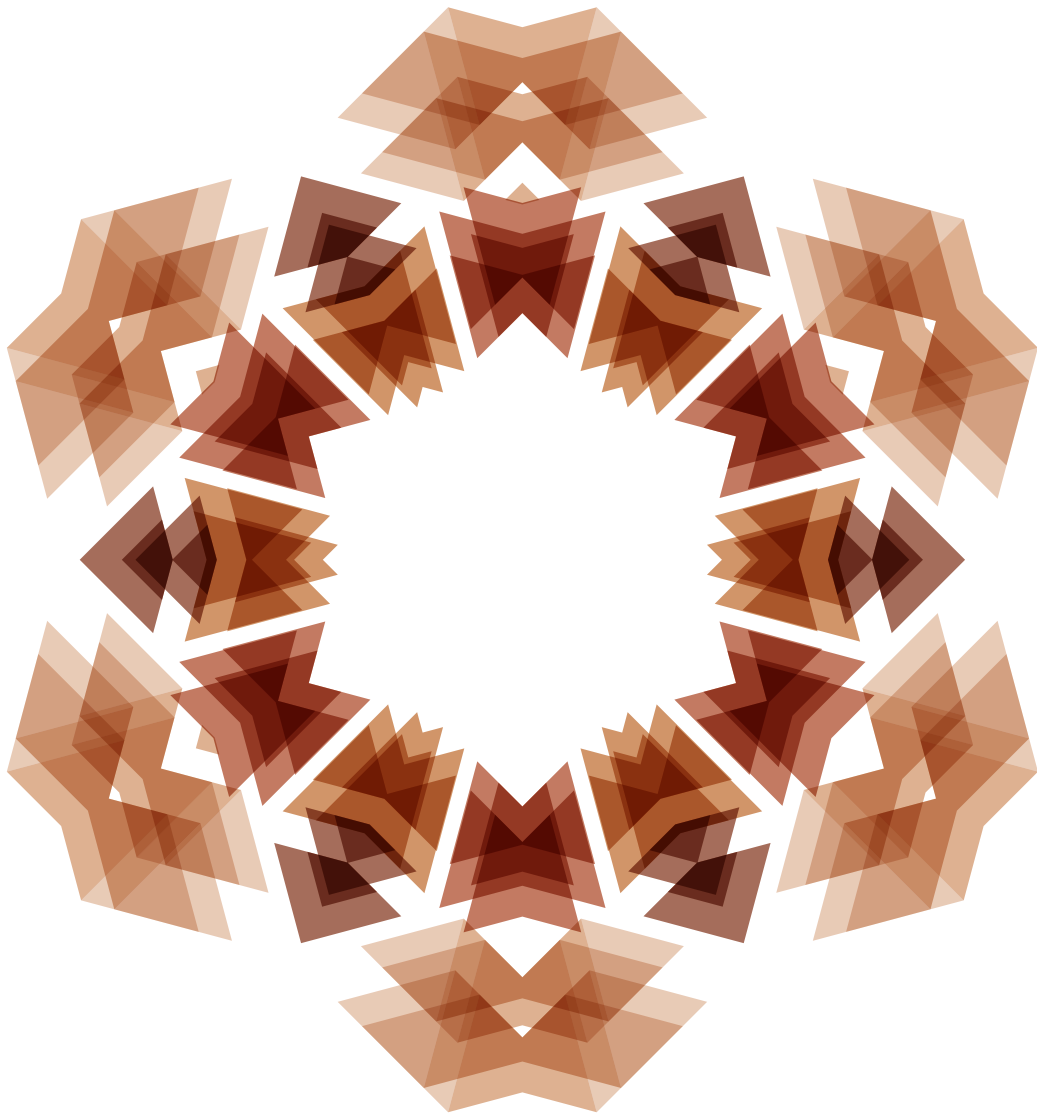




ESTABLISHING CHINA'S GREEN FINANCIAL SYSTEM

WITH FOREWORDS BY CO-CONVENORS PAN GONGSHENG, MA JUN AND SIMON ZADEK

Final Report of the
Green Finance Task Force



Establishing China's Green Financial System

Report of the Green Finance Task Force

The Green Finance Task Force is co-sponsored by the Research Bureau of the People's Bank of China (PBC) and the United Nations Environment Programme Inquiry into the Design of a Sustainable Financial System (UNEP Inquiry).

The Task Force involved more than 40 experts from the PBC, the China Banking Regulatory Commission, the Ministry of Finance, policy banks, commercial banks, credit rating agencies, stock exchanges, insurance companies, fund companies, the Chinese Academy of Social Sciences, universities, and non-governmental think tanks, with additional support and contribution coming from a number of foreign experts. Pan Gongsheng, the Deputy Governor of PBC, serves as the advisor to the Task Force; Chief Economist Ma Jun at the PBC Research Bureau acts as the domestic convener while Simon Zadek, the Co-Director of the UNEP Inquiry, acts as the international convener. The international report of the Green Finance Task Force has been produced with the support of the UK government's Department for International Development (DFID).

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.

This report is backed by 16 additional background papers, which give more detailed analysis of the theoretical framework for green finance, lessons from international experience and each of the 14 recommendations. There are links throughout the report to the relevant sub-papers. They can also be downloaded from: web.unep.org/inquiry/blog/establishing-china%E2%80%99s-green-financial-system

The full Chinese language version of the report including all background papers and detailed recommendations sub-papers is available as a book from the China Financial and Economic Publishing House www.cfeph.cn

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Report of the Green Finance Task Force

April 2015

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.

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FOREWORDS

PAN GONGSHENG

Deputy Governor of The People's Bank Of China

A beautiful environment is the sine qua non of a beautiful life. China has swiftly become the second largest economy in the world after three decades of rapid development, but this achievement came at a heavy cost to the environment. Dwindling resources, rampant pollution, degraded ecosystems, and natural resources and eco-environments pushed to their limits puts tremendous economic pressure on future generations to restore the environment.

Far worse than the economic implications, environmental problems in China have also taken a toll on public health, and even longevity. There is a growing expectation across the country for improvements to our eco-environment, as well as an increasingly louder voice calling for clean air, clean water and a beautiful environment. The fresh air and clear sky during the APEC meetings in November last year have left fond memories for the delegates and Beijing's local residents, whose joy reflects a nationwide desire for a better environment. Public opinions agree that environmental protection and efforts to build a beautiful China are not only an integral part of the national strategy, but also a concern for every citizen on a personal level.

Recently, I had the opportunity to watch the documentary *Under the Dome* by Chai Jing, a former CCTV journalist. Through a story-like narrative, Chai Jing presented an in-depth investigation on the composition, origins and hazards of smog and proposed remedial actions. By displaying the strong sense of social responsibility innate to a former journalist and citizen, she has drawn widespread public attention to the issue of air pollution in China. For policy makers, these worsening environmental problems require the further enhancement of top-level design and the improvement of market mechanisms and policy support systems, so as to provide the conditions necessary for various stakeholders to participate in environmental management and protection.

As a market-based institutional arrangement, green finance plays an important role in the promotion of environmental protection and building of an ecological society. Internationally, the Equator Principles proposed by the International Finance Corporation (IFC) are widely recognized by the banking community. They ushered in the robust development of the carbon finance market and the emergence of innovative financial products including green bonds, green shares, green insurance and green funds, all feature an increasingly wider and deeper integration between finance and environmental protection. As evidenced by the practices of developed countries over the past few decades, once properly designed systems are in place, the green finance system can effectively steer large amount of private capital toward green industry and significantly reduce the fiscal pressures of environmental management.

The understanding and exploration of green finance has been a gradual, evolving process in China. For a long period after the reform and opening-up in 1978, economic development was the chief concern of the Chinese government. Environmental factors, on the other hand, were not an important variable in the decision-making of financial institutions. Since the mid-1990s, China has gradually phased out small and inefficient coal mines, cement and glass factories, and coal-fired power plants in response to work safety and environmental considerations. As a result, some commercial banks and rural credit cooperatives had to unwillingly assume some of the costs of this economic restructuring process, which prompted them to begin watching out for the impacts of environmental problems on their business performance.

Since the dawn of the 21st century, China's financial policies have gradually imposed restrictions on certain highly polluting and energy-intensive industries in response to the requirements of the central

government on economic restructuring and upgrading, as well as environmental protection. A wide range of measures, including controls on total emissions, lending restrictions and environment-related veto powers, have been introduced to restrict loans and financing that result in pollution and increase support for energy conservation, emission abatement and the phase-out of obsolete capacities. Attaching great importance to green finance, the People's Bank of China (PBoC) has continuously worked to enhance the interaction between credit policies and industrial policies, ramped up its support for phasing out obsolete capacities, as well as its support to the energy conservation and environmental sectors, and strictly controlled credit extension to new, production-related projects in industries already plagued by serious overcapacity, illegal on going projects and environmental violations. By collaborating with environmental protection agencies, the People's Bank of China has incorporated administrative law enforcement information into its credit information system, which can be accessed and used by commercial banks as a key consideration when financing enterprises. Currently, the People's Bank of China is spearheading the drafting of the 13th Five-Year Plan (2016-2020) for the reform and development of China's financial sector—green finance will be a key element of this plan. Last year, the Research Bureau of the People's Bank of China and the United Nations Environment Programme (UNEP) Inquiry into the Design of a Sustainable Financial System jointly initiated the Green Finance Task Group. Under the leadership of Dr. Ma Jun, chief economist of the Research Bureau, the Green Finance Task Group has proposed a preliminary framework and 14 specific recommendations for building China's green finance system. This book is a supplemented and improved version of the research report prepared by the Green Finance Task Group. Compared with the narrow, scattered and overly theoretical studies currently available, the Green Finance Task Group has presented the most systematic set of policy recommendations pertaining to green finance yet. The 40-plus experts in the Green Finance Task Group all come from regulatory departments or institutions and think tanks with intimate connections to the green finance industry. The report also incorporated many suggestions from the UNEP's Inquiry's international experts, thus making the recommendations contained in this report highly practical. In areas with strong resistance to green reforms or poor or insufficient groundwork, experts of the Green Finance Task Group have also proposed a step-by-step road map for the green transformation. Creation of the green finance system is a long-term and complex process that cannot be accomplished overnight. It requires the continuous efforts and commitments by all stakeholders. Nevertheless, it is our historic obligation to initiate this process. In the coming years, financial and environmental experts should continue their research on the fundamental issues of green finance. Development of green finance is not simply a financial matter but involves many important issues, such as the determination of the roles of the government and the market, reform on the pricing of natural resources, and the interaction between financial, industrial and fiscal policies. Efforts must be made to create a green finance policy with positive incentives and increase the attractiveness of investing in green projects, which will then help invite more financial institutions and enterprises to contribute to the development of green finance and green industries. We should ramp up international exchange, broaden our horizons by drawing upon the successful experiences of other countries, and collaborate with the international community to promote the concept of green finance, as would any other socially responsible nation in the world. Domestically, we should widely publicize and promote the concept of green finance through academic seminars and research presentations, and further spread the awareness for environmental and social responsibilities among financial institutions, businesses and the public to create a favourable external environment for the development of green finance.

Pan Gongsheng

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FOREWORD

MA JUN

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THE BEGINNING: ECO FORUM GLOBAL

In the early summer of 2014, Xu XU, the Deputy Director of the Financial Affairs Office of the Guizhou Province, made a special trip to my office. He invited me to attend and chair a number of panel discussions on green finance at the Eco Forum Global annual conference in Guiyang. The Eco Forum Global is China's first and only state-level international discussion forum for environmental issues and its proceedings are closely followed by a broad audience. Director Xu said to me that while the forum had held many discussions on how to protect and improve our environment, the protection of the ecological environment through financial means had not taken off from the conceptual level and was lacking actionable plans. To spur real progress, he would like me to help organize and host the discussions on this topic. Indeed, at the time of the meeting, I had already dedicated a good portion of my time to understanding and finding the right economic and financial policies for our environment, and had, in many forums and seminars, advocated green finance as the catalyst for transforming China's economic structure. The Research Bureau of the People's Bank of China was also conducting its own research on low carbon financial policies. This alignment of interest and the enthusiasm Director Xu displayed made going to the Eco Forum Global an easy choice for me. I also took the opportunity to introduce a number of experts on green finance to the forum. The Eco Forum Global held on July 10 – 11, 2014 attracted a large number of forward-thinkers in the field of economics and finance. IMF's former managing director Dominique Strauss-Kahn, Development Research Center of the State Council's vice president Liu Shijin, Bank of China's former president Li Lihui, National Council for Social Security Fund's vice chairman Wang Zhongmin, and China Investment Corporation's former president Gao Xiqing took turns to speak on a wide range of topics including the promotion of green finance, role of the financial system in green transformation, and financial inclusion. I presided over a public symposium and a closed-door discussion on green finance, which I hope will culminate into some better-defined consensus on how to push forward the development of green finance. Dr. Simon Zadek, who is a friend of mine and now serves as the co-director of the UNEP Inquiry into the Design of a Sustainable Financial System, also held an international symposium on the topic of green finance. Among others, the expert speakers at the Eco Forum Global also include (in alphabetical order of their surnames): An Guojun, research associate of the Institute of Finance and Banking of the Chinese Academy of Social Sciences; An Qingsong, vice chairman of the China Association for Public Companies; Susan Burns, founder of the Global Footprint Network; Chen Gang, Secretary of the Guiyang CPC Committee; He Qiaonv, chairman of the Beijing Orient Landscape; Huang Jianhui, vice president of the Research Institute at China Minsheng Bank; Mark Halle, vice president of the International Institute for Sustainable Development (IISD); Jiang Peixing, CEO of Zhong De Securities; Sean Kidney, CEO of Climate Bonds Initiative; Li Donghui, senior vice president of Beijing Orient Landscape; Qi Liang, CEO of China Securities Co., Ltd.; Wang Wen, executive dean of the Chongyang Institute for Financial Studies at Renmin University of China; and Zuo Xiaolei, chief economist at China Galaxy Securities.

GREEN FINANCE TASK FORCE

In no less than three seminars, experts attending the event offered their insights on how to promote green banks, green bonds, green IPO, green insurance, green funds and green investor networks, and shared with the audience the global experiences and lessons on these topics. As good as their ideas were, I felt that without a platform to drive forward further research and implementation efforts, the

effects of these ideas would dissipate soon after the close of the event and final media coverage. Hence, I approached some of the participants after the last panel discussion with the idea of launching a green finance task force that drafts a set of systemic policy recommendations based on the discussions at the Eco Forum Global. As the chief economist of the PBC Research Bureau, I would serve as the domestic convener and organize Chinese experts to draft the study report; while Simon Zadek, representing the UNEP Inquiry, would be the international convener and help funnel more international resources in the forms of foreign experts and overseas experiences to the group. This proposal was met with unanimous support, and most of the participants of the Eco Forum Global seminars would later become the core members of the Green Finance Task Force.

The Green Finance Task Force held its first formal meeting on August 10. In addition to the experts that helped launch the initiative, we also welcomed members of the China Banking Regulatory Commission, the Ministry of Finance and the Industrial Bank, as well as experts in the insurance, securities and legal sectors. Pan Gongsheng, the deputy governor of the People's Bank of China and a long-time follower of green finance-related issues, was generous in accepting to be an advisor to the task group and giving the opening speech at the inaugural meeting. In his speech, Governor Pan stressed that we needed to not only bring out financial policies that curb polluting investments, but, more importantly, also explore the financial policies, products and services that encourage green investments. At the project kickoff meeting, Simon and I proposed 15 topics, including green banks, green bonds, green insurance, green IPOs, green credit rating, environmental liabilities of banks, green information disclosure, a green database and a green investor network, and distributed the research tasks for these topics to the 15 taskteams. As we continued with our work, our experts also added the following four topics: green overseas investments, green asset securitization, testing of banks' resilience for environmental risks, and how to encourage banks to adopt the Equator Principles.

