

Pathways to Sustainable Banking in China: From Environmental Risk Management to Green Financing

An Explorative Case Study of the Financing System for Corporate
Customers in the Industrial and Commercial Bank of China

Hao Guo

Supervisors:

Lars Hansson

Tareq Emtairah

Thesis for the fulfilment of the
Master of Science in Environmental Management and Policy
Lund, Sweden, September 2005



© You may use the contents of the IIIIEE publications for informational purposes only. You may not copy, lend, hire, transmit or redistribute these materials for commercial purposes or for compensation of any kind without written permission from IIIIEE. When using IIIIEE material you must include the following copyright notice: 'Copyright © Hao Guo, IIIIEE, Lund University. All rights reserved' in any copy that you make in a clearly visible position. You may not modify the materials without the permission of the author.

Published in 2005 by IIIIEE, Lund University, P.O. Box 196, S-221 00 LUND, Sweden,
Tel: +46 – 46 222 02 00, Fax: +46 – 46 222 02 10, e-mail: iiiee@iiiee.lu.se.

ISSN 1401-9191

Acknowledgements

I would like to convey my appreciation to a number of people for their help and support in my thesis research and writing.

First of all, I would like to express my deepest gratitude to my supervisors, Lars Hansson and Tareq Emtairah. Thank you Lars for your always-encouraging words and quite valuable knowledge and support during the whole thesis process. Thank you Tareq for your inspiring and extensive discussion with your heartfelt input. My most sincere thanks to both of you—without your sustainable and profound mental support, I could not reach this point. I also want to thank Greg Tyson for his kind assistance with English language editing during the final phase of the thesis.

Thanks are also due to those who have contributed to my thesis research process. It is worth mentioning the generous support I received from Prof. Thomas B. Johansson, the director of IIIIEE; Dr. Don Huisingh as visiting professor at the IIIIEE; Rabobank Group senior research economist Mr. Marcel Jeucken; Dr. Ole Langniss from the Centre for Solar Energy and Hydrogen Research Baden-Württemberg, Stuttgart, Germany; Mr. Zhang Maoxin as senior engineer of Shandong Environmental and Science Institute in China; and Prof. Ding Yanqiang of Shandong University in China. Also, many thanks should be given to my colleagues involved in my thesis questionnaire investigation and personal interview in ICBC. In particular, special thanks are given to Mr. Teng Haibo as business manager of ICBC Shandong Branch, who provided lots of help with perfect coordination for my research in ICBC.

I am also very grateful to the staff at the IIIIEE, including the coordinators of the master's program, such as Lars Hansson, Thomas Lindhqvist, Mikael Backman, Torbjörn Brorson, Philip Peck, Håkan Rodhe and Peter Arnfalk; and other administration staff, such as Elisabeth Mühlhäuser, Elin Skogh and Åsa Nilsson. Under all of your help, I went through the intense but instructive 14-month studying courses at IIIIEE where I have changed from a layman of environmental management to a pursuer of sustainable development.

Last but not least, I would like to express my most special gratitude to my parents and wife, Xuefei, also my close relatives and friends in China. Thank you all for always cheering me up when I felt frustrated, and thank you for making me relaxed and never feel lonely no matter where I am in the world.

To all of you, I present this thesis as my grateful return with sincere greetings.

Abstract

In order to achieve the goal of sustainable banking, banks such as commercial banks have to adopt proactive strategies for reducing internal operation risks from environmental issues thereby realizing long-term profitability by external financing of environmentally friendly products and services. As a general pathway to sustainable banking, environmental risk management (ERM) is regarded as a preventive strategy to direct bank managers to develop business towards sustainability initially. On this basis green financing can be further implemented as an offensive strategy at the higher level or phase for approaching sustainable banking.

China's commercial banks, such as the Industrial and Commercial Bank of China (ICBC), are facing the challenges of environmental issues as well as potential market opportunities of environmental financing. Respecting the financing system for corporate customers in ICBC, some environmental concerns have been taken into consideration for its daily credit risk management, however a lack of concrete ERM policies with practical approaches and tools exposes ICBC's credit assets to potential environmental risks. At the same time there are only limited funds distributed to environmentally sound and profitable industries. Considering the potential and huge market for environmental financing in near future, ICBC's managers should pay greater attention to green financing opportunities. Other preconditions are needed such as the preventive ERM, new business ethics with corporate social responsibility (CSR), and offensively seeking potential markets by external support and cooperation.

During the research process of the thesis, the author explores how preventive ERM can be incorporated into the actual credit risk management in ICBC currently and presents initial suggestions for implementation of green financing in the near future. Through this research the author aims to construct an appropriate pathway to sustainable banking for ICBC and other Chinese commercial banks as well as raise awareness of sustainable development among ICBC's managers such that strategies for sustainable banking will be institutionalised in the near future.

Executive Summary

The objective of the thesis is to analyse the financing system for corporate customers in the Industrial and Commercial Bank of China (ICBC) to initially explore the appropriate pathway to sustainable banking in commercial banks of China. Specifically to strengthen environmental risk management (ERM) currently and further implement green financing in near future, as well as to motivate ICBC's top managers to institutionalise such operational strategies derived from the author's initial exploration.

For this objective, the following research questions will be addressed in the thesis: 1. How should the current financing system of corporate customers in ICBC deal with issues related to environmental risks and financing at present? 2. How can ICBC currently strengthen ERM as a preventive strategy towards sustainable banking? 3. What should ICBC's future policies of green financing be?

In order to address the above research questions so as to achieve the objective of the thesis, a qualitative research method was applied during the thesis study. The thesis is divided into three phases: theoretical review, focus area research and analysis & discussion. According to each phase, the relevant and specific research methods are used, including literature review, case study, and personal interviews by telephone, email or face-to-face, as well as interviews or investigation by questionnaire.

According to the general trend of sustainable development globally, financial institutions, particularly commercial banks, have been involved due to their very significant roles in economic life and by extension sustainable development. Therefore, sustainable banking is increasingly regarded as a goal for banks to pursue.

From the theoretical perspective, there are four development phases for the banks to reach the goal of sustainability. These are the defensive phase, the preventive phase, the offensive phase and the final phase for sustainable banking. Among others, environmental risk management and green financing with CSR are regarded as two good development strategies or approaches in the preventive phase and offensive one.

From the global perspective, most banks in developed countries have been in the preventive phase with various ERM policies and tools which all provide instructive examples for those banks in developing countries. Examples include the World Bank and International Finance Corporation Environmental Assessment policies, European Bank for Reconstruction and Development environmental procedure, Asian Development Bank environmental operation manual, Barclays ESIA Policy and Lloyds TSB ERA management framework. Green financing is still a new business area for most commercial banks although some leading banks have been in the offensive phase with their environmental financing products, such as Rabobank of the Netherlands, Barclays, Bank of America, Deutsche Bank, and Citigroup, among others.

In order to explore the appropriate pathway for Chinese commercial banks toward sustainable banking, the Chinese banking system with its main external driving forces towards sustainable banking in China is first presented as background information to readers. Through this it can be seen that Chinese banking has evolved into an advanced economic system although it still lacks sufficient environmental consideration, such as an ERM system and green financing & marketing under CSR principles. At the same time, those issues related to sustainable banking in China have also been providing huge external driving forces to commercial banks for their sustainable development.

As for strengthening ERM currently, the main external driving forces are as follows:

1. Domestic drivers, including increased industrial environmental pollution and insufficient environmental management from industrial enterprises, more stringent government environmental regulations and huge public green procurement, and a more positive environmental response from NGOs and the public; and
2. Global drivers, including more environmental concerns arising from economic globalisation, such as the global demand for green trade and economy under economic globalisation after China's ascension to the WTO, and possible financial losses for exporting enterprises facing green non-tariff barriers due to a lack of qualified green products with CP approach or ISO 14001 certification.

External driving forces for implementation of green financing in the near future mainly involve: 1. Inadequate financing and investment for environmental improvement, which will potentially become a huge financing demand market for commercial banks; and 2. More proactive environmental response from the government to call on commercial banks to finance the market for environmental goods.

For the sake of seeking for the appropriate sustainability pathway for Chinese commercial banks, ICBC was chosen as the focus area within Chinese banking to research by means of a case study on its financing system for corporate customers. Through the initial research and findings on this system, the first research question is accordingly addressed by the author, i.e. *how should the current financing system for corporate customers in ICBC deal with issues related to environmental risks and financing at present?* Currently, the financing system for corporate customers at ICBC is divided into two sub-systems: an internal control system (credit risk management system-CRMS) and an external marketing system (business development system-BDS). According to the CRMS, ICBC has already established a comparatively advanced internal credit risk control mechanism employed to avoid financial risks from its corporate customers. Moreover, some initial environmental considerations have been integrated into the daily business operations, such as requiring written official authentication from relevant environmental authorities as a precondition for project financing.

From the perspective of sustainable development and banking, however, such a system is not yet enough to prevent those growing present and future environmental risks from customers now and in the future given the absence of a systematic and institutionalised ERM system. With respect to the BDS sub-system, green financing has similarly not yet been included in the current corporate financing marketing agenda. Green financing is expected to become a main aspect of future marketing, and at the same time the concept of CSR should become a main driver of business ethics to direct future marketing activities accordingly. Currently, the main barrier to implementing green financing stems from the external aspect of ICBC, i.e. inadequate support from government has negatively affected the competitive advantages of environmental financing projects. So based solely on the above initial research with a combination of the four-phase theory of sustainable banking, it can be said that the appropriate sustainability pathway for ICBC and other commercial banks in China would be to strengthen ERM currently and to further implement green financing in near future.

Following such a pathway to sustainable banking, CRMS is first analysed and discussed in depth in response to the second research question, i.e. *how can ICBC strengthen ERM as preventive strategy towards sustainable banking currently?* As mentioned before, although ICBC has already set up a relatively advanced ERM system within the purely economic realm. Due to environmental challenges such as historical environmental auditing and more stringent governmental policies and international requirements, ICBC presently needs to incorporate a systematic ERM into the entire credit risk management process. Therefore, a relevant

management design based on good ERM practice examples in foreign banks and the situation within ICBC is proposed, including the following:

1. Corporate governance with proactive environmental consideration;
2. Incorporate preventive ERM procedure into the current credit risk management system for corporate customers. Relevant examples of good practice can be found in the EBRD environmental program, Lloyds TSB ERA management framework, and Barclays ESIA Policy;
3. Internal pillars from restructuring the organizational structure of the credit risk management system at the head office level, and staff training from all tiers of branches to sub-branches;
4. External pillars from external environmental experts and consultant panels, external ERM technical support, stakeholder communication and international cooperation;
5. A proposition for pilot projects in selected branches.

Based on the previous analysis and discussion, we can see that although at present ICBC has not yet enough environmental consideration for environmental financing due to internal and external barriers, there will be more and more potential opportunities for ICBC to implement a green financing strategy in near future. Thus, in order to achieve a greater environmental market share and competitive advantage as early as possible, ICBC should establish a relevant green financing policy for the future. Thereafter ICBC should seek opportunities to gradually penetrate the environmental financing market to complete the transition from preventive to offensive banking in near future and build on this to further approach the sustainable banking phase. Accordingly, initial policy suggestions for ICBC's green financing strategy in the near future are made in response to the third research question of the thesis, i.e. *what should ICBC's future policies of green financing be?*

Relevant suggestions are presented as follows:

1. Initially establish environmental marketing policy using CSR as marketing direction;
2. Gradually penetrate into green financing market with internal support from ERM;
3. Offensively seek for potential markets by external support and cooperation.

In summary, according to global trends and the current Chinese banking situation, strengthening environmental risk management should be imperative for ICBC and other commercial banks. This is the first step for the preventive phase of sustainable banking. At the same time, ICBC should also establish and maintain an offensive green financing policy and strategy and actively seek potential opportunities to enlarge market share in environmental financing in near future. To sum up, the appropriate pathway for ICBC and other Chinese commercial banks to sustainable banking should be by strengthening ERM presently and implementing a green financing strategy in the near future. i.e. from ERM to green financing.

Table of Contents

List of Figures

List of Tables

1	INTRODUCTION	1
1.1	BACKGROUND	1
1.1.1	<i>Sustainable development</i>	1
1.1.2	<i>Sustainable banking</i>	2
1.2	OBJECTIVE AND RESEARCH QUESTIONS	3
1.3	METHODOLOGY	3
1.4	SCOPE AND LIMITATIONS.....	4
1.4.1	<i>Scope</i>	4
1.4.2	<i>Limitations</i>	5
1.5	OUTLINE OF THE THESIS.....	5
2	THEORETICAL REVIEW – PATHWAY TO SUSTAINABLE BANKING	7
2.1	THE ROLES OF COMMERCIAL BANKS IN SUSTAINABLE DEVELOPMENT.....	7
2.1.1	<i>The main functions of commercial banks in economic life</i>	7
2.1.2	<i>The roles of commercial banks in sustainable development</i>	8
2.2	PATHWAYS TO SUSTAINABLE BANKING	9
2.3	ERM AS A PREVENTIVE STRATEGY FOR SUSTAINABLE BANKING	11
2.3.1	<i>What is environmental risk</i>	11
2.3.2	<i>What is environmental risk management</i>	12
2.3.3	<i>Why is ERM necessary</i>	13
2.3.4	<i>Major procedures and tools for ERM</i>	14
2.3.5	<i>Overview of ERM in global sense</i>	15
2.4	GREEN FINANCING AS OFFENSIVE STRATEGY FOR SUSTAINABLE BANKING	22
2.4.1	<i>From ERM to green financing</i>	22
2.4.2	<i>CSR and green financing</i>	23
2.4.3	<i>Overview of green financing in a global sense</i>	23
3	CHINESE BANKING AND ITS EXTERNAL DRIVING FORCES TOWARDS SUSTAINABLE BANKING IN CHINA	25
3.1	THE CURRENT INTERNAL STATUS OF BANKING IN CHINA.....	25
3.1.1	<i>Banking system</i>	25
3.1.2	<i>Banking market situation</i>	26
3.1.3	<i>Current status of credit risk management in Chinese banking</i>	27
3.1.4	<i>Overview of credit business marketing in China</i>	28
3.2	MAIN EXTERNAL DRIVING FORCES FOR STRENGTHENING ERM CURRENTLY TOWARDS SUSTAINABLE BANKING.....	30
3.2.1	<i>Increased industrial environmental pollution and insufficient environmental management</i>	31
3.2.2	<i>More stringent governmental environmental regulations and huge public green procurement</i>	34
3.2.3	<i>Positive environmental response from NGOs and the public</i>	36
3.2.4	<i>More environmental challenges from economic globalisation</i>	36
3.3	MAIN EXTERNAL DRIVING FORCES FOR IMPLEMENTING GREEN FINANCING IN NEAR FUTURE TOWARDS SUSTAINABLE BANKING	38
3.3.1	<i>Inadequate financing and investment for environmental improvement</i>	38
3.3.2	<i>More proactive environmental response from the government</i>	40
4	CASE STUDY: FINANCING SYSTEM OF CORPORATE CUSTOMER IN ICBC	42
4.1	OVERVIEW OF ICBC’S CURRENT SITUATION	42
4.2	ICBC’S CORPORATE FINANCING BUSINESS AND ITS FINANCING SYSTEM OF CORPORATE CUSTOMER	42

4.3	SUB-SYSTEM I OF CORPORATE FINANCING SYSTEM: CREDIT RISK MANAGEMENT SYSTEM	45
4.3.1	<i>Current operation situation</i>	45
4.3.2	<i>Initial research findings</i>	47
4.4	SUB-SYSTEM II OF CORPORATE FINANCING SYSTEM: BUSINESS DEVELOPMENT SYSTEM	49
4.4.1	<i>Current marketing status</i>	49
4.4.2	<i>Initial research findings</i>	51
5	ANALYSIS AND DISCUSSION I: STRENGTHEN ENVIRONMENTAL RISK MANAGEMENT AS PREVENTIVE STRATEGY CURRENTLY	53
5.1	MAIN PROBLEMS OF CRMS OF CORPORATE CUSTOMER IN ICBC.....	53
5.1.1	<i>Lack of sufficient environmental concerns in credit policies</i>	53
5.1.2	<i>Credit risk management without systematic and institutionalised environmental risk control</i>	53
5.2	WHY DOES THIS SYSTEM HAVE SUCH PROBLEMS?.....	56
5.2.1	<i>Inadequate environmental and sustainable development awareness</i>	56
5.2.2	<i>Unsustainable managing and marketing method</i>	56
5.2.3	<i>Lack of sufficient internal and external resources</i>	56
5.3	MAIN LESSONS AND CHALLENGES TO CRMS FOR CORPORATE CUSTOMERS IN ICBC	56
5.3.1	<i>Main lessons learned from ICBC’s corporate credit risk management in the past</i>	57
5.3.2	<i>Main potential challenges to ICBC’s corporate credit risk management</i>	58
5.4	EXPLORATIVE DESIGN FOR HOW TO STRENGTHEN ERM IN ICBC CURRENTLY	62
5.4.1	<i>Corporate governance with proactive environmental consideration</i>	62
5.4.2	<i>Incorporate preventive ERM procedure into current credit risk management system of corporate customer</i>	63
5.4.3	<i>Internal pillars for strengthening ERM in ICBC</i>	69
5.4.4	<i>External pillars for strengthening ERM in ICBC</i>	72
5.4.5	<i>Proposition for pilot projects in selected branches</i>	74
6	ANALYSIS AND DISCUSSION II: FURTHER IMPLEMENT GREEN FINANCING AS OFFENSIVE STRATEGY IN NEAR FUTURE	75
6.1	MAIN LIMITATIONS OF BUSINESS DEVELOPMENT SYSTEM FOR CORPORATE CUSTOMERS IN ICBC	75
6.2	CURRENT BARRIERS TO IMPLEMENT GREEN FINANCING IN ICBC	75
6.3	POTENTIAL OPPORTUNITIES FOR IMPLEMENTING GREEN FINANCING IN ICBC	76
6.4	INITIAL NEAR TERM POLICY SUGGESTIONS FOR IMPLEMENTING GREEN FINANCING	77
7	CONCLUSIONS AND RECOMMENDATIONS.....	80
7.1	CONCLUSIONS.....	80
7.2	RECOMMENDATIONS	82
	BIBLIOGRAPHY.....	85
	ABBREVIATIONS.....	90
	APPENDIX-1 LIST OF PERSONAL INTERVIEWS	93
	APPENDIX-2 LIST OF THE INTERVIEWED INTERNATIONAL FINANCIAL INSTITUTIONS BY QUESTIONNAIRE INTERVIEW	94
	APPENDIX-3 SEMI-STRUCTURED QUESTIONNAIRE FOR INTERVIEW WITH INTERNATIONAL FINANCIAL INSTITUTIONS.....	95
	APPENDIX-4 BARCLAYS ESIA POLICY PROCESS	96
	APPENDIX-5 BARCLAYS MINIMUM REQUIREMENTS FOR AN ESIA AND A SECOND OPINION OF AN ESIA.....	97

APPENDIX-6 CREDIT RISK MANAGEMENT SYSTEM OF CORPORATE CUSTOMER IN ICBC.....	98
APPENDIX-7 THE LIST OF THE INTERVIEWEES IN ICBC BY QUESTIONNAIRE INVESTIGATION	99
APPENDIX-8 THE SEMI-STRUCTURED QUESTIONNAIRE FOR INVESTIGATION IN ICBC.....	100

List of Figures

Figure 1-1 Sustainable Development Pillars.....	1
Figure 1-2 Signatories to the UNEP FI Statements, 2004.....	2
Figure 2-1 The role of commercial banks in economic life.....	8
Figure 2-2 Financial sectors in sustainable development.....	9
Figure 2-3 A typology of banking and sustainable development.....	10
Figure 2-4 Principal banking risks.....	12
Figure 2-5 World Bank project cycle.....	18
Figure 4-1 Financing growth distribution of ICBC's customers at end of 2003.....	43
Figure 4-2 Financing system for corporate customers in ICBC.....	44
Figure 5-1 Proposed new CRMS for corporate customers with ERM in ICBC.....	70

List of Tables

Table 2-1 Geographical distribution of Equator Banks.....	16
Table 3-1 The current banking system in China.....	26
Table 3-2 Main external driving forces for strengthening ERM.....	31
Table 3-3 Pollutant emission from industry in China.....	32
Table 3-4 Related Official Documents by National Government.....	35
Table 3-5 Investment in pollutant control.....	38
Table 5-1 Preventive ERM procedure design in CRMS for corporate customers in ICBC.....	64

1 Introduction

1.1 Background

1.1.1 Sustainable development

Over the past 30 years, with the remarkable growth in the global economy, there are also a number of pressing constraints on development, and entrenched negative trends, such as economic disparity and poverty, over-consumption of resources and environmental deterioration (OECD, 2002, p.5). These social and environmental issues awakened humanity to carefully rethink how to protect the common and unique planet – the Earth, which led to the 1972 UN Conference on the Human Environment in Stockholm as well as later the creation of United Nations Environmental Program (UNEP).

Since the 1980s, sustainable development, as a new concept for human development, has been one of the most popular terms in usage due to an ever increasing awareness of social and environmental issues. The World Commission on Environment and Development (WCED), also known as the Brundtland Commission, in its report - “Our Common Future,” defined sustainable development as follows:

“Humanity has the ability to make development sustainable - to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs.” (WCED, 1987, p.43)

As illustrated in Figure 1-1 the heart of the concept of sustainable development is the belief that social, economic and environmental objectives should be complementary and interdependent in the development process, which indicates that the three pillars of sustainable development, i.e. the social, economic and environmental objectives of society, should be integrated wherever possible, and balanced with trade-offs where it is not through mutually supportive policies and practices (OECD, 2002, p.12).

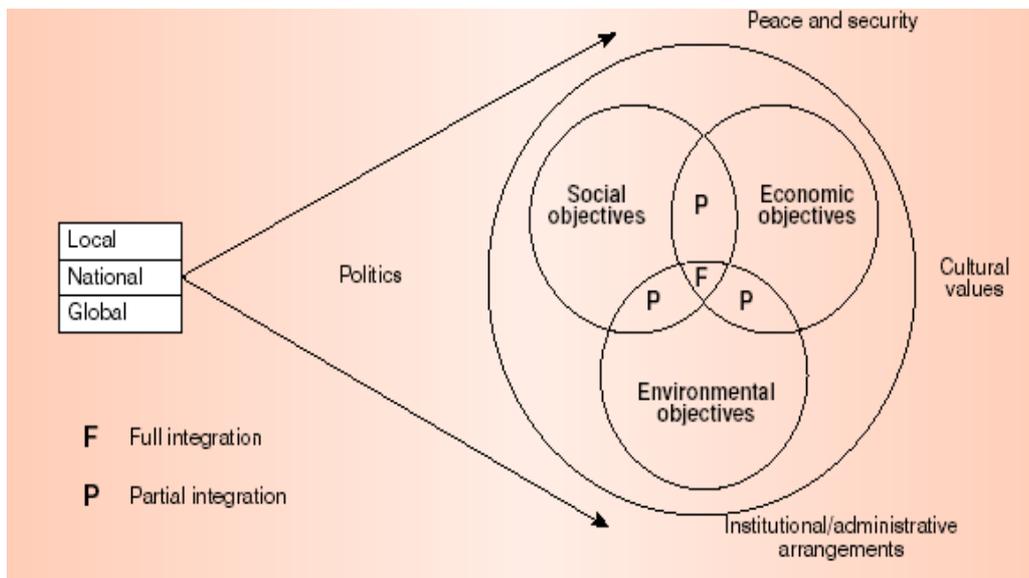


Figure 1-1 Sustainable Development Pillars

Source: OECD, 2002, p.12

1.1.2 Sustainable banking

After the 1990s, finance issues also leaped up on the agenda of sustainable development, which brought a broader perspective.

