therefore, the government must facilitate investment and financing decision-making by the private sector. Meanwhile, the British government has adopted a 'loan guarantee program' to support SMEs, particularly SMEs in the area of environment. In the process of determining final guarantee proportion and loan repayment, the environmental impacts of companies will serve as an important reference criterion.

3. Feed-in tariff

Feed-in tariff (FIT) is an effective instrument of economic subsidy, i.e. the government offers a long-term guarantee of the purchase price of outputs for clean energy companies, groups or individual investors, so as to ensure relatively good return. Considering that investment return is a key factor of market growth, the FIT serves as an instrument for promoting new energy development based on the mechanism of market regulation. Today, more than 50 countries have employed FIT with maturity ranging between ten to 25 years.

Internationally, the FIT is employed most extensively in solar energy industry. For instance, the Renewable Energy Act enacted by Germany in 2000 stipulates the feeding tariff of €0.35 to €0.5 for newly installed solar energy systems. As long as solar energy systems are connected to the national power distribution network, solar energy companies will be entitled to a 20-year guarantee fixed-tariff purchase² and may allocate additional costs evenly to all users. Under the policy guidance, the share of solar energy in the total power generation of Germany increased from less than 0.1 percent before 2003 to 5.3 percent in 2012 while the additional average cost for users is only €0.036 per each kilowatt hour of electricity (2012).

4. Government procurement

Government procurement refers to the procurement of goods, engineering and services using fiscal funds. The EU explicitly advocates green public procurement and encourages member states to sign green contracts to increase the share of green products in government procurement to more than 50 percent. Major green products include: energy efficient computers, chairs and tables made of renewable materials, electric or hybrid vehicles and renewable energy power generation.

² Deutsche Energie-Agentur, www.dena.de/en/

Annual European government procurement worth €2 trillion (equivalent to 19 percent of the EU's GDP) has vigorously expedited the development of environmental protection industry.

The US enacted the *Federal Acquisition Regulation: Sustainable Acquisition* in 2005 for the promotion of green procurement. The US government at all levels has constructed or put into use more than 500,000 green and energy efficient buildings. According to an empirical study by American scholars, thanks to green procurement policy, the state government of California has not only stimulated demand for the environmental protection industry but also exerted positive spillover effects and inspired the purchase of green products by the private sector (Simcoe & Toffel, 2014). The Chinese government recently began to promote government procurement of green products and a typical example is the government procurement of new energy vehicles.

5. Tax exemptions for green bonds

According to the laws of most Western countries, the proceeds of negotiable securities must be accounted into the total revenues of investors and subject to income tax. In order to attract the investment of green bonds, some countries have exempted income tax for green bonds. In the US for example, the State of Massachusetts became the first state government that independently issued tax-free green bonds in 2013 and the funds raised from these bonds will be directly used for infrastructure construction for environmental protection. Regarding corporate bonds, the US Congress adopted a tax-free bond program worth US\$2 billion in 2004 that requires that the tax-free bonds included in the program must be infrastructure construction bonds for the promotion of new energy and that bond investors can be exempted from federal income tax.

6. Fiscal financing for the creation of green banks

According to the 2012-2013 Annual Report of the Green Investment Bank, direct investments of green investment banks amounted to £635 million while third-party private investments totalled £1.63 billion, i.e. investment of each pound led to three pounds of private investment and this proportion is as high as 1:9 for a few projects. As project initiator, the government provides a certain degree of implicit guarantee for private capital and increased the expected return or reduced expected risks for private investors; meanwhile, by conducting preliminary project evaluation and preparation, the government has reduced the investment cost for private investors.

(III) Guidance of financial institutional development for green investments

Aside from fiscal funds, a series of financial institutional arrangements may also help encourage private investments in green industries. These arrangements may not require much fiscal input yet may increase investor preferences for green projects and mitigate their investment inclinations for polluting projects by making legislation, reforming evaluation system, creating social responsibility systems and providing environmental cost information.

1. Clarify the legal responsibilities of financial institutions for polluting projects through legislation

In 1980, the US pushed out the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), under which banks may be held liable for pollution caused by their clients and any environmental restoration expenses. CERCLA stipulates that a lender must assume liabilities if it participates in the business operation, production and waste disposal of its borrower that have resulted in pollution, or has ownership over the facilities that caused the pollution. Such liability is referred to as the lender liability, which can be applied jointly and severally and retroactively in the most severe terms. In 1986, Maryland Bank and Trust Company was sued by the US Environmental Protection Agency for holding polluting properties liquidated by the borrower and refusing EPA's request to clean up pollutants.³ The bank eventually lost the case and was ordered by a Maryland district court to pay the EPA for clean-up costs. Since CERCLA was passed, there have been over a hundred such cases in the US. (Geisinger, 1994)

China began to clarify the environmental responsibilities of financial institutions only recently and relevant regulations have remained at the conceptual level without much operationality and no banks ever faced litigations for environmental problems.