In little over six months, we organized five meetings for the entire task force and dozens of meetings for the task teams. Membership of the Green Finance Task Force also quickly expanded from 20 or so at the start to more than 40 individuals, among them are industry veterans from the PICC Group, Industrial and Commercial Bank of China, stock exchanges, the Ecological Finance Research Center at Renmin University of China, Research Center for Climate and Energy Finance at Central University of Finance and Economics, the Green Credit Committee of the China Banking Association, and experts from the green credit rating, green database and social responsibility sectors. Besides assimilating inputs from industry and international experts, the report also incorporated suggestions from the Office of the Central Leading Group for Financial and Economic Affairs, the Research Office of the State Council, the National Development and Reform Commission, People's Bank of China, the Ministry of Finance, the China Banking Regulatory Commission, the China Securities Regulatory Commission, and the Ministry of Environmental Protection, which helped in improving the systematic coverage and practicality of the policy recommendations. After multiple rounds of revisions, the draft report was finalized in February 2015 and distributed to policy makers and relevant ministries and organizations for reference purposes. We hope that the publication of this report, will help green finance receive more attention from the financial and environmental protection industries and the general public, build a stronger consensus across the nation, and incentivize financial institutions to become more involved in the development and use of green financial products and services.

EMPHASIS ON PRACTICALITY

During my work organizing the research of the Green Finance Task Force and spreading awareness for green finance, I always felt that the development of green finance is something that everyone in

the country cared for and highly anticipated. In this sense, the reforms proposed by the task force already have sufficient popular support. At the same time, the support and attention given by the highest decision-making bodies in the country was also unprecedented. It was stressed at the Third Plenum of the 18th CPC Congress that “efforts must be made to establish a systematic and full-fledged institutional system of ecological civilization for the protection of eco-environment” and “efforts must be made to establish a market-based mechanism that channels private capital investments to the protection of eco-environment”. The [2014] No. 69 Document of the State Council General Office also stated that “the People’s Bank of China, the China Banking Regulatory Commission, the China Securities Regulatory Commission, and the China Insurance Regulatory Commission should work together with the government agencies to formulate financial policies that support the development of environmental service industry”. The financial sector, academia and the international community contributed greatly to the study of green finance and the distillation of international experiences.

However, the realization of green finance demands more than just popular support or theoretical advances made by scholars, or even the visions of the highest-level government agencies. Indeed, to truly foster green finance, we would also need a vast amount of coordination and concerted efforts from government departments, as well as specialized knowledge, know-how and risk prevention measures related to the financial and environmental industries. But the reality is that China has yet to set up an institution dedicated to the promotion of green finance. Therefore, unlike academic research, the Green Finance Task Force must underscore in its policy recommendations their technical viability and ease of coordination between the various departments. This focus on practicality is the main reason for gathering from various regulatory agencies and financial institutions the experts who work on the frontline. Additionally, from the nearly 20 sub-topics we had worked on, we eventually selected 14 for inclusion in our main report (they correspond to the 14 recommendations presented in the report) – also a result of full consideration for practicality. The remaining recommendations, such as the one for the testing of banks’ resilience for environmental risks, were not left out because they were unimportant, but because more case studies, research and analysis are needed to ensure their practicality when eventually released.

A GREEN FINANCE SYSTEM THAT IS RIGHT FOR CHINA

Green finance and green investment have just taken root in China. Through the works of government departments on green credit, China has already established guidelines and statistics system for green lending; the balance of bank’s green loans has also seen fairly rapid growth; seven regions around the country are carrying out pilot carbon emission trading programs, and the credit reference center of the People’s Bank of China is now keeping track of companies’ environmental violations. Despite these signs of progress, the creation of a comprehensive green finance system is still a distant reality. Efforts on various green fronts remain fragmented, a systematic policy framework is still absent, and existing policies have yet to realize their synergistic potential. Another issue hindering the growth of China’s green finance system is the imbalance of policy measures. Existing environmental credit policies are mostly designed as restrictive measures, putting constraints on loans to high-pollution, energy-intensive companies. What is missing are the corresponding incentive measures for green projects in energy-saving technologies, environmental protection, clean energy and clean infrastructure. The present over-reliance on restrictive policies will not be conducive to attracting investment into green industry and, therefore, has a limited effect in facilitating the economic restructuring of China. To solve these issues, the Green Finance Task Force has in this report proposed a fairly systematic framework and 14 specific recommendations for “building China’s green finance system,” all derived from its in-depth

study of the related green experiences from other countries. The task force believes that China's green financial system in the future should have the following characteristics:

- First, it should not only have measures that restrict polluting investments, but also a comparatively greater number of institutional mechanisms encouraging green investments.
- Second, it should not solely rely on existing banking channels to promote green credits, but also consider the establishment of specialized green lending and investment institutions.
- Third, it should reduce its reliance on administrative orders. Instead, it should lean on favourable fiscal and financial measures to steer private capital to the green industry through market mechanisms.
- Fourth, it should not only provide green loans, but also usher in a multitude of new green financing channels and a diverse range of financial products, including green bonds, green stocks, green funds, green insurance and carbon emission trading.
- Fifth, it should leverage financial and legal institution building that will invite private capital equalling several times—or even tenfold—the amount of seed funding provided by the government to flow into the green industry, so as to alleviate the enormous fiscal pressure caused by environmental issues on the government. Some financial and legal measures can alter the investment behaviour of financial institutions and induce a green transformation of their investment structure with minimum financial resources from the government.
- Sixth, it should support green investment not only on principle, but also by providing the necessary financial infrastructure for them to thrive. This will call for developing the methodologies and creating the databases, green credit ratings and environmental information disclosure rules to help investors evaluate the environmental impacts of their investments. Only after environmental information and costs become readily available to potential investors can the green finance system achieve success in guiding investments into green industries through market mechanisms.

ACKNOWLEDGEMENTS

Although the period from the inception of the Green Finance Task Group to the official publication of its research report only spans a short nine months, many members of this task group are veteran researchers in the field of green finance and leading practitioners of green finance in their respective industries. As a result, this report is a distillation of the collective knowledge and experience of all our experts over their long professional careers. For example, the party responsible for the sub-topic of 'green bonds' – the Industrial Bank – is thus far the only bank in China that has adopted the Equator Principles. Its green finance business has now passed the tenth-year mark and, for the last six years, it has operated as an independent division. The balance on its green credit now stands at 300 billion yuan (US\$48 billion), with a non-performing assets ratio of only 0.2 percent and a capital return rate of more than 20 percent. Industrial Bank is also the issuer to the first green bonds in China.

I would like to take this opportunity to express my heartfelt thanks and respect to the 40-plus experts and foreign advisors of the Task Force. They have squeezed every ounce of available time out of their

busy schedule to research the sub-topics without payment or compensation. Many sub-topic reports have gone through four or five major revisions before being finalized. Many foreign advisors, under Simon's organization, made multiple trips to China (for some, as many as four) to participate in our discussions in person and had contributed a large volume of firsthand international experiences and materials to our report. All these experts are the embodiment of dedication, commitment, and sacrifice, and are rightly the models for 'socially responsible' global citizens.

I would like to give special thanks to Wang Wen, executive dean of the Chongyang Institute for Financial Studies, Deng Tingying, director of the Ecological Finance Research Center, Cao Mingdi, research associate at the Chongyang Institute for Financial Studies (all at Renmin University of China) and other colleagues, who, in addition to participating in the study, also organized many group discussions and review sessions, as well as provided the Green Finance Task Group with much-appreciated media exposure during the 2014 Ecological Finance Forum co-sponsored by the Renmin University and China Society for Finance and Banking. Eco Forum Global, IISD, the Green Credit Committee of the China Banking Association, China Finance 40 Forum and other institutions have also provided various discussion and publicity platforms to the Green Finance Task Group as well as the support from their international experts. Worth special mentioning is Dr. An Guojun from the Chinese Academy of Social Sciences, who, as the deputy secretary general of the Green Finance Task Force, had contributed a large portion of her time and experience to organizing meetings, coordinating sub-topic teams, and penning publicity articles. Li Jianqiang and Dr. Yao Bin from the PBC Research Bureau and IISD China Office's director Kelly Yu also made major contributions to editing the report, organizing topics, coordinating the collaborative activities between international and domestic experts, and to the report's translation.

In addition to members of the Task Force, I would also like to thank the government officials and experts that had provided invaluable suggestions and recommendations to the study report. They include (in alphabetical order of their surnames): Bie Tao, deputy director of the Department of Policies, Laws and Regulations of the Ministry of Environmental Protection; Chang Caiyu, deputy secretary-general of the Insurance Association of China; Chen Yulu, president of the Renmin University of China; Chen Yunlin, minister of the Taiwan Affairs Office of the State Council; Fang Li, deputy director of the Department of International Cooperation of the Ministry of Environmental Protection; Hu Deping, director-general of the China Biodiversity Conservation and Green Development Foundation; Liu Xiangmin, deputy director of the Legal Affairs Department; Lu Hanwen, deputy director of the Project Appraisal Department II of the China Development Bank; Ma Xianfeng, deputy director of the Research Center of the China Securities Regulatory Commission; Miao Jianmin, president of the China Life Insurance (Group) Company; Mei Dewen, general manager of China Beijing Environment Exchange; Shen Xiaohui, director at the Research Office of the State Council; Wang Haiming, secretary-general of the China Finance 40 Forum; Wang Jiansheng, president of Energy Foundation China; Wang Zhijun, deputy director at the Office of the Central Leading Group for Financial and Economic Affairs; Wu Xiaoling, vice-chairperson of the Financial and Economic Affairs Committee of the National People's Congress; Yang Weimin, deputy head at the Office of the Central Leading Group for Financial and Economic Affairs; Yang Zaiping, executive vice president of China Banking Association; Zhang Hongli, senior executive vice president of the Industrial and Commercial Bank of China; Zhou Xiaochuan, governor of the People's Bank of China; Zhou Yihong, general manager of the Bond Financing Headquarters of China Galaxy Securities; Zhuang Guotai, director of the Department of Nature and Ecology Conservation of the Ministry of Environmental Protection; Zhou Lan, deputy director of the Financial Market Department of the People's Bank of China; and many others. Finally,

I'd like to thank Dai Shuo, our editor at the China Financial Publishing House, for working overtime to organize the editing and publishing of the final book. Naturally, the views, errors, and unintentional omissions are due to the authors of the teams working under the Green Finance Task Force. These views do not necessarily represent the positions of the agencies and organizations of the authors. Ma Jun Chief Economist, Research Bureau of the People's Bank of China Domestic Convener Green Finance Task Force.

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FOREWORD

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

Inclusive, sustainable economic prosperity depends on the health of the world's natural environment. Yet natural capital is in decline in almost every country. Environmental damage each year is of the order of US\$7 trillion, including the emissions of greenhouse gases which are continuing to rise. Reversing these trends to realize sustainable development depends on finance flowing towards activities that will accelerate the transition, and away from those activities that make the situation worse. Some progress is being made, mainly through the voluntary actions of some financial institutional in adopting standards, advancing new financial products such as the rapidly growing US\$500 billion market for green bonds, and pursuing the next generation of green investment opportunities.

Yet today, only a small part of our stock of global financial assets of US\$305 trillion have been 'greened'. Major economies alone need an estimated additional US\$7 trillion of long-term investment per year by 2020 for infrastructure, buildings, equipment and software, education and R&D. The United Nations Conference on Trade and Development has concluded that there is a US\$2.5 trillion annual investment gap in what is needed to achieve the Sustainable Development Goals in the developing world. Governments internationally are providing increasing support for green finance. Much of this has until recently been through tax incentives, greening direct public investment, and accelerating green private finance by combining it with catalyzing public finance. Such measures, while welcome, are limited everywhere by public budget constraints and the pressures of shorter-term priorities. Needed is a more systematic approach to green finance which better aligns the overall financial system to the long-term needs of the real economy.

Internationally, there has been a surge of interest and action in improving this alignment. The United Nations Environment Programme, through its Inquiry into the Design of a Sustainable Financial System, has identified innovative policies, regulations and standards to encourage green finance introduced by ministries of finance, central banks, and financial regulators and standard setters around the world, led in many instances by developing nations. There is widespread adoption of new green disclosure requirements across banking and capital markets. Green credit guidelines are being introduced by banking regulators. Sustainability indexes and benchmarks are becoming common in securities markets, and credit rating agencies are incorporating climate risk into their solvency analysis. Environmental stress testing of banking and capital market rules is being considered internationally, and in at least one major market being deployed as part of a prudential review of the impact of climate on financial stability.

Some central banks and financial regulators have established specific green lending requirements, often supported by preferential refinancing and capital requirements. Policy-directed financial institutions are being encouraged to take environmental considerations more fully into account, including state-owned banks, sovereign wealth funds and in some instances newly established 'green investment' vehicles. Such innovations are, however, still at an early stage, and remain largely one-off, ad hoc measures. Needed is a more systematic approach that embeds green finance at the heart of the process of financial market development. Green finance is, after all, a core, not an 'additional', performance requirement of well-functioning financial and capital markets, reflecting well functioning risk pricing and capital allocation, and essential for improved market efficiency and overall resilience.

China's Green Finance Task Force, established by the People's Bank of China and co-convened and supported through the UNEP Inquiry, exemplifies the shift towards a systematic approach to advancing

green finance. In bringing together key policy and regulatory bodies with leading Chinese financial institutions and international experts, the Task Force has been able to mobilize knowledge, assess options and make specific proposals that are both ambitious and practical. In creating both a conceptual framework and an integrating process involving many key institutions, the Task Force has provided insights as to how to place green finance as a core aim and an organizing principle for financial market development. Financial and capital markets are increasingly global, involving international standards and governing institutions. Some progress can be made by individual countries in advancing green finance, but internationally coordinated action is, ultimately, required. China's leadership in advancing an integrated approach to green finance can catalyze such cooperation, by providing technical pathways for others to learn from and build on, by embedding such developments into China's growing, international footprint, and by bringing China's commitment to green finance into key international forums and policy and standard setting processes.

The current moment in time offers particular opportunities for advancing the alignment of the financial system with sustainable development. There is a growing will to move beyond the global financial crisis towards envisioning and building a future, productive financial system that will serve the needs of inclusive, sustainable development. Moreover, the matter of finance for sustainable development has moved center stage this year with the launch of a universally applicable set of sustainable development goals in September and the completion of a global climate agreement in December. The UNEP Inquiry is proud to have been able to contribute to the work of the Green Finance Task Force, and will continue to stand ready to provide further inputs to China's efforts to advance the cause and practice of green finance.

Simon Zadek

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EXECUTIVE SUMMARY

China's environmental carrying capacity is at its upper limit; with levels of pollution in many areas that can no longer be ignored or tolerated. For example air quality is satisfactory in only 8 out of 74 major cities, and just 25 percent of drinking water reaches national quality standards. The extent and severity of China's environmental pollution is closely related to China's industrial, energy and transportation structure, with heavy industries accounting for almost 30 percent of the national GDP and 67 percent energy coming from coal.