At the Rio Earth Summit in 1992, the “UNEP Financial Initiative on the Environmental and Sustainable Development” (UNEP FI) was established in order to improve the partnership between UNEP and financial institutions in order to raise the environmental and sustainability awareness of financial institutions including commercial banks, investment banks, venture capitalists, asset managers, multilateral development banks and rating agencies. According to the development steps towards sustainable finance and banking, the mission statement of this initiative declares as follows:

“This initiative, which operates under the auspices of the United Nations Environmental Programme, promotes the integration of environmental considerations into all aspects of the financial sectors’ operation and services. A secondary objective of the initiative is to foster private sector investment in environmentally sound technologies and services.” (Bouma, et al, 2001, p.25)

This initiative ultimately led to the two statements, i.e. the “UNEP Statement by Financial Institutions on the Environment and Sustainable Development” in 1992 and the “UNEP Statement of Environmental Commitment for the Insurance Industry” in 1995. By the end 2004, there were in total 208 financial institutions from 6 different areas that had signed the above respective statements (see Figure 1-2).

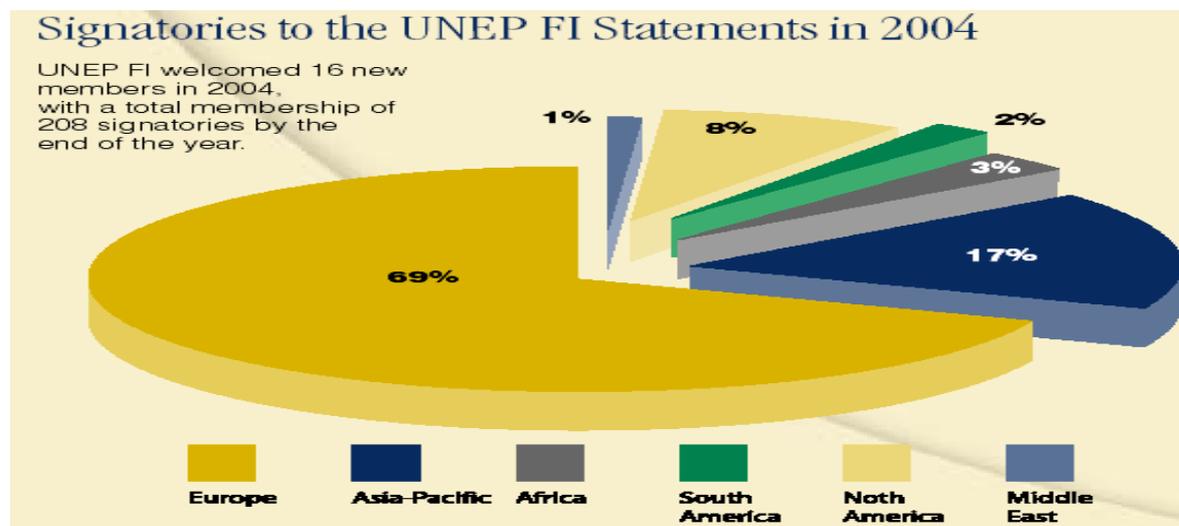


Figure 1-2 Signatories to the UNEP FI Statements, 2004

Source: UNEP Finance Initiative, 2005, p.3

In China as the largest developing country, the financial institutions and especially the commercial banks have lagged behind the global pace of sustainable banking. To date, only the Bank of Shanghai (BOS), as the largest city commercial bank in China (SustainAbility, et

al, 2002, p.9), is a signatory to the UNEP FI¹ financial statements, while other commercial banks and especially state-owned commercial banks are not. However, faced with many challenges of environmental and social issues, Chinese commercial banks have to envisage such sustainability issues and begin to implement appropriate strategies to ensure their business development progresses toward sustainable banking.

1.2 Objective and research questions

The objective of the thesis is to analyse the financing system for corporate customers in the Industrial and Commercial Bank of China (ICBC) to initially explore the appropriate pathway for ICBC and also other Chinese commercial banks toward sustainable banking. Specifically, to strengthen environmental risk management (ERM) at present and to further green financing in near future, as well as to motivate ICBC's top managers to institutionalise such operational strategies derived from this initial exploration.

For this objective, the following research questions will be addressed in the thesis:

1. How should the current financing system for corporate customers in ICBC deal with issues related to environmental risks and financing at present?
2. How can ICBC strengthen ERM as preventive strategy towards sustainable banking currently?
3. What should ICBC's future policies of green financing be?

1.3 Methodology

In order to address the above research questions and achieve the objective of the thesis, a qualitative method was applied during the thesis study. Following this method, the thesis is divided into three phases: (1) theoretical review, (2) focus area research, (3) research analysis and discussion. According to each phase, the relevant and specific research methods are used, including literature review, case study, and personal interviews by telephone, email or face-to-face, as well as interviews or investigation by questionnaire.

Phase 1: Theoretical review. As the beginning of the thesis phase 1 focuses on studying the significant role of commercial banks in sustainable development as well as reviewing the general pathway to sustainable banking with relevant strategies from a theoretical perspective through a literature review. Personal interviews and interviews via questionnaire are also used as practical complements to the theoretical study, including a telephone interview with Mr. Marcel Jeucken, the developer of the theory on pathway to sustainable banking. Interviews by questionnaire were also emailed to international financial institutions and initiatives² on environmental credit risk management and green financing. Other personal interviews were also made with environmental experts of cleaner production (CP) and renewable energy on

¹ On 20 November 2001, Bank of Shanghai signed the financial institution statement of UNEP FI in Lisbon of Portugal, which is the first Chinese financial institution to sign such a statement, and also the only one up to now. (Xia & Peng, 2004)

² During the research process of the thesis, the following international financial institutions and initiatives are interviewed by the author by questionnaire, including: UNEP FI, the secretariat of Equator Principles, the World Bank (WB), the International Financial Corporation (IFC), the European Bank for Reconstruction and Development (EBRD), Union Bank of Switzerland (UBS), Barclays Group (hereinafter referred to Barclays). (see Appendix-2) The questionnaire with semi-structured questions on ERM and green financing distributed to the above financial institutions can be reviewed in Appendix-3.

issues of green financing. All of these are designed to provide the theoretical framework with global practices to help Chinese banking improve its environmental performance towards sustainable banking.

Phase 2: Focus area research. In this part, in order to seek for an appropriate pathway toward sustainable banking in China, ICBC is chosen as a research focus area for the thesis. Firstly, the current internal status of Chinese banking and the main external driving forces towards sustainable banking in China are studied by literature review and personal interview to provide general background information for the ICBC case study that follows and the research analysis and discussion in Phase 3. Then, when researching ICBC as the focus area, its financing system for corporate customers is explored as a case study to show its current situation and how such a system should deal with issues related to environmental risks and financing at present. Specifically, the pathway to sustainable banking through strengthening of ERM at present and further implementing green financing in near future. Among others, relevant information and data are acquired from the ICBC website as well as from internal materials from ICBC. Additionally, the investigation in ICBC by questionnaire is also applied to support for the case study.

Phase 3: Research analysis and discussion. Based on the actual research in Phase 2 and the theoretical review in Phase 1, this section is designed to analyse and discuss in depth how ERM and greening financing can be used to support ICBC's sustainability respectively at present and in near future, i.e. the appropriate pathway to sustainable banking in China. In this part, collected information and data from Phase 1 and 2 are the major resources for this analysis. Relevant other literature sources and personal interviews are also undertaken during this phase.

1.4 Scope and limitations

1.4.1 Scope

There are different financial institutions playing various roles in economic life, such as central banks, commercial banks, investment banks, venture capitalists, asset managers, multilateral development banks and rating agencies. Because there is the inherent and close relationship between commercial banks and industrial business that are also the main source of various environmental issues, the focus of this thesis is accordingly on commercial banks.

The geographic scope of the thesis is China. As the biggest developing country, China is in the process of an economic transition from a planned economy to a market economy. With the rapid growth of China's economy, a great deal sustainability issues have arisen and can be transferred to risks or opportunities affecting the operations of commercial banks. Thus, as an intermediary of the economy, commercial banks have to strengthen their ERM to reduce their own operation risk while seeking new market opportunities for their sustainability. In addition, inputs of environmental policies, tools and practices from international and other countries' financial institutions are also employed in the thesis to support the analysis and discussion.

The thesis is to mainly focus on the realm of environmental credit risk management as the preventive phase towards sustainable banking due to the current situation of Chinese banking. Comparatively, internal environmental issues from banks are much less significant than that from banks' products, thus they will not be included in the thesis. In addition, green financing is initially introduced as the higher and offensive phase to approach sustainable banking in the near future.

In the thesis, the author uses the financing system for corporate customers in ICBC as a case study due to its applicability in general to commercial banks in China. The reason is that not only ICBC is currently the largest commercial bank in China despite the volumes of deposit and lending, but also at present commercial banks in China are mainly founded by the government which leads to a high degree of similarity among products and services and internal governance structures. Monoculture can be used to describe the present status of commercial banks in China, however this may change in some time, but more time will likely be taken (Liu, 2004, p.5).

1.4.2 Limitations

As we know, detailed information of policy and regulation from commercial banks is always considered as commercially confidential and difficult to acquire. Therefore, most materials about foreign and domestic banks have to be searched from public literature or internet.

Moreover, the author, as a staff member of ICBC, has to only make qualitative analysis with respect to financing system of corporate customer in ICBC when he uses some internal materials from ICBC.

According to any theory or policy, it should be connected with the specific country and background, and examined in future. When the author analyses the Chinese case by implementing the new financial paradigm with examples from foreign banks, some uncertainties might occur, such as a shift of political direction or other market factors. So the author only hopes that the explorative study would be helpful for the future development of commercial banks in China. Of course, the suggestion also should be general and flexible, which will have to be updated and adapted to ever changing conditions of regulations and market in China.

1.5 Outline of the thesis

According to the above methodology, the thesis is divided into 7 chapters.

Chapter 1 is the introduction to the thesis. It introduces the research, including the background, presentation of thesis objective and research questions, the methodology as well as the scope and limitations.

Chapter 2 consists of a theoretical review that provides an overview of sustainable banking. It begins with the presentation of main roles of commercial banks in sustainable banking, followed by a general introduction of the pathway to sustainable banking. Then, environmental risk management is mainly analysed as current preventive strategy for most banks. Finally, green financing is also introduced as an offensive strategy for a growing number of banks in near future.

Chapter 3 attempts to introduce the current internal Chinese banking situation and the main external driving forces towards sustainable banking in China. All of these will be designed as general background information contributing to the case study that follows on the financing system for corporate customers in ICBC and the later part of analysis and discussion in Chapter 5 and 6.

Chapter 4 involves the case study of the financing system for corporate customers in ICBC, including a brief introduction to ICBC, an introduction to the financing system for corporate customers, an operation description and research findings of the credit risk management system (CRMS) and the business development system (BDS), which both act as two sub-

systems under the financing system for corporate customers in ICBC. The purpose of this chapter is to provide readers with an understanding of the current situation and how ICBC should deal with issues related to environmental risks and financing at present.

Chapter 5 involves analysis and discussion depending on all of the previous chapters and is focused on the credit risk management system to analyse its limitations with questions, main environmental lessons in the past and potential challenges to such a system, as well as initial exploration on how to strengthen environmental risk management as a preventive strategy towards sustainable banking currently.

Chapter 6 also involves analysis and discussion, and is designed to focus on the business development system with relevant initial analyses of its main limitations, the current barriers and potential opportunities for implementing green financing, and provides initial suggestions on implementing green financing as offensive strategy towards sustainable banking in near future.

Chapter 7 concludes the thesis and answers the research questions and further recommendations.

In accordance with the three research phases introduced in the methodology section, other than for **Chapter 1**, **Chapter 2** derives from the research results in Phase 1; **Chapter 3 & 4** benefit from the contribution of research results in Phase 2; and **Chapter 5, 6 & 7** are based on the outputs of Phase 3.

2 Theoretical review – pathway to sustainable banking

In this section, a clear pathway to sustainable banking is presented to illustrate how commercial banks can take different actions or strategies in various phases or stages to approach sustainable banking. The theoretical framework used here is based on the four-phase theory of sustainable banking³ developed by Rabobank Group research economist Marcel Jeucken in the Netherlands in his paper entitled “*Sustainable Finance & Banking the Financial Sector and the Future of the Planet*” (Jeucken, 2001, p.71). Following this theory, in the later section of this section, ERM is analysed as the focus area of sustainable banking, which is the initial and significant starting point towards sustainable banking for all banks. Finally, greening financing is also introduced as the higher level and offensive strategy for more and more banks in near future.

2.1 The roles of commercial banks in sustainable development

Financial institutions, such as commercial banks, investment banks, venture capitalists, asset managers, multilateral development banks and rating agencies, play very important and active roles in sustainable development. For the objective of this thesis, emphasis is placed on commercial banks. In this section, the main functions of commercial banks in economic life and their roles in sustainable development are presented, based on which we can further explore the pathway for commercial banks themselves to sustainable banking.

2.1.1 The main functions of commercial banks in economic life

As the majority of various banks, commercial banks can be defined as “institutions which are using the funds entrusted to them by their customers to extend loans to consumers and business customers, and distribute profits to the bank’s shareholders” (Jeucken, 2001, p.53). Although the business extension of commercial banks has already gone beyond traditional activities of savings and loans and covered other various functions such as investment banking, securities business, asset management business and consultation business, the traditional intermediary function with savings and loans is still the fundamental pillar supporting the business operation of commercial banks.

From Figure 2-1 below, the main functions of commercial banks can be generalized more clearly. As the two most important stakeholders, both households and companies as either savers or fund-demanded customers interact with commercial banks by savings and loans. For savers from households or companies, commercial banks absorb their savings or deposits and repay relevant interest to them accordingly; on the other side, for fund-demanded customers also from households or companies, commercial banks will provide financing with loans or investments to them and then acquire returns from them in form of interest or capital revenue. Depending on the triangular structure of economic life depicted in Figure 2-1, those fund gap can be bridged by commercial banks, thus the basic economic chain from production to consumption will function normally too.

In reality, however, the situation of economic life is far more complicated than that showed in simplified Figure 2-1. There are more actors playing in the economic life, such as governments, NGOs, various actors from international markets or institutions, which results in that commercial banks have to make efforts as more seriously for developing their business so as

³ In this thesis, the author use this appropriate term to reflect the pathway to sustainable banking although this term has not yet used formally.

to achieve their targeted goal of maximizing the returns while minimizing the risks accepted by them (UNEP, n.d.-a, p.3).

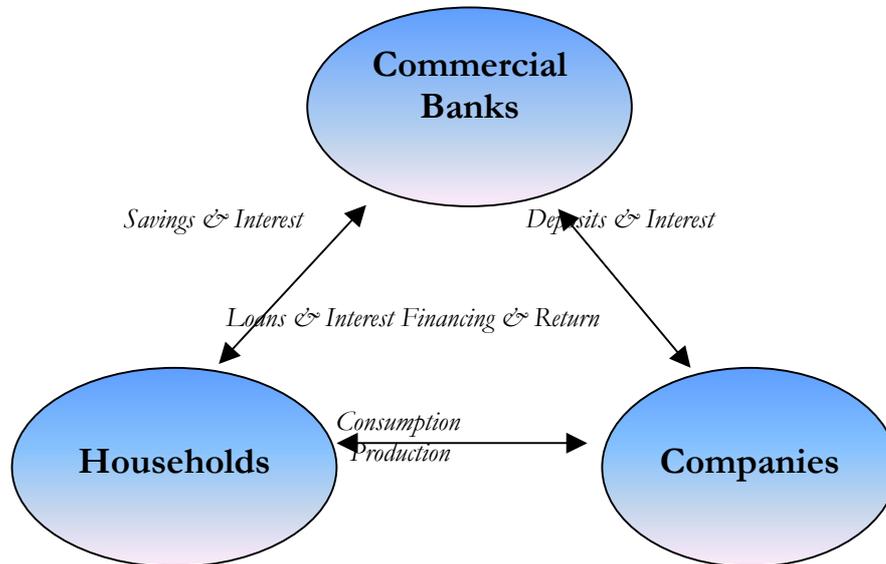


Figure 2-1 The role of commercial banks in economic life

Source: Adapted from Jeucken, 2001, p.55

2.1.2 The roles of commercial banks in sustainable development

Due to the study scope of the thesis, the author only focuses on the interaction between commercial banks and industrial companies, and in this section, the roles of commercial banks in the context of sustainable development is presented below.

The figure below (see Figure 2-2) just indicates the roles of financial sectors in sustainable development. In the economic system, the financial sector invests capital to other economic sectors such as manufacturing, logistics and consuming, which will produce the indirect impacts on environment. Meanwhile resources consumption by the financial sector will lead to direct environmental impacts that generally are much less significant than indirect ones. Therefore, it is easy to understand the important role of financial sectors in sustainable development.

If we take a closer look at commercial banks, the significance could be more explicit. For example, once commercial banks provide a loan for a polluting project, they might suffer environmental risk and lose money finally due to increasingly stringent environmental regulations. On the contrary, if banks strengthen their environmental risk management that will produce incentives on businesses to improve their environmental performance towards cleaner production, banks will make money at the end. Moreover, at the higher level, more driving forces, such as market opportunities from cleaner production and renewable energy, competitive advantages from new products, will urge banks to carry out the strategy of green financing with corporate social responsibility (CSR), which will achieve win-win positions for banks and businesses while benefiting the environment and society. In other words, on this level, banks will begin to approach sustainability (Guo, et al, n.d. p.2).

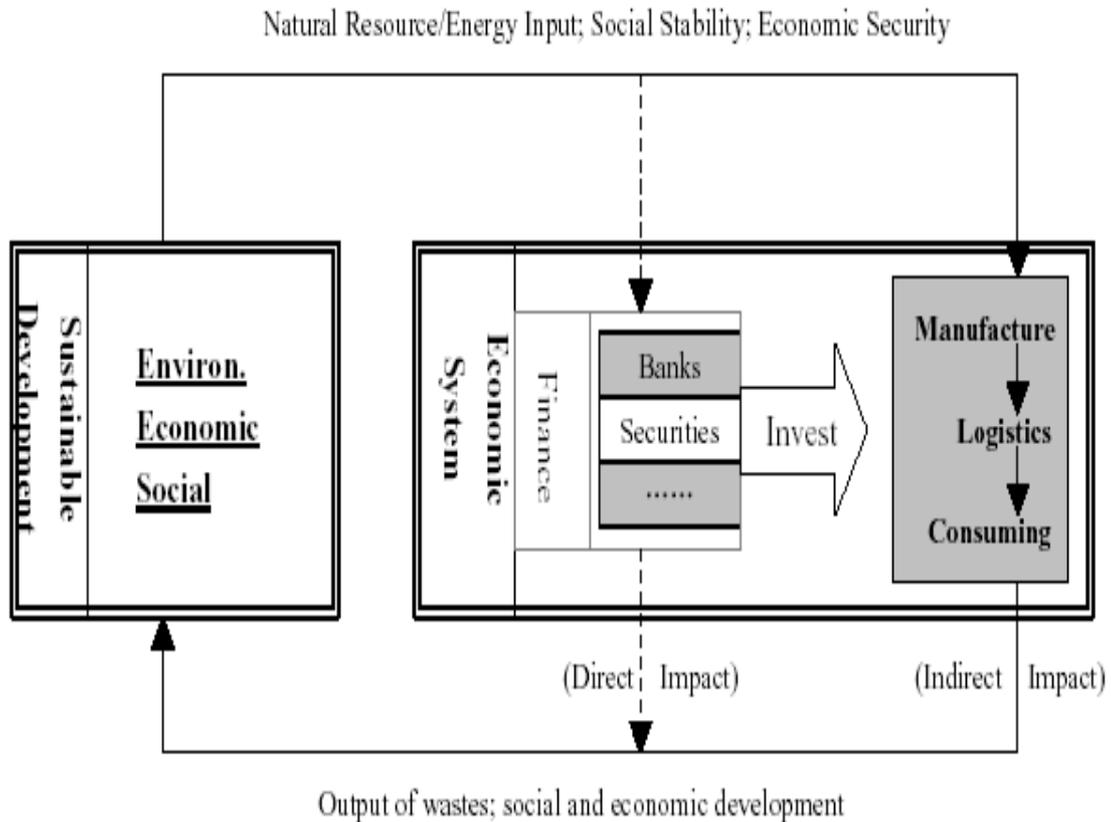


Figure 2-2 Financial sectors in sustainable development

Source: Guo, et al, n.d. p.1

2.2 Pathways to sustainable banking

There are a number of phases that can be distinguished with respect to sustainable banking, in general, which include the four phases of defensive banking, preventive banking, offensive banking⁴, and sustainable banking.

As depicted in Figure 2-3 below, this model consists of the above-mentioned four phases as a fixed pattern for most banks (Jeucken, 2001, p.71). Each outer layer contains the previous layer but with the exception of the first layer, defensive banking. In other words, sustainable banking will contain the characteristics of both preventive and offensive banking. In principle, banks develop from the inner layer (defensive) to the outer layer (ultimately sustainable). Although each bank will normally go through all of these stages, banks might never reach the final stage that will continue to evolve according to stakeholder expectations change (Bouma, et al, 2001, p.33).

⁴ Note that the terms ‘defensive’, ‘preventive’ and ‘offensive’ are all defined in relation to environmental issues.