2. Require institutional investors to consider environmental factors in their decision-making process

The United Nations for Responsible Investment (PRI) is an international framework sponsored by United Nations and organized by major international investors with the objective of launching on a global scale a set of principles for responsibility investment. By April 2013, a total of more than 1,200 institutional investors took part, with total assets under management worth more than US\$35 trillion. There are only three Chinese participating institutions including JD Capital, Lunar Capital and SynTao.⁴

The framework emphasizes the considerations for environmental, social and corporate governance (ESG) factors in the investment process. Completed and ongoing activities under this framework include: first, providing investment guidelines to help signatory institutions (particularly new signatories) enhance their incorporation of ESG considerations when making investments and carrying out regular inspections through a dedicated supervisory organization. Currently, more than 20 internationally renowned financial institutions (such as Deutsche Bank and Citibank) have explicitly included ESG factors in their investment project review process and asset allocation analysis model. Second, requiring investors to report on the status of their PRI implementations on an annual basis and make their reports and evaluation documents accessible for external review. Third, establishing the PRI Clearinghouse forum for signatory institutions to

³ United States v. Maryland Bank & Trust, 632 F. Supp 573 (D. Md. 1986).

⁴ www.unpri.org/signatories/signatories/

participate in conferences, share experiences and build investor networks. Fourth, setting up dedicated research funds that invite the academia and research institutions to analyze the adoption of ESG criteria by investors, share case studies, and publish journals.

3. Inclusion of environmental factor in credit rating

An emerging trend among banks and credit rating agencies is the consideration of environmental factors when evaluating corporate and sovereign credit risks. Barclays has a dedicated environmental and social risk evaluation system that is tightly integrated with its loan division, internal ratings division, the environmental and social risk management team, and the Reputation Council. General loans will only involve the loan division and internal ratings division. But if a borrower is considered to pose potential environmental risks, the environmental and social risk management team will intervene and issue its findings and opinions. In the event of major risks that may potentially affect the bank's reputation, the Reputation Council will make a decision at the highest level. Evaluation for each project needs to follow an evaluation process and if a loan is approved, companies must also observe environmental policy regulations in the process of project implementation/construction. These requirements will be written into their lending contracts. This evaluation system also applies to other services such as bond underwriting of Barclays Investment Bank Department.

On sovereign ratings, UNEP has issued a report titled *A New Angle on Sovereign Credit Risk: Environmental Risk Integration in Sovereign Credit Analysis* (UNEP/GFN, 2012) which proposes that environmental factors be included in the sovereign credit evaluation process. This report provides an analysis with the examples from Brazil, France, India, Japan and Turkey and concludes that the deterioration of natural resources can lead to changes in a country's balance of trade and thus give rise to sovereign credit risks.

For corporate credit ratings, S&P already requires ESG evaluations in its rating process. S&P is particularly focused on factors such as climate change, carbon emissions and clean energy, and has incorporated these factors into its existing evaluations of 'management and governance credit factors'.

4. Require listed companies and bond issuers to comply with green social responsibilities

Public companies and bond issuers in various countries are often required to disclose information related to their environmental responsibilities, which usually includes: the types of projects that the company is currently running, the actual and potential environmental impacts of their investments, efforts made by the company to mitigate such impacts, and its investment in environmental technologies.

According to a report issued by the UK company Trucost for the fiscal year 2012, 443 British companies included in the FTSE All-Share Index had disclosed their environmental information through publications including annual reports and corporate social responsibility reports and

quantified their environmental impacts (Trucost, 2103). As a result, 80 percent of the companies had disclosed environmental information in 2012, while this figure was only around 37 percent in 2004. The leading position of the UK in the disclosure of environmental cost owes much to the implementation of a recognition system for the disclosure of environmental cost information by the Association of Chartered Certified Accountants (ACCA) in 1992. Other EU member states including Denmark, Sweden, the Netherlands and Norway also adopted compulsory requirements on corporate disclosure of environmental cost information prior to 2000. The *Environmental Reporting Guidelines* released by the Japanese Ministry of the Environment in 2003 serves as guidance for the disclosure of environmental cost accounting indicators and environmental information by Japanese listed companies. The Canadian government has implemented even more demanding requirements on the disclosure by all Canadian businesses (including those listed and non-listed companies) and the formulation of a compulsory pollution prevention plan (which serves as an important basis for corporate loan evaluation). Summaries of a pollution prevention plan should be submitted to Environment Canada and released by the government to the media and the Internet for public supervision.