China urgently needs to transition toward a green and sustainable growth model. This was recognised in the Third Plenum of the 18th CPC Congress which calls for the establishment of “a systematic and full-fledged institutional system of ecological civilization for the protection of the eco-environment,” and “a market-based mechanism that channels private capital investments to the protection of the eco-environment”.

It is estimated that achieving national environmental goals during the 13th Five-Year Plan period will require an annual investment of at least 2 trillion yuan (US\$320 billion) into environmental protection, energy efficiency, clean energy, and clean transportation. Mobilising this investment depends on the establishment of a green finance system.

A systematic green finance system would allow China to attract private capital into green industry, reduce fiscal pressure, create a new growth area and enhance economic growth, stability and restructuring. It would provide economic incentives to spur green investment and curb investment in polluting industries, through three mechanisms:

1. **Increase the return on investment of green projects** by lowering financing costs and enhancing the availability of funds (through such means as discounted interest rates, green bonds, green IPO, green ratings, green stock indices, and mandatory disclosures).
2. **Reduce the return on investment of polluting projects by raising** the cost and compliance hurdle to finance polluting projects (through such means as green insurance, environmental liabilities of banks, green ratings, green stock indices, and mandatory disclosures).
3. **Enhance investor, business and consumer awareness and responsiveness to these signals** such as through mandatory environmental disclosure requirements on investment institutions and enterprises, building an active green investor network, and implementing more effective educational programs in green consumerism.

Developed countries have already accumulated several decades of experience in developing green finance-related institutional arrangements and financial products in loans, private equity, stocks and bonds, insurance, emissions trading and other financial services. The green investments that have followed these developments have played a positive role in helping these countries achieve economic restructuring and stimulate new growth areas. In the last few years, China's government has also made considerable headway in the promotion of green credit, but efforts remain fragmented and a comprehensive green finance system is not yet in place.

Guided by the foregoing targets and drawing on international practices and experiences, this report proposes 14 specific recommendations in four areas for establishing China's green finance system.

SPECIALIZED INVESTMENT INSTITUTIONS

- 1. **Green Banks** - Sponsor the creation of the China Ecological Development Bank and encourage the creation of local green banks.
- 2. **Green Funds** - Promote the development of green industry funds through public-private partnership arrangements.
- 3. **Green the Development Banks** - Adopt environmental policies for overseas development institutions.

FISCAL AND FINANCIAL POLICY SUPPORT

- 4. **Discounted Green Loans** - Improve the system for providing interest subsidies for green loans.
- 5. **Green Bonds** - Develop the green bonds market by issuing green bond guidelines, permitting and encouraging banks and enterprises to issue green bonds and providing incentives.
- 6. **Green IPO** - Improve the mechanism through which environmental performance of listed companies is communicated and recognized in equity markets.

FINANCIAL INFRASTRUCTURE

- 7. **Carbon Markets** - Accelerate the formation of markets for emission trading.
- 8. **Green Ratings** - Establish a green rating system to measure the environmental performance of enterprises and projects.
- 9. **Green Equity Indices** - Promote the creation and use of green equity indices that orient the capital market to green industry.
- 10. **Environmental Cost Analysis** - Create a nonprofit environmental cost analysis system and database.
- 11. **Green Investor Network** - Create a green investor network to foster the expertise and capabilities of institutional investors in investing in green industries.

LEGAL INFRASTRUCTURE

- 12. **Green Insurance** - Implement compulsory green insurance in areas where environmental risks are high.
- 13. **Lender Liability** - Identify and clarify environmental liabilities of banks.
- 14. **Compulsory Disclosure** - Establish mandatory environmental disclosure requirements for listed companies.

Main Report of the Green Finance Task Force

1 THE NEED FOR A GREEN FINANCE SYSTEM

There has been a large volume of domestic and international research providing a detailed assessment of the severity of China's environmental problems. The average $PM_{2.5}$ concentrations for cities in China is $65 \mu\text{g}/\text{m}^3$, while some cities in northern China regularly exceed $100 \mu\text{g}/\text{m}^3$. Both of these are far higher than the Interim Target-2 level of $25 \mu\text{g}/\text{m}^3$ set by the World Health Organization. Chen et al (2013) estimate that, air pollution from coal power North of the Huai River reduces life expectancy of residents by more than 5 years, compared to residents on the other side of the river. Around 82 percent of the people in China depend on shallow wells and rivers for their drinking water, but 75 percent of these sources are already polluted. Other studies have found that 19.4 percent of arable land in China is heavily polluted. The economic costs of pollution are not a new discovery for the government. The China Green National Accounting Study Report (SEPA/NBS, 2006) showed that environmental pollution in 2004 amounted to a loss of national GDP of over three percent. The Asian Development Bank and Tsinghua University in their National Environmental Analysis (Zhang and Crooks, 2012) calculate that economic losses resulting from illness related to air pollution were 1.2 percent of national GDP. This figure rises to 3.8 percent based on willingness to pay to remove such pollution.

The severity of environmental damage in China is largely related to the highly polluting nature of the industrial, energy and transportation structure (Jun et al, 2014). For example, manufacturing accounts for approximately 40 percent of GDP, and heavy industry alone contributes as much as 30 percent – the highest of the world's major countries. The energy consumption per unit of output and resulting air pollution for manufacturing is nine times that of the service industry. 67 percent of the energy consumed in China comes from coal, which, on a per unit energy output basis, is ten times as polluting as natural gas. Only 7 percent of China's urban residents use the underground light rail as a means of transportation, with the remaining 93 percent relying on road transport. Studies show that, versus subways, privately-owned passenger cars cause more than ten times the air pollution.

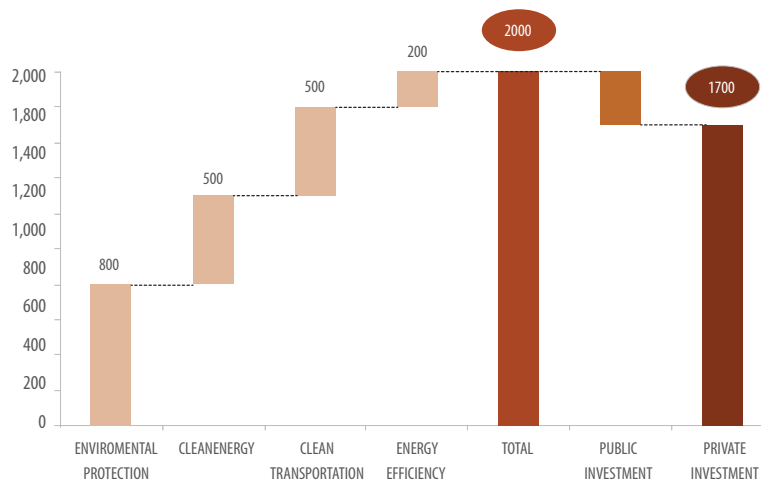
To substantially improve its environment, China not only has to rely on more effective clean up efforts, but requires fiscal, taxation and financial incentive measures to optimize resource allocation and make the economic, energy and transportation structures both cleaner and greener. In particular, incentive measures for better capital allocation will be instrumental to this green transformation. Once funds recede from polluting industries and flow into green and environmentally friendly sectors, other resources, including land and labour, will follow suit and achieve a more optimized configuration.

According to our estimates, achieving the targets of moving toward a green economic development and building an ecological civilization requires an annual investment in green sector of at least 2 trillion yuan (US\$320 billion, or more than 3 percent of GDP) for the next five years.¹

Given that the growth rates of government expenditure and fiscal revenue have both declined in recent years, the government can only be expected to contribute around 10 to 15 percent of all green investment, while private capital will need to contribute the remaining 85 to 90 percent.

¹ Estimate based on (1) The 12th Five-Year Environmental Protection Plan and the Ministry of Environmental Protection (environmental protection-related investment during the 12th Five Year totalled 3.4 trillion yuan, 1.5 trillion of this amount will be allocated to eight key projects; total final investment is expected to exceed 5 trillion yuan), (2) the Plan on Water Pollution Prevention and Control (issued in 2014, total investment planned at 2 trillion yuan), (3) the Plan on Air Pollution Prevention and Control (issued in 2014, total investment planned at 1.7 trillion yuan), (4) China Railway Annual Report (a fixed investment of 800 billion yuan is planned for 2014; realized investment in 2013 was 663.8 billion yuan), (5) the Renewable Energy Policy Network (in 2013, China's investment in wind, solar, and other renewable energy projects (excluding natural gas) was US\$56.3 billion, or approximately 350 billion yuan), (6) Bloomberg (China's investment in renewable energies (excluding natural gas) was US\$67.7 billion in 2012, or 420 billion yuan).

FIGURE 1: GREEN INVESTMENT NEED



[Source: Green Finance Task Force]

At present, China's pricing system does not fully reflect the negative externalities of polluting projects and the positive externalities of green projects. Understanding how to restrict excessive investments in polluting sectors and incentivize private investments in green industries, as well as how to use limited government funding to leverage several times more in private investment, will be the key to promoting green economic growth and building an "institutional system for ecological civilization". This is also a major challenge that confronts China's economic restructuring.

As stressed by the Decisions of the CPC Central Committee on Several Major Issues Concerning the Comprehensive Deepening of Reform adopted at the Third Plenum of the 18th CPC Congress (CPC, 2013) efforts must be made to establish "a systematic and full-fledged institutional system of ecological civilization for the protection of eco-environment," and "a market-based mechanism that channels private capital investments to the protection of eco-environment". The [2014] No. 69 Document of the State Council General Office (State Council, 2014) also stipulates that "the People's Bank of China (PBoC), the China Banking Regulatory Commission (CBRC), the China Securities Regulatory Commission (CSRC) and the China Insurance Regulatory Commission (CIRC) should work together with the government agencies to formulate financial policies that support the development of environmental service industry".

A 'green finance system' refers to a series of policies, institutional arrangements and related infrastructure building that, through loans, private equity, issuance of bonds and stocks, insurance and other financial services, steer private funds toward green industry. Developed countries have already accumulated several decades of experience in developing green finance-related institutional arrangements and financial products. The green investments that have followed these developments have played a positive role in helping these countries achieve economic restructuring and sustainable growth.

To meet the environmental challenges it faces, China should build a green finance system to guide public funds toward green projects that support the goal of maximizing social welfare. Despite the considerable headway made in the promotion of green credit by the government, efforts for building a green finance system remain fragmented and conceptual. This report proposes a systematic general philosophy and policy framework for the establishment of China's green finance system and the promotion of green investment, with emphasis placed on practicality. On the basis of economic theories, experiences from other countries, and analysis of China's unique situation, we have proposed 14 specific policy recommendations on building China's green finance system.

2 THEORETICAL FRAMEWORK

One of the basic assumptions of classical micro economic theory is companies will seek to maximize profits. Given fixed sales price and product costs, companies will determine an optimal production volume that yields the highest profit. However, the present issue is that the market prices for some of these input materials and output products do not fully reflect the externalities of their production and consumption. As a result, the output level that provides the highest benefit for the companies is not aligned with the output level that provides the highest benefit for society. Internalizing these externalities so that production of polluting products falls and production of cleaner products rises calls for three sets of policy measures:

1. **Increase the return on investment of green projects** by increasing the revenues for cleaner products, lowering taxes on them or reducing real risks and costs of production, thereby increasing their investment return. Financial measures which lower financing costs and enhance the availability of funds can also provide higher expected rate of return for investors, thus kindling their enthusiasm for investing green industries.
2. **Reduce the return on investment of polluting projects** by reducing perverse subsidies and raising taxes on pollution, and raising the cost and compliance hurdle to finance such projects such as through lender liability and mandatory disclosures. A green finance system endowed with these features will lower shareholders' expectation on the return from their investment in polluting projects, thereby reduce the level of investment in such projects as a whole.
3. **Increase awareness and responsiveness to these signals amongst investors, companies and consumers.** Measures include through mandatory risk assessment disclosure requirements for companies and financial institutions on the environmental impact of their investment projects, creating a system by which environmental responsibilities and liabilities can be traced and pinned to the initial investors, creating green stock indexes and a green investor network, and more intensified educational programs on being a green investor.


Complementary to measures directed at investors and corporations are those focused on increasing consumer awareness of environmental protection and ethical consumerism. Ultimately, consumers play an important role in the market equilibrium mechanisms that determine market price. Therefore, to influence market price and reduce externalities efforts should be made to change their consumer preferences. For a large number of consumers in developed economies, the price and features of a product are no longer the single factor in their purchasing decisions. Instead, these consumers place greater value on ethics and social responsibility, such as how the product is made, unsafe labour conditions and child labour and other ethically questionable or illegal activities. If these problems exist, then these consumers will not buy the product even if it is cheaper than the competition. A social responsibility network, a strong social demand pressuring companies to disclose their polluting practices, and efforts from non-government organizations (NGOs) can help turn consumer social responsibility into a reality. If consumers effectively demand cleaner products, the market will reach a new balance point where cleaner products command a higher price, and the result will be equivalent to government providing price subsidies for such products.

To summarize, in order to steer private investment toward green projects that are consistent with the goal of maximizing social welfare, we can employ three types of policies and mechanism designs: (1) Increase returns to green projects; (2) reduce returns to polluting projects; (3) increase investor, corporate and consumer responsiveness to these signals. If we can find a set of policies that achieve such targets at the lowest cost, then these policies will be best candidates for implementation.

The following table summarizes the mechanism through which our 14 policy recommendations, focused on financial policy, regulations and standards.

TABLE 1: ECONOMIC MECHANISM FOR THE EXPECTED BENEFITS OF THE POLICY RECOMMENDATIONS

| Policy recommendation | Main benefits and acting mechanisms |
|---------------------------------------|---|
| Green Banks | Increase the return on green investment and reduce the investment risk and cost of private capital for green projects by leveraging the economies of scale and specialized services and operations. |
| Green Funds | Build up the economies of scale and specialized green services and operations; reduce the cost of green investment. |
| Greening the Development Banks | Project the image of China as an environmentally responsible country, which improves China's voice internationally. |
| Discounted Green Loans | Reduce the cost of funding for green projects. |
| Green Bonds | Reduce the cost of funding for green projects. |
| Green IPO | Facilitate efforts by green companies to raise funds; indirectly reduce financing costs. |
| Carbon Markets | Drive down the cost of emission reductions through market mechanisms. |
| Green Ratings | Reveal environmental risks, reduce the investments in polluting projects by increasing their costs; reduce the financing costs of green projects and foster more of these projects by showing their positive externalities. |
| Green Equity Indices | Indirectly reduce the investment costs of green projects by channelling more funds into green industries. |
| Environmental Cost Database | Increase the accessibility of environmental information and reduce the cost of environmental impact studies. |
| Green Investor Network | Increase investee companies' preference for green projects through pressure from institutional investors; increase investors' preference for green projects through online educational programs. |
| Green Insurance | Expose environmental risks through insurance policies, which indirectly increases the cost of polluting projects and discourages investment in such projects. |
| Lender Liability | Strengthen the social responsibilities of investors, impede the availability of funds for polluting projects, thereby increase their financing costs. |
| Compulsory Disclosure | Encourage (discourage) companies to invest in green (polluting) projects by emphasizing greater corporate social responsibilities. |

 MORE INFORMATION – BACKGROUND REPORT A: [THEORETICAL FRAMEWORK FOR GREEN FINANCE](#)

3 IDEAS AND LESSONS FROM OTHER COUNTRIES

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 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.