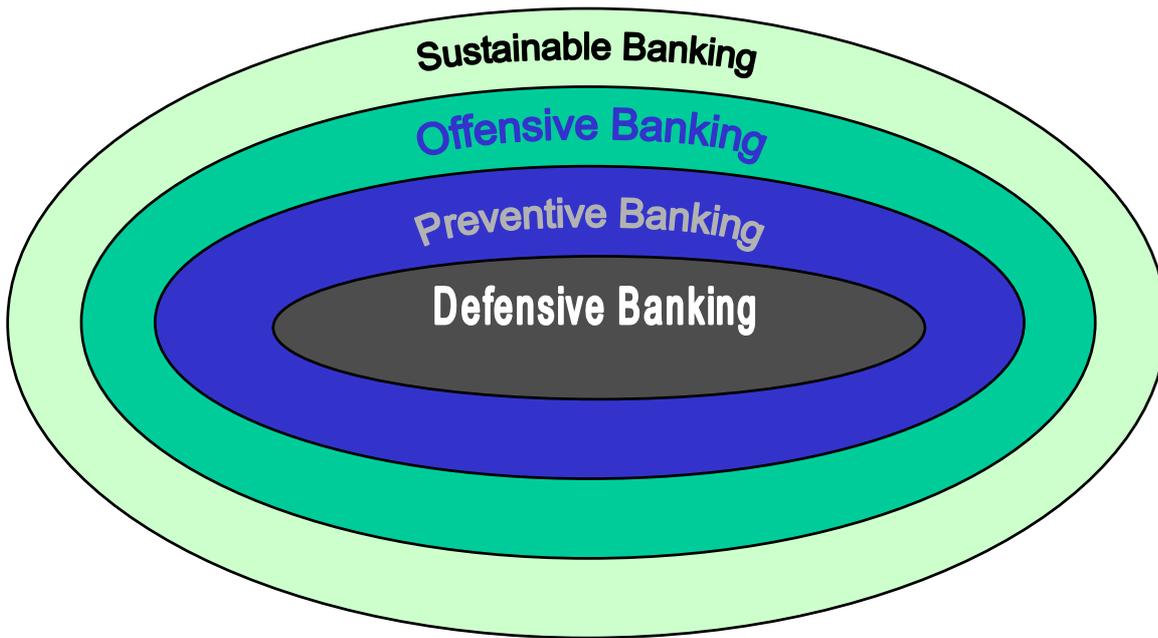


Figure 2-3 A typology of banking and sustainable development

Source: Jeucken, 2001, p.71

The first stage is **defensive banking**. In this stage, a bank is non-active and may even try to delay or oppose new environmental legislation, because it may impact the interests of the bank directly or indirectly. Environmental management is seen as an avoidable cost. To date, there are no banks in developed countries that actually maintain this vision any longer (Jeucken, 2001, p.72).

The second stage is **preventive banking**. This stage diverges from the previous stage. In this stage, banks begin to integrate environmental issues into their internal day-to-day business such as environmental risk management, due to some driving forces, e.g. potential environmental cost savings and eco-efficiencies, more and more constraints from government and NGOs through legislation, social pressure or jurisprudence (Bouma, et al, 2001, p.34). However, just as mentioned above, this stage is included in the whole scope of sustainable banking. ERM is considered as the most efficient method applied for preventive strategy towards sustainable banking.

Banks in the third stage, **offensive banking**, further consider their external activities in addition to the internal ones in the second stage. In other words, they begin to develop and market environmentally friendly products based on their development of CSR. Examples include green financing (such as financing for CP investment, the financing of renewable energy etc.), environmental investment funds, the release of environmental reports, and the signing of the UNEP Banking Charter etc. (Bouma, et al, 2001, p.34). This stage is labelled as proactive, creative and innovative. Offensive strategy is implemented by banks to look for win-win opportunities, which will lead to sustainability as long as negative environmental costs are completely integrated into the price system. But unfortunately, in reality, not all negative environmental costs are internalised within the current price system, so that sustainability for banking can only be set as the goal for banks to achieve. But at least, through this phase, banks will have been approaching this goal of sustainable banking at maximum.

In the fourth stage of **sustainable banking**, all bank's activities are sustainable. Banks will not look for the highest financial rate of return, but for the highest sustainable rate of return, while being profitable in the long run. Such banks require that their stakeholders have the same vision and ambition. Unfortunately, the current situation and demand for sustainability in society is not enough to reach the level of sustainability banking for most banks. Such policies would lead to a loss of profit, just as the majority of their activities could not be financed in time (Bouma, et al, 2001, p.34). However, once such preconditions are sufficient, i.e. integrated price system with all environmental costs, higher demand for sustainability in society etc., the goal of sustainable banking will be achieved in the future.

In words, with the respect of environmental concerns, banks in developed or developing countries almost follow such a development way to sustainability, i.e. defensive – preventive – offensive – sustainable. Except for the initially defensive phase and the finally ideal phase of sustainability, both preventive and offensive banking phases should be the crucial phases used to achieve the final goal. Moreover, strengthening environmental risk management and green financing respectively in the preventive and offensive phases is the appropriate pathway to reach sustainable banking (Jeucken, 2005, personal interview).

The preventive phase, such as environmental risk management, should be the initial level and basis towards sustainable banking, which will not only reduce internal risks from business operations but also bring more potential external opportunities for banks to implement offensive strategies for achieving sustainability, such as financing CP investment. As the higher level, the offensive phase not only depends on internal environmental risk management and benefit much more from ERM but also on other opportunities such as market growth for renewable energy and providing a driving force for banks to strengthen green financing as the offensive strategy. In fact, during this phase, banks begin to shift their focus area from internal to external and try to finance investment in environmentally friendly products. Accordingly, corporate social opportunity (CSR) will be adopted as a new operation principle and direction to help bankers implement offensive strategies for approaching sustainable banking (Jeucken, 2005, personal interview).

2.3 ERM as a preventive strategy for sustainable banking

Following the theory above, in this section, environmental risk management will be analysed as the main research area of the thesis, which is an efficient method, and can be used by banks to implement preventive strategy during the phase of preventive banking as the initial and significant starting point towards sustainable banking.

2.3.1 What is environmental risk

When referring to banking management, risks have to be put in the most significant place to address and deal with by bank staff. Figure 2-4 below illustrates these principal banking risks. Risks are usually defined as “the adverse impact on profitability of several distinct sources of uncertainty” (Bessis, 1998, p.5). Among others, credit risk is regarded as one paramount risk in terms of the importance of potential losses. Credit risk is the risk that customers default and fail to comply with their obligation to service debt. Default triggers a total or partial loss of any amount lent to the counterparty.

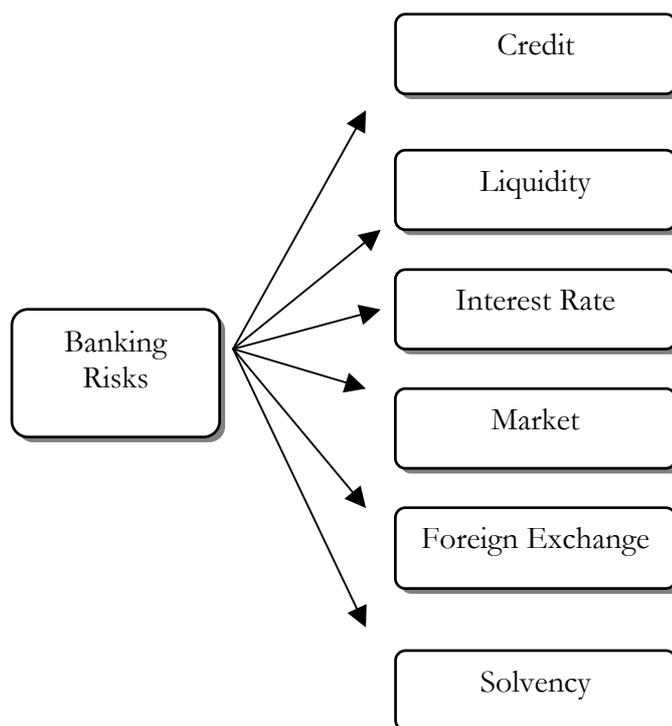


Figure 2-4 Principal banking risks

Source: Bessis, 1998, p.5

When considering the pure concept of environmental risk, it is hard to get a universal definition from a number of literature sources about environmental risks. However, sometimes it is referred to as “the likelihood and severity of a potential event that would have an adverse impact on the environment” (UNEP FI Australasian Advisory Committee on Insurance, 2003, p.5). Based on the scope of this thesis, when such a definition is limited to the field of banking and credit risks, it can be further refined as the likelihood of any adverse impacts arising from financial, legal or reputation risks and even loss to the industrial business and its lending banks due to any issues related to the environment.

2.3.2 What is environmental risk management

As defined in the ERM manual of the European Bank for Reconstruction and Development (EBRD), environmental risk management involves:

- collection, evaluation and reporting of appropriate environmental information about a proposed transaction, then leading to –
- a fully informed decision on whether the environmental risk related to the transaction is acceptable;
- control of environmental risks related to the transaction; and
- realization of any potential environmental benefit related to the transaction (EBRD, 2001).

As for the above definition of ERM from EBRD, we can know that environmental risk management is actually the process by which financial institutions can identify, appraise, control, transfer and monitor environmental risks. ERM can be used widely in many financial operations, such as credit/loan and investment. Obviously, its major purpose is to minimise exposure to foreseeable environmental risks. If properly undertaken, ERM can help reduce the amount of non-performing assets and hence improve a financial institution's overall business performance.

2.3.3 Why is ERM necessary

As we know, companies especially industrial enterprises, carry out activities which may present a hazard to human health or cause environmental damage, such as air emissions, waste water discharge, industrial waste etc. At the same time, a company's physical assets, especially property or land, may be contaminated due to current or historical activities. As a result, the financial institutions which deal with those companies, whether as bankers, investors or other involvement, face a variety of potential environmental risks. This applies even when a company complies, or appears to comply, with current environmental legislation (EBRD, 2001).

From the following chain of effects from companies to their financial partners, we can learn how environmental negative impacts can be transferred to risks of companies whereby such risks further lead to so-called environmental risks to financial institutions (EBRD, 2001).

1. Stage 1 in the chain: environmental negative impacts caused by a company's activities, such as:

- historic pollution from past operations
- ongoing pollution due to current operations
- severe, sudden pollution accident
- handling, transport and disposal of hazardous materials
- excessive use of natural resources
- use of, or trade in , environmentally sensitive products

2. Stage 2 in the chain: environmental negative impacts can create risks to the company, which include:

- Financial risks: e.g. increased capital or operating costs of complying with environmental standards; clean up costs, fines or compensation payments; increased waste disposal, handling and transportation costs; reduced value of assets such as land or shares.
- Legal risks: e.g. difficulties or delays in obtaining planning and environmental permits; arising from regulatory requirements or public opposition; forced shutdown or restriction of operations; claims for damages from third parties.

- Reputation risks: e.g. reduced sales where products are perceived as environmentally damaging; public or regulatory objections to expansion.

3. Stage 3 in the chain: financial institutions may suffer the following risks derived from those risks from companies, including:

- Credit or loan risks: e.g. loan defaults such as inability of to meet credit repayment schedule due to increased operating or capital expenditure from loaned companies.
- Security/collateral impairment risks: e.g. loss of value of security/collateral due to contamination or outdated technology.
- Investment risks: e.g. devaluations of asset value of investment in a company due to increased operating or capital expenditure.
- Liability risks: e.g. liability for clean up costs or damages for negligent advice.
- Reputations risks: e.g. loss of reputation through association with a company that becomes the target of environmental criticism.

Many of these risks may not become apparent through the standard financial analysis processes, and as a result some financial institutions have suffered severe losses due to unexpected environmental, health and safety problems affecting their customers or investments. For this reason, specific environmental risk management is very necessary and urgently needed for financial institutions to control this aspect of risk in their operations.

2.3.4 Major procedures and tools for ERM

The principle of value maximization and risk management provides guidance in determining the likely outcome of financial decision-making with regards to environmental issues. Therefore, as the environmental issues are challenging bankers and financial managers, tighter rules on capital adequacy and the rejection of traditional risk management tools are opening the way for new methods of management.

One successful environmental risk management should be a series of procedures and tools designed to ensure that financial institutions manage environmental risks in a systematic and effective way while minimizing overhead and transaction costs. Moreover, such a system should not only be preventive for environmental risks for financial institutions, but also provide more sufficient incentives on customers to be proactive to reduce negative environmental impacts and develop towards cleaner production, which in turn will produce the preconditions for banks to shift to offensive banking from preventive banking.

In general, environmental risk management procedures and tools can be separated into major blocks as follows: (EBRD, 1995, p.29-32)

- **Identifying** environmental risks with environmental due diligence tools, such as environmental screening;
- **Appraising** environmental risks, i.e. environmental risk assessment with environmental due diligence tools, such as environmental investigation or environmental impact assessment (EIA) in case of project financing;

- **Controlling** environmental risks with environmental risk management strategies, such as revised credit terms or revised credit documentation;
- **Monitoring** environmental risks with early warning strategy during the term of the loan.

2.3.5 Overview of ERM in global sense

Based on the four-phase theory of sustainable banking mentioned in section 2.2, we can learn that no banks are still in the phase of defensive banking in developed countries. In other words, banks in developed countries either are in the process of preventive phase or have already operated their business in the offensive phase. According to the significance of ERM in the preventive phase as well as the focus phase in most developing countries, in this section, the author will have a overview of ERM in global sense so that try to find what status is currently, as well as what good practices and tools can be used to support the credit risk management of commercial banks in China.

2.3.5.1 A growing consensus for ERM

Depending on meetings during the first six months of 2004 with 80 officers at 38 leading financial institutions, a study by Environmental Resources Management, one of the world's leading providers of environmental consulting services, indicates that the majority of the world's large banks agree that integrating environmental and broader social issues into their core credit risk management process is essential to managing credit risk in the 21st century. Leading banks such as Barclays, Lloyds TSB and Bank of America, to name a few, now view these "non-traditional" issues as real, credit risk variables that may potentially affect their clients' bottom lines as well as their own (Ganzi, et al, n.d. p.1). During this survey, more 90% of the institutions contacted now have credit, operations or direct line staff fully dedicated to these issues, in other words, less than 10% still treat these issues primarily from a public or investor relations perspective. Virtually every institution has begun or plans to begin an ongoing training effort aimed at informing and educating their line staff and credit policy personnel on how to effectively manage environmental credit risk considerations (Ganzi, et al, n.d. p.2).

Similarly, from the feedback of UNEP FI in interview by questionnaire, we also learn that in the countries of Western Europe and North America, environmental risk management is widespread in large financial institutions, such as EBRD, UBS, Barclays and Bank of America etc. (UNEP FI, 2005, interview by questionnaire). However, in developing and transition countries environmental risk assessments are rarely done, but there is a growing appetite for learning how to manage environmental risks. Nevertheless, only a minority has established environmental credit risk policies and systems. In these countries multilateral financial institutions like the World Bank, International Finance Corporation (IFC), European Bank for Reconstruction and Development (EBRD) or the Asian Development Bank (ADB) offer project financing or training programs that focus strongly on environmental credit risk management as well as relevant information tools, such as a detailed information database on environmental risks in each industry (UNEP FI, 2005, interview by questionnaire).

2.3.5.2 Equator Principles as the latest guidance on ERM for banking

If we regard UNEP FI as the general initiative to financial institutions for sustainable development globally, the Equator Principles should be the latest and detailed guidance on environmental risk management for banking accordingly.

The Equator Principles represent the most recent major development on the subject of environmental credit risk management and are a code of guidelines and principles. As a set of voluntary guidelines, the Equator Principles were drafted by four banks (ABN Amro, Barclays, Citigroup and West LB) with assistance from the IFC. The Principles were available and adopted in June 2003 by ten international banks (FBD, 2005, p.2). To date, Thirty-one financial institutions from fourteen countries have adopted the Equator Principles (see Table 2-1) and these financial institutions operate in over 100 countries (Equator Principles, n.d.).

Table 2-1 Geographical distribution of Equator Banks

Country	Financial Institution
Australia	Westpac Banking Corporation
Belgium	Dexia Group; KBC Bank N.V.
Brazil	Banco Bradesco; Banco do Brasil; Banco Itaú; Banco Itaú BBA; Unibanco
Canada	Canadian Imperial Bank of Commerce; Manulife; Royal Bank of Canada; Scotiabank
France	Calyon Corporate and Investment Bank
Denmark	Ekspert Kredit Fonden
Germany	Dresdner Bank AG; HVB Group; WestLB AG
Italy	MCC S.p.A.
Japan	Mizuho Corporate Bank, Ltd.
The Netherlands	ABN AMRO Bank NV; ING Group; Rabobank Group
Spain	BBVA S.A.
Switzerland	Credit Suisse First Boston
United Kingdom	Barclays plc; HSBC Group; Standard Chartered Bank; The Royal Bank of Scotland
United States	Bank of America, N.A.; Citigroup Inc.; JPMorgan Chase

Source: Adapted from *Become an Adopting Institution in the website of The Equator Principles available at <http://www.equator-principles.com/join.shtml>. [8 July 2005].*

It should be noted that the Equator Principles is a set of guidelines adopted by lending financial institutions only to be applied in project financings, as well as there is no formal organisation. However, it is still the first detailed international guidance on environmental credit risk management, and what's more targeted with project financing as the majority of credit business (Equator Principles, 2005, interview by questionnaire). The Principles provide the common baseline and general framework for financial institutions to set up their environmental risk management policy in project financing as well as the whole credit risk management accordingly. The principles mainly involve the environmental screening principle by environmental risk categorization, the environmental assessment principle, the principle of law and legislation compliance, the principle of environmental management plan (EMP) and its monitoring and regular report, and the principle of World Bank and IFC's environmental standards as minimum standards applicable, etc.

By adopting such principles, those lending banks can ensure that the projects they finance are developed in a socially and environmentally responsible manner and reflect sound environmental practices. Moreover, other benefits, such as good reputation, reduced NGOs pressure, protection and even increasing market share etc., will be generated from the adoption of the Principles as well. Although the limitation of the Equator Principles is only focus on project financing, it is glad to see that several Equator Banks extend the application of the Principles to areas of banking other than project finance, by adopting an Equator Principles thinking approach to other forms of lending or sometimes by applying policies

more stringent than the Principles to some areas of their activities (FBD, 2005, p.23). In words, the Equator Principles have become the project finance industry standard for addressing environmental and social issues in project financing globally, and also will be spread to the whole credit risk management and adopted as the general and detailed guidance for environmental risk management.

2.3.5.3 Good practices from selected financial institutions

In order to provide good examples for Chinese banking to strengthen their environmental risk management practice, this section attempts to explore what good practices of ERM from other financial institutions can be used to achieve the above goal.

The interview feedback from the secretariat of Equator Principles implies that most financial institutions such as commercial banks often intend to retain competitive advantage using different risk policies, tools and practices under various objectives, which seems to be difficult to tell what the best tools and practices are and whether they focus on CP or only on risk management (Equator Principles, 2005, interview by questionnaire). However, a little more specific answer, coming from the interview feedback of UNEP FI, shows that some institutions have a detailed information database on environmental risks in each industry. Such a tool plus training for credit staff seems to be current best practice (UNEP FI, 2005, interview by questionnaire). Yet, they both did not provide actual banks or institutions. Moreover, from the author's personal opinion, these answers sound somewhat simple and insufficient.

Fortunately, during the study process of the author, he got some useful information by other interviews by questionnaire and literature review from some leading financial institutions, such as WB, IFC, EBRD, ADB, Barclays, Lloyds TSB etc. Such financial institutions have evolved their own specific ERM policies and procedures, which are all representative and useful to support the development of ERM in banking of China.

1. International financial institutions: WB and IFC

The World Bank and International Finance Corporation are both major members of the World Bank Group (WBG), the other members of which are the Multilateral Investment Guarantee Agency (MIGA), the International Centre for Settlement of Investment Disputes (ICSID) (WBG, n.d.).

As the largest international development bank, the World Bank aims to support the efforts of developing country governments to build schools and health centres, provide water and electricity, fight disease, and protect the environment by providing long-term loans at low interest rates, such as investment loans and development policy loans.⁵ The World Bank consists of the International Bank for Reconstruction and Development (IBRD) and the Development Association (IDA). Among others, IBRD provides long-term loans at low interest rates to middle-income developing countries and creditworthy lower-income countries. IDA is a non-profit lending agency. Developed countries make contribution to IDA to provide long-term, no-interest loans and grants to poor countries. Besides providing loans,

⁵ Development policy loans are formerly known as loans for structure adjustment projects (SAPs). See the reason behind this name changing in the website of the World Bank Group. (2004). Available at: <http://web.worldbank.org/WBSITE/EXTERNAL/NEWS/0,,contentMDK:20237378~menuPK:34457~pagePK:64003015~piPK:64003012~theSitePK:4607,00.html>. [9 July 2005].

the Bank also helps equip the member countries with essential development skills via its advisory services (World Bank, 2005, interview by questionnaire).

IFC is also a lending agency but its main client is private investors. IFC operates on a commercial basis—“it invests exclusively in for-profit projects and charges market rates for its products and services” (IFC, 2004). IFC also offers various advisory services to both governments and companies in developing countries (IFC, 2005, interview by questionnaire).

Although there are different targeted clients to World Bank and IFC, they both aim to provide funds to support member countries’ project financing for the long-term goal of sustainable development, and thus incorporate environmental and social factors into those economic projects they finance so as to evolve comparatively complete project procedures and relevant environmental risk management. Figure 2-5 below illustrates that the entire project management process with relevant environmental and social considerations during the process of project financing in WB. IFC’s project process is similar to that Bank’s, and thus will not introduced here⁶.