In China, Shang Stock Exchange enacted *SSE Guidelines on Environmental Information Disclosure by Listed Companies* in May 2008. Due to the lack of compulsory implementation, only 644 companies listed on Shenzhen and Shanghai stock exchanges disclosed CSR reports in 2012, which only account for 26 percent of all listed companies.⁵

5. Create networks of green institutional investors

Numerous international networks for institutional investors already exist. These networks have produced social responsibility agreements relating to green investments that facilitate the inclusion of environmental considerations in the investment decision-making process and press investees to fulfil their social responsibilities. Current major green investor networks include:

- **The Investor Network of Climate Risk (INCR)**, established in 2003, includes 100 large-scale investors managing US\$11 trillion of asset (CERES, 2013).⁶
- **The Institutional Investor Group of Climate Change (IIGCC)**, founded in 2001, currently has 80 members including major European pension funds and other institutional investors, which together manage €7.5 trillion of assets.⁷
- **The Carbon Disclosure Project (CDP)**, which collects and publishes the carbon emissions data of 2,500 institutions (companies) from 30 countries and their potential commercial

⁵ <http://www.rksratings.com/>

⁶ <http://www.ceres.org/investor-network/>

⁷ <http://www.iigcc.org/>

risks. It also pushes for public companies to disclose more information on their carbon footprint. Its membership includes 722 institutional investors, managing US\$87 trillion.⁸

6. Create a carbon trading system

The benefit of carbon trading is that, for a given quantity of emission abatement, abatement efforts can be focused on the most efficient and cost-effective enterprises, so as to reduce overall social cost. In other words, with a certain design / management cost, an effective carbon trading system can achieve the maximum emission abatement. Theoretically, Montgomery (1972) noted that among various options, the abatement cost of emissions trading scheme is the lowest. Assuming that in a fully competitive market, the government only needs to determine the total amount of emission abatement according to environmental capacity without knowing the cost functions of individual pollution sources, and the market will ultimately achieve equilibrium and cost minimization.

Among various mechanisms of carbon trading, the largest one is the EU Emission Trading System, which adopts a cap-and-trade scheme. This model is also followed in the pilot schemes of carbon trading adopted by Shenzhen and some other Chinese cities.

Under the cap-and-trade model, authorities set carbon emissions quota for participating businesses over a certain period of time (usually one year) and allocate these quotas through free allocation or auctioning. Companies with effective emission abatement efforts are able to reduce emissions and sell their surplus quota while those with excessive emissions will need to purchase quotas from others to sustain their industrial activities. By the end of each term, companies shall verify their quotas versus actual emissions with the authorities and those who exceed their quota will be subject to penalties. With the participation of institutional and individual investors, carbon trading may serve a certain financing function if companies sell their quotas at the beginning and repurchase these quotas at the end of term, which serves a certain financing function.

In terms of operational effectiveness, after many rounds of reform such as emission quota adjustment, the EU Emission Trading System is becoming increasingly sophisticated with the participation of more than 11,000 companies from 27 EU member states and total quotas accounting for 45 percent of the EU's overall carbon emissions.

7. Create a system for the quantification and evaluation of project environmental costs (externalities)

The aforementioned policy measures for the promotion of green finance need to be supported by quantified externalities of manufacturing and consumption of industries, companies and projects. Otherwise, the optimal policy intensity cannot be determined. Specifically, pollution caused

⁸ <https://www.cdproject.net>

(abated) by each category of manufacturing and consumption activities should be quantified before appropriate fiscal, financial and other policies are designed to internalize such cause or abatement of pollution. Effectiveness of policy implementation should be quantified for evaluation as well.

Some practical methods of quantification already exist. British Trucost company identified the concept of natural capital liabilities. For instance, greenhouse gas emissions, water consumption and waste generation all represent erosions to 'natural capital'. Based on environmental modelling and expert calculations, Trucost quantified the environmental hazards and risks caused by the activities of companies and investors. Results of quantification not only include variations in natural capital, but can also be directly converted into economic value for the reference of investors. This company has so far collected the annual data of 'natural capital liabilities' from more than 4,500 listed companies and partnered with the Royal Bank of Scotland and New York Stock Exchange, among others.

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THE GREEN FINANCE TASK FORCE

The Green Finance Task Force was initiated by People's Bank of China (PBC) Research Bureau and the UNEP Inquiry into the Design of a Sustainable Financial System in 2014. The Task Force brought together leading Chinese financial policy and regulation experts together with experts from the private sector, academia and think tanks, as well as international experts.

A number of organizations have lent great support to this Task Force, chief among them are Chongyang Institute for Financial Studies of Renmin University, the Ecological Finance Research Center at the Renmin University of China, the Eco Forum Global, the International Institute for Sustainable Development, the Green Credit Special Committee of China Banking Association, and China Finance 40 Forum.