Developed countries were the earliest to experience environmental problems arising from fossil energy consumption and industrialization. In combating environmental challenges, these countries have built up experience in green finance policy, institutional development and product innovation over the past few decades, which contributed to their economic transition and fostered new growth drivers. For instance, by using green finance (including green loans, green interest rate discounts, green funds and green bonds) and other instruments for the development of the energy conservation industry, Europe is on track to achieve energy savings which will amount to €200 billion a year (US\$220) by 2020 (Molenbroek

and Blok, 2013). With the support of green finance and other policies, numerous green jobs have been created in the clean and new energy sectors. In the EU, by 2012, 1.2 million people were employed in the renewable energy sector (European Commission, 2012), and 2.7 million in 'clean economy' jobs in the US (Muro, 2011). According to the estimate of European Climate Foundation (2010), advanced clean technology will contribute to an increase of European exports worth €25 billion. In 2011, the sales turnover of clean technology industry in Denmark already 3% of the country's GDP (van der Slot and van den Berg, 2012). According to the estimate of Clean Edge, a clean technology consulting firm, between 2000 and 2013, global (mainly developed countries) sales turnover of electric vehicles and hybrid vehicles grew by as much as 38% on an annual average basis.

Below is a description of some international practices promoting green finance.

Equator Principles. In June 2003, the International Finance Corporation (IFC) launched the 'Equator Principles' in the global banking industry, implemented initially by ten leading international banks in seven countries, including Citibank. The Equator Principles require financial institutions to assess the environmental and social implications of projects proposed for financing, and only finance those that demonstrate compliance with social and environmental standards. The Equator Principles have prescribed a set of minimum industry standards, and provided a general guideline that financial institutions can reference to achieve greater environmental protection, energy conservation and emission reduction (Equator Principles, 2013) At present, 80 financial institutions have adopted the Equator Principles, representing more than 90 percent of global project finance.

Green credit and securitization. Under the support of favourable taxation policies, many Western financial institutions have answered to market demand and developed green credit products with preferential loan limits, lending rates, and loan application processes catered to enterprises, individuals, and families. One example of this movement are banks in Canada and Australia offering preferential auto loan rates for low emission models. Through securities market instruments, financial institutions are also able to raise funds for major environmental infrastructure and energy conservation projects and provide enterprises with environment-related hedging tools such as green asset-backed securities and weather derivatives.

Green industrial funds. Major financial conglomerates are currently the dominant player in the direct financing of large-scale green projects. 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 was dedicated to investing in small and medium-sized enterprises of the environmental industry in emerging market economies. Between 1999 and 2012, it 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. Several firms have set up to provide green industry investment and financing services.

Green securities investment funds. At present, green securities investment funds mainly trade Exchange Traded Funds (ETFs) and fund products, but also include derivatives based on carbon emission rights. These products have attracted the attention from a wide range of 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 U.S. public companies in clean energy), and FTSE Japan Green Chip 35 (following Japanese companies in the environmental industry). In addition, there are many specialized indices and funds such as the db x-trackers from Deutsche Bank, U.S. Carbon Efficient Index from Standard & Poor's and iPath Global Carbon ETN from Barclays.

Green bonds. Green bonds are instruments which tie the proceeds of a bond issue to environmentally friendly investments. Initially they were mainly issued by international financial organizations and government-backed financial institutions including the World Bank, 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.

Green banks. The UK 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. Green Investment Bank is 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. 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 (House of Commons Environmental Audit Committee, 2011).

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 (Bacanni, 2015). 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 (Bacanni, 2015).

Establishment of a carbon finance system. Key elements of the carbon finance system include:

1. **Carbon trading.** Founded in 2005, the European Union Emissions Trading System (EU-ETS) is a typical market organized for quota-trading with mandatory participation by polluting companies. Covering nearly 12,000 greenhouse gas-emitting industrial entities in 27 member states of the EU as well as Liechtenstein and Norway, the EU-ETS is currently the world's largest carbon market and accounts for more than three quarters of the world's carbon trading volume and turnover. The Chicago Climate Exchange (CCX) is the world's first voluntary greenhouse gas reduction and trading platform with legally binding emission reduction targets; while the Regional Greenhouse Gas Initiative (RGGI), participated by ten US Northeastern and Mid-Atlantic states, is the first market-based and regional framework for total CO₂ emission control and quota trading in North America. Similar trading systems have also sprung up in other countries, including the New South

Wales Greenhouse Gas Reduction Scheme (NSW GGAS) in Australia, the New Zealand Emissions Trading Scheme (NZ-ETS), and the Keidanren Voluntary Action Plan (Keidanren VAP) in Japan.

2. **Carbon finance.** On the heels of the rapid expansion of the carbon trading market, major foreign financial institutions have developed financial products based on carbon emission rights and improved their service standards. These services mainly include: (i) providing intermediary service in carbon trading, which liaises sellers of carbon emission rights with end consumers or carbon traders with each other to broker transactions; (ii) offering loans to companies that develop projects under the Clean Development Mechanism (CDM), and guarantees to developers of projects that produce certified emission reduction credits; (iii) participating in the trading of carbon emission quotas on the secondary markets, which generates much-needed liquidity to carbon trading; (iv) designing carbon finance-related retail products and innovative carbon finance derivative products; and (v) creating risk management tools for the end users of carbon emission rights.
3. **Carbon funds.** Carbon funds specialize in providing capital to carbon reduction projects by purchasing emission quotas from existing carbon reduction projects, directly financing new projects or other means. They include carbon funds set up by international multilateral development aid agencies, governments, for-profit carbon investment funds and venture capital funds created by financial institutions, and funds established by entities that participate in voluntary emission reductions.
4. **Carbon-related financial derivatives.** Financial institutions have introduced many derivative products based on carbon emission rights as they become more intertwined with the carbon trading market. Traditional carbon derivative products mainly include forward, futures and options contracts trading Assigned Amount Unit (AAU), European Union Allowance (EUA), Certified Emission Reduction (CER) and other carbon emission credits. New derivative products feature securitized carbon emission rights receivables and delivery guarantees, carbon insurance / warranty and other structured products or securities that are linked to 'carbon assets'.

Clarifying the environmental obligations of financial institutions. In 1980, the US passed the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), under which banks may be held liable for pollutions caused by their clients, as well as 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 (EPA) for holding polluting properties liquidated by the borrower and refusing EPA's request to clean up pollutants. 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 (Percival et al, 2012).

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

The United Nations Principles for Responsible Investment (PRI) is an international framework sponsored by United Nations and organized by major international investors with the objective of realizing and officially launching on a global scale a set of principles for responsibility investment. 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:

1. Providing investment guidelines to help signatory institutions 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;

2. 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;
3. Establishing the PRI Clearinghouse forum for signatory institutions to participate in conferences, share experiences and build investor networks;
4. 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 (UNPRI, 2014).

Inclusion of environmental factors in credit ratings. 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. On sovereign ratings, UNEP has issued a report titled *A New Angle on Sovereign Credit Risk: Environmental Risk Integration in Sovereign Credit Analysis* (UNEPFI/ Global Footprint Network, 2012), which proposes that environmental factors be included in the sovereign credit evaluation process. For corporate credit ratings, Standard & Poor's (S&P) already requires ESG evaluations in its rating process. S&P is particularly focused on factors such as global warming, carbon emissions and clean energy, and has incorporated these factors into its existing evaluations of 'management and governance credit factors.'

Requiring public companies and bond issuers to comply with regulations on 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 (2013) 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. As a result, 80 percent of the companies had disclosed environmental information in 2012, up from only around 37 percent in 2004.

Building networks for 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:

1. The Investor Network of Climate Risk (INCR). Established in 2003, this network includes 100 large-scale investors managing US\$11 trillion of assets.
2. The Institutional Investor Group of Climate Change (IIGCC). This network was founded in 2001 and currently has 80 members including major European publishers the carbon emissions data of 2,500 institutions (companies) from 30 countries and their potential commercial 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 of assets.

4 THE 14 RECOMMENDATIONS

Guided by the foregoing framework and drawing on international practices and experiences, we are proposing a vision and 14 specific recommendations for building China's green finance system. To make the recommendations more practical and clearly delineate the responsibilities of various government agencies and market entities, we have grouped these 14 recommendations into four major categories: institution-building, policy support, financial infrastructure, and legal infrastructure. The following figure outlines this framework and the connection between the specific recommendations.

SPECIALIZED INVESTMENT INSTITUTIONS

1. **Green Banks** - Sponsor the creation of the China Ecological Development Bank and encourage the creation of local green banks.
2. **Green Funds** - Promote the development of green industry funds through public-private partnership arrangements.
3. **Green the Development Banks** - Adopt environmental policies for overseas development institutions.

FISCAL AND FINANCIAL POLICY SUPPORT

4. **Discounted Green Loans** - Improve the system for providing interest subsidies for green loans
5. **Green Bonds** - Develop the green bond market by issuing green bond guidelines, permitting and encouraging banks and enterprises to issue green bonds and providing incentives.
6. **Green IPO** - Improve the mechanism through which environmental performance of listed companies is communicated and recognized in equity markets.

FINANCIAL INFRASTRUCTURE

7. **Carbon Markets** - Accelerate the formation of markets for emission trading.
8. **Green Ratings** - Establish a green rating system to measure the environmental performance of enterprises and projects.
9. **Green Equity Indices** - Promote the creation and use of green equity indices that orient the capital market to green industry.
10. **Environmental Cost Analysis** - Create a nonprofit environmental cost analysis system and database.
11. **Green Investor Network** - Create a green investor network to foster the expertise and capabilities of institutional investors in investing in green industries.

LEGAL INFRASTRUCTURE

12. **Green Insurance** - Implement compulsory green insurance in areas where environmental risks are high.
13. **Lender Liability** - Identify and clarify environmental liabilities of banks.
14. **Compulsory Disclosure** - Establish mandatory environmental disclosure requirements for listed companies.

The following paragraphs will expand on the foregoing and provide more detailed look at these 14 recommendations. Please refer to the Sub-Reports section for the detailed background, related international experiences, and more elaborate discussions on these recommendations.

4.1 Build a Green Banking System

SUMMARY RECOMMENDATION

Specialised Investment Institutions >> Green Banks

Empower green banks to fully leverage their expertise, scale, and risk management in green loans and investments. Nationally, a China Ecological Development Bank should be established in which the government does not have to have a controlling interest; regionally, local governments should actively explore and encourage the creation of green banks funded mostly by private capital, then introduce practices and experiences in green financing from the eco-finance business divisions of more established commercial banks. Green banks will have several channels to raise funds, including issuing green bonds and entering re-lending agreements with the central bank.

China's green banking system should be created at three separate administrative levels to provide strong organizational support for the growth of green credit. Creating a green banking system that is backed by a network of green banks and eco-finance divisions of commercial banks and introducing new and innovative financing models will significantly enhance the professionalization and economies of scale of green credit, which in turn helps to reduce financing costs and the ratio of non-performing loans.

Our proposed framework for the green banking system is composed of:

1. A 'China Ecological Development Bank' at the national level;
2. Regional green banks in select geographical regions funded mostly with private capital and modelled after the China Ecological Development Bank; and
3. Eco-finance divisions among commercial banks to fully leverage existing financial infrastructures and provide green credits, such as the eco-finance division of the Industrial Bank.

Because much of the developmental loans issued by the China Development Bank are already allocated to environmental protection and energy saving projects, questions can be raised on the rationale for setting up a new green bank. We believe a new green bank will provide at least five major benefits besides meeting China's huge green financing needs that have outgrown the existing system. Firstly, by establishing a green bank at the national level, the Chinese government can declare and clearly demonstrate to the entire nation and capital markets its resolve in managing and reducing pollution and developing a green economy, which will enhance the public's confidence in China's future environmental policies and risk preference for green projects and help steer more public funds and resources toward the green industry. Take the UK Green Investment Bank, for instance; although its investment capital only accounts for more than ten per cent of green investments made in the UK over recent years, it has involved and leveraged projects that are worth 50% of green investments in the UK under the effect of public commitment and guidance. Secondly, the national green bank can adopt the Equator Principles from its inception, establish a highly specialized system for evaluating a project's environmental impacts, and enjoy the benefits that a high level of specialization and a large scale system and database provide. Thirdly, as a specialized green bank, it can more easily design and implement innovative financing methods for targeted industry sectors and market needs (e.g., issuing green bonds and green refinancing from the PBoC). Fourthly, compared to the eco-finance divisions of commercial banks, an independent green bank can have a much more flexible ownership structure, which can attract private investors intending to have a stake in long-term green investments. Lastly, green projects are usually faced with lower returns and higher risks in comparison with traditional projects; but empirical results from other countries have demonstrated that a specialized green bank can outperform normal commercial banks in controlling risks and non-performing loans.

Our provisional plan for China's national green bank is as follows:

1. Establishment and mission

The national green bank can be named the 'China Ecological Development Bank', which should be a development aid financial institution under the direct leadership of the State Council. Its main mission is to establish a long-term and stable source of funding, raise and guide public funds toward the growth of China's green industries, gradually establish the mechanisms for investment constraints, environmental risks and liabilities, improve investment efficiency, serve as a model of success for encouraging similar PPP green investments, and facilitate the rapid, sound and sustainable growth of the green industry.

2. Role in the green banking system

The national green bank should: (1) issue green bonds, green asset-backed securities and other basic financial instruments, foster and nurture a green finance trading market, determine the 'green benchmark interest rate' for the markets; (2) serve as a leader in the credit industry, formulate guidelines related to green industry credits, become the leading bank in a syndicate for green projects, channel funds from other financial institutions; and (3) benefit the nation through its financing capabilities and talented workforce, provide technical assistance and consultancy services for financing in the green industry, and cultivate a professional staff in the area of green loans.

3. Source of funding and financing approaches

Source of funding. The China Ecological Development Bank should have a minimum registered capital of 100 billion yuan that is paid-in over the course of a few years. The Ministry of Finance or the China Development Bank should contribute 20 billion yuan, with private capital (including pension funds, insurance companies and other institutions, international organizations, and foreign institutions with long-term investment goals) finance the other 80 billion yuan, resulting in a two to eight ratio of public and private funds. The China Ecological Development Bank can become a success model for rallying private capital into a green industry PPP establishment on a national level.

Debts and other sources of capital. These sources consist of the following:

1. **Targeted low-interest rate re-loans.** Before the green bond market grows into maturity, the government may consider targeted low-interest rate re-loans or pledged supplementary lending from the PBoC to provide the initial funding for the China Ecological Development Bank.
2. **Issuance of green bonds.** Backed by policy banks, the debt rating for green bonds should be maintained at quasi-sovereign levels to ensure their low utilization cost.
3. **Issuance of green asset-backed securitization products.** The China Ecological Development Bank can securitize high-quality green assets and sell these green asset-backed securitization products to potential investors, which is another major source of funding.
4. **Raising funds from overseas market.** Viable ideas include issuance of foreign currency-denominated bonds to international markets and taking international commercial loans to match the bank's own global business needs.