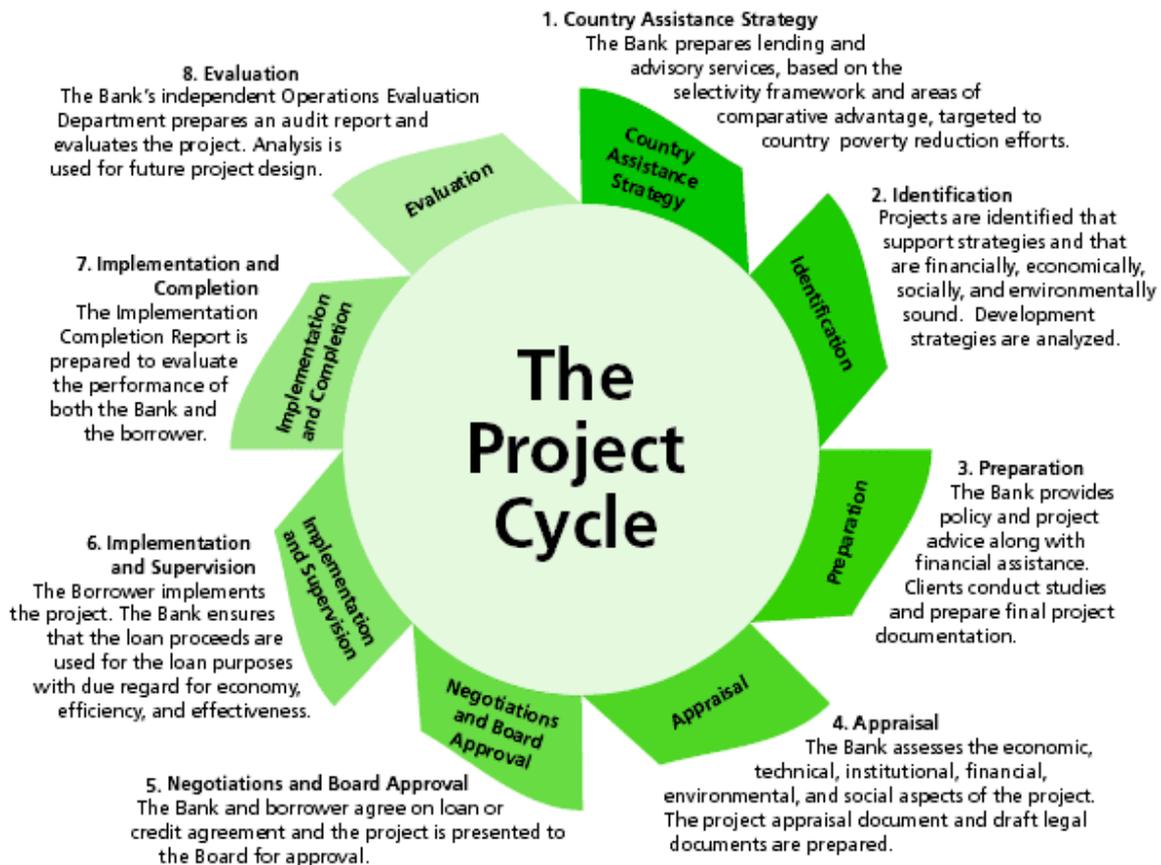


Figure 2-5 World Bank project cycle

⁶ For more detail see the website of IFC. (n.d.). Available at: <http://www.ifc.org/ifcext/enviro.nsf/e11ffa331b366c54ca2569210006982f/0b88989be4cee9ca85256d8700518eb5?OpenDocument> [8 July 2005]

Source: WBG, 2005

During the project cycle, Environmental Assessment (EA) is the most important environmental policy used by the Bank to safeguard project development towards sustainability. EA is based upon a preventative approach to prevent, minimize and mitigate environmental impacts and some selected social impacts that might result from the proposed project. EA must be applied to every investment project and also potentially, but not mandatory, to structural adjustment projects (SAPs). The borrower bears the responsibility of conducting an EA with any necessary assistance from the Bank. Categorization, so-called environmental screening (ES) or project screening, is the initial and critical step of EA. It determines likely adverse impacts of the proposed project and, hence, the degree of EA requirement; the project can be categorized as Category A, Category B, Category C.⁷ Category A projects requires a full EA since they are likely to cause significant adverse impacts. The scope of EAs for Category B projects is decided on case-by-case basis but it will be narrower than those of Category A. Proposed projects are classified as Category C if there is likelihood of minimal or no adverse environmental impacts and no further EA action is required.

Borrowers can utilize the useful instrument, i.e. environmental impact assessment (EIA), to carry out an EA. Moreover, public consultation is required for Category A and B projects. Findings and recommendations of the EA will be used by the Bank in appraisal and approval phases to determine whether to approve the project or not. If the project is approved, the borrower has to report on (a) compliance with the agreements, (b) the status of mitigation measures, and (c) the findings of monitoring programs. The Bank also uses results of the EA to supervise projects (WB, 2004).

2. Regional financial institutions: EBRD and ADB

Besides international financial institutions such as the World Bank and IFC, there are also other regional financial institutions to set up their own ERM policies and procedures to ensure their member countries' financing business operations in environmentally sound performance.

In Europe, during the author's study, it was found that at present, the ERM program of EBRD should be a very helpful practice for most financial institutions. It is intended for use primarily by financial institutions in the countries of central and eastern Europe and the former Soviet Union (EBRD, 1995, p.1). In this program, it provides a detailed ERM procedure and relevant tools, such as Environmental Screening (ES), Environmental Risk Assessment (ERA) etc. Moreover, the most significant aspect is that in the ERM procedure for corporate lending, it strongly requires credit staff to consider environmental opportunities involved in transactions such as cleaner production when they engage in environmental risk approval and control (EBRD, 2001). This can not only reduce environmental risk greatly so as to result in a higher rate of risk-return, but also further provide more incentives to loan customers to develop CP to increase financing chances. In turn, more and more marketing opportunities will be generated for lending banks to finance such investments in CP, which can help banks leap toward the phase of offensive banking. Therefore, this kind of ERM should be regarded as a method to shift from preventive to offensive banking which differs from the "traditional" ERM of financial institutions which only focus on reducing environmental risks in the field of end-of-pipe control of loaned businesses.

⁷ If the project involves investment of Bank funds through a financial intermediary, in subprojects that may result in adverse environmental impacts, it will be classified as Category FI.

In Asia, the Asian Development Bank (ADB) is a multilateral development finance institution dedicated to reducing poverty in Asia and the Pacific. The main instruments for providing help to developing members are policy dialogue, loans, technical assistance, grants, guarantees, and equity investments. In 2004, of total loans amounting to \$5.3 billion some \$197 million were approved for technical assistance and \$185 million were approved for equity investments (ADB, 2005, p.6). Promoting sustainable development and environmental protection is a key strategic development objective of ADB. On 8 November 2002, ADB approved its environmental policy which is grounded in ADB's poverty reduction strategy and long-term strategic framework (2001-2015), aiming to incorporate environmental and sustainable considerations into its daily business operations.

Based on the framework ADB also developed its operations manual (procedures) and environmental assessment guidelines (EAGs) (tools). ADB's operations manual stipulates the general procedure on how to incorporate environmental considerations into its business process, including application of policy, department responsibilities, compliance, monitoring and borrower's responsibilities in its ERM. According to this operations manual and various types of projects, detailed tools are described in its environmental assessment guidelines. These include country environmental analysis (CEA), environmental categorization (EC) & environmental assessment checklists (EACs), various environmental assessments for project loans, program loans, sector loans, financial intermediation loans and equity investment, environmental reporting, environmental management plans, public participation and information disclosure, as well as relevant technical guidance. All of these are combined to safeguard implementation of ADB's environmental policy and sound business development towards sustainability (ADB, n.d.).

3. Country-level financial institutions: Barclays and Lloyds TSB

In this part, some representative national financial institutions are selected to display their own specific environmental risk management practices, such as Barclays, Lloyds TSB. As they are all country-level financial institutions just same as commercial banks in China, research on their ERM should be much more useful for the following study on Chinese banking.

Barclays is one of the largest financial services groups in UK, with 2 916 branches and 74 800 employees in almost 70 countries worldwide, engaged primarily in banking, investment banking and asset management. In terms of market capitalisation, it is one of the largest financial services groups in the UK. Due to reorganization of the responsibility toward sustainable development, in 1979 Barclays established its Energy Unit, and in 1992 established its Environmental Risk Management Unit. Afterwards, its Environmental Management System (EMS) was established in 1999 and its Environmental Policy was later developed in October, 2000 and endorsed by the Board of Directors in May 2001 (Barclays, 2002, p24). Due to achievement in 2002, accredited certification to the International Standard ISO 14001 was awarded in 2003 (Barclays, 2004, p.2).

The Environmental Impact Assessment Policy is a specific policy integrating environmental concern into Barclays' business practice, as it recognised that the most significant environmental impacts arise from the its provision of financial services to corporate customers in environmentally sensitive sectors (Barclays, n.d.-a, p.1). According to its EIA Policy statement, it includes:

- *Identification of projects requiring an EIA to be considered as a part of the lending decision.*
- *Requiring the EIA to be undertaken, or independently reviewed, by an appropriately qualified specialist, whose experience and credentials are acceptable to Barclays.*
- *Determining the terms of reference to which the EIA should conform, to ensure the assessment has sufficient scope and detail to allow lending decisions to be made from an informed viewpoint, given that each project is likely to demonstrate a complex and unique environmental profile.*
- *Requiring all environmental issues to be addressed in accordance with internationally recognised standards (e.g. World Bank standards), ensuring Barclays is associated only with those projects which meet high environmental standards.*
- *Enabling Barclays to balance stakeholders' interests, issues and concerns which arise from environmentally sensitive projects.*
- *Providing a predetermined referrals procedure for Barclays offices worldwide to the central Environmental Risk Management team, which has, and can call upon, specialist expertise and experience (Barclays, n.d.-a, p.2).*

The above-mentioned EIA Policy was adopted and implemented by Barclays in 1997 for structuring its consideration of environmental issues into project finance transactions. This has evolved into its current Environmental and Social Impact Assessment (ESIA) Policy, which focuses on the environmental and social sensitivities of their lending and is designed to ensure that lending proposals are rigorously assessed to identify, quantify and, where appropriate, mitigate the environmental and social impacts (Barclays, 2005, interview by questionnaire).

Based on its ESIA Policy, Barclays improved its project assessment for one higher level. The general EIA process of project financing is described as follows:

1. Barclays requires an ESIA to be undertaken for all transactions that fall within the scope of their ESIA Policy. This must comply with Barclays minimum requirements for an ESIA and be undertaken by an independent consultant that appears on its preferred panel.
2. If an ESIA has already been undertaken in connection with the relevant project, but does not meet the above requirements, then Barclays requires a second opinion of the ESIA be commissioned and undertaken by an independent consultant that appears on its preferred panel, in accordance with its minimum requirements for a second opinion of an ESIA (Barclays, n.d.-b, p.4).

The detailed process can be reviewed in Appendix-4.

From the statement above, we can find that Barclays has established a comparatively mature environmental management system and policy, and has successfully integrated environmental concerns into its business operations. Moreover, Barclays has set a more stringent standard for environmental performance of potential project, which will produce more incentives for project owners to consider CP approaches accordingly.

Another relevant example comes from Lloyds TSB which is also one of largest financial institutions in UK. In Lloyds TSB, its ERM mainly focus on its framework of environmental risk assessment (ERA). It revolves around three elements: land, process and management

(Coulson, 2001, p.309). For the land, the focus is on whether the site is contaminated or not and whether potential contamination exists and its possibility to cause harm to the site, the watercourses and neighbouring property. For example, key questions to be addressed include whether the potential borrower is from a polluting industrial sector, the history of the land and the business, the borrower's record on environmental issues and proximity of the project to rivers. This can protect the bank from possible direct liability to clean contaminated land, in the instance that the lender needs to take possession of the land as collateral when the borrower fails to repay the loan. For the process and management, the production processes and the management are examined to identify potential pollutants and pollution sources and to evaluate the environmental management of the potential borrowers. For example, is the process environmentally sensitive? Are production activities properly managed? What is the emission level of CO₂, SO₂, NO_x, N₂O or Volatile Organic Compounds (VOCs)? Can it meet the standard or regulation on emission and waste production? Does the potential borrower have environmental management initiative or plan? And does it have management system to fulfil the plan? All of these can prevent the bank from indirect and reputation risks.

2.4 Green financing as offensive strategy for sustainable banking

According to the four-phase theory of sustainable banking, in this section, green financing will be presented as the main strategy in the higher level offensive phase. There is no fixed definition on green financing, which mainly depends on the specific use of funds with respect to environmental issues. Generally speaking, green financing involves fiscal funds, development or commercial banks' funds, and other private sectors funds in the form of governmental subsidies or grants, private investment, bank credit and loans etc., all of which aim to finance and support all activities related to contributing to environmental improvement aspects, such as enterprise's CP or end-of-pipe treatment investment, investing in environmental protection sectors, environmental infrastructure construction with example of water supply project, and renewable energy development projects and other "green" technology etc.⁸ (Jeucken, 2005, personal interview). Due to the study scope of the thesis, green financing will mainly refer to credit financing from commercial banks. In the following analysis, the author hopes to provide some initial reference or suggestion for the development of the environmental financing market in China in near future.

2.4.1 From ERM to green financing

With the detailed introduction of environmental risk management, we can get a clear picture on ERM procedures and practices globally. Despite project financing or general lending, a good ERM system should be a multi-function system that can not only reduce internal credit asset risks as much as possible, but also generate more incentives for financed customers to seek for new ways to develop their business, such as by investing in CP. Consequently, new funding demands from such customers will bring more marketing opportunities for commercial banks. Moreover, such a kind of credit supply chain should be more efficient and "green", which will without question contribute to various stakeholders, such as lending banks, loaned customers, the environment and society. Therefore, a clear link between preventive and offensive banking can be seen more clearly for most commercial banks.

⁸ Here, all of these above activities can be defined as the extensive concept of environmental protection industry. However, from intensive concept perspective, such a industry only refer to the scope including enterprise's CP and end-of-pipe treatment investment, environmental protection sector, such as wastewater treatment plant, waste disposal station etc. (Dong, 2001, p.179)

In other words, efficient internal ERM can be used by commercial banks to ensure their external marketing towards the trend of green financing, which will make commercial banks leap on the phase of offensive banking and further approach the final goal of sustainable banking. However, it should be noted that it is not to say that only ERM is already enough for banks to develop their green marketing strategy. Other conditions also should be included in this phase, such as corporate social responsibility (CSR) as the new business ethics of commercial banks, and strong external guarantee from governments and efficient markets and so forth.

2.4.2 CSR and green financing

Corporate social responsibility (CSR), sometimes also called corporate citizenship, is defined by World Business Council for Sustainable Development (WBCSD) as “the continuing commitment by business to behave ethically and contribute to economic development while improving the quality of life of the workforce and their families as well as of the local community and society at large.” It is comprised of five important priorities: human rights, employee rights, environmental protection, community involvement and supplier relations (WBCSD, 2000, p.10).

All economic organizations achieve their own goal with different business ethics to meet various needs from their stakeholders, such as shareholders, employees, suppliers, customers, governments, financial institutions, NGOs and local community etc. (Hess & Siciliano, 1996, p.11). Facing the changing world, the organizations should go beyond the economic arena to social and environmental areas to participate in more community affairs. Under the direction of CSR as a new business ethic, the economic organizations can develop their environmentally sound products to achieve higher competitive advantage due to better expectations from stakeholders and good reputation from the public.

As commercial banks play a very important role in sustainable development, their product marketing strategies will contribute to the building of a sustainable society (Jeucken, 2005, personal interview). As mentioned by Chairman Leon A. Davis of Westpac Banking Corporation, bankers are conscious of their social responsibility and if they do not expand their view of what constitutes socially responsible behaviour, “they will soon lag behind global best practice for their industry” (Davis, 2001, p.29-30). Therefore, commercial banks should take on their corporate social responsibility seriously, and take social and environmental issues into consideration to “green” their product marketing, aiming at maximising the long-term benefit under contribution of business to the society and environment.

2.4.3 Overview of green financing in a global sense

In this section, specific business of green finance will be introduced from global sense so as to provide relevant background information and examples for later study on green financing in China.

Sustainable development has a commercial dimension for banks’ product development in green financing, such as financing investments in cleaner production, financing renewable energy, financing infrastructure building such as water supply, financing environmental protection sectors, and financing brownfield remediation etc. From the global sense, the trend of green financing from commercial banks is slowly rising but still taking time to improve (Jeucken, 2005, personal interview). After all, the environmental market is quite diverse, and banks need to know which market segments are likely to grow and how resilient that growth will be. As a rule, this market for environmental financing is sometimes very dependent on

government policy requirements and fiscal supports, and therefore somewhat not stable (Jeucken, 2004, p.213).

However, we are also glad to see that some leading commercial banks have been engaged in such environmental areas to develop their so-called sustainable products, such as Rabobank Group, Barclays, Bank of America, Deutsche Bank, Citigroup etc. (Jeucken, 2004, p.214).

Taking Rabobank Group of the Netherlands as an example, Rabobank is committed to providing comprehensive and high-quality "green" services to its clients on the basis of knowledge. This means that the Group seeks to develop products that support the innovative and sustainable operations of companies. In addition to financing green projects (green financing), the sustainable services the Group provides to companies consists of insurance (environmental damage insurance), venture capital (Rabo Innovation Capital Fund), informal investment (Money Meets Ideas) and (project) financing in the water sector and projects in the field of reducing greenhouse gases.

Green financing enables investors to finance green projects less expensively. The advantage is found in the lower interest burden for this form of financing. The interest burden is considerably lower than the standard rates. This advantage can really add up through the years. Rabobank allocates at least 70% of the proceeds of Rabo Green Bonds to providing loans to companies that invest in green projects. This involves projects relating to the forest and nature, sustainable innovations in business processes such as agrification, organic agriculture, sustainable construction, sustainable energy from wind, water, sun and biomass, and other sorts of environmentally friendly investments. Since the first project that was financed with green investment capital in December 1995, the amount of green financing provided by Rabobank Group has risen sharply. At the end of 2003, the total amount of outstanding green loans amounted to € 1.4 billion and Rabobank had financed 1,534 green projects. This means that Rabobank Group accounts for more than half the total number of green-financed projects in the Netherlands (Rabobank Group, 2005).

3 Chinese banking and its external driving forces towards sustainable banking in China

After reviewing the theoretical pathway to sustainable banking and current practices of selected financial institutions globally, from this chapter and the following ones, the appropriate pathway for Chinese banking to achieve sustainability will be explored. First of all, this chapter is designed from the macro research perspective to provide readers with a general and clear picture on the current internal status of Chinese banking as well as the main external driving forces towards sustainable banking in China. All of these will be designed as the general background information contributing to the following case study on financing system of corporate customer in ICBC and the later part of analysis and discussion with Chapter 5 and 6.

3.1 The current internal status of banking in China

At present, banks continue to dominate China's financial landscape as such indirect financing remains the main channel of financing for business companies in China. By the end of 2002, the total assets of the banking sector are 26.4 trillion yuan, representing 85 percent of the total assets of the entire financial sector. Although the role of capital markets has become more significant, the size of these markets remains quite small, with a capitalization of 1 350 billion yuan by end June 2003 (Luo, 2003, p.2).

3.1.1 Banking system

Before the Chinese government started its opening-up policy in 1978, China had been under the planned economy mechanism with a mono-bank system. The People's Bank of China (PBC) had assumed the responsibilities of both central bank and commercial banks by making and implementing the cash and credit plans according to the development plans made by the State Planning Commission (SPC) at that time (Wong Y.C.R. & Wong M.L.S., 2001, p.19). Concerning foreign exchange business, only the Bank of China (BOC) was designated by government to deal with such business (BOC, n.d.). During the period between 1979-1984, the Agriculture Bank of China (ABC), ICBC and China Construction Bank (CCB)⁹ were split from PBC and were respectively responsible for agricultural financial business, industrial and commercial financial business, financial business from infrastructure construction. And then ABC, ICBC, CCB and BOC were together called state-owned specialised banks. Accordingly, PBC became the central bank with responsibility for money policy and banking system supervision.

Since 1985, the Chinese government began reform of the banking system with the cancellation on restrictions of designating business and customers for certain banks, and banks were encouraged to compete each other. After that, various banking institutions were gradually established, including policy banks, joint-stock commercial banks¹⁰, city commercial banks, and urban and rural credit cooperatives, while foreign banking institutions also have been

⁹ At the beginning, CCB was called the People's Construction Bank of China (PCBC) that was changed to be named as China Construction Bank in March 1996. (Hu & Sun, 2004, p.85)

¹⁰ By the end of August 2003, there are totally 11 joint-stock commercial banks which are as follows: Bank of Communications (BOCs), the CITIC Industrial Bank, China Everbright Bank, Hua Xia Bank, China Minsheng Banking Corporation, Guangdong Development Bank, Shenzhen Development Bank, China Merchants Bank, Industrial Bank of China, Shanghai Pudong Development Bank, and Evergrowing Bank Co., Ltd. (Xinhuanet, 2003)

permitted to enter the Chinese financial market after 1990.¹¹ (Hu & Sun, 2004, p.80-101). Among others, when the three policy banks, i.e. China Development Bank (CDB), the Import and Export Bank of China (IEBC) and the Agricultural Development Bank of China (ADBC) were established in 1994, the function of the development bank was taken away from the four state-owned specialised banks accordingly. As a result, they have been converted to real commercial banks from then on, i.e. so-called four state-owned commercial banks (Wong Y.C.R. & Wong M.L.S., 2001, p.20). Additionally, in May 2003, the China Banking Regulatory Commission (CBRC) was set up to strengthen the supervision of Chinese banking industry so that PBC could concentrate on the responsibility for making and implementing monetary policy. In summary, the current banking system in China can be understood more clearly from the summary in Table 3-1 below.

Table 3-1 The current banking system in China

Bank Type	Bank Name	Bank Number (by 2003.9.)
Central bank	People's Bank of China	1
Supervisory body	China Banking Regulatory Commission	1
Policy bank	China Development Bank, Import and Export Bank of China, Agricultural Development Bank of China	3
State-owned commercial bank	ICBC, ABC, CCB and BOC	4
Joint-stock commercial bank	See Footnote 8	11
Urban and rural credit cooperative	No detailed data	35 588
Foreign banking institution	No detailed data	191

Source: Adapted from the description of Chapter 3.1.1.

3.1.2 Banking market situation

As illustrated above, China's banking sector comprises many institutions. These include the People's Bank of China as the central bank, the China Banking Regulatory Commission as the supervisory body, state-owned commercial banks, joint-stock commercial banks, city commercial banks, and credit cooperatives.

To date, the banking market in China is dominated by the four state-owned commercial banks, which accounted for 61 percent of loans in September 2003 (Luo, 2003, p.2). Some academics argue that this is typical of an oligarchic market, which tends to lower the efficiency for allocating financial resources and result in distortions in the system. Further, dominant ownership in the banking sector tends to erode the credibility of the threat of market failure and the effectiveness of the banking supervisory authorities to enforce prudential rules and requirements.

The second tier of the banking market comprises the eleven joint-stock commercial banks with a diversified ownership structure. However, the key shareholders of these banks are local governments and the state-owned or state-controlled enterprises. Their assets represent 13.7 percent of the total banking sector assets in September 2003. These banks have expanded

¹¹ By the end of September 2003, there are totally 112 city commercial banks, 35,588 urban and rural cooperatives, and 191 foreign banking institutions. (Luo, 2003, p.2-3)

rapidly in recent years. For example, in 2001 alone, their assets increased by 24 percent. At present, five joint-stock banks are already listed in local stock exchanges (Luo, 2003, p.2).

The third tier of the banking market consists of those city commercial banks and credit cooperatives. By the end of September 2003, there are 112 city commercial banks, most of which are created by way of restructuring and consolidating urban cooperatives, just such as the Bank of Shanghai. These banks represent 5 percent of the total banking assets. In addition, there are 35,588 urban and rural credit cooperatives, accounting for 10 percent of the total banking assets (Luo, 2003, p.2).

Last but not least, the fourth tier of the banking market comprises foreign banking institutions that play an increasing positive role in the system. By end September 2003, there are 191 licensed foreign banking institutions in China, among which 157 are foreign bank branches, 11 sub-branches, and 15 subsidiaries incorporated locally with 8 branches. Foreign banks represent 0.3 percent in the local currency lending market and around 13 percent in the foreign currency lending market (Luo, 2003, p.3). Although their roles are still rather limited for China's banking market currently, it should be noted that they are developing rapidly and will become strong competitors to Chinese banks in near future due to China's entry into the World Trade Organization (WTO) in 2001.