Advisor: Pan Gongsheng, Deputy Governor, People's Bank of China

Domestic Convener: Ma Jun, Chief Economist, Research Bureau, People's Bank of China

International Convener: Simon Zadek, Co-Director, United Nations Environment Programme Inquiry into the Design of a Sustainable Financial System

TASK FORCE MEMBERS

An Guojun	Research Associate, Institute of Finance and Banking, Chinese Academy of Social Sciences
Chen Zheng	Research Associate, Shenzhen Stock Exchange
Chen Yaqin	Head of Marketing Division, Environment Finance Department, Industrial Bank
Guo Peiyuan	General Manager, SynTao (expert on corporate social responsibility)
Guo Sanye	Deputy Secretary General of China Banking Association
He Qiaonv	Chairman, Beijing Orient Landscape Industry Group
Huang Chaoni	Head of Business Development – Asia, Trucost
Huang Jianhui	President, Research Institute, China Minsheng Bank
Jiang Peixing	CEO, Zhong De Securities
Jin Hainian	Chief Research Officer, Noah Private Wealth Management
Lan Hong	Deputy Director, Ecological Finance Research Center, Renmin University of China
Li Donghui	Director and SVP, Beijing Orient Landscape Industry Group
Li Jianqiang	Research Associate, Research Bureau, People's Bank of China
Liang Pingrui	General Manager, Environment Finance Department, Industrial Bank
Lu Hanwen	Deputy Director-General, Project Appraisal Department II, China Development Bank
Qi Liang	CEO, China Securities
Sheng Hetai	Vice President, People's Insurance Company (Group) of China
Sang Qiang	Senior Manager, Strategic Planning Department, People's Insurance Company (Group) of China
Su Ting	International Sustainability Development Research Institute
Wang Guijuan	Research Associate, Research Institute for Fiscal Science, Ministry of Finance
Wang Lu	Deputy Director General, Credit Reference Center, People's Bank of China

Wang Wen	Executive Dean, Chongyang Institute for Financial Studies, Renmin University of China
Wang Yao	Director, Research Center for Climate and Energy Finance, Central University of Finance and Economics
Xie Hongxing	Secretary-General, Clean Air Alliance of China
Xin Benjian	Senior Research Associate, Chongyang Institute for Financial Studies, Renmin University of China
Xu Wen	Research Associate, Research Institute for Fiscal Science, Ministry of Finance
Yang Shuying	Research Associate, Policy Research Centre for Environment and Economy, Ministry of Environmental Protection
Yao Bin	Research Associate, Research Bureau, People's Bank of China
Ye Yanfei	Deputy Director-General, Statistics Department, China Banking Regulatory Commission
Yin Hong	Deputy Director, Urban Finance Research Institute, Industrial and Commercial Bank of China
Yin Lihai	Director, Tax Policy Department, Ministry of Finance
Yu Xiaowen	Director, IISD China Office
Yu Zhenli	Research Associate, Research Institute for Fiscal Science, Ministry of Finance
Zhao Lijian	Program Director, Environmental Management, Energy Foundation China
Zhang Hai	Director of the Secretariat, Eco Forum Global
Zhang Jialin	Chairman, Aron Capital Management
Zhang Yong	Executive Director, Eco Forum Global
Zheng Tingying	Executive Deputy Director, Ecological Finance Research Center, Renmin University of China
Zhou Yacheng	Partner, Zhong Lun Law Firm
Zhou Yueqiu	Director, Urban Finance Research Institute, Industrial and Commercial Bank of China
Zhu Shouqing	Senior Associate, Sustainable Finance Program, World Resources Institute

INTERNATIONAL EXPERTS

Mark Halle	Vice-President, International Institute for Sustainable Development
Sean Kidney	CEO, Climate Bonds Initiative
Alexander Barkawi	Founder and Director, Council on Economic Policies
Stanislas Dupré	Founder and Director, 2 ^o Investing Initiative
Butch Bacani	Programme Leader, UNEP FI Principles for Sustainable Insurance Initiative
Sony Kapoor	Managing Director, Re-Define
Susan Burns	CEO and Co-founder, Global Footprint Network
Romulo Sampaio	Professor of Law and the Director of the Research and Policy Center for Law and the Environment (CDMA) at Getulio Vargas Foundation (FGV) School of Law in Rio de Janeiro.



The People's Bank of China

No.32 Chengfang street,
Xi Cheng district, 100800
Beijing, China
webbox@pbc.gov.cn
86-010-66194114
www.pbc.gov.cn/



Inquiry: Design of a Sustainable Financial System

United Nations Environment Programme International
Environment House
Chemin des Anémones 11-13
Geneva, Switzerland
inquiry@unep.org
+41 (0) 229178995
www.unep.org/inquiry

www.unep.org/inquiry