4. Implementation of a divisional structure

The China Ecological Development Bank can consider organize itself into four main divisions: Infrastructure Division, Environmental Equipment Division, New Energy Division, and Green Industry Fund. In particular, the Infrastructure Division is mainly responsible for providing medium and long-term loans to major ecological and environmental infrastructure projects, which include comprehensive cleanup efforts for

China's water systems, water conservation facilities, public transportation systems and waste treatment projects. The Environmental Equipment Division will provide loans to companies that manufacture the equipment used in environmental protection efforts, which encompasses energy-saving equipment, pollution treatment equipment, high-energy efficiency equipment and recycling equipment. The New Energy Division will promote the development of new energy sources, such as wind energy, solar energy and new energy vehicles. Lastly, the Green Industry Fund will support high-risk entrepreneurial companies during their early stages through infusion of venture capitals and private equities.

 MORE INFORMATION – DETAILED RECOMMENDATIONS REPORT 1: [CREATE A GREEN BANKING SYSTEM](#)

4.2 Promote the Development of Green Funds

SUMMARY RECOMMENDATION

Specialised Investment Institutions >>Green Funds

Promote the development of green industry funds as public-private partnerships (PPPs), leveraging limited government funding to attract private capital to make amplified equity investments in green sectors. Policies that create favourable environment for individual PPP projects should generally be supportive of PPP industry funds. Formulate an appropriate organizational model and government participation model (government as either general partners or limited partners) for these green industry funds, and an effective and efficient exit mechanism.

Green industry funds will serve as the platform through which private capital can converge into professionally managed green investments and provide an important supplement to green credits. In this section, we propose the following five recommendations to support the development of green industry funds:

Create green industry funds through PPP arrangements. The below-average investment return that often characterizes the environmental industry makes green industry funds highly reliant on government assistance. A PPP arrangement that combines public funding with private capital will be vital for promoting the development of green industry funds. We believe that **the level of government involvement in a green industry fund should depend on the nature of the fund.** On the basis of their investment targets, green industry funds can be classified into region-based funds and industry-based funds that invest in one or a few select industries. The first type, region-based funds, will mainly invest in regional environmental projects that can span multiple industries. Two examples would be the Tianjin Eco-city construction fund and the pilot Hai River water system environmental fund. The second type, industry-based funds, will dedicate their resources not to certain geographical regions but rather to a single or a number of environmental industries, such as new energy industry fund and soil remediation industry fund. Regardless of their focus, green industry funds all require government assistance in their funding, but the extent of government input, as well as the level of intervening government – whether central, regional, or local, can vary depending on the characteristics of the fund. Generally speaking, local governments would play a dominant role in such aspects as fund-raising and investment allocation for green industry fund with significant regional attributes. First of all, because these funds have already specified their scope of investment as local environmental projects at establishment, which have significant positive externalities to local economy, these funds should require greater involvement of the local government. The local government must support these funds by creating a cooperative relationship featuring explicit contracts, clear responsibilities and shared interests and risks between government and private capital. In addition, because these funds mainly target regional environmental programs, careful program planning and design can provide mutual benefits and risk control effects to other industry chains in the same region. By contrast, green industry funds that target certain environmental sectors often are already receiving indirect

government support (such as subsidies for new energy programs that they invest in), frequently provide attractive returns to private investors, and have greater market potentials and externalities. Therefore, this second type of fund will only need a smaller proportion of funding support from the local government, and the local government will not register as a general partner of these funds, only as a limited partner.

Recognize and regulate PPP green industry funds. Current PPP arrangements are mainly used for individual projects. PPP green industry funds, therefore, can be thought of as an innovative extension of the traditional PPP model. To support this new funding model, the government should **first** recognize the model as a PPP arrangement, so that it may enjoy the favourable policies applicable to individual PPP projects. **Second**, as an innovation, PPP green industry funds will possess characteristics typical of PPP arrangement, which will make them significantly different from other industry funds. The quintessential differences are PPP industry funds' contract management and freedom contracts. Take the construction of the Tianjin Eco-city as an example. The transfer of concessions by the government cannot be realized through existing decrees and ordinances; the criteria that the government uses to evaluate the operation of the fund pool by the concessionaire are also extremely detailed, exhaustive, actionable and practical. Therefore, it is urgently needed to improve the top-level design by introducing specific laws, regulations and operating guidelines to regulate green industry funds organized under PPP models

Accelerate the timetable for policies on green bonds, which will help environmental companies going public. The main exit mechanism for green industry funds is helping the environmental companies they invest in going public. But at the moment, China's green bond policies are still primarily focused on restrictive measures in the form of mandatory information disclosures and environmental impact reviews. Due to a lack of incentivizing policies for the green industry and supportive measures for green start-up companies, green industry funds will have a difficult time pulling their funding support from these companies. In the US, Japan and Europe, the second board market serves as one of the main mechanisms for the exit of green industry funds from their investees. Similarly, China should hasten its pace in lowering the listing criteria and transaction costs of the GEM, improve the transparency and regulation of market and implement strict delisting regimes.

Develop business organizational models for green industry funds that are suitable to China's characteristics. Due to current restrictions placed by laws and regulations, green industry funds in China are primarily organized as contractual and closed companies. From a long-term perspective, limited partnership is a more suitable form for green industry funds, as it can organically integrate capital with industry professionals, improve the competency of decision-making arising from a clear division of responsibilities, rights and benefits, and, without compromising the incentives and constraints placed on its managers, lessen the risk and potential liability of its limited partners.

Introduce new policies by the central and local government to support green industry funds. According to the Interim Administrative Measures for Industry Investment Funds, industry investment funds, based on their investment sector, can be classified into start-up investment funds, corporate restructuring investment funds, and infrastructure investment funds. Accordingly, some green industry funds should be classified as infrastructure investment funds, and therefore belong to government's 'encouraged' sectors for investment. In its Opinions on Encouraging and Guiding the Healthy Development of Private Investments, the government has proposed a number of national development policies aimed at encouraging private capital to participate in the construction of hydraulic engineering projects, soil restoration projects and mining region geological restoration projects, as well as supporting private capital to invest in sewage treatment and urban landscaping industries. Such policies should be refined. Local government can also support green industry funds by providing for lower entry barriers, tax breaks, subsidies and favourable land policies in their detailed operating guidelines.



4.3 Improve the Environmental and Social Responsibility of Overseas Investments

SUMMARY RECOMMENDATION

Specialised Investment Institutions >> Green the Development Banks

Overseas investment and development institutions should adopt internationally consistent standards. The Silk Road Fund, the Asian Infrastructure Investment Bank (AIIB), and the New Development Bank (known as the 'BRICS Development Bank') should adopt or reference the Equator Principles, establish a system for environmental risk management with standards no lower than those set by the World Bank and the Asian Development Bank, disclose environmental information to the fullest extent, promote overseas green investment, and shape and maintain China's image as an environmentally and socially responsible country.

There is a major shortfall in infrastructure investment in developing countries.² Because existing multilateral and regional financial institutions cannot provide adequate infrastructure investment to developing countries, economic and social development in these countries has been stunted. The establishment of institutions such as the BRICS Development Bank, the AIIB and the Silk Road Fund will help make up for the funding deficiencies, which will prove vital to the economic growth of these developing countries and emerging economies. However, some countries have certain misunderstandings regarding the direction of governance and transparency policies of the BRICS Development Bank and the AIIB, believing that their future procurement and investment decisions will not follow stringent environmental and social justice policies. In response to these misunderstandings and concerns, President Xi Jinping, while attending the MOU signing ceremony for the establishment of AIIB, stated to representatives from other countries that the AIIB will study and draw upon the experiences and rules of other multilateral development agencies, such as the World Bank and the Asian Development Bank.

We believe that while injecting capital to other countries, China should also prioritize building its image as an 'environmentally and socially responsible' nation. China can achieve this by shouldering the environmental and social responsibilities associated with its overseas investment and contributing to the sustainable growth of other developing countries. These efforts will also dispel the doubts and misgivings that some Western countries tend to attach to any new international financial institutions that China promotes. Here we will offer some recommendations on how the BRICS Development Bank, the AIIB and the Silk Road Fund can vitalize green finance on a global scale:

1. Adopt or reference the Equator Principles, Create a high-standard environmental and social risk assessment system for projects

The Equator Principles are the gold standard for managing environmental and social risks; they have been adopted by more than 80 financial institutions, commercial banks, and credit export agencies around the global. The BRICS Development Bank, AIIB, and the Silk Road Fund should adopt the Equator Principles or operate in accordance with the Equator Principles from the outset, and proactively integrate environmental and social risk management into the project management life cycle. Moreover, for medium and long-term goals, the BRICS Development Bank, AIIB and the Silk Road Fund should formulate even higher standards than the Equator Principles, thereby becoming a model and global leader in the management of environmental and social risks.

² A report from the World Economic Forum shows that infrastructure projects in agriculture, water, electricity, telecommunications, transportation, construction, industrial facilities, and forestry require an annual investment of US\$5 trillion before 2020.

2. Care for both the productivity and sustainable growth of the countries receiving overseas investment

The establishment of BRICS Development Bank, AIIB, the Silk Road Fund and the proposal for “Belt and Road” are encouraging news for China’s industries and widely believed to provide new outlets for China’s excess production capacity. Undoubtedly, these new mechanisms will facilitate Chinese companies in going global, contribute to domestic economic growth and employment, and enhance China’s long-term development potentials. However, these mechanisms cannot become channels for Chinese companies to off load outdated and polluting industrial capacities to other Asian developing countries. While investing in and exporting to foreign countries and regions, Chinese companies must keep China’s national image and the welfare and long-term development of the local populace at heart, so that they can help maintain and develop China’s relationship with these regions. Failure to heed these factors will create ‘trust issues’ for China’s overseas investment organizations, which will damage the long-term sustainable operation of these organizations.

3. Establish a highly transparent environmental disclosure mechanism and set clear minimum ratio of environmental projects out of the loans and investments provided by BRICS Development Bank and AIIB

Information disclosure is an effective means to increase financial institutions’ and enterprises’ sense of social responsibilities, discourage polluting investments and bolster green investments. The BRICS Development Bank, the AIIB and the Silk Road Fund should adopt high standards for information disclosure and not only require the disclosure of environmental and social risks of projects and risk mitigation measures by loan applicants, but also prescribe a minimum value for the percentage of loans to environmental projects and disclose such information in their annual reports.

4. Issue green bonds and encourage private capital to facilitate the green transformation

As a low-cost, highly liquid and relatively low-risk investment instrument, green bonds can effectively enhance the ease of financing green projects, reduce their financing costs and provide channels for institutional investors and other private capital to invest in the green industry. The BRICS Development Bank, the AIIB and the Silk Road Fund may draw upon the experiences of the World Bank, the IFC and the Asian Development Bank and provide a portion of the investments needed by the green infrastructure by issuing green bonds.


5. Encourage private sectors to make green investments through PPP and other means

The strength of the PPP model is that the government can partner with private sectors to raise funds for green infrastructure projects, while sharing the investment risks and benefits. In other words, the PPP model provides financing for green infrastructure projects in the form of private capitals through the leverage effect of limited public funding. In both China and other countries, many green infrastructure projects have been successfully funded via the PPP model. The BRICS Development Bank, the AIIB and the Silk Road Fund should draw upon these experiences to expand the use of the PPP model.

6. Fully consider energy conservation and emission reduction requirements in the procurement, design and construction process

The BRICS Development Bank, the AIIB and the Silk Road Fund should require environmentally friendly procurement, design and construction management by invested enterprises and projects. First, infrastructure and other projects invested by the BRICS Development Bank, the AIIB and the Silk Road Fund should follow the principle of ‘green procurement’ by giving priority to the procurement

of raw materials, products (such as energy efficient buildings) and services (including engineering services) with relatively limited negative environmental impacts, bring about improved environmental performance of suppliers, and thus promote green investment and consumerism. Considering the significant size of projects invested by the BRICS Development Bank, the AIIB and the Silk Road Fund, their green procurement is likely to support a series of green products and technologies and foster new economic growth drivers. Secondly, low carbon requirements must be embedded in the up front design of infrastructure projects given the long service life of projects. Otherwise, it would be very difficult to change the poor environmental performance after project completion. Third, green construction practices must be followed to conserve resources and reduce construction activities with negative environmental impacts to the maximum extent, abate floating dust and noise, and conserve water and energy.

 MORE INFORMATION: DETAILED RECOMMENDATION REPORT 3: [GREEN THE DEVELOPMENT BANKS](#)

4.4 Improve the Interest Subsidy Programs for Green Loans

SUMMARY RECOMMENDATION

Fiscal and Financial Policy Support >> Discounted Green Loans

Improve the system through which government funding provides discounted interest rates on green loans, further raise the level of such discount, gradually ease the various restrictions and eligibility criteria for these subsidies, set reasonable terms for which borrowers can enjoy the preferential rates, streamline the review and approval process, implement pilot programs where government finance departments engage policy banks, green banks or eco-finance divisions of commercial banks to manage the interest rate subsidies for green loans.

Discounted interest rates for green loans are an effective means to stimulate private investments equalling several times the amount of seeding fund provided by the government to flow into the green industry. In recent years, China has steadily ramped up its energy conservation and environmental protection efforts, including dozens of related policies that provide direct subsidies, albeit in limited amounts. Although direct subsidies are helpful, they also present a number of problems: (1) because green development relates to many industries, policies and measures are fragmented and introduced for short-term effects; (2) the 'point-to-point' nature of direct subsidies and incentives often leads to corruption, either in the government or the company receiving the benefits. In addition, the limited size of environmental staff in the government means that staff cannot obtain a complete, accurate and truthful picture of all the enterprises that apply for such incentive measures; (3) the current setup for direct subsidies places more weight on application screening than project follow-up and actual realized impacts.

For these reasons, it is necessary to improve the current fiscal subsidy mechanism and the effectiveness and systematism of government funding of green economic development. We propose the following recommendations:

1. Increase the amount of government subsidies for green credits, promote the use of interest rate discount in the spending for energy conservation and environmental protection projects, and increase the proportion of green loans borrowed on discounted interest rates to the total amount of government spending.
2. Create a communication and information sharing mechanism between government finance departments, banks, and environmental protection agencies, streamline and optimize the decision making process for issuing green credits and loan discounts, specify the responsibilities of the various stakeholders.

3. Moderately increase the amount of discount and expand the scope of loans that have access to these discounted rates. Present requirements often stipulate that the discounted rate cannot be higher than the same-period lending benchmark rate issued by the PBoC or the lending rate of commercial banks; while other policies set limits based on the current year's real interest rate but have a ceiling of 3 percent. We recommend that the real interest rate be used as the upper limit for discounted rates for green loans, and the discounted rate should be applied to the full borrowing amount.
4. Set an appropriate discount period. At present, the discount interest rate policies provided by the central government are in general shorter than three years, which greatly limits their application. We recommend removing the three-year limit and basing the discounted rate on the factual information relating to the green loans.
5. List the type of projects that have access to discounted interest rates on loans, and simplify and accelerate the review and approval process for projects matching the listed types.
6. Improve related and supplemental measures and policies; provide risk compensation to banks making the loans. These efforts include funding the establishment of security and warranty policies designed specifically for green loans; establishing a third-party evaluation system; enhancing the supervision and review of green loans; providing result-based monetary incentives to performing projects and banks in addition to applying discounted rate on the full amount of green loans.
7. Draw upon the experience of German KfW Development Bank and implement a pilot program in which China's finance department delegates the eco-finance divisions of designated banks (or future green banks) to manage the discounted rates on green loans.