3.1.3 Current status of credit risk management in Chinese banking

In China, credit risk management of commercial banks has been one important internal function of commercial banks. Each bank has its independent department responsible for such management task, as well management staff involved in such business as customer rating, risk assessment and risk monitoring. After entering the WTO, commercial banks in China have paid more attention to credit risk management and made great efforts to reduce the ratio of non-performing loans (NPLs) in order to achieve the standard of 8 per cent of capital adequacy required under the 1988 Basel Accord¹².

As one significant part of credit risk management, however, environmental risk management has still been the weakness of commercial banks of China. In 1995, the People's Bank of China released the official document named "Announcement on Loan Policy for Environmental Protection", in which PBC stressed that commercial banks should incorporate environmental considerations into their credit business operations. Yet due to lack of sufficient incentives with detailed environmental policy direction and ERM tools, such an announcement seems not to bring more positive effects on performance of ERM in any commercial banks. In most cases, commercial banks in China still track the traditional road to deal with credit risk management, such as only focusing on customer's financial factors without any environmental considerations, and only requiring approval certification of project from environmental protection sectors without advance and future project environmental management. All of these will bring much potential of environmental risk due to lack of sufficient environmental concerns and proactive environmental risk control procedures. With respect to a pathway to sustainable banking in China, ERM is urgently needed as the preventive strategy to prompt this process of sustainability.

¹² According to the 1988 Basel Accord, the minimum capital adequacy should be 8%, which is calculated as the following formula: total capital/total assets by risk-weighted. At present, the capital adequacy of commercial banks in China are still below this standard of 8%. So this standard will be expected to achieve by reducing high-risk assets so as to reduce the total assets by risk-weighted relatively. (Wang, 2004, p.10-14)

Therefore, PBC plans to revise its basic regulation document entitled *The General Rules of Loans*, specific environmental policy and requirements will be added to act as a precondition of any loans from commercial banks. It is expected to bring more mandatory incentives on commercial banks' environmental performance and speed the transition process ahead of what would occur by depending on the market and economic mechanisms alone (Wang, 2005, personal interview).

It is also encouraging to note that some small-scale commercial banks have been paying increasing attention to environmental credit risk management in their daily business operations. An example is the Bank of Shanghai (BOS) which was established in 1995 through an amalgamation of 99 urban credit cooperatives. It has grown rapidly and remains the largest of the city commercial banks in China. Although BOS is still relatively small with 4 500 employees, 45 branches and 198 business offices, it is a full-service commercial bank with business focus most on lending to small and medium-sized enterprises (SMEs) in Shanghai region, and its total assets have been US\$14.7 billion at the end of 2001 (SustainAbility, et al, 2002, p.9). Especially in 1999, IFC invested US\$22 million into BOS as 5% of total capital, and became the first foreign shareholder in Chinese commercial bank. After that, at the help of IFC, BOS's corporate governance has improved dramatically (WBG, 2003). As the first step, BOS signed the financial institution statement of UNEP FI in Lisbon of Portugal on 20 November 2001, by which BOS became the 272th member bank of UNEP FI and also the first Chinese financial institution to sign such a statement (People's Daily, 2001). Afterwards, BOS has put environmental considerations in a very important place. It not only set up a detailed environmental policy and internal assessment system for environmental factors, but also strengthened credit support for the environmental industry, especially for SMEs' environmental financing as its social responsibility, through which further approaching the goal of sustainable banking (Lu, 2005, personal interview)¹³.

3.1.4 Overview of credit business marketing in China

From the marketing history of commercial banks in developed countries, there are generally five phases, including the initial phase in 1950s, the phase of good service in 1960s, the phase of financial innovation in 1970s, the phase of targeted financial service in 1980s, and the phase of modern financial marketing after 1990s (Xie, et al, 2004). According to such development phases, the driving forces behind them are as follows:

1. decline of market share;
2. more drastic competition among banks;
3. slow growth of profit of commercial banks; and
4. ever changing of customers' demand (Zhang, 2005, p.6-7).

To date, marketing has become one necessary function of commercial banks for their external business development and larger market share with more competitive advantages. Just due to this reason, one good marketing method should depend on such four crucial factors as customer's satisfaction, enterprise's profit, efforts from the whole organization, and corporate

¹³ During the author's interview with Mr. Lu Wei as deputy manager of credit risk management dept. of Bank of Shanghai, about environmental risk management and green financing, he only made qualitative and general reply for the author's questions. When referring to specific ERM content, he refused to answer in detail for the sake of commercial confidentiality.

social responsibility (Zhang, 2005, p.4-5). Among others, credit business marketing should place more emphases on the fourth factor, i.e. CSR. As discussed in Chapter 2, the reason is that under direction of CSR as a new business ethic, the economic organizations can develop their environmentally sound products to acquire higher competitive advantages due to better expectations from stakeholders and good reputation from the public. Accordingly commercial banks should take their corporate social responsibility seriously and take social and environmental issues into consideration to “green” their product marketing, aiming at maximising the long-term benefit under contribution of business to the society and environment.

As for credit business marketing in China, most banks only focus on profit factors with a short-term perspective and ignore other factors during business marketing such as customer’s satisfaction and CSR. Such bankers are usually interested in those so-called monopolised industries such as the traditional power industry, telecom industry, automobile industry, and steel and iron industry etc. Besides, those projects are sponsored by local governments as their so-called “political achievement”, which are also put on the main agenda of some commercial banks. On the contrary, some SMEs’ financing demand, such as financing CP investment or R&D for cleaner technology and products, are not met by commercial banks in most cases due to their lower asset scales and supports from local governments (Xu, 2005, personal interview). And as for those environmental protection sectors and renewable energy industries, they also met with much indifference from commercial banks due to their huge capital investment and long term return.

Therefore, on one side, too much funds are distributed to the traditional industries so as to result in over-investment and less fund efficiency, usually with more governmental subsidies and environmental pollution. On the other side, the sustainable projects suffered a lack of development funds, and thus they are more difficult to develop into a mature market with proper price mechanism and enough competitive advantages (Yi, 2005). In a word, the term of unsustainable credit fund distribution can be used as the real reflection of the current status of credit business marketing among Chinese commercial banks.

In summary, in recent years, China has set up a relatively advanced and complete banking system within which commercial banks, in particular the state-owned commercial banks, have also become the main actors for the national economic growth. However, according to the perspective of sustainable banking, it is obvious that the whole Chinese banking is in the transition process from the defensive phase to the preventive one. Although a few small-scale commercial banks, such as BOS, have been leaping toward the preventive phase, most commercial banks, especially the state-owned commercial banks, have not yet achieved this phase due to lack of sufficient environmental awareness and an absence of systematic environmental risk management procedures. So, it is imperative and feasible for Chinese commercial banks to strengthen their ERM currently to achieve the preventive phase.

As for the offensive phase with green financing, commercial banks in China still lag far behind, and the reason is not only lack of sustainable development thinking with CSR as a marketing direction among most managers, but also that external factors seem to be the main aspect not to drive commercial banks into green financing, such as inadequate governmental support, local governmental officials’ political achievement with short-term vision, high capital investment and long-term return with lower profit margin within environmentally related sectors. Thus, it can be estimated that it will take some time for Chinese commercial banks to achieve the offensive phase of sustainable banking with green financing in near future.

3.2 Main external driving forces for strengthening ERM currently towards sustainable banking

After reviewing the current internal situation of Chinese banking in section 3.1, in this section and the following section 3.3, the author attempts to have an external look at the main external driving forces urging Chinese commercial banks to strengthen their environmental risk management currently and implement green financing in near future.

As mentioned in Chapter 2, commercial banks have very close financial relationship with the industrial enterprises, and thus a bad environmental performance of industrial enterprises will not only bring financial, legal and reputation risks to the industries, but also forward such risks to their financing banks accordingly. Moreover, if we take a closer look at such a relationship between industrial enterprises and their financing banks, we can see that those so-called legal and reputation risks will eventually also be transferred into increased costs or decreased market shares, i.e. financial risks. Therefore generally speaking, cost minimisation or profit maximisation finally realized in industrial supply-demand activities can be used to avoid such financial risks to industrial enterprises, as well as their financing banks. In other words, it should be the core indicator of the industrial enterprise's viability, which is also the main guarantee for the safety of credit assets from commercial banks and the focus area of credit risk management thereof.

Under the trend of sustainable development, the traditional industrial supply-demand activities have become more complex and gone beyond the simple model with industrial enterprises as supply side and customers or consumers as demand side. Instead, more actors or factors with various environmental concerns have been involved in such a model so as to affect the cost efficiency and viability of industrial enterprises as well as the safety of credit assets from commercial banks. Just take several examples:

1. As for industrial enterprises themselves, increased industrial pollution will not only reduce the cost efficiency due to more energy, water or raw material consumption, but also have to risk to pay higher and higher emission charges in the future so as to increase the total cost;
2. As for the government, on one side it can be regarded as one important actor on the supply side because green tax or charge will distribute more environmental degradation cost into those industrial enterprises with more environmental pollution so as to increase their cost burden with loss of business benefit. But at the same time governmental subsidies and tax credit to CP or renewable energy businesses will reduce their total cost so as to increase their market competitive capacity with preferable price advantages and business benefit. On the other side the government also acts as one increasingly significant actor on the demand side due to its function of huge and greener governmental procurement;
3. More and more NGOs have produced more green consumption effect to shift the trend of demand and consumption in the society, at the same time increasing environmental awareness among the public has also push greatly the establishment of green product market. All of these will lead to more and more demand for environmentally sound products from the industrial enterprises with good environmental performance;
4. Under the background of economic globalisation and Chinese entry into the WTO, exporting enterprises have to pay more attention to their environmental performance as the supply side for the world market due to the global demand for green trade and economy.

Therefore, in order to make the readers have a clear picture on the main external driving forces towards sustainable banking in China, the author attempts to make an in-depth research from the perspective of both supply and domestic and global demand sides of industrial supply-demand activities respectively, by which we can see that what various actors or factors with different environmental performance or concerns are challenging the industrial enterprises' viability as well as relevant commercial banks' credit asset quality. Accordingly, Table 3-2 below just initially illustrates main driving forces for strengthening ERM currently towards sustainable banking from such various actors or factors of industrial supply-demand activities, which will contribute to the following research in detail.

Table 3-2 Main external driving forces for strengthening ERM

Industrial Supply-demand Activities	Domestic Driver	Global Driver
Supply Side	1. Industrial enterprises: increased industrial environmental pollution and insufficient environmental management bring the potential credit risks to relevant commercial banks (see section 3.2.1) 2. The government: more stringent environmental regulations (see section 3.2.2)	1. Exporting enterprises: financial loss from green non-tariff wall due to lack of qualified green products with CP approach or ISO 14001 certification (see section 3.2.4)
Demand Side	1. The government: huge public "green" procurement (see section 3.2.2) 2. NGOs and the public: positive response with more environmental concerns (see section 3.2.3)	1. The global demand for green trade and economy under economic globalisation after China's acceding to WTO (see section 3.2.4)

Source: Generalised from the following research in detail

3.2.1 Increased industrial environmental pollution and insufficient environmental management

As the main backbone for economic growth of economy in China, industrial enterprises have played the most important role for ever increasing GDP in China. However, increased industrial pollution and insufficient environmental management have been much serious and stern challenge to operations of enterprises so as to bring potential risks to credits of commercial banks.

3.2.1.1 Increased environmental pollution in industrial sectors

Table 3-3 below just lists the specific pollutant data respectively from industrial waste water, industrial waste gas from air emission and industrial solid waste during the period from 1998 to 2004.¹⁴ (see Table 3-3).

¹⁴ Please note that due to availability of data, these data included in Table 3-2 respectively comes from : 1. the data during 1998-2002 from China Statistical Yearbook 2003 composed by the State Statistics Bureau of China (SSBC); 2. the data during 2003-2004 from the reports on the state of the environment in China 2003 and 2004 composed by the State Environmental Protection Bureau of China (SEPBC).

Table 3-3 Pollutant emission from industry in China¹⁵

Pollutant Items (100 million)	1998	1999	2000	2001	2002	2003	2004
Industrial Waste water (tons)	200	197	194	203	207	212.4	221.1
Industrial Waste Gas (cu. M)	121 203	126 807	138 145	160 863	175 257	N/A	N/A
Industrial Solid Wastes (tons)	8.0068	7.8442	8.1608	8.8746	9.4509	10	12

Source: SSBC, 2003 and SEPBC, 2003&2004

From this table, we can learn about: 1. these specific pollutant data are all absolutely huge; 2. the amount of each pollutant indicator has been increasing year to year. All of these just imply that Chinese industrial enterprises are facing the significant challenge and threats from such industrial pollution sources due to lack of insufficient environmental management within them.

3.2.1.2 Insufficient environmental management in industrial enterprises

As it is difficult to describe generally the current situation of environmental management in Chinese industrial enterprises, here the author has to refer to one research once conducted in 2002 by environmental practitioners Ulrich Steger, Fang Zhaoben, and Lu Wei (Steger, et al, 2003). This research was carried out by them to study how Chinese business managers assess the current state of environmental management in their companies and other relevant issues, such as environmental awareness, national environmental legislation, and environmental stakeholders.

During this research, 480 questionnaires were distributed and 361 returned. The investigated sample involved various industrial sectors with different ownerships situated in 22 provinces and municipalities that accounts for 68.75 per cent of the number of provinces and municipalities in China. Besides the questionnaires, interviews were undertaken in this research (Steger, et al, 2003, p.31).

The results found that 41 of 94 interviewees had no criticism and suggestions on the environmental protection in China, attaching only minor importance to it; and the interview also reflected the managers' insufficient understanding of the comprehensive rationale behind the notion of environmental protection and the possible contribution to the bottom line (Steger, et al, 2003, p.25).

The interviews showed that that the main drivers for improving company-specific environmental performance are corporate image, employee's health and competitiveness. This can be confirmed by the fact that only one third of the interviewees had environmental expenses budgeted and the investments of those companies with environmental budget were reported as insufficient to result in actual performance. The environmental protection was not fully integrated into their business practices (Steger, et al, 2003, p.25-27).

¹⁵ As the data of industrial waste gas in SEPBC's report is statisticed by mass standard that is different from the volume standard adopted in SSBC's report, the data of industrial waste gas in both 2003 and 2004 are only represented as "N/A".

For environmental management standards, only 16 percent of the companies took higher environmental standards as an opportunity for innovation; 17 percent took it as an opportunity for modernization of the economy; 19 percent took it as the price pay for growth; and 2 percent took it as a new market. Still, there is a large proportion of them seeing it as a threat, such as it may cause a slowdown in growth; it may be a waste of investment that will affect competitiveness, etc (Steger, et al, 2003, p.55-45). Only 5 percent of the companies had already been certified by the ISO 14001 environmental management system (EMS) by then; 19 percent of them were in the process of being certified and 41 percent of them were to be certified in two years. There were still one third of them that was not familiar with it or which saw it to be unnecessary or were not intending to be certified (Steger, et al, 2003, p.46).

As to the measures of environmental protection, only 7 percent of the companies chose integrated pollution prevention measures, 4 percent chose recycling and reusing and another 4 percent chose substitution of hazardous materials. However, the remaining 85 percent still only relied on end-of-pipe technologies, other than pollution prevention or closed-loop systems (Steger, et al, 2003, p.46).

The final report of this research listed some reasons for those above-mentioned problems, with companies' financial constraints and a lack of capacity building (such as EMS support, technology-related information, training and education etc.) being the main barriers (Steger, et al, 2003, p.47).

All of these just imply that the top management of enterprises in China should have a good understanding of the notion of sustainable development and the rationale behind. The awareness of the adverse environmental impact of their production activities should be raised and mindsets should change. The top management of the enterprises in China should acknowledge the benefits of CP investments. Environmental legislation and its enforcement should be enhanced. The governments, both central and local, should take their responsibilities to lead the enterprises towards "greening" their business, and encourage all relevant actors, such as financial institutions and advisory service institutions, to use their power to influence the business in the environmental aspect, by aid of legislation, education, financial and fiscal policies and so on..

3.2.1.3 Potential credit risks from poorly environmental performance of enterprises

Facing insufficient environmental management, most enterprises claim that profits are far more important than environmental concerns. Therefore entrepreneurs seldom pay attention to these issues. However, with the publication of further environment-related regulations, some of them are punished and suffer from their unsustainable behaviour. Here are some examples in 2004: (Guo, et al, n.d. p.4)

1. Sichuan Chemistry Co. Ltd., a fertilizer plant, let out a great amount of polluted water to the river which is the local drinking source. The company was fined 1 000 000 Chinese Yuan and lost 56 000 000 Chinese Yuan completely in March 2004.
2. Wanke Real Estate Co. Ltd. invested an apartment near to a landfill site and was blamed by customers. After failure to negotiate with the landfill manager, in June 2004, Wanke had to donate 1 000 000 Chinese Yuan to the landfill to prevent the smell temporarily.

3. In July 2004, environment officials in Beijing put 28 companies on the blacklist and warned that if they fail to meet pollution reduction deadlines, they will be banned from raising stock market capital for three years. Although these companies improved their environmental performance, they still suffered from the loss of stock depreciation due to other investors' negative perceptions of potential economic risks to the company from bad environmental performance.

Needless to say, companies above mostly have close connections with financial sectors, particularly commercial banks. Therefore commercial banks cannot avoid impacts from environmental accidents. Such outcomes can be shown in the case of the Agricultural Bank of China. In early 1990s, small and medium enterprises (SMEs) made very good economic performances and contributed much to economic growth particularly in rural areas in China so that they were promoted greatly by the governments. The Agricultural Bank of China saw opportunities and loaned a great amount of money to those enterprises. However, pollution from SMEs, like paper mills, were very serious and degraded the environment critically. As a result, by mid 1990's, the government forced closure of most of them. Consequently the Agricultural Bank of China suffered considerable losses in this campaign (Guo, et al, n.d. p.5). Although cases such as those mentioned above should have raised awareness of bankers on environmental risk control there remains as yet no integration into risk management systems.

3.2.2 More stringent governmental environmental regulations and huge public green procurement

Since the mid 1980s, the Chinese government started its policy making on environmental protection as they have recognized the significant adverse impacts of environmental issues (Zhang, 1999, p.10). With the establishment of the Polluter Pay Principle in environmental policy, multi-approaches have been used by the government, such as command and control approach with discharge permission, economic approaches with discharge charges and emission trading, as well as the ongoing innovation for green taxes and other instruments.

Accordingly, specific environmental laws have also been drafted and promulgated by which an environmental legal framework has been created (A Great Wall of Waste, 2004, p.56). Among others, the significant environmental laws are the Environmental Protection Law, the Law of Air Pollution Prevention, the Law of Water Pollution Prevention, the Law on Prevention of Solid Waste Pollution, the Marine Environment Protection Law, the Law of Acoustic Pollution Prevention. According to these laws, 361 national environmental protection standards have been established, including 11 environmental quality standards, 79 pollutant discharge standards and other standards on monitoring, sampling and basic standards (Zhang, 1999, p.10-11).

Over the years of the past decade, the government has further established more stringent and preventive regulations on enterprises and commercial banks, aiming to reduce negative environmental impacts while upgrading environmental performance of such economic organizations. Table 3-4 below includes the related official documents released by national government in recent years. And as for the environmental response from the government, we can draw the conclusion that government is now taking more stringent environmental policies for environmental protection (Guo, et al, n.d., p.3-4). **First**, the government released two financial announcements named *Announcement by People's Bank of China on loan policy for environmental protection* (Feb 6, 1995) and *Announcement by State Environmental Protection Administration on making use of preferential loan policy for environmental protection* (Feb 14, 1995), aimed to call on commercial banks to raise environmental awareness and take active part in environmental protection. **Second**, the government implemented the policy on *Environmental*

Impact Assessment (2002) to prevent pollutants from producing. Without the license issued by the State Environmental Protection Bureau of China (SEPBC), a project cannot be started. **Third**, the government increased the environmental default cost of enterprises. On one hand, enterprises have to take the responsibility of Polluter Pay Principle (PPP); on the other hand, bad enterprises will be put on the blacklist and open to the public. **Last**, companies with disrepute might be denied to access the financial market for certain time. Recently, the government of Beijing City announced that those companies that cannot meet the deadline of pollutant control would be denied to raise money from the stock market for three years.

Table 3-4 Related Official Documents by National Government¹⁶

Date	Title of the documents	Department
1995	Announcement on Loan Policy for Environmental Protection	PBC*
1995	Announcement on Making Use of Preferential Loan Policy for Environmental Protection	SEPBC**
2001	Announcement on Environmental Auditing for Listed Company	SEPBC
2002	Environmental Impact Assessment Act	SCNPC***
2003	Announcement on Further Environmental Auditing for Company to be Listed or Refinancing from the Stock Market	SEPBC
2003	Suggestion on Environmental Information Transparency of Listed Company	SEPBC

Source: Adapted respectively from Guo, et al, n.d. p.4 and SCNPC, 2005.

Although the National Eleven Five-Year has not yet been established and promulgated so far, we can still get such a clear trend on the environmental policy of the government in China just based on the above study. That is to say that in the upcoming five or ten years, environmental policy with legislation and relevant enforcement will be further enhanced, and made more stringent with higher environmental standards and requirements. The traditional environmental treatment with end-of-pipe approach will undoubtedly be substituted by CP approach with the principle of prevention and pollution control eventually. Accordingly, the eco-industrial enterprises will be realising greater competitive advantage due to their good environmental performance and higher customer satisfaction. But, those industrial enterprises with huge environmental pollution will be losing their market share and even suffer the strict environmental punishment from the government.

Besides the more stringent environmental policies from the government, public green procurement, as one main part of green consumption, has also become one useful economic approach for the government to improve environmental protection in recent years. Due to the huge purchasing amount from public procurement, the government should be the largest demand unit, and has been considering how to incorporate environmental concerns into its daily procurement activities, such as public infrastructure projects and business necessities of public sectors. For example, on 29 June 2002, the Standing Committee of National People’s Congress of China promulgated *The Government Procurement Law of the People’s Republic of China*, in which the ninth item of Article 1 stipulates that government procurement should be helpful for achieving the policy goal of economic growth and social development, including environmental protection, supporting the poverty and minority areas, improving SMEs’

¹⁶ In this table, *People’s Bank of China; **State Environmental Protection Bureau of China; ***Standing Committee of National People’s Congress.

development (People's Net, 2002). Based on this legal support, the principle of energy saving has also further been utilized by the government, and in 2004 both the Ministry of Finance of China and State Development Planning Commission of China (SDPCC) promulgated "Implementing Suggestion on Governmental Procurement in Energy Saving Products" in which the tool of "green purchasing list" was utilized accordingly (Xu, 2005).

3.2.3 Positive environmental response from NGOs and the public

Non-governmental organizations (NGOs) grew rapidly in China in 1990s among which environmental NGOs are the majorities. According to China Society for Promoting Environmental Culture (CSPEC), there are around 2 000 NGOs working on sustainable development by 2004, including 157 student NGOs which cover 3 000 000 college students (Guo, et al, n.d. p.5).