 MORE INFORMATION – DETAILED RECOMMENDATIONS REPORT 4: [STRENGTHEN DISCOUNTED GREEN LOANS](#)

4.5 Promote the Issuance of Green Bonds

SUMMARY RECOMMENDATION

Fiscal and Financial Policy Support >> Green Bonds

Banks should be permitted and encouraged to issue green bonds as a long-term and low cost source of funding for green loans and green investments. The NDRC, PBC, CBRC and CSRC should issue industry guidelines on green bonds. Policy support measures such as interest subsidies, guarantees, and preferential tax treatment should be considered. The review and approval process relating to green bond issuance should be simplified.

Green bonds can not only provide a low-cost source of funding for green credits and investments, but also reduce the risk of maturity mismatch. We recommend that China should commence the pilot issuance of green bonds at the earliest possible date to support the green lending business of banks. China should also hasten its pace in formulating policies permitting and encouraging companies (or enterprises) and local government to issue green bonds. As a new form of financial instrument, China can, for the early stages of green bonds, reference the successful issuance of financial bonds from SMEs, limit the scope of investment in accordance with the CBRC's green credit statistical standards, and require prospective issuing financial institutions to submit issuance documents for authority reviews and approvals. Our specific recommendations for promoting the issuance of green bonds are as follows:

Define the scope of investment for green bonds. Green bonds should be financial instruments targeted at supporting the development of the domestic energy conservation and environmental protection industries. The scope of investment for money raised through the issuance of green bonds can be limited to the boundaries outlined by the statistical data on green credits. At the same time, we recommend

that in determining the investment target and issuance duration of the green bonds, consideration be given to the industry distribution and characteristics of the maturity structure of green credit issuance by various financial institutions, and, within the boundary set by the green credit statistical system, permitting financial institutions to submit specific plans for green bonds financing in light of such factors as their respective development status and industry focus. We recommend that the PBoC and the CBRC issue a joint document to clarify the definition, issuance process and use of proceeds of green financing.

Create incentivising policies. To promote the issuance of green bonds and reduce financing cost, regulatory and fiscal authorities should consider the following incentivizing policies: (1) Allow commercial banks to exclude loans backed by green bonds from their loan-deposit ratios (as long as they show they keep accurate account of risks, have sufficient capital, and run a successful green financing business). (2) Consider the use of interest subsidies and guarantees to support the issuance of green bonds. (3) Make interest on green bonds tax-free for institutional investors, in line with the current practice on treasury bonds.

Create a tracking and evaluation system. Regulators should identify specific requirements on the use of proceeds raised from green bonds. For instance, specialized institutions or departments should be charged with the use and management of the proceeds, dedicated accounts should be set up to hold the proceeds, and the use of funds should be limited to within the statistical boundaries of green credits identified by the CBRC. Regulators will also need to establish an evaluation system that tracks events after the issuance of green bonds and proceeds, which will not only evaluate the present use of funds by financial institutions, but also assess and evaluate the environmental protection and energy conservation effects of the funds, so as to realize the supervision, management and evaluation of green bonds over their entire life cycles.

Simplify review and approval procedures; increase bond issuance efficiency. Given that the proceeds raised from issuance of green bonds will be allocated to energy conservation and environmental protection industries that are supported by current policies, we recommend that the review and procedures for the issuance of green bonds be streamlined by consolidating the serial approval process involving CBRC and the PBoC into a parallel one, which will shorten the approval time, enable financial institutions to take advantage of the optimal time to issue bonds, increase the flexibility of interest rate inquiry and enhance market efficiency.

 MORE INFORMATION – DETAILED RECOMMENDATIONS REPORT 5: [PROMOTE THE ISSUANCE OF GREEN BONDS](#)

4.6 Create a Green IPO Channel

SUMMARY RECOMMENDATION

Fiscal and Financial Policy Support >> Green IPO

Enhance mechanisms for green enterprises to raise funds through Initial Public Offerings (IPOS). Set clear determination criteria for classifying green industries and enterprises, and simplify the IPO review or filing process for verified green enterprises. To the appropriate extent, relax the restrictions on the amount and ratio of offering proceeds that can be used to replenish liquidity or repay bank loans. Lastly, offer priority status to qualified green enterprises currently listed on the New Third Board to transfer to the Growth Enterprise Market (GEM) in the board transfer pilot program.

Green industries are the key to realizing the sustainable growth of China and represent three of the seven national strategic emerging industries (energy conservation and environmental protection, new energy

and new energy vehicles). According to the national goals for the development of the green industry and estimates from experts, China's green industries have an annual investment demand of more than 2 trillion yuan. Characteristics of the green industry, including large initial capital requirement, asset-heavy capital structure and slow returns, have further magnified the shortage of financing. Aside from fiscal support policies, the development of China's green industry hinges on broadening the source of funding via the capital market for green enterprises and unleashing the vitality intrinsic to these enterprises.

China's current green financing structure is dominated by government funding and government loans across various administrative levels; the financing channels for green enterprises are rather limited in comparison to other countries. For instance, equity market accounts for 18 percent of the total financing in sophisticated PV markets including the US and Canada, while this ratio is only 0.7 percent for Asia (mainly China and Japan). On the whole, China's green industries are not adept at financing through the stock market. One of the major bottlenecks for entering the stock market for Chinese green enterprise today is the slow IPO process.

Supported by the funds raised in the capital market during its IPO in 2010, Shenzhen GEM High-Tech Company has been able to expand rapidly and is now a leading company in China in the field of circular economy and a major proponent for the development of the circular economy industry. In contrast, although CECEP Wind-power Corporation is the first wind company listed in the A-share market, the slow IPO queue caused the company to miss the best opportunity to grow. Its business lags behind that of Huaneng Renewables and Datang Renewable Power, both of which went public in Hong Kong, and the fund raised through its IPO is relatively small and was not able to meet the company's growth demand.

Consequently, accelerating the IPO process should be one of the measures in promoting China's green industries. We recommend that the CSRC simplify the IPO review and approval processes for green enterprises, thereby promoting private capital to reallocate to green enterprises and enhancing their financing capabilities and ability to grow. Given the present circumstances, we offer the following two recommendations for simplifying the IPO process for green enterprises and boosting the support of the stock market to these enterprises:

First, accelerate the IPO process for green enterprises by streamlining the IPO review procedure. At present, green enterprises have no particular advantage in the IPO review process among the many other companies currently in the IPO queue. It is recommended that with reference to the special IPO policies offered to companies located in areas affected by the 2008 Sichuan earthquake and companies in China's western regions (including Tibet and Xinjiang) after 2012, a similar green channel for green enterprises be created in the form of a separate IPO queue for green enterprises in addition to the main board, the SME board and the GEM board. At least one day of each week should be dedicated to the review of IPO applications from green enterprises. And after receiving CSRC's approvals, green enterprises should receive the approval documents without further queuing. Qualified green enterprises should be entitled to simplified review process. With reference to the concept of separate review channel for M&As, a fast/exemption lane should be created for qualified green enterprises. After the IPO approval system is replaced by a record-filing system, if certain procedures of an approval nature are retained under the new system, it is still necessary to consider providing a special channel for green firms.

Second, increase the flexibility of supporting measures to adapt to the unique financing needs of green enterprises. There should be greater flexibility in the types of project that a green enterprise can invest in using the proceeds raised in the IPO process. Because most green enterprises are asset-heavy, they have strong demand for working capital. It is recommended that restrictions be eased by an appropriate extent to permit green enterprises to use a greater amount and proportion of IPO proceeds to replenish their working capital or repay bank loans. Efforts should be made to explore the mechanisms and conditions for green enterprises listed on the New Third Board to directly transfer to

the main board, SME board or the GEM board. Although the New Third Board has already set out the principles supporting such a board transfer, the implementing rules and mechanisms are yet to take shape and currently board transfer still requires the completion of the normal IPO procedures. It is recommended that board transfer pilot programs be carried out first for green enterprises listed on the New Third Board.

 **MORE INFORMATION: DETAILED RECOMMENDATIONS REPORT 6: CREATE A GREEN IPO CHANNEL**

4.7 Develop Carbon and Pollution Trading Markets

Financial Infrastructure >> Carbon Markets

SUMMARY RECOMMENDATION

Accelerate the formation of markets for emission (pollution) trading. National legislation and top-level design should be strengthened and optimized to accelerate the development of a national carbon trading market, set appropriate cap and trade mechanisms, fully leverage price incentive to polluters, and increase market liquidity. For key river systems and air-pollutant monitoring regions, establish trial programs that allow pollution rights trading across administrative divisions, and implement a system for regular evaluation and adjustment that links total regional pollutant emission with the carrying capacity of the local environment.

As suggested by international experience, carbon and pollution trading markets are important financial infrastructures for the promotion of emission abatement at lower costs and with higher efficiency. We would like to propose the following recommendations on the development of carbon and pollution trading markets.

Development of carbon trading market: Administrative measures on China's national carbon market promulgated by the end of 2014 have identified objectives for developing a national carbon market in the following phases: preparatory phase of 2014-2015 for improving laws and regulations, technical standards and infrastructure development; operation and improvement phase of 2016-2020 (Phase 1) for implementing and improving carbon market on all fronts; expansion phase after 2020 (Phase 2) for expanding the scope of participating enterprises and products and attempting to integrate with international markets. In the current stage of top-level design, we have identified the following policy recommendations regarding the development of a national carbon market:

Improve relevant institutional design and effectiveness evaluation. **First**, a working group on top-level design should be established consisting of representatives from government authorities, academia, exchanges, third-party institutions and pilot markets and a regular policy evaluation mechanism should be put into place for the constant improvement of top-level design. **Second**, the legal binding force of administrative measures for carbon trading should be enhanced to increase the cost of violations. In addition, efforts should be made to enhance the information disclosure mechanism to increase market transparency, long-term policy stability and predictability. **Third**, ensure coordination with other policies such as those on carbon tax, energy conservation and emission abatement policy and new energy policy. Attention should be paid to avoiding conflicts among various policies, bringing about policy synergy through institutional design, and implementing policy portfolios for low-carbon transition.

Follow both 'top-down' and 'bottom-up' approaches. **First**, regarding the top-down carbon market, from the perspective of the central government, the National Development and Reform Commission (NDRC) has created a national system of emission abatement objectives, contract performance system,

measuring, reporting and verification (MRV) system, market operation system and regulatory system, and created consistent market rules for transactions under the new framework. **Second**, regarding the bottom-up carbon market, regional capital markets are permitted to acquire greater autonomy including the interface with other non-pilot areas, step-by-step integration with national carbon market, independent allocation of quotas and flexible use of auction funds.

Improve the quality of emissions data. **First**, accuracy of emissions data, i.e. consistency of MRV standards for the same industry on a national basis and recognition of MRV standards by and integration with the international community. **Second**, reliability of emissions data. Efforts must be made to eliminate favouritism and fraud, and severely crack down on the misstatements of emissions data by polluters, cover-up by third-party institutions and rent-seeking by competent authorities. **Third**, transparency of emissions data. Emissions data are the foundation of carbon market and disclosure of emissions data of polluters is conducive to public supervision and market openness, fairness and justice. A third-party emissions data collection and registration institution should be created when appropriate.

Set a fully flexible cap. **First**, offset mechanism's should be used prudently. Offset proportion and emission abatement accounting period should be controlled on a reasonable basis in light of market cap, abatement targets and market expectations. Restrictions on the types of offset items and source regions should be relaxed in a step-by-step manner in light of industrial restructuring and regional ecological compensation. **Second**, extreme circumstances should be prevented. Under normal circumstances, efforts must be made to continuously reduce the market cap (or its growth) and promote trading by creating scarcity. Meanwhile, measures should be taken to respond to possible situations of economic overheating or depression and create a stabilization fund and auction rules, with a view to effectively responding to the wild fluctuations of demand.

Adopt a flexible quota allocation methodology. **First**, flexible use of free allocations: the history method and benchmark method of free allocation should be used in combination for different stages and industries. **Second**, step-by-step implementation of auctions: initially, some quotas can be allocated through auctioning before the scope of auctioning is expanded over time until all quotas must be acquired through auctioning. **Third**, quota allocation should be preferably tight. The government should maintain reserve quotas to be put on sale in the event of under supply of quotas, and purchase and revoke excess quotas in the event of oversupply, which serves a similar role of stabilization fund.

Enhance secondary market liquidity through multiple measures. **First**, product diversification: block trading (trading by agreement) should be developed vigorously. **Second**, facilitate the means of transaction. It is suggested that the CSRC cancel restrictions on carbon trading platforms (Document 37 and 38) and permit the centralized trading and continuous trading of carbon trading platforms. **Third**, foster market makers. Market makers should be encouraged to offer services to polluters and individual investors should be introduced in a step-by-step manner.

Concerning the pricing and trading of emissions rights. Creating an emission pricing and trading system is an important and fundamental institutional innovation and reform in the area of China's environmental protection, as well as a key element in the development of an ecological civilization. Since 2007, China has launched pilot programs for the trading of SO₂ and water contaminant emissions in 11 provinces (municipalities and autonomous regions). On August 25, 2014, the State Council promulgated Guiding Opinions of the State Council General Office on Further Promoting the Pilot Programs of the Paid Use and Trading of Emission Rights to speed up the application of emissions pricing and trading system in environmental management and for the first time identified a timetable for the creation of emission rights trading system.

The following are our recommendations concerning the development of an emissions pricing and trading system:

Adopt cross-regional emissions trading in key water basins and key regions of air pollution. In some regions with serious air pollution such as Beijing-Tianjin-Hebei Region, costs of pollution treatment differ across provinces and cities with different levels of development and air pollution control capabilities. Therefore, the same amount of capital input will lead to different abatement results in different regions. In order to maximize the effectiveness of abatement with limited capital input, it is essential to explore emissions trading in the region and extent priority support to those measures and projects with the highest abatement efficiency through such forms as joint fund for regional pollution control. This model also applies to water pollution control for water basins.

Create a pollution abatement fund as an initiator to stimulate private investments on environmental protection. According to the Guiding Opinions of the State Council General Office on Further Promoting the Pilot Programs of the Paid Use and Trading of Emission Rights, emission fees should be collected by local environmental protection departments in line with their authority of pollution source management, received by local treasury departments in full and brought under the budget management at the local level. Revenues from emissions trading should be used for pollution prevention and control. Employment of such funds for interest rate discounts of green finance or pollution abatement funds with private investment participation will effectively invite private investments for environmental protection.

Establish a regular evaluation and adjustment mechanism for compatible emissions cap and environmental capacity. The objective of emission trading mechanism is to improve environmental quality and bring about continuous declines in the total amount of pollution. Science-based adjustments of emissions capping according to environmental capacity will not only lead to continuous improvements of environmental quality but also indirectly increase the scarcity of pollution rights, increase corporate expectations on the value of emission rights, and stimulate the liquidity of emission rights.

Establish a management platform of national emission trading and enhance information disclosure. Efforts must be made to create a consistent national information management platform for emission trading and provide platforms of technical and policy communication for local pilot programs and cross-regional emission trading activities. Efforts are also needed to develop a comprehensive database system of pollution sources, a system of emissions capping for major pollutants of construction projects and a system for emissions pricing and emission fees collection in order to supervise and manage emissions trading. Provincial and municipal level trading platforms should be developed with the support of provincial and municipal fiscal allocations and state matching funds. Efforts are also needed to disclose verified emission rights purchased by polluters, collection of pollution fees, status of emissions rights, as well as the trading prices of emissions rights. The public should be informed about unauthorized emissions and fraud of polluters and updated about the implementation of pilot programs.