Compared to developed countries, although environmental oriented NGOs are still limited on scale, they are beginning to provide Chinese society with a vehicle for expressing environmental concerns and for effecting change. These activities are directed towards environmental education and community development work. Here, some famous NGOs are listed for the general introduction as follows: Friends of Nature (FON), Global-Village Environmental Culture Institute of Beijing (Global Village), Green Earth Volunteers (GEV) etc. (SEI & UNDP, 2002, p.88-89).

At the same time, in recent years, public awareness on environmental protection as well as sustainable development in China has dramatically increased. There are several reasons for this including media and education helping people be more knowledgeable on environmental protection, people suffering from the environmental degradation physically, people becoming wealthier and requiring a better living condition and more greener products and services. As a result, people become more concerned with environmental and sustainable issues.

3.2.4 More environmental challenges from economic globalisation

Economic globalisation and China's opening up means that China is increasingly interacting with its neighbours and the rest of the world. All of these economic, political and scientific interactions are happening at all levels and play important roles in pushing environmental and societal change in China. Vice versa, with China is increasingly integrated with the rest of the world, and with its economic activities growing steadily, China is rapidly becoming one of the most important players on the global environmental scene.

China's entry into the WTO is anticipated to have a significant impact on Chinese society as well as impact on the environment positively and negatively. By opening China to international trade in a number of areas, the WTO entry is likely to generate greater competition within China's domestic markets. In general, international competition may decrease domestic production of commodities that intensively use China's scarce resources, while production of commodities using abundant resources may expand. This may cause China to import more resource-intensive products, such as water-intensive agricultural products, pulp and paper, petroleum and natural gas, and shift domestic production towards more labour-intensive products such as aquaculture, livestock, vegetables and fruits, textiles, and toys. Given outdated technology, low productivity, and inefficiency in much of China's manufacturing industry, items such as autos, chemicals, and machinery are likely to be either imported or manufactured by multinationals in China (SEI & UNDP, 2002, p.63).

On the positive side, increasing imports of water and land-intensive agricultural products, such as grains, cotton, edible oil, and sugar, may lead to a reduction of water-intensive agriculture

and also have positive effects on agricultural pollution. Increased import of pulp and paper products would reduce the severe environmental problems caused by the highly polluting and inefficient domestic pulp and paper industry. This would also reduce pressure on scarce and expensive domestic pulpwood, and make possible alternative use of agricultural residuals, presently used for straw pulp. Moreover, reduction of industrial pollution is anticipated when outdated manufacturing is substituted by either imports or establishment of modern production units.

On the negative side, increasing production of labour-intensive goods, such as textiles, vegetables and fruits, livestock and aquatics, could become sources of new environmental problems. There is also likely to be an increase in diffuse sources of pollution associated with the livestock industry, e.g. annual growth rates from 2000 to 2005 for pork and fish production are forecasted to be 3.4 and 5.9 percent respectively (Chen & Huang, 1999). Vegetable and fruit plantations use chemical fertiliser and pesticides intensively, and there is considerable risk that soil pollution may rise significantly.

The aim of WTO is to establish international competition globally under equal conditions. To be competitive, Chinese industry will have to become more efficient, which at least in the long run may lead to improved utilisation of resources, conservation, and the import of cleaner, efficient technology, such as projects under Clean Development Mechanism (CDM) introduced in the Kyoto Protocol. At the same time, competition will increase pressure to cut production costs, and in the short term can lead to an increase in pollution discharges and greater exploitation of natural resources. However, as WTO obligations promote greater public participation in standards setting and clear and effective notice of environmental standards, as well as the strengthening of these standards particularly in developing countries (Ferris, et al, 2000), this could well prove to play an important role in reforming environmental governance structure. Also, as WTO accession should increase contacts between China and the international community at all levels, this could lead to increasing the inflow of ideas and information across China's borders, also with possible impacts on society and the environment.

However, we should also clearly see that the demand for green trade and economy under economic globalisation has already become one very significant affecting factor for international market and trade. Examples include green products, production process and services produced using CP approaches or under ISO 14001 environmental management system and certification, eco-labelling, and the principle of Extended Producer Responsibility (EPR) etc. All of these not only reflect the global demand for green trade and economy under economic globalisation but also have become the new and main form of non-tariff barriers to trade in place of traditional tariffs by every government currently and in the future. Accordingly, with China's acceding to WTO, these environmental requirements on international trade have also become the new challenges to Chinese industrial enterprises operating in international markets.

In the years of the past decade, China has been implementing an export-oriented economic policy with more focus on export trade. Thus, the relevant environmental challenges from economic globalisation are mainly imposed on exporting enterprises, such as the textile industry, foodstuff processing industry, and the electrical and electronic equipment (EEE) sector etc. Once those exporting enterprises export their products that cannot meet the environmental requirements from the host countries as importing ones, they will undoubtedly suffer the financial loss and lose their international competitive advantage and even international reputation. Accordingly, as the main funding supporters of those exporting

enterprises, commercial banks will also expose their credit assets to such environmental risks to potential or real financial losses.

3.3 Main external driving forces for implementing green financing in near future towards sustainable banking

Although there are many internal and external barriers for Chinese commercial banks to finance the environmental market currently as mentioned in section 3.1, there are still some external factors acting as driving forces for to implement green financing in the near future towards sustainable banking.

Just based on the author’s initial macro research, the main external driving forces are as follows:

1. As for environmental market itself currently, inadequate financing and investment for environmental improvement will lead to the potential huge funding gap and demand for commercial banks to engage in it due to more drastic market competition among commercial banks. This is derived from the establishment of the buyer’s market in financial realm in China, which will drive commercial banks to develop new market and financial products to retain competitive advantage. These can include financing environmental markets under the direction of CSR as the new business ethic.
2. As for the key stakeholder and regulator of environmental market in China, the government will also adopt more proactive ways to motivate commercial banks to implement green financing in the near future through more policy and financial support.

3.3.1 Inadequate financing and investment for environmental improvement

Facing the serious environmental situation in China, since 1990s the government has begun to pay more attention to environmental investment and improvement. Table 3-5 lists data about investments by the environmental protection industry¹⁷. Between 1998 and 2003, with the exception of 1999 for which data are unavailable, investments were made with the aim of improving pollution control in China. From this table, it can be seen that over this period the investment in pollution control has increased year to year.

Table 3-5 Investment in pollutant control

Year	Investment (Billion Chinese Yuan)	Yearly Increase	Per. of GDP
1998	72.18	43.7	0.88%
2000	106.07	28.8%	1.10%
2001	110.66	4.3%	1.15%
2002	136.34	23.2%	1.33%
2003	162.73	19.4%	1.39%

Source: Guo, et al, n.d. p.3

¹⁷ Here, the scope of environmental protection industry only refers to its intensive concept as mentioned in Footnote 7 in p.21.

At present, however, the financing and investment for environmental improvements are still inadequate, and can not meet the current social demand (Zhang, 2005, personal interview). During the period of the National Ninth Five-Year Plan (1996-2000), the input of funds for environmental improvement was still below the planned level of 450 billion Chinese yuan, and the funding gap was 90 billion Chinese yuan. During the period of the National Tenth Five-Year Plan (2001-2005), it is estimated that the potential funding gap will be still very huge compared to the planned fund demand of 700 billion Chinese yuan. Just take projects of wastewater treatment for example. The projects' funding gap is likely to reach 40 billion Chinese yuan in comparison with the planned investment of 270 billion Chinese yuan. In addition, during the National Eleventh Five-Year Plan (2006-2010), the funding demand for environmental improvement will be around 900 billion Chinese yuan accounting for 1.1% ~ 1.3% of GDP at that time. This means that there will be far more challenges for current financing mechanisms for environmental improvement (CWEFM, 2004, p.2).

Currently, the problem of inadequate environmental financing is mainly reflected in the following aspects:

1. Serious financing gaps exist in environmental protection sectors, especially in urban areas. Up to the end of 2001 there were more than 10 000 companies operating business in environmental protection sector, such as wastewater treatment plants, municipal waste disposal stations etc., with more than 1.8 million employees thereof (YICC, n.d.). However, with the rapid expansion of urbanisation in the past decade years¹⁸, there has been a corresponding rapid increase in the production of city wastewater and municipal waste. Only in 2002, urban wastewater discharge was 23.22 billion tons, and municipal waste production also reached 0.136 billion tons. However, the relevant construction for such infrastructure was at a low level, and funding input has lagged behind greatly. By the end of 2001, the treatment rate of urban wastewater was only 36.4%, and the disposal rate of municipal waste was also only 58.2%. Additionally, during the National Eleventh Five-Year Plan, the investment demand in these two sectors is expected to be around 170 billion Chinese yuan. Yet, according to the current financing mechanism, this financing target will be difficult to meet (CWEFM, 2004, p.2-3).
2. Small and medium enterprises (SMEs) have difficulties in financing investments in CP and end-of-pipe treatment technologies. In China, SMEs account for 99% of the number of Chinese enterprises, and play a very significant role for Chinese economic growth. Roughly speaking, the production output from SMEs contributes to 50.5% of GDP, 43.2% of tax income, and 75% of enterprise employees in China. But on the other side, SMEs are also one of main sources for industrial pollution in China.

The pollutant emission from SMEs has already accounted for some 50% of the total emissions of the entirety of Chinese industry in recent years (CWEFM, 2004, p.3). Therefore, pollutant control, such as CP and end-of-pipe treatment, has become an imperative strategy for SMEs. However, most SMEs do not have access to adequate financial funding to support their pollution control due to the reality of the relatively weak financial capacity of SMEs. Therefore, seeking external finance resources is one important alternative for SMEs' environmental improvement. But to date, most SMEs are still facing difficulties to acquire adequate funding support from external sources due to the several reasons. These include a general focus on large enterprises by the Chinese authorities concerning pollution control which results in SMEs having less access to national

¹⁸ Currently the urbanisation rate is 37%, and this rate is estabnated to reach 46% and 55% respectively in 2010 and 2020. (CWEFM, 2004, p.2)

environmental funds and fiscal subsidies from local governments. Also, different from traditional credit businesses, environmental projects in SMEs have relatively higher financing costs and credit risks in the short run so as to be more difficult to acquire credit funds from commercial banks (Zhang, 2005, personal interview).

3. From the extensive concept of the environmental industry, energy sectors are undoubtedly very significant for environmental improvement as they have multi-functions for sustainable development, such as economic growth, environmental improvement and social well-being development. Thus, energy strategy has been one important strategy implemented by the Chinese government in China's "Agenda 21". Among others, renewable energy development strategy is one very significant factor for China's future energy development, such as hydro, wind, solar and biomass etc. (WGEST, n.d., p.14).

In 1999, the State Development Planning Commission of China (SDPCC) and Ministry of Science and Technology of China (MOSTC) promulgated Decree #44, "Decree on some issues of how to sustain the development of new and renewable energy (N&RE)". It stressed that N&RE projects should have priority access to capital construction loans. Initially the loans would be mainly from the state development bank, but the decree encourages commercial banks to join actively. For large and medium-sized N&RE power generation projects (scale greater than 3 MW), the SDPCC will help the developer to secure loan guarantees; power generating projects approved by commercial banks can get a 2% interest subsidy.

Central projects should get interest subsidies from central government and locally from local government (Li, et al, n.d., p.124). However, to date, the input from governments are still not enough to bring more incentives to commercial banks to finance the N&RE market. Reasons include a lack of necessary tax credits, fiscal subsidies and guarantees in financial budgets. Most local governments still focus more on conventional energy market due to its short-term return. Hence, such government-oriented activities can be said to make commercial banks distribute their credit funds to conventional energy markets. On the other side, top managers in commercial banks also keep pace with local government officials and lack CSR and sustainable marketing vision for N&RE markets.

Based on the above, it can be said that the environmental market currently, inadequate financing and investment for environmental improvement will lead to a potentially huge funding gap. There will be demand for commercial banks to engage in financing environmental improvement due to more drastic market competition among commercial banks arising from a buyer's market in financial realm in China. This will drive commercial banks to develop new market and financial products to retain competitive advantage, such as financing environmental market under the direction of CSR as a new business ethic.

3.3.2 More proactive environmental response from the government

Although there is huge funding gap in environmental financing, the general attitude and response of the government is still more and more proactive, and more proactive methods to motivate commercial banks to implement green financing in the near future through more policy and financial support will be adopted. Just some examples:

1. As mentioned in section 3.2.2, the government released two financial announcements entitled *Announcement by People's Bank of China on loan policy for environmental protection* (Feb 6, 1995) and *Announcement by State Environmental Protection Administration on making use of preferential loan policy for environmental protection* (Feb 14, 1995). As for these two official

announcements, they not only call on commercial banks to raise environmental awareness and take an active part in environmental protection, but also provide the strong governmental willing and general credit guarantee for environmental financing and improvement to commercial banks in China.

2. *The Cleaner Production Promotion Act* was produced by the government in 2003 to call on industrial enterprises to implement cleaner production for environmental improvement. As recent as February 2005, the Standing Committee of National People's Congress (SCNPC) promulgated *The Renewable Energy Law* which is planned to be enforced on 1 January 2006. Government through this law further calls for significant development of the renewable energy market in the near future depending and provides more support channels. These include fiscal support with tax credits and subsidies, technical support, protective price management and burden sharing, as well as requirements on financial institutions for providing preferable financing with governmental subsidy (SCNPC, 2005).

In summary, China has established a comparatively modern and advanced banking system. Commercial banks as the main pillar of the system are playing very important roles in economic growth and social development. In terms of sustainable banking, however, commercial banks in China are facing a series of internal and external limitations for their sustainable development, and at the same time they are also facing external driving forces to speed up the steps for developing towards sustainability. Therefore, Chinese commercial banks have to seriously take account of their industrial customers' environmental performance and their own green financing business for the sake of reducing credit risk and improving banking development. It should therefore be imperative for them to seek for the appropriate pathway to sustainable banking.

4 Case study: financing system of corporate customer in ICBC

In order to seek an appropriate pathway to sustainable banking in China, from the micro research perspective in this chapter, ICBC is chosen as the focus area of research in the thesis. Here ICBC's financing system for corporate customers is explored as a case study that is intended to provide readers with an in depth understanding of the environmental performance in the bank. Here the first research question of the thesis is addressed, i.e. *how should the current financing system of corporate customer in ICBC deal with issues related to environmental risks and financing at present?*

4.1 Overview of ICBC's current situation

As one of the state-owned commercial banks in China, the Industrial and Commercial Bank of China was formed on January 1, 1984. With around 20 years' development, ICBC has already become the largest commercial bank in China. As of the end of 2003, its total assets amounted to RMB 5 279.1 billion, which was equivalent to 19% of total assets of all financial institutions within the Chinese banking industry, and maintained the largest market share in all major commercial banking business areas of China. ICBC provides millions of corporate customers and more than 100 million individuals with banking services through its 24 129 domestic outlets, 70 overseas institutions, 1 023 correspondent banks worldwide and leading information technology and electronic network (ICBC, 2004, p.2). In 2003, the "Bankers" in UK ranked ICBC the 16th among the top 1000 international banks, and "Fortune" in USA rated it within the "Global Top 500" as well (ICBC, n.d.).

To date, ICBC has evolved to become an increasingly internationalized financial institution, and awarded by economic organizations or media, such as in 2003 respectively named as " Best Bank of China" by EUROMONEY UK and Global Finance USA, " Best Local Commercial Bank of China" by Asia Money HK, "Best Multi-lateral Relationship Bank in Asia" by EMERGING MARKETS UK etc. (ICBC, 2004, p.26).

4.2 ICBC's corporate financing business and its financing system of corporate customer

ICBC always views corporate customers as its core customers and strives to continually improve in terms of customer satisfaction, financial product innovation and comprehensive financial services.

At 2003, ICBC's outstanding corporate financing stood at RMB 2 985.4 billion, up by RMB 286.1 billion over the previous year, accounting for 73.2% of total financing growth. By comparison 26.8% of the total financing growth belonged to personal consumer loans. Among others, working capital loans increased by RMB 75.2 billion, accounting for 19.2% of the total financing growth, and among the working capital loan increase, RMB 61.8 billion or 15.8% of the total new financing was related to bills financing. Project loans went up by RMB 174.8 billion, representing 44.7% of the total financing growth. Loans extended to real estate companies increased RMB 32.4 billion or 8.3% of the total financing growth. Other types of loans increased by RMB 3.7 billion representing 1% of the total financing growth (see Figure 4-1 next page) (ICBC, 2004, p.14)

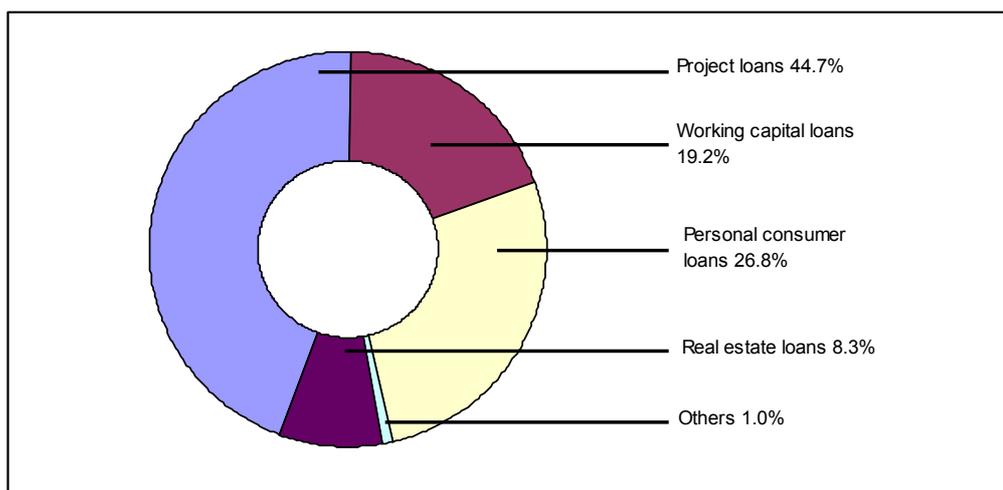


Figure 4-1 Financing growth distribution of ICBC's customers at end of 2003

Source: ICBC, 2004, p.14

To date, according to rapid development of the corporate financing business, ICBC has established a comparatively complete financing system for corporate customers (see Figure 4-2 next page). In principle, this system adopts vertical model of corporate governance from the head office to different tiers of branches.¹⁹

According to the functions of each department, this system is divided into the two sub-systems of an internal control system (credit risk management system-CRMS) and an external marketing system (business development system-BDS). At the head office level, the Credit Policy Committee (CPC), as the top management department, is responsible for controlling the two sub-systems. This includes taking responsibility for the establishment of credit policy and providing general direction on credit risk management and business development (ICBC, 2004, p.31). Under the Credit Policy Committee, the Credit Management Department (CMD) and the Corporate Banking Department (CBD) are two functional departments with respective responsibility for day-to-day operations of the credit risk management system and the business development system.

At the head office level, all tiers of branches are simultaneously included into these two sub-systems. At the levels of from tier-one branches to tier-two branches, there are independent sub-departments respectively responsible for credit risk management and business marketing, i.e. Credit Management Sub-departments and Corporate Banking Sub-departments. At the level of sub-branches, however, there is only one function unit named Corporate Banking Section, which is responsible for both internal credit risk management and external business marketing simultaneously. In words, despite credit risk management or business marketing, all of these branches are respectively responsible for various functions according to their different levels of authorization, generally including the whole process as business acceptance, review, submitting to the superior branch, approval or reject, and post-business management.

¹⁹ Here, tier-one branches mean those provincial and municipal branches; tier-two branches refer to those branches at city level; sub-branches are set up as the basic branch for corporate business, all of which are distributed at levels of district or county in each city of China. (ICBC, 2004, p.50-51)

However, both the sub-systems are not absolutely separate but very interdependent and cooperative. On one side, the growth of corporate business will provide more challenges and incentives to internal risk management which will improve performance.; On the other side, a high quality CRMS will also not only provide promising customers and markets for BDS to develop business with higher customer quality and less potential internal credit risks, but also bring more new market opportunities, such as CP investment through positive indirect effects on corporate customer behaviour.

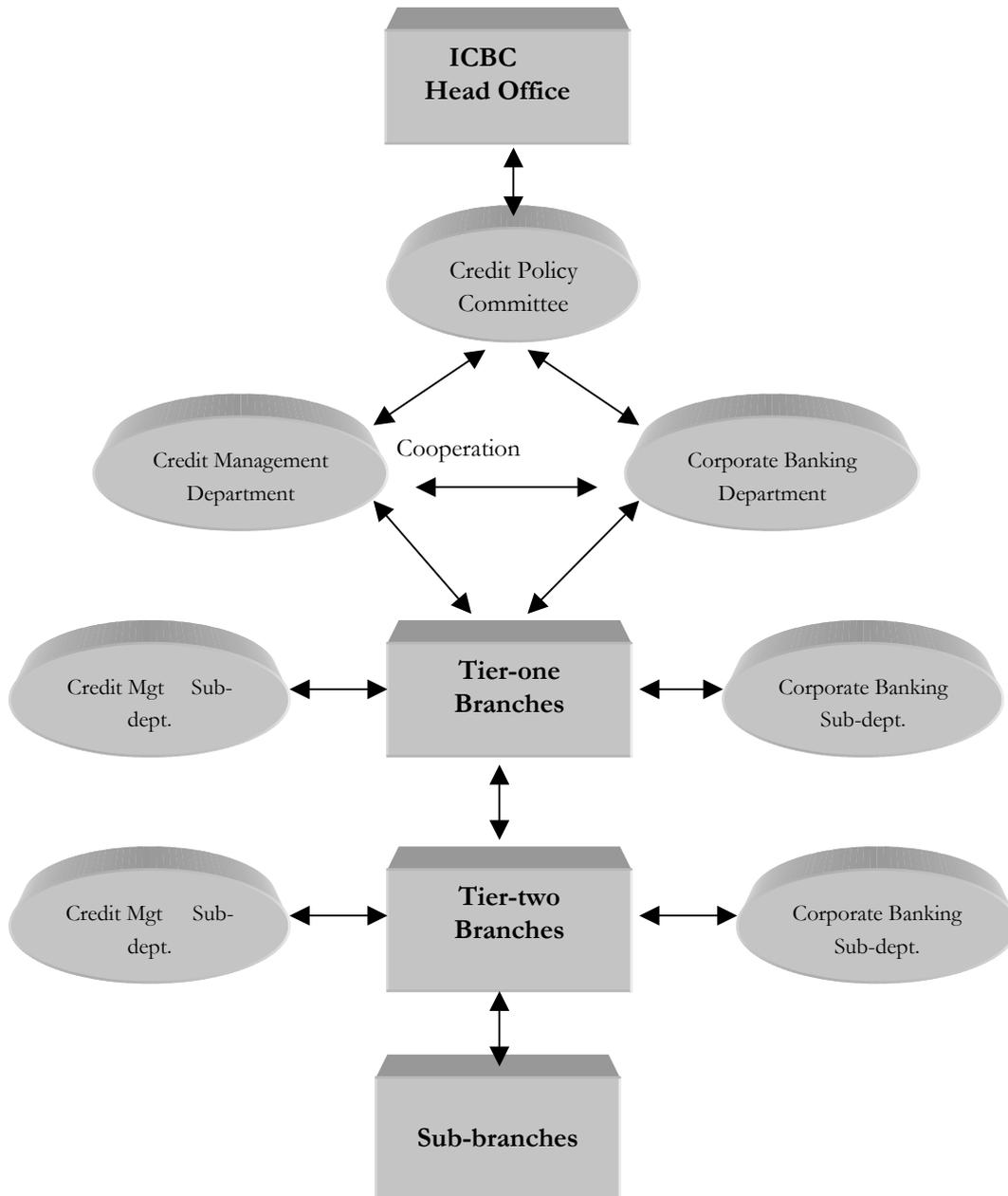


Figure 4-2 Financing system for corporate customers in ICBC²⁰

Source: Adapted from ICBC, 2004, p.50-51

²⁰ According to this figure, those rectangles represent different bank levels from head office to sub-branches, and those ellipses represents various function units for credit risk management and business marketing at different bank levels.