Improve the system of emissions law enforcement and monitoring and increase the cost of violations. Efforts must be made to tighten the approval and permission of emissions trading and enhance supervision, inspection and administrative penalties, so as to increase the cost of violations when emissions exceed caps. Greater efforts should be made to create a basic database platform of pollution sources, a platform for non-gratuitous emission quota allocation, a platform for emissions monitoring and verification, as well as a platform for managing emission trading accounts. A corporate emissions ledger system should be put in place for the comprehensive management of pollution sources under the system of non-gratuitous emission quota allocation and trading. In this manner, potential gaps at the front end of an emission trading policy mechanism can be eliminated to bring various emissions under effective monitoring.

 **MORE INFORMATION – DETAILED RECOMMENDATION REPORT 7: DEVELOP CARBON AND POLLUTION TRADING MARKETS**

4.8 Establish a Green Rating System

SUMMARY RECOMMENDATION

Financial Infrastructure >> Green Rating

Establish a green rating system that awards higher ratings for green enterprises or projects to bring down their financing costs. By introducing “green rating” – an environmental rating built upon a fair standard and methodology – rating agencies can experiment with the dual rating system to complement their traditional credit ratings; in a similar vein, commercial banks and the Credit Reference Center of the PBC can develop their own green rating system. Institutional investors are encouraged to use the green rating in allocating their funds.

Creating green rating and green credit information systems is a fundamental task of green finance. Green ratings for projects and financing for companies as part of a green credit information system makes it possible to evaluate the positive and negative environmental externalities of these projects and enterprises in a science-based manner and justify the decision-making of fiscal subsidies or penalties, discounts of bank interest rates and bond financing cost. Based on their green rating results, enterprises and projects are able to acquire favourable financing costs in bank lending, bond financing and discounted interest rate, which aim to encourage green investment and restrain polluting investments.

In their current internal rating and third-party rating systems, Chinese banks are yet to develop a consistent and comparable set of standards and methodologies for evaluating green factors including pollution impacts, ecological impacts and sustainable utilization of resources by loan applicants or projects. In addition, a comprehensive, continuous and professional green credit information system is not in place. In order to address these gaps in the implementation of credit risk evaluation for green projects, the CBRC promulgated Green Credit Guidelines in 2012. Nevertheless, explicit definitions and management of rules for green bonds remain absent. In view of the aforementioned gaps, we have developed the following recommendations:

Identify green rating metrics and methods. Efforts should be made to investigate the pathways and degrees of the impact of green factors on sovereign governments, local governments and corporate rating. Additional measures include identifying rating metrics and corresponding rating weights and updating existing rating methods. With reference to the Green Credit Guidelines promulgated by the CBRC, evaluation metrics specifically for green credit and bonds should be formulated.

Launch pilot programs of green rating on an early date. **First**, for green credit, commercial banks and policy banks should adopt comparable green rating criteria. **Second, for green bonds**, a dual rating system consisting of a traditional rating and a green rating should be created by a third-party rating agency. Since it will take time to upgrade the existing rating system, dual ratings can be carried out on the basis of the existing rating system and on a rating system that considers of green factors or green weighting to produce a green rating result. This measure will also call for identifying reasonable scope and steps of implementation, developing rating criteria and methods and discussing reasonable pricing standards and business models. **Third**, develop a **green credit information system** at the Credit Information Centre of the PBoC. In addition to default records and environmental violation records, this system will also provide the green rating of borrowers.

Promote the application of green rating results. Potential scope for the application of green rating results is very broad and encompasses the following areas: 1) Bank credit departments will determine green credit and risk pricing according to a green rating; 2) Fiscal authorities and partner banks will provide green bonds with tax support and green loans at discounted interest rates according to their green rating; 3) Fiscal authorities will provide investors with the preference of tax exemptions for green bonds with

reference to the green rating; 4) Environmental protection departments will set penalties on corporate emissions according to the green rating; 5) The government or NGOs will establish an environmental protection fund to extend support to green enterprises with reference to the green rating.

 **MORE INFORMATION – DETAILED RECOMMENDATIONS REPORT 8: ESTABLISH A GREEN RATING SYSTEM**

4.9 Develop Green Equity Indices

SUMMARY RECOMMENDATION

Financial Infrastructure >> Green Equity Indices

Promote the creation and use of green equity indices that orient the capital market to green industry. By drawing on international practices and expertise, China is in a good position to develop innovative green indices, improve their function and visibility as a gauge of economic fundamentals, promote their integration in investor decision-making, and offer a more tailored and diverse set of green and sustainable investment products.

Traditional energy and other highly polluting industries account for a significant share of China's major equity indices and make a considerable amount of passive investments (investments consistent with the composition of stock indices). Many funds and institutional investors have naturally invested by same proportion in polluting industries. Creating green stock indices (equity indices with a significant share of green enterprises) is an international practice to increase the share of green investment by institutional investors. China is still in an embryonic stage of creating and promoting green and sustainability indices. Regarding the development and application of green indices, we have come up with the following recommendations:

Expedite the development and innovation of green indices with reference to international experience. Europe and North America took early steps to develop green investment and established a series of methods for formulating evaluation systems and indices. Chinese institutions may publish more green and sustainability stock indices with reference to successful earlier experiences in order to expedite the development of relevant investment products. Exchanges and index companies may provide platforms for realizing sustainability indices and information. Chinese index institutions may draw upon successful overseas experiences and research outcomes through cooperation with sophisticated overseas index institutions to develop domestic green indices. For instance, Shenzhen Securities Information Co., Ltd. has partnered with the FTSE to jointly develop environmental technology index series.³ In addition, such market players as wealth management and intermediary institutions should be encouraged to investigate and develop green indices.

Improve social responsibility information disclosure and strengthen the representation of green indices. The limited influence of green indices in China is largely due to insufficient information disclosure of listed companies and the lack of a targeted method of index formulation.⁴ Overseas index institutions have employed a broad range of data sources including the information disclosure of companies, questionnaire surveys, public information and direct communication with companies and the introduction of third-party inspections and verification. Therefore, continued efforts must be made to further improve the environmental and sustainability information disclosure of listed companies and encourage non-profit research institutions and third-party agencies to disclose and rate the sustainability performance of enterprises as screening criteria for developing green indices and green investment products.

³ For another instance, China Securities Index Co., Ltd. partnered with independent provider of European sustainable development rating and indices solutions the ECPI to launch sustainability index series.

⁴ Regarding the recognition of "low-carbon" companies by low-carbon indices, due to unavailability of key data such as corporate energy consumption, such recognition can only be made according to the industry, operational concepts and development strategies of companies.

Vigorously promote the application of green indices among institutional investors. Development of green investment products is largely subject to the level of participation of institutional investors. In overseas markets, pension funds are a major participant of green investment products. However, large Chinese institutional investors such as social security funds and insurance asset management companies still take large-cap share indices such as Shanghai and Shenzhen 300 as their performance benchmark or investment objects. Efforts must be made to increase the utilization of green indices by large institutional investors and foster green investment concepts in the market for the better development of green investment products.

Encourage asset management institutions to develop more targeted and diversified green and sustainable investment products. Asset management institutions should develop more theme funds such as a green industry fund, a sustainability fund and a moral fund, with reference to green indices. Regarding the forms of fund management, various forms of green investment products including aggregated wealth management and special account wealth management can be developed vigorously, in addition to traditional public placement funds. In particular, special account wealth management enables the customization of products that are more consistent with the values of customers.

 MORE INFORMATION – DETAILED RECOMMENDATIONS REPORT 9: [CREATE A GREEN STOCK INDEX](#)

4.10 Establish Environmental Cost/Benefit Analysis Systems for Public Use

SUMMARY RECOMMENDATION

Financial Infrastructure >> Environmental Cost/benefit Analysis

Create a non-profit environmental cost analysis system and database to give access to environmental data and methodologies, and thereby reducing the costs investors incur to evaluate projects. Investment institutions are encouraged to manage their portfolios on the basis of environmental costs. This will involve the Ministry of Environmental Protection, together with financial research institutions and associations. At the same time, environmental cost will be incorporated as a major factor into existing environmental protection measures such as environmental impact assessment, company-level environmental management, and the issuance of Pollutant Discharge Permits.

China's existing accounting system fails to effectively evaluate the environmental costs arising from the course of a project or corporate operation, which leads to a serious underestimation of the environmental costs of investment, commercial and policy decision making. Future environmental policy is expected to significantly increase the cost of emissions and environmental violations. Therefore, effective accounting of corporate environmental costs will be needed to support business decision-making that favours the implementation of risk management by companies and investors and the promotion of environmental protection. Existing international systems and experiences of environmental cost estimation provide an important reference for China in establishing and deploying an environmental cost estimation system. Our recommendations are as follows:


Encourage the development of a consistent and replicable corporate environmental cost accounting method. Currently, China is yet to develop a widely accepted environmental cost accounting model and the Ministry of Environmental Protection should take the lead in creating an official method for corporate environmental cost estimation that includes environmental load data and the economic costs for each unit of environmental load. Data sources should be consistent with existing statistical approaches and attributes of information disclosure in order to arrive at replicable evaluation methods. Given the existence of multiple methods for environmental load data acquisition and various existing systems, including environmental impact assessments and environmental reporting of listed companies

in China, it is suggested that existing environmental monitoring data or corporate reporting data be employed for evaluation where possible. Different methodologies can be followed in identifying the economic cost for each unit of environmental load: first, trading price of each unit of pollutants in the emissions trading market; second, relevant local tax and fees; third, monetized impacts estimated in public research reports such as loss of human health; fourth, governance-based environmental cost accounting. Despite certain limitations of each method, the economic cost for each unit of environmental load can be determined on a dynamic basis with overall considerations.

The Ministry of Environmental Protection and financial institutes/associations should take the lead in creating a public-interest corporate environmental cost database. A corporate environmental cost database should be created to systematically collect corporate environmental cost information and support an analysis of investors, policy makers and research institutions by means of online database functions. Overseas corporate environmental cost databases are run on a for-profit basis and costly to access. Due to limited awareness of environmental protection, it will be more difficult to require Chinese investment institutions to pay such high costs in conducting investment analyses. Thus, it is suggested that the Ministry of Environmental Protection and financial institutes/associations take the lead in creating a public-interest corporate environmental cost database supported by public-interest funds that serves various types of investors, at a minimum cost, to increase data availability and reduce the costs of project environmental analysis for investment and research institutions.

Constantly increase the information volume of database starting with listed companies and major polluters. In the preliminary stage, evaluation can be carried out for listed companies and major polluters with high data availability. On the basis of publicly disclosed environmental information or corporate social responsibility (CSR) reports, the inputs of environmental cost accounting can be arrived at (such as the categories, emissions and local emission pricing of various pollutants) and the environmental costs of companies can be calculated and included in the database. With growing public demand for the disclosure of environmental information, more enterprises can be included into the database over time.

Institutional investors should be required and encouraged to manage their investments based on environmental cost accounting. The government may include compulsory environmental cost analysis into investment activities including investment institutions and fund management companies with government background, central and local government procurement and the public tendering of local construction projects. In making investment decisions, public placement funds are required to carry out an environmental cost analysis as a reference for decision-making. Private placement funds should be encouraged to conduct environmental risk management using an environmental cost accounting system and include environmental cost accounting as an evaluation mechanism into such systems as environmental impact assessments, corporate environmental management and emission permits.

 **MORE INFORMATION: DETAILED RECOMMENDATIONS REPORT 10: [DEVELOP ENVIRONMENTAL COST ANALYSIS](#)**

4.11 Create Green Investor Networks

SUMMARY RECOMMENDATION

Financial Infrastructure >> Green Investor Networks

Create a green investor network. Financial institutes and associations should advocate for and launch a green investor network, monitor investees' performance of their environmental obligations, foster green investment capabilities, and hold educational programs in green consumerism.

Internationally, green investor networks have played a major role in promoting self-regulatory green investment, communicating green investment methods and concepts, strengthening green investment capacity building and expediting policy changes. In China, it is necessary to encourage influential institutional investors to take part in sponsoring and establishing China's green investor networks.

Green investor networks serve the following roles: encourage institutional investors to include environmental evaluation in their investment decision-making process. The environmental, social and governance (ESG) principles of the United Nations Program-related Investments (PRIs) can be adapted for Chinese investors; urge listed and other invested companies to assume social responsibilities and improve information disclosure; expedite relevant policy changes to be made by the government such as enhancement of environmental information disclosure; develop and communicate practices of green investment; and, promote green consumer education.

Our specific recommendations include the following:

Financial institutes/associations with government background and influential institutional investors should take part in sponsoring green investor networks. Green investor networks sponsored by financial institutes/associations with government background and major institutional investors are conducive to enhancing the public confidence and influence of networks. Both the UNEP Finance Initiative and 'Program-related Investments' sponsored by the United Nations have adopted a similar approach to leverage the influence of the United Nations and its power for technical support networks to effectively develop green investor networks. Through such a form of participation, more channels can be provided for investment institutions within the networks to participate in relevant policy research activities and implement policies.

Encourage large state-owned investment institutions to participate in green investor networks. It is necessary to encourage major policy banks, commercial banks, insurance companies, securities firms, investment fund companies, the National Social Security Fund, local pension funds, Central Huijin Investment Ltd. and the Silk Road Fund to act as the major sponsors for green investor networks. Sponsoring and participation of these institutions will bring about a tremendous demonstration effect. Moreover, some companies and financing platforms managed by local governments should also become important forces behind green investor networks. Participation of local companies in green investor networks helps build their awareness of green development, enhance their capacity for green investment evaluation, and broaden the channels of green financing.

Conduct policy consultations and pilot programs of policy application through green investor networks. Relevant policy deliberations and consultations can be carried out through the networks, and green investment and financing models can be rolled out through relevant pilot policies of investment institutions as members of these networks.

Promote green investment and green consumption education and relevant capacity building through green investment networks. At present, most Chinese investment institutions are not fully aware of the environmental responsibilities that should be assumed by investors, nor do they understand the significance of green investments as a means to promote an ecological civilization. At the operational level, efforts have yet to be made to systematically carry out environmental risk evaluations for investments, environmental due diligence investigations and environmental benefit analyses of investment projects, and develop supporting instruments for investment institutions to conduct green investment management. Green investor networks can play an important role in promoting green investment education by developing and adopting methodologies for project environmental impact assessments, building a green investment database, providing training for investors, sharing investment information and organizing exchange activities.

In addition, green investor networks should also play their role in the education of green consumption and thus increase the demand for green products by altering consumer preferences. Specifically, efforts should be made to educate consumers about their environmental protection responsibilities, provide consumers with corporate environmental protection information, publicize green projects and products to increase their public awareness and market demand, and extensively condemn environmentally-unfriendly consumer behaviours through public opinion.

 MORE INFORMATION – DETAILED RECOMMENDATIONS REPORT 11: [CREATE GREEN INVESTOR NETWORKS](#)

4.12 Create a Compulsory Insurance System for Environmental Pollution Liabilities

SUMMARY RECOMMENDATION

Legal Infrastructure >> Green Insurance

Implement compulsory green insurance for key industries; utilize market mechanisms of the insurance industry to limit investment in polluting projects and provide funding for restoration efforts. The Legislative Affairs Office of the State Council, with inputs from the Ministry of Environmental Protection and CIRC should bring out Regulations on Compulsory Environmental Pollution Liability Insurance, promulgate detailed taxation and administrative licensing policies as supplementary measures, create an enabling framework for professional risk assessment services, establish damage determination criteria, and through all these efforts accentuate the synergistic effect of environmental pollution liability insurance and green credit.