4.3 Sub-system I of corporate financing system: credit risk management system

Based on the financing system for corporate customers, in this section, the credit risk management system (CRMS) for corporate customers (identified on the left sub-system in Figure 4-2 above) is reviewed. Figure 4-2 provides an initial understanding of the CRMS from the point view of structural framework. The following provides a closer look at the current operational situation for this sub-system from its institutional point view, such as management steps, policies and tools implemented currently. And finally, some initial research findings are presented to address how such a sub-system should deal with those issues related to environmental risks at present.

4.3.1 Current operation situation

With the increasing growth of corporate financing, ICBC has increased its attention to internal credit risk management. Consequently, the credit risk management system has been further enhanced, which is reflected primarily through a series of economic risk control policies and tools. These include a more scientific and systematic internal rating, more diversified credit portfolio and risk control, improved risk monitoring and early warning tools, as well as substantial reduction of non-performing loans and prompt recovery of distressed assets (ICBC, 2003, p.28).

With respect to the normal procedure of credit business, this system is divided into three steps which are pre-lending controls, on lending controls and post-lending controls (see Appendix-6). According to these three steps, the detailed operation of this system is introduced in the following parts (ICBC, 2004, p.32-33).

4.3.1.1 Pre-lending controls

In the pre-lending step, there are in general three stages to be performed by ICBC's credit officers which are credit policy and management rules, customer credit rating, and centralized review of customer credit limits.

- **Credit Policy and Management Rules:** As the starting point, ICBC makes its basic credit policies and relevant management rules based on an initial industry rating which mainly refers to a comprehensive review of national industry policies, the economic condition of different regions, and the overall situation of corporate customers in different industries. After the initial industry rating, different industries with their relevant corporate customers will be classified "supportive", "maintained", "forbidden" and "exit". Accordingly, the basic credit policies for different industries and corporate customers will also be produced with differentiated financing standards, which become one main reference for the next customer credit rating. Here, the Credit Policy Committee is the function unit responsible for the above-mentioned various credit policy and management rules.
- **Customer Credit Rating:** Depending on domestic and international advanced rating systems, ICBC established its latest corporate customer credit rating system in 2001 (Zhang, 2001). As an accurate, objective and fair standard, the system judges customers' grading from AAA to B through ten grades in total.²¹ This system uses an enterprise

²¹ According to the order from high grade to low grade, these ten grades of corporate customer are categorised into the ten levels, i.e. AAA, AA+, AA, AA-, A+, A, A-, BBB, BB, and B. (ICBC, 2002, p.21)

evaluation standard value designed for various industries and scales as measures of corporate credit conditions, and mainly focuses on customer's solvency with dependence on a quantitative evaluation index, a quantitative rectification index, and a qualitative evaluation index for a final correction. In summary, only from an economic point view, such an evaluation system for corporate clients' creditworthiness needs to be objective and fair-minded, which has been used to leverage the internal rating mechanisms of ICBC and constitutes an important criterion for customer credit limits and granting loans in the future. In reality, the Credit Management Departments at various levels with exception of sub-branches are all responsible for the customer credit rating function annually according to different corporate customer grade categories.²²

- **Centralized Review of Customer Credit Limits:** ICBC established a credit granting centre, named the Credit-Facility Evaluation Center as the sub-sector of Credit Management Department to carry out centralized credit lines review of corporate customers annually. Based on a customer's credit grade and its actual operating and performance with solvency as core factors, the Center conducts comprehensive risk analysis so as to set a credit limit ceiling for single corporate customer and a credit facility cap for a corporate group and its related companies.

In words, based on the pre-lending controls, general information of the operating quality from customers can be acquired, and consequently credit rating levels and financing limits can also be granted to customers which provides an initial point of reference and guarantees for the next step.

4.3.1.2 On lending controls

In this step, depending on credit rating and financing limit of customers, a detailed assessment process will be performed with respect to different business, such as project financing, working capital loans etc. Here, two steps will be needed in general as follows:

- **Authorization Management:** In order to control internal risks from credit staff dealing with business illegally, ICBC's head office grants basic authorization, re-authorization and special authorization to domestic branches and business departments to review relevant credit business on annual basis.
- **Approval of Credit Business:** Considering improving operational efficiency and further avoiding credit risks, ICBC established a centralized business credit approval mechanism with chief reviewer responsibility established in Credit Management Departments at different levels from head office to various tier-two branches, which can approve credit decisions within their level of authorization. In addition, very large deals and deals for special purposes are subject to the approval of the Head Office Credit Policy Committee. To date, such business improvements, as rigorous credit assessment and approval procedures, properly centralized credit approval systems and clear accountability for credit assessment and approval, are all crucial to the safety of the credit decision-making process.

²² Due to commercial confidentiality, specific rating procedures in ICBC can not be presented in detail here, but in principle, banks in higher level are usually responsible for rating those corporate customers with higher expected grades, such as AAA or AA etc.

4.3.1.3 Post-lending controls

Last but not least, post-lending controls should be regarded as one more significant step due to time factor and other uncertainties. During this step, two stages will be experienced as follows:

- **Credit Monitoring:** Loan internal monitoring is accomplished through a comprehensive credit management information system and specialized credit management reports from sub-branches to head office. Among others, new loans are monitored by head office on a daily and case-by-case basis, and also analyzed in terms of industries, regions and accounts, and then the overall credit allocation is adjusted based on asset quality and the risks perceived.
- **Field Inspection:** Through on the spot internal audit, risk level and risk developing trends will be analyzed and identified. Based on credit risks, early warning mechanisms have been established to adopt measures to resolve credit problems, prevent and control risk promptly according to proposed early warning signals, such as customer's main financial factors, interest repayment status etc.

4.3.2 Initial research findings

In this section, the author aims to generalise his initial research findings from the current credit risk management system for corporate customers and provide readers with a clear understanding of how such a sub-system deals with environment-related issues at present. The research resources mainly come from the investigation by questionnaire conducted by the author among ICBC's credit staff. During the investigation by questionnaire, the author sent in total 20 semi-structured questionnaires to ICBC's credit staff²³ by email. Due to limited personal capacity, the credit staff of ICBC was only targeted within ICBC Head Office in Beijing, the Shandong Provincial Branch as tier-one branch, and some tier-two branches from Shandong province. At the time of drafting, 14 questionnaires from different units of ICBC were received representing a 70% feedback rate (See Appendix-7). The detailed content of the questionnaire can be reviewed in Appendix-8 with some semi-structured questions on how ICBC deals with issues related to environmental risks at present as well as other questions to be used in the following part of business development system on how ICBC deals with issues related to environmental financing currently (See Appendix-8).

All respondents from ICBC indicate that there are not at present there are no independent and detailed environmental credit policies included in the corporate credit risk management process. Examples of such policies are an overall environmental risk management policy, detailed environmental assessment policies and environmental impact assessment policy for project financing.

As for how ICBC deals with issues related to the environment currently, five respondents mentioned that there are few industries with higher environmental negative impacts, such as the pulp and paper industry, the chemical industry and others. These have been categorised by the Head Office as environmentally sensitive industries to be scrutinised during the pre-lending control stage to focus on their environmental aspect, such as wastewater discharge standard, air emission standard and so on. In addition, all respondents mentioned presently during the on-lending control stage, only project financing is needed to confirm whether the

²³ Please note that here the so-called credit staff actually include credit managers in credit management dept., business managers in corporate banking dept., and investment managers in investing banking dept. As such staff have the common credit background, they were all required to answer all questions designed in their questionnaires.

project owner possesses written official authentication from relevant environmental authorities to certify that projects has been approved. Besides these, three respondents mentioned that during the post-lending control process the primary control method for environmental risks from corporate customers is based on information from the government's environmental policy or reviews of environmental news released by media.

When referring to the question on lessons learned from the past experience, no respondent replied to this question because of concern over questions related to ICBC's credit asset loss and regard it as a matter of commercial confidentiality. However, this issue will be analysed in detail in Chapter 5 based on other information resources collected during the preparation of this thesis. As for another question on potential environmental challenges for the current corporate credit risk management system, the response is both interesting and serious. Among other issues, five respondents accounting for 1/3 of the total argue that they believe that there will be more challenges to such a system in near future, such as more stringent environmental policies and regulation from governments, more sophisticated and uncertain global issues faced by Chinese business etc. Further five respondents (1/3) mention that they think there will be challenges, but they are uncertain about their nature. Finally, it is interesting to note that that four respondents accounting for nearly 1/3 of respondents who replied that they don't perceive any potential challenges to this system. These respondents note that ICBC can periodically change its credit policy under the government's macro economic regulation so as to reduce the so-called indirect impacts resulting from environmental factors.

A total of 10 respondents, accounting for roughly 2/3 of the sample indicate a strong belief that it is very imperative to incorporate concrete environmental risk management policies and procedures into the current credit risk management system. But, there are still 4 respondents (1/3) believing that the current system is sufficient to deal with issues related to environmental risks, and thus it is not necessary to incorporate ERM into the overall management process due to its economic cost, at least not currently.

When further referring to the current barriers and opportunities to strengthen environmental risk management for corporate customers in ICBC, those 10 respondents agreeing to support environmental risk management provided various answers for this question. As for the barriers to strengthening ERM, all respondents believe that a lack of the overall environmental credit policy and detailed environmental assessment procedures is the most significant barrier to strengthen environmental risk management in ICBC currently. Consequently, environmental risk management has not yet been regarded as a focus area for credit risk management in some branches. Specifically the problem of non-institutionalised ERM has prevented its formal incorporation into the overall credit risk management process for corporate customers. Of these 10 respondents 50% of them stress that a lack of sufficient capacity building, such as environmental specialists, qualified credit officers with sufficient environmental knowledge, necessary staff training etc. is another important barrier. Even two respondents complained strongly that inadequate environmental information from internal and external sources is another barrier for most credit officers to strengthen environmental risk management in their daily business operations. Additionally, two respondents indicate that local governments' compulsive interference and political misleading in so-called political achievement projects can at times easily evolve into an external barrier to implementation of necessary environmental risk management by ICBC in some of their corporate credit businesses.

As for the issues on the current opportunities to strengthen environmental risk management for corporate customers in ICBC, those ten respondents seem to be very optimistic on and three common comments can be generalised from their answers. These are:

1. Growing global and domestic awareness and good foreign practices of strengthening ERM in banks;
2. ICBC is proceeding in its stock innovation which provides some more internal driving forces on controlling various credit risks;
3. The emerging domestic environment for CP and ISO 14001 provides the useful environmental performance standards of various industrial businesses for ICBC's ERM of corporate customers.

In summary, at present, ICBC has established a comparatively advanced internal credit risk control system used to avoid financial risks from its corporate customers. Moreover, some initial environmental considerations have been integrated into its daily business operations. But, from the perspective of sustainable development and banking, it could be questioned whether such a system is sufficient to prevent emerging and growing environmental risks from customers currently and in the future. These initial research findings suggest that the lack of systematic and institutionalised environmental risk management system in ICBC will not be sufficient.

According to the four-phase theory of sustainable banking mentioned in Chapter 2, ICBC is still in the transition process from defensive to preventive banking, and strengthening ERM should be the appropriate and imperative strategy used by ICBC to deal with and prevent those issues related to environmental risks at present. Therefore, the relevant 'why' and 'how' questions about strengthening ERM in ICBC currently will be analysed and discussed in detail in Chapter 5.

4.4 Sub-system II of corporate financing system: business development system

Still based on the financing system for corporate customers, in this section, let us have another review of the business development system (BDS) for corporate customers as depicted on the right hand side of the sub-system depicted in Figure 4-2 above. Through Figure 4-2, readers should have an initial impression of the BDS from its organizational structure of point view. Here, we will have a closer look at the detailed marketing status including its marketing objective, targeted market and customer structure, and current marketing strategies implemented currently. At last, some initial research findings are presented to address how such a sub-system should deal with those issues related to environmental financing at present.

4.4.1 Current marketing status

In order to improve customer relationships and further increase market share, ICBC carried out an institutional innovation in 2001, and Corporate Banking Department was established at that time with responsibility for business the development function in the corporate customer market (ICBC, 2002a, p.293). Although there are many business functions in Corporate Banking Department, such as corporate financing, corporate deposits, corporate intermediary business and so forth. Here the focus is restricted to its corporate financing function in marketing within the above-mentioned business development sub-system of the corporate financing system according to the study scope of the thesis.

With the rapid development over several years, Corporate Banking Department has developed a set of comparatively complete corporate financing marketing system which includes the

relevant marketing objective, targeted market and customer structure, and marketing strategies in its daily marketing business (ICBC, 2002a, p.293-305).

1. Marketing Objective

- Customer target: ICBC insists that 20% of corporate customers with 80% of benefit contribution to ICBC²⁴ should be the main targeted customers. While keeping existing quality customers and screening out inferior customers, ICBC will have been marketing those potential customers with promising vision.
- Credit scale target: According to the principles of safety, liquidity and profitability, ICBC will try to realise the growth of new loans with the speed of RMB 150 billion per year, and reach the credit balance of RMB 3,000 billion by the end of 2005.
- Credit quality target: By the end of 2005, the full non-performing loans rate will have been reduced to 13.7% from the level of 29% in 2001. Among others, the rate for project financing will decline to 7% from 18% in 2001; working capital loans will decline to 15.6% from 29% in 2001 as well.

2. Targeted market and customer structure

- Targeted market: At present, there are in total four targeted markets in ICBC's business marketing: (a.) regional infrastructure construction and traditional basic industries realms; (b.) information industry; (c.) multinational enterprises with focus on top 500 ones globally; (d.) selected SMEs.
- Customer structure: ICBC has increasingly focussed on three kinds of corporate customers: (a.) domestic excellent corporate customers with great contribution, low business risk and high credit standing; (b.) multinational enterprises among top 500 ones globally; (c.) those quality companies listed in stock market. At the same time, ICBC has intended to increase the proportion of those customers with grade above AA, control prudently the total amount of customer with grade A while speeding up the exit from the credit market with those customers rated below grade BBB.

3. Current marketing strategies

- Strengthen the management of customer relationship, provide differential services: (a.) implement categorised customer management with differential services; (b.) Based on the Pareto Principle, focus on those 20% of corporate customers with 80% of business contribution; (c.) implement the customer management with dependence on information technology.
- Enrich financing product, provide individuation services: (a.) optimise financing portfolio with diversified financing products based on high flexibility and low credit risks; (b.) strongly research and develop new financing products, such as syndicated loans, refinancing, export credit etc; according to different customer group, design various comprehensive financing programme.
- Develop a well known recognised corporate brand, upgrade corporate social reputation.

²⁴ Here, this rationale is called 80/20 rule, also named the "Pareto Principle". (Pojasek, 1999, p.102)

- Adopt a differential pricing strategy to enhance market competitive advantage.
- Make use of multi-channels to promote marketing impact, such as daily marketing of customer manager, various media, bank-business summit, business promotion, and workshop etc.
- Strengthen cooperative relationship with other financial institutions with sharing market benefit and bearing risks together.

In summary, from the perspective of modern commercial banks, ICBC has established a comparatively advanced corporate financing marketing system. However, the following will provide an initial answer to the question whether the current business development system is a qualified and complete marketing system towards sustainable banking.

4.4.2 Initial research findings

In this section, the author aims to generalise his initial research findings from the current corporate customer business development system and provide readers with a clear understanding of how such a sub-system presently deals with environment-related issues. Being similar with the method used in the previous part of credit risk management system, research sources are mainly from the investigation by questionnaire conducted by the author among ICBC's credit staff. As previously mentioned, the targeted credit staff focus is within the ICBC Head Office in Beijing, the Shandong Provincial Branch as tier-one branch, and some tier-two branches from Shandong province. Due to the same investigation sample, there are accordingly the same 20 questionnaires sent to them by email with the same return rate of 14 representing a response rate of 70%. Different from the former, however, the relevant questions in this section are about how ICBC deals with issues related to environmental financing in its daily marketing activities currently (See Appendix-7&8).

According to the responses from the questionnaire investigation, all respondents have the same opinion which is that green financing has not yet been incorporated into the marketing agenda stipulated by ICBC. However, some branches mentioned that they have begun to pay more attention to such industrial realms, such as ICBC Shandong Branch, ICBC Weifang City Branch. For example, Mr. Kong Dekuan as credit manager of Shandong Branch noted that some projects such as waste disposal and wastewater treatment have been categorised as the scope of city infrastructure construction and will be intended to support by project financing gradually.

When referring to the question about whether corporate social responsibility (CSR) should become a business ethic to direct ICBC's business marketing, two respondents noted that they were unfamiliar with the exact nature of the concept and could not answer the question. Another two respondents believed that CSR as a concept has no relevance to ICBC as a commercial bank which should only focus on economic activities. However, the rest 10 respondents insisted that CSR should be very important to act as the ICBC's business ethics to direct its marketing behaviour in near future.

As for the trend of green financing in ICBC, six respondents noted that they argue that green financing could be enhanced in ICBC's marketing agenda but not to become the main item. Conversely, the remaining 8 respondents believed that in the near future green financing will be the main aspect of the corporate financing marketing agenda, with the common optimistic opinion.

When referring to the current barriers and potential opportunities for implementing green financing in ICBC, no respondents responded to the potential opportunities question. But as to the current barriers, there were 5 respondents mentioning that lack of competent marketing staff in environmental aspect as a significant internal barrier. At the same time, these 14 respondents all stressed that the main barrier is an external one, mainly from the government and those environment-related businesses etc. In the case of the government all respondents complained that at present the government has not yet provided enough support for those environmental projects. Examples of support could include lack of fiscal support with tax credits and financial subsidies and some local governments still lack long term credit standing and policy support etc. Therefore, all of these governmental actions will certainly result in insufficient government support for environmental projects, which undoubtedly brings less incentive on commercial banks to engage in such projects.

In summary, an initial conclusion that can be drawn from respondents' feedback is that green financing has not yet been included in the current marketing agenda of corporate financing. So green financing should be positively viewed as an area for future marketing, and at the same time the concept of CSR should become the main business ethic to direct future marketing activities accordingly. But currently, the main barrier is from factors external to ICBC, i.e. lack of adequate support from the government has been affecting the competitive position for many environmental projects. Thus, according to the four-phase theory of sustainable banking, ICBC still has a distance to the phase of offensive banking without adequate environmental financing business. But, this is not to say that ICBC has nothing to do with issues related to environmental financing. If ICBC wants to reach the final goal of sustainable banking, it has to take necessary actions with enough preparation from now on so as to be expected to leap toward the phase of offensive banking in near future by implementing a green financing strategy. However a more feasible and immediate path is getting into the preventive banking currently by strengthening ERM.

In summary for this whole chapter, based on the above initial research and findings, the author believes that according to the four-phase theory of sustainable banking and the current situation of Chinese commercial banks with their external driving forces towards sustainable banking, ICBC and other commercial banks in China should strengthen ERM as preventive strategy currently. Further, green financing should be implemented as an offensive strategy in near future, i.e. the appropriate pathway to sustainable banking in China. Therefore, in the following Chapter 5 and Chapter 6, the author will analyse and discuss these issues in depth and respectively.

5 Analysis and discussion I: strengthen environmental risk management as preventive strategy currently

The previous sections of this thesis provided a macro-level theoretical review of a pathway to sustainable banking, good practices globally, the current Chinese banking situation and the main external forces driving towards sustainable banking in China. As well, the case study of ICBC's financing system for corporate customers as the micro research part.

In this section and the following Chapter 6, the author attempts to provide a detailed analysis and discussion on the appropriate pathway for ICBC and other Chinese commercial banks to adopt for achieving sustainable banking. Moreover, in order to acquire a practical pathway to sustainable banking in China, ICBC's financing system for corporate customers is used as a useful reference model accordingly.

In this section, the author aims to analyse and discuss the significance for ICBC to strengthen environmental risk management as a preventive strategy currently, by which ICBC can reach the phase of preventive banking as the first step for its road to sustainability. Following such a thought, in this section, main problems of ICBC's corporate credit risk management system with its why questions will firstly be generalized. And then, the further analysis and discussion on the main past lessons and potential challenges to this system will be presented by the author, aiming to show the practical significance of strengthening ERM currently. And in the end, the explorative design on ERM in ICBC will be introduced by the author while being intended to address the second research question of the thesis, i.e. *how can ICBC strengthen ERM as preventive strategy towards sustainable banking currently?*

5.1 Main problems of CRMS of corporate customer in ICBC

Based on the relevant literature review, the questionnaire investigation and personal interview in ICBC, the main problems of the credit risk management system for corporate customers in ICBC are generalized in this part.

5.1.1 Lack of sufficient environmental concerns in credit policies

Credit policies in ICBC currently only focus on customers and their industries, national economic policy and regional economic situations. However, relevant environmental concerns have been not reflected in such policies. The orientation of credit policies still head for economic growth without the sufficient thinking on sustainability concepts with a combination of environment, economy and society.

5.1.2 Credit risk management without systematic and institutionalised environmental risk control

At present, credit risk management in ICBC still follows the traditional routine and only focuses on financial indicators from customers as well as national and regional economic status. This limitation can be reflected from the whole risk management steps discussed in Chapter 4.

- **Pre-lending controls**

As for basic credit policies and management rules, ICBC adopts initial industry rating by reference to national industry policies, different regional economic conditions and the overall

situation of corporate customers in different industries, by which industries are categorised to “supportive”, “maintained”, “forbidden”, and “exit”. Accordingly, differentiated credit policies with various financing standards are produced to direct the following credit business. However, we can clearly find that national environmental policies with relevant laws and regulations seem not to be included in such a process, and more, the relevant environmental risk assessment from industries is not involved either. All of these will produce some potential negative impacts on the following credit operations.