The rapid and continuous increase of environmental incidents in China in recent years has led to severe impacts on its sustainable social and economic development and public health. As a market-based risk management mechanism, green insurance can play a proactive role in preventing and transferring environmental pollution risks and offering loss compensation. In addition, compulsory requirements for the purchase of pollution liability insurance (hereinafter referred to as ‘green insurance’) by companies with high environmental risks can make future pollution costs explicit and thus reduce the impulse of shareholders for investments in high-risk projects. With reference to relevant international experiences and China’s reality, we have arrived at the following recommendations:

Develop a national compulsory green insurance system and promulgate *Regulations on the Compulsory Pollution Liability Insurance*. Countries including the US, Germany and Russia have enforced compulsory insurance requirements for enterprises or equipment with high environmental risks. Singapore and Chinese Taiwan have also promoted the green insurance market during the early stages of their development through compulsory insurance requirements. The Environmental Protection Law, which

was revised by China in 2014 and became officially effective in 2015, has prescribed provisions on the insurance of environmental pollution liabilities but these provisions only 'encourage' the purchase of insurance. Regarding the insurance of environmental pollution liabilities, mere 'encouragement' in the legislation still falls short of meeting industry expectations. It is suggested that, on the basis of local pilot programs of compulsory green insurance, efforts be made to expedite the development of a national compulsory insurance system for environmental pollution liabilities through the promulgation of Regulations on the Compulsory Responsibilities of Environmental Pollution. It is suggested that the Legal Affairs Office of the State Council take the lead in drafting Regulations on the Compulsory Insurance for Environmental Pollution Liabilities (hereinafter referred to as the 'Regulations') with the joint participation of the Ministry of Environmental Protection and the CIRC pursuant to China's Insurance Law, Environmental Protection Law, Tort Liability Law and Guiding Opinions on Implementing the Pilot Programs of Compulsory Environmental Pollution Liability Insurance (MEP [2013] No. 10 Document). The "Regulations" should prescribe explicit regulations on the purchase, underwriting, premium rates, business accounting, premium rate adjustment mechanism, information sharing mechanism, compensation, penalty rules, supervision and management of green insurance. They should include companies with high pollution risks, such as those involving heavy metals, in the scope of coverage and identify the names of insured companies.

Establish and improve relevant laws and regulations and enhance enforcement to build the rule of law as the basis of green insurance. First, compensation liabilities to be assumed by parties responsible for environmental incidents should be identified. According to international principles, responsibilities for the compensation of environmental pollution damages should include: personal injuries and fatalities, property damages, eco-environmental restoration and relevant evaluation costs. Second, in addition to administrative penalties, the criminal and civil liabilities of those responsible for environmental incidents should also be investigated and prosecuted. Third, enhance and implement the investigation and prosecution of responsibilities through legislation and law enforcement, so as to subject offenders to serious enforcement and compulsory payment of indemnities and thus ensure the awareness of the importance to prevent environmental pollution risks. Fourth, policies should be promulgated to peg the coverage of green insurance to the issuance of emission permits and offer emission fees exemptions or premium deductions for companies that have purchased green insurance.

Establish a professional risk evaluation mechanism and loss identification standards, and complete supporting conditions for implementing green insurance. Identification of environmental pollution risk evaluation and compensation criteria is the most critical technical condition for establishing a system of green insurance. Differentiated sharing of 'environmental costs' in the form of insurance should be enhanced by continuously creating and improving standards, increasing the pricing power of insurance, and refining premium rates and compensation. It is suggested to: leverage the resources of environmental protection departments and professional private sector institutions to create a mechanism for environmental risk evaluation, incident investigation and damage and responsibility identification; develop standards and guidelines for the damage calculation of environmental pollution incidents in order to create a standard claims management procedure; and, develop independent third-party non-official evaluation institutions to mediate infringement disputes between polluters and victims and increase the objectivity and fairness of risk and damage evaluation.

Create a corporate environmental credit database on the basis of a corporate environmental credit evaluation, so as to provide justification for determining premium rates and fiscal policy preferences for insured enterprises. First, carry out a corporate environmental credit rating in a comprehensive manner in accordance with Measures for Assessment of the Environmental Credit of Enterprises to provide data support for implementing green insurance. Second, create a corporate environmental credit database at the Credit Information Center of the PBoC and open corporate environmental credit information to insurance companies as data support for premium rate determination. Third,

the corporate environmental credit rating should be pegged to their access to such policy preferences as premium subsidies; in addition, the corporate environmental credit rating should be used as the premise for access to relevant policy preferences to enhance corporate environmental management and compliance. For instance, differentiated premium subsidy programs should be introduced according to corporate environmental credit rating. Fourth, corporate purchase of green insurance and reception of indemnity claims should be recorded into corporate environmental credit database as information support for coordination between green insurance and other green financial services.

Create a mechanism for coordination between green insurance and other financial services such as green credit. For those in the catalogue of energy and pollution-intensive enterprises, coverage of green insurance should be pegged to their access to green financial services in order to develop a mechanism where “green finance services will not be available without protection against environmental pollution risks”. Companies cannot apply for green credit or issue green bonds unless they have passed an environmental impact assessment and purchased green insurance. Such a mechanism of coordination between green insurance and green finance is conducive to enhanced environmental protection investments and low-carbon development of companies with financing demand, sharing environmental legal liabilities of financial institutions that may potentially arise from the financing for energy and polluting projects, and constraining low-level redundant construction of polluting sectors through market-based means.

 MORE INFORMATION - DETAILED RECOMMENDATIONS REPORT 12: [CREATE A COMPULSORY GREEN INSURANCE SYSTEM](#)

4.13 Establish Environmental Legal Liabilities of Banks

SUMMARY RECOMMENDATION

Legal Infrastructure >> Lender Liability

Identify and clarify environmental responsibilities of banks, facilitate the victims of pollution to pursue legal actions against financial institutions that bear joint and several liabilities through their funding of pollution-intensive projects. Amend the Commercial Banking Law to further emphasize civil liabilities and include administrative sanctions along with criminal penalties as fallback recourse, and clearly specify the statutory obligations and liabilities of banks and other lending institutions in regards to the environmental assessment and environmental impacts of their investment.

In advanced economies of Europe and North America, commercial banks are likely to be sued for offering financing to pollution-intensive projects that cause environmental damages. Such deterrence of environmental legal liabilities can greatly restrain the conduct of commercial banks and other lending financial institutions, forcing them to take environmental impact into consideration in making investment and financing decisions. Due to the absence of environmental legal liabilities for commercial banks in China's current environmental and financial legislation, some commercial banks have heavily invested in polluting industries under the pursuit of high investment return or local government pressures. We would like to propose the following recommendations in order to change this situation and increase the environmental awareness and sense of responsibility for commercial banks:


Revise the Commercial Banking Law by stipulating environmental legal responsibilities in legal form.

The Commercial Banking Law should be revised to identify the statutory obligations of due diligence and supervision of commercial banks for the environmental impact of investment projects, with a view to establishing the environmental legal responsibilities of commercial banks in such areas as the circumstances, principles, forms and limits for assuming responsibilities.

Promulgate supporting rules and enhance supervision. Revision of the Commercial Banking Law may only stipulate principal provisions on the environmental legal responsibilities of commercial banks. CBRC and the PBoC should promulgate relevant operational rules pursuant to the revised Commercial Banking Law concerning the performance of environmental due diligence obligations for commercial banks in their lending activities.

Endow environmental law enforcement departments with the right to sue commercial banks. Effective implementation of environmental legal responsibilities by commercial banks is subject to enhanced independence of local environmental protection departments. Therefore, we suggest that central and local environmental law enforcement departments be endowed with the right to take legal action against actual polluters and commercial banks that provide lending to them on behalf of residents in their jurisdictions in the event of environmental pollution or environmental damage and significant hazards. Another option is that environmental law enforcement agencies carry out environmental restoration and remediation after the occurrence of environmental damage and significant hazards before claiming compensation and other liabilities of actual polluters and commercial banks.

Create an environmental compliance system for commercial banks. An environmental compliance system is a basic requirement for the internal and external business activities of commercial banks in advanced economies of Europe and North America. Some commercial banks in these countries have even elevated environmental factors to the level of corporate competitiveness strategies beyond environmental compliance. For instance, in providing financing to borrowers, commercial banks should investigate whether borrowers cause pollution or potentially cause pollution and what measures they have adopted to mitigate pollution. Commercial banks may decline lending in the event of the above-mentioned circumstances unfavourable to environmental protection. Such a concept of 'green value' is essential for altering competition patterns, increasing the core competitiveness of Chinese commercial banks and preventing environmental pollution activities and polluting projects at the front end.

 MORE INFORMATION - DETAILED RECOMMENDATIONS REPORT 13: [ESTABLISH THE LEGAL LIABILITY OF FINANCIAL INSTITUTIONS](#)

4.14 Require Environmental Disclosures by Listed Companies and Bond Issuers

SUMMARY RECOMMENDATION

Legal infrastructure >> Mandatory Disclosure

Improve the system through which government funding provides discounted interest rates on green loans, further raise the level of such discount, gradually ease the various restrictions and eligibility criteria for these subsidies, set reasonable terms for which borrowers can enjoy the preferential rates, streamline the review and approval process, implement pilot programs where government finance departments engage policy banks, green banks or eco-finance divisions of commercial banks to manage the interest rate subsidies for green loans.

According to international experience, compulsory disclosure of environmental information by listed companies and bond issuers is an effective measure 'with no fiscal cost' to increase the sense of corporate social responsibility, improve corporate environmental performance, incentivize investors to refrain from polluting investments and strengthening green investments. Our recommendations are as follows:


CSRC and stock exchanges should formulate rules on compulsory environmental information disclosure. The CSRC and stock exchanges should stipulate the important value of corporate environmental information, identify environmental information as an indispensable component of corporate

information disclosure, and formulate compulsory rules of environmental information disclosure. For instance, continuous information disclosure responsibilities of regular and interim reports should be prescribed by securities regulatory authorities through the promulgation of administrative measures for information disclosure and guidelines on the format of regular reports and by stock exchanges through the promulgation of IPO rules and dedicated CSRC disclosure guidelines and rules.

Compulsory requirements for quantitative disclosure of key information by listed companies and bond issuers according to disclosure standards. In addition to complying with the basic principles and content requirements of environmental information disclosure identified by environmental protection authorities, listed companies and bond issuers should also disclose environmental information related to corporate performance. In addition, regulatory authorities or exchanges should require the quantitative disclosure of key information by listed companies and bond issuers according to disclosure standards. The purpose is to emphasize the substantiality of information disclosure and avoid empty talk, which in turn will increase the quantification and comparability of information disclosure for effective data utilization by the market and other stakeholders. Compulsory environmental information disclosure can be implemented in a step-by-step manner. First, compulsory disclosure requirements can be imposed upon key polluters and (or) specific types of listed companies, as well as financial institutions or enterprises that issue green bonds. Second, the scope of compulsory disclosure requirements should be expanded to cover all listed companies and bond issuers.

Engage the role of intermediaries to evaluate, supervise, guide and incentivize environmental information disclosure. **First**, intermediaries should be encouraged to carry out third-party verification and rating of environmental credit rating and environmental information disclosure by listed companies and bond issuers and reveal companies with poor environmental performance and insufficient disclosure in order to exert certain pressures of supervision and constraint. **Second**, given the compulsory and voluntary nature of environmental information disclosure, intermediaries may provide guidance and technical support regarding voluntary disclosure in the form of best disclosure practices.

Regulatory cooperation and law enforcement of environmental information disclosure. Securities regulatory authorities, self-regulatory organizations and environmental protection agencies should continue to enhance information sharing and further beef up supervision on the quality of environmental information disclosure by listed companies and bond issuers, including the timeliness, reliability and compatibility of disclosure. Violations of environmental information disclosure should be subject to specific penalties including rectification before a deadline, public criticism, the imposition of fines and even delisting.

 **MORE INFORMATION – DETAILED RECOMMENDATIONS REPORT 14: MAKE ENVIRONMENTAL INFORMATION DISCLOSURE MANDATORY**

LIST OF DETAILED SUB-REPORTS

FURTHER MORE DETAILED SUB –REPORTS ARE AVAILABLE ON EACH OF THE RECOMMENDATIONS:

BACKGROUND PAPER A: *THEORETICAL FRAMEWORK OF GREEN FINANCE*

BACKGROUND PAPER B: *INTERNATIONAL EXPERIENCE OF GREEN FINANCE*

DETAILED RECOMMENDATIONS 1: *CREATE A GREEN BANKING SYSTEM*

DETAILED RECOMMENDATIONS 2: *DEVELOP GREEN FUNDS*

DETAILED RECOMMENDATIONS 3: *GREEN THE DEVELOPMENT BANKS*

DETAILED RECOMMENDATIONS 4: *STRENGTHEN DISCOUNTED GREEN LOANS*

DETAILED RECOMMENDATIONS 5: *PROMOTE THE ISSUANCE OF GREEN BONDS*

DETAILED RECOMMENDATIONS 6: *CREATE A GREEN IPO CHANNEL*

DETAILED RECOMMENDATION 7: *PROMOTE DEVELOPMENT OF EMISSIONS TRADING MARKETS*

DETAILED RECOMMENDATIONS 8: *ESTABLISH A GREEN RATING SYSTEM*

DETAILED RECOMMENDATION 9: *CREATE A GREEN STOCK INDEX*

DETAILED RECOMMENDATION 10: *DEVELOP ENVIRONMENTAL COST ANALYSIS*

DETAILED RECOMMENDATIONS 11: *CREATE GREEN INVESTOR NETWORKS*

DETAILED RECOMMENDATIONS 12: *CREATE A COMPULSORY GREEN INSURANCE SYSTEM*

DETAILED RECOMMENDATIONS 13: *ESTABLISH THE LEGAL LIABILITY OF FINANCIAL INSTITUTIONS*

DETAILED RECOMMENDATIONS 14: *MAKE ENVIRONMENTAL INFORMATION DISCLOSURE MANDATORY*

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The People's Bank of China is spearheading the drafting of the 13th Five-Year Plan (2016-2020) for the reform and development of China's financial sector; green finance will be a key element of this plan. The Green Finance Task Group has presented the most systematic set of policy recommendations pertaining to green finance to date. The Green Finance Task Force involves more than 40 experts from regulatory departments, institutions and think tanks. The report also incorporated many suggestions the UNEP Inquiry's international experts, making its recommendations highly practical.

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China's green finance system in the future should have the following characteristics: 1. Institutional mechanisms encouraging green investments; 2. Specialized green lending and investment institutions; 3. A diverse range of green financing channels and products; 4. Use of public finance effectively to leverage large volumes of private investment; 5. Information infrastructures to help investors evaluate the environmental impacts of their investments (such as through green credit ratings, and environmental information disclosure rules).

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China's Green Finance Task Force, established by the Peoples Bank of China and co-convened and supported through the UNEP Inquiry into the Design of a Sustainable Financial System, exemplifies the shift towards a systematic approach to advancing green finance. As the world's second largest economy and prominent force among emerging economies, China's leadership in advancing an integrated approach to green finance can catalyze international cooperation.

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