The most crucial stage in this step is the Customer Credit Rating. Drawing on international practices, ICBC drafted its *Evaluation of Corporate Clients* as its rating rules and measures. An internal rating system has been created which rates clients, according to their solvency, from the highest AAA to AA+, AA, AA-, A+, A, A-, BBB, BB and with B being the lowest with reference to market benchmarks based on industry and size of company. This is a three-dimensional system, which takes into account 9 quantitative basic indicators, 11 quantitative amendment indicators and a number of qualitative indicators as well. However through reviewing the list of rating indicators (ICBC, 2002, p.23), there are not any environmental indicators involved in this indicator system with only one indicator named geographic indicator for logistic customers aiming to mainly consider their distribution cost but not environmental impacts.

- **On lending controls**

Due to different financing categories with different approval procedures, in order to get a specific and clear picture from this step, let us take project financing for example. Another reason is that now only project financing has been taken into account with to some extent environmental concerns, but not others at all. So studying project financing will be more realistic and helpful. The whole process of approval for certain project will be mainly based on the results from the process of project appraisal depending on the *ICBC Fixed Assets Loan Appraisal Provision* (ICBC, 1997). In this provision, however, there is only *Clause 25 Assessment on Environmental Protection* related to environmental aspect, as follows:

“Mainly check up whether there is an environmental protection resolution authenticated by the relevant environmental protection authorities or not.” (ICBC, 1997)

At a first glance, this clause seems to be stipulated reasonably as it requires the customer to provide its project environmental assessment report with the written approval certificate from the relevant environmental protection authorities. And to some extent ICBC has begun to care about environmental issues in its project financing. When being analysed in depth, however, such a provision has still some disadvantages and potential environmental risk in terms of proactive and systematic environmental risk management. It is stipulated somewhat simply without detailed environmental concerns from ICBC itself, and the core standard of environmental assessment is only the official environmental permit but those specific environmental impacts from the proposed project itself.

As the so-called environmental permit is also based on the precondition that such a project should first go through the relevant environmental impact assessment conducted in accordance with Environmental Impact Assessment Act issued in 2002, most credit staff hence only focus on checking up whether the customer has got the environmental permit from the relevant environmental authorities and strongly believe that the relevant environmental risks should be avoided afterwards (Zhao, 2005, personal interview). But, is this really once for all with respect to environmental issues? As Jucken commented, it’s not yet enough to simply require an environmental permit and there are still many uncertainties and

potential risks involved in the whole development process of the proposed project (Jeucken, 2001, p.140).

First, currently in China, some environmental assessment institutions have not enough capacity to conduct qualified environmental impact assessments and sometimes have some benefit-sharing relationship with project owners so as to leading to so-called “black-box” behaviours with less assessment credibility. Moreover, in some cases, some local environmental authorities might have to reduce their environmental standard threshold due to heavy political pressure from local government stakeholders and lobbying from other project stakeholders (Zhang, 2005, personal interview). All of these issues will result in so-called environmental permits from environmental authorities lose their real value in terms of environmental impact assessment.

Second, according to the requirements from the Environmental Impact Assessment Act, the post-monitoring of the project’s environmental impacts is also very significant and must be regularly conducted by the project’ owner (SCNPC, 2002). However, just at the beginning of the project financing, ICBC bases decisions based only on one written approval certificate. It is therefore impossible for ICBC to keep conducting environmental monitoring continually, which will bring some potential risks to the project financing.

Third, as mentioned in Chapter 3 many external factors such as the trend of more stringent environmental policies and the increasing environmental attention from NGOs and the media will undoubtedly bring more environmental requirements and challenges to the development of the project and its financing safety. Therefore, if there is no systematic and preventive ERM with relevant environmental procedures and standards, such as Barclays’ ESIA Policy mentioned in Chapter 2, incorporated into the whole development process of the proposed project, it can there will likely be a significant number of credit assets exposed to potential environmental risks.

- **Post-lending controls**

Similarly, following the previous operations, less environmental concerns also exist during this step. Although a set of early warning systems has been established to prevent risks from customers, it is still insufficient due to a lack of necessary environmental risk monitoring and prevention. Field inspection also focuses on the form of internal on-desk examination without enough concerns in environmental aspects, such as environmental compliance of loan customers, changes in environmental legislation and customer activities related to the environment etc.

Through the analysis above, we can conclude that at present, there is not yet formal environmental risk management involved in the overall credit risk management system for corporate customers in ICBC. Although some environmental risk awareness has occurred among ICBC staff, insufficient environmental concerns and a lack of a specific management system are still potential risks for business operations in ICBC. In words, there currently remains a lack of preventive thinking and systematic and institutionalised practice in daily credit risk management.

5.2 Why does this system have such problems?

5.2.1 Inadequate environmental and sustainable development awareness

Inadequate awareness of environmental and sustainable development issues leads to poor environmental performance in ICBC. Just like other economic organizations in China, especially industrial enterprises, limited environment concern certainly result in inferior environmental risk control in day-to-day business operations. A good example can be used to reflect on this limitation: if you log on the website of ICBC and type “environment” or equivalent as key words in the research function area yields no results. This is also common for other Chinese banks. However, on a positive note, this situation is likely to change in future due to successful educational exchanges between, for example, ICBC Shandong Provincial Branch and international organisations such as the International Institute for Industrial Environmental Economics (IIIIEE) in Sweden. On one side, it indicates some top managers in ICBC have been of good environmental awareness and started to seek and explore how to develop sustainable banking. On the other side, increasing support and knowledge in the field of environmental science, just such as the IIIIEE provides, will no question prompt the process of increasing environmental awareness in ICBC.

5.2.2 Unsustainable managing and marketing method

Unsustainable managing and marketing methods inhibit environmental risk management at ICBC. In recent years, especially after acceding to the World Trade Organization (WTO), Chinese economic growth has been at the level of 7%-8% per year. Accordingly, as the largest state-owned commercial bank in China, ICBC as the financial intermediary has to face the increasingly heavy task of leveraging economic development. As a result, internal management has been focused on how to reduce economic risks at maximum without enough environmental concerns. Similarly, external business marketing also concentrates on economic activities of companies, especially financial indicators and profitability of companies. Moreover, with the increasing number of commercial banks in China, such as joint-stock banks as well as foreign banks, market competition is becoming intense. In order increase the number of customers and market share, commercial banks have to make efforts to attract customers by various marketing methods, even reducing credit requirements or interest rates. As to environmental risk management, some credit officers may be less willing to consider it. Moreover, the thought of acquiring more political capital depending on banking growth also may lead some bank top managers to be indifferent to environmental risk management.

5.2.3 Lack of sufficient internal and external resources

Last but not least, lack of sufficient internal and external resources should be the main obstacles for the development of ERM in ICBC. Examples are advanced and systematic methods and tools, national and local laws or regulations on ERM in financial institutions etc. Out of question, such weak spots just become the so-called bottleneck to block ERM to take place and develop constantly in ICBC, as well as other commercial banks in China.

5.3 Main lessons and challenges to CRMS for corporate customers in ICBC

After generalising the main problems and why questions on such problems, in this section, the author attempts to talk about what past lessons and potential challenges have evolved into more motivations for ICBC’s top managers to be urged to strengthen environmental risk management in daily business operations currently.

5.3.1 Main lessons learned from ICBC's corporate credit risk management in the past

According to the macro study on current status of credit risk management in Chinese banking in section 3.1.3, we can get an initial conclusion that commercial banks in China have not yet incorporated enough environmental concerns into their daily internal credit risk management process. And according to the in-depth and specific case study on the credit risk management system of corporate customer in ICBC in Chapter 4, it also can be said that such a system has established a good risk control mechanism during its credit risk management process, but still lacks systematic and preventive ERM procedure and tools. Thus, in this section, the author wishes to present two environmental cases that occurred in the past, and show how the environmental risks were not be fully revealed so as to affect the safety of credit assets of ICBC and other commercial banks in China, just as they lacked adequate environmental concerns with detailed preventive environmental risk management procedure and tools.

The first case is the environmental auditing process entitled “Environmental Storm” conducted by State Environmental Protection Bureau of China (SEPBC) in early 2005. The aim of this process was to audit electric power projects without full compliance with the Environmental Impact Assessment Act. On 18 January 2005, SEPBC formally released 30 electric power projects that had started working before meeting the relevant requirements of the Act, and compelled them to stop operation and adopt remedial measures. As to these 30 projects, they are all large or medium power projects each costing over RMB 100 million (Pu, 2005).

One good example is the Xiluodu hydro-power project. This project is located in the Xiluodu Gorge of the Jinsha River between Szechwan Province and Yunnan Province with the total investment of RMB 40 billion, placing it just behind the Three Gorges Dam as the second largest dam project in China. Among the investment of this project, there was nearly RMB 30 billion funded from bank loans which and there are potentially huge environmental risks as such a project's environmental impact assessment has not met the relevant requirement according to the Act (People's Net, 2005). Although it cannot be said with certainty whether ICBC has involved in this project's financing, undoubtedly ICBC will be one among many commercial banks involved with financing this project.

When considering the non-compliant behaviour from such projects, it is surprising to see that one direct reason is mainly from without environmental impact assessment before starting working; another direct reason is mainly that the environmental impact assessment report made by the relevant environmental assessment institution has not met the requirements of the Act with less creditability (Pu, 2005). If further analysing, the indirect reasons are mainly from: 1. protection behaviour from political motives of some governmental stakeholders; 2. some local environmental authorities possess insufficient capacity to audit the credibility of the relevant environmental impact assessment report; 3. some environmental assessment institutions lack creditability due to their poor capacity building or benefit sharing relationships with relevant project owners. Therefore, it is clear that relying only on environmental permits from relevant authorities is not enough. And if commercial banks have not their own environmental risk management systems in daily business operations, esp. project financing, they will have to face more potential environmental risks due to the reasons mentioned above.

A second case involves a surprise audit of industrial wastewater discharges conducted by the Shandong provincial government and local environmental authorities. In order to motivate industrial enterprises to strengthen environmental management, the Shandong provincial government conducted this environmental audit of industrial wastewater discharge for the

period 1 April 2005 to 4 April 2005, and chose the paper and chemical industries within the Shandong province as the audited targets (Shandong Provincial Government, 2005). As results, 12 industrial enterprises were compelled to stop working and adopt remedial measures, and additionally 16 were subjected to punishment by public criticism for exceeding the permitted standard of waste water discharge (ICBC Shandong Provincial Branch, 2005).

In response to this environmental audit, ICBC Shandong provincial branch also conducted one internal audit of credit risk management in terms of these 28 punished enterprises. Based on the final auditing feedback reports from the relevant city branches within the Shandong province, there were in total 10 of the 28 enterprises that were current corporate financing customers of ICBC at that time with the total credit financing of RMB 700 million by the end of April 2005 (ICBC, 2005). Although at present ICBC has not yet suffered any actual financial loss from these industrial enterprises' poor environmental performance as reported by relevant city branches, outstanding credit assets of RMB 700 million were exposed to potential financial or reputation risks. These risks stem from the punished enterprises having been either compelled to stop working or criticised publicly leading to their own financial and reputation risks. If ICBC's credit staff had incorporated environmental risk management into its overall management process, the results would likely have been better. Ways to reduce risk are for ICBC to urge its customers to improve environmental performance by relevant preventive environmental risk management and avoid being listed on the so-called environmental blacklist, or at least ICBC can refuse to finance such enterprises and insulate itself from the potential environmental risks.

5.3.2 Main potential challenges to ICBC's corporate credit risk management

As shown in the macro study in section 3.2 summarising external driving forces for commercial banks in China to strengthen ERM and move towards sustainable banking, there are various driving forces from the perspective of industrial supply-demand activities domestically and globally. To build the case for institutionalising a systematic ERM into daily business operations, this section provides an in-depth analysis and discussion on the main potential challenges to the environmental performance of Chinese industrial businesses as well as ICBC's credit risk management system. Such challenges include both domestic environmental policies and global environmental requirements. It is expected that this will serve to motivate ICBC's top managers to strengthen ERM as soon as possible.

5.3.2.1 More challenges from domestic environmental policies

From the domestic perspective, the main external challenge is undoubtedly from the increasingly stringent environmental policies of the Chinese government. As discussed in Chapter 3, in recent years the government established many stringent environmental policies aiming to upgrade industrial businesses' environmental performance and commercial banks' environmental awareness and management. Examples of include the Environmental Impact Assessment Act, Polluter Pays Principle, green taxes, and other environmental announce to commercial banks etc.

With the close to the National Tenth Five-Year Plan by the end of 2005, however, the Plan's main targets are believed to be impossible to reach. Examples of problem areas include the water pollution control target of "Three Rivers and Three Lakes"²⁵, SO₂ control target of the

²⁵ Here, the three rivers refer to Huai River, Liao River and Hai River; and the three lakes refer to Tai Lake, Chao Lake and Dianchi Lake. (Su, et al, 2005)

Two Control Areas²⁶, the total control target of industrial pollutant emissions, and the target of municipal environmental infrastructure among others. Just take some examples here:

1. The total amount of industrial wastewater discharge increased again in 2003;
2. The emission amount of SO₂ not only has not been reduced by 10% according to the amount in 2000, but also increased a lot. In addition, the industrial soot and dust in waste gas also increased significantly in 2003 different from the declining trend in recent years;
3. As for municipal environmental infrastructure, only 40% of planned urban wastewater treatment plants in main river basins have been constructed. Moreover among others, there were above half of plants operating in an abnormal condition with one fifth of treated discharged water below water quality standards (Su, et al, 2005).

The main reasons are mainly from the objective and subjective aspects:

1. From the objective aspect, during the Tenth Five-Year Plan, China has experienced a rapid development of heavy industries, including the steel and iron industry, the electrolysed aluminium industry, and the cement industry as the main raw materials as well as construction of energy, transportation and communications infrastructure. China has also developed with a model of high capital investment, great consumption of resources, and huge pollutants emission. As a result, unsustainable economic development has eventually led to much more degradation of the environment;
2. From the subjective perspective, on one side, many local government officials negatively pursued so-called short-term political achievements with unsustainable GDP growth and did maintain a balance between economic development and environmental protection. These local governments not only to some extent conspired with some industrial enterprises' to enable illegal emission of pollutants but also ignored the development of relevant environmental improvement projects. On the other side, as the core actors of environmental pollution, some industrial enterprises have not yet paid more attention to environmental management due to a lack of enough environmental awareness and measures. Additionally some unsustainable funding support has been provided by relevant local commercial banks.

Besides, the actual enforcement of environmental laws and regulations has not yet fully met the actual requirements of sustainable development. Although over the years of the past decade the Chinese environmental law system has made much progress, the relevant punitive provisions remain ineffective and lack an appropriate criminal liability aspect. Meanwhile, local environmental authorities did not have effective supervision authority and enforcement power to hold industrial enterprises accountable for bad environmental performance such as concealed emissions, leaking emissions and exceeding emission levels etc. Further, with local protectionism, it also resulted in a low cost for non-compliance for polluters and high cost for those industrial enterprises in compliance and high cost for those local environmental authorities.

²⁶ Although almost one third of China is affected by SO₂ emissions, some regions have been influenced more severely. In 1998, the government identified key acid rain control and SO₂ control areas, which are known as Two Control Areas, including a 1,090,000 square kilometres area, and accounts for 11.4% of total China land areas. According to SEPA statistics, Two Control Areas are responsible for 60 percent of SO₂ emissions in China in recent years. (SEPBC, 2003)

Therefore, although the National Eleventh Five-Year Plan has not yet been established and promulgated so far, recently some authoritative environmental experts from the Research & Development (R&D) Centre of the State Department of China, such as Su Yang, Lin Jiabin, and Zhou Hongchun, have already presented their forecast for the environmental policy trend in the Plan (Su, et al, 2005). The main potential policies are just introduced as follows:

- First, take priority of environmental resource accounting so as to build up political achievement with the concept sustainable development. Just since 2004, the central government has been set about to research and begin to develop the Green GDP system. During the period of the National Eleven Five-Year Plan, the government will incorporate environmental resource accounting into the whole GDP accounting system so as to properly evaluate the economic growth with relevant environmental cost and the local governments' political achievements. This should lead to more incentives motivating local officials to reasonably trade off the regional economic growth and environmental protection with the concept of sustainable development and avoid the mindset of short-term economic benefits.
- Second, strengthen the function of national industrial policy orientation by which the government will aim to actively adjust the current industrial structure and encourage the development of green industries with lower resource consumption and high added value so as to mitigate negative pressures on the environment.
- Third, strongly develop a recycling economy with a combination of pollution prevention and whole process control as a substitute for the previous end-of-pipe treatment model. And the government could further enhance the enforcement of the Polluter Pays Principle as a main economic approach with more charges to create incentives to meet standards. Meanwhile more funds from the private sector such as commercial banks should be directed toward environmental improvement areas due to preferential fiscal policies such as tax credits or fiscal subsidies etc.
- Last but not least, further enhance environmental laws and regulations and enhance the capacity building of environmental management of different environmental stakeholders. The government will establish a more complete environmental law system and correct previous less practical law provisions with the aim of stressing the function of environmentally criminal liability and more enforcement measures. Meanwhile enhance environmental capacity building for environmental stakeholders such as local environmental authorities, environmental assessment institutions, and industrial enterprises with high environmental pollution. Among others, one significant measure that will be taken is to have relevant environmental practitioners, such as staff responsible for environmental assessment, environmental approval, and environmental supervision, bearing lifelong legal responsibility for the credibility of the environmental impact assessment.

Just based on the above domestic policy forecast, we can clearly recognise that the external current and potential environmental policies will without question bring increasing challenges to Chinese industrial enterprises and relevant commercial banks. This will require a strengthening of banks' preventive environmental performance to reduce potential environmental risks as much as possible due to the more stringent national environmental policies while realizing environmental benefits for themselves with those more preferential environment-oriented policies.

5.3.2.2 More challenges from global environmental requirements

At present under the background of economic globalisation, green trade and green economy are the very significant symbols of international competitive advantage. With China acceding to WTO, China has to seriously face the non-tariff barriers in the form of environmental protection. Through this the admittance threshold of the international market has accordingly been elevated and more issues connected to environmental performance of Chinese industrial enterprises have risen to challenge them and their financing partners, such as commercial banks (Li, 2004).

As mentioned in Chapter 3, economic globalisation is currently the economic trend in the world, and meanwhile the environmental concern with the thinking of cleaner production in international trade and market is also increasing more and more, such as ISO 14001 environmental management system and certification, eco-labelling, Extended Producer Responsibility (EPR) etc. After China accedes to the WTO, we can say that China has been much more incorporated into the international market globally, but at same time more environmental concerns have been naturally put on the table of Chinese industrial enterprises as well as other stakeholders, such as financial institutions, governments and the public etc. Over the years of the past decade China has been implementing an export-oriented economic policy with more focus on export trade, the global environmental challenges from green economy are mainly brought to those exporting businesses, such as textile industry, foodstuff processing industry, and electrical and electronic equipment (EEE) industry etc., and thus, more environmental requirements have been also imposed on them as well as their stakeholders such as main fund supporters, i.e. commercial banks (Cui, 2002).

Just take the textile industry as an example. As the main exporting products, Chinese textile enterprises had suffered many trade barriers such as import tariffs before acceding to the WTO. After entry into the WTO, they just got the equal position with other members within WTO and more exporting business opportunities as well. However, some more challenges have been generated to threaten such exporting enterprises, such as environmental standards for textile processing and products. Currently, there are mainly two types of green tariffs existing to challenge Chinese textile enterprises. The first one is that some developed countries require that textile exporting countries must establish environmental management systems and achieve certification according to ISO 14001, and some ones require that such exporting countries acquire relevant eco-labelling and environmental reporting. The second one is that some countries require that exporting countries must produce some certain textile products such as those so-called eco-textile products according to ISO 9000 standard. For example, between January and July in 2002, there were 201 batches among the total 321 batches textile products with environmental standards below importing countries' standards only in one main exporting port named Zhangjiagang in China (China National Gate Daily, 2002).

Another example comes from the foodstuff processing industry. As one big agricultural country, the foodstuff processing industry has also been a focus industry in China. As more and more countries have begun to pay more attention to green foodstuff with higher safety and environmental standard, Chinese enterprises also have started focusing on the production of green foodstuff since 1990s. But, due to a lack of sufficient technology and management, a great deal of financial loss occurred when exported to some developed countries with strict quality and environmental standards such as EU member countries and USA. More requirements, such as certification of ISO14001 and ISO 9000, eco-labelling etc., are forcing such Chinese exporting enterprises have to strengthen their safety and environmental management and produce more green products, such as production of green organic foodstuff (Cheng, n.d.).

As for the EEE industry, there are also many global environmental challenges to Chinese enterprises. After acceding to the WTO, the Europe market has been the main exporting market for Chinese EEE enterprises. However, European Union (EU) will formally bring “Waste Electrical and Electrical Equipment (WEEE) Directive” into effect in 13 August 2005, and implement “Directive on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS)” in 1 July 2006. Among others, according to the WEEE Directive, each EEE producer including the importers and distributors is responsible for financing the collection, treatment, recovery and environmentally sound disposal of their individual products put on the market after 13 August 2005. Further, they must provide relevant information for treatment facilities to identify the different EEE components and materials, location of dangerous substances as well as relevant preparations. And according to RoHS Directive, by 1 July 2006, the use of hazardous materials in EEE will be prohibited, including lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB) and polybrominated diphenyl ether (PBDE) (Fang, 2005).

According to these two directives, we can see that the principle of EPR has is deeply entrenched in EU’s EEE market and also will influence those exporting countries in other areas of the world. Therefore, Chinese EEE enterprises have to take actions immediately to incorporate more environmental concerns into business operations, and make technological innovation to produce more environmentally sound products with minimised EEE waste. Meanwhile the government should also adopt more measures to call for such enterprises to build up the concept of EPR as soon as possible to enhance cleaner production and waste management and recycling.

Similarly, facing the trend of globalisation and green trade, commercial banks in China, as the main fund supporters and stakeholders for such above-mentioned exporting enterprises, should pay more attention to their environmental credit risk management to prevent environmental risks from such enterprises while taking advantage of management tools to motivate and support indirectly such enterprises to invest cleaner production for realizing the win-win situation of bank and business.

5.4 Explorative design for how to strengthen ERM in ICBC currently

Through the above analysis and discussion, we can see that strengthening environmental risk management should be an imperative preventive strategy implemented by ICBC as well as other commercial banks in China to move toward the preventive phase of sustainable banking. And next, in this section, the author will make an explorative design on what should be the current environmental risk management system for corporate customers in ICBC. In other words, the author intends to address the second research question of the thesis, i.e. *how can ICBC strengthen ERM as preventive strategy towards sustainable banking currently?*

5.4.1 Corporate governance with proactive environmental consideration

The term governance is used most frequently by politicians and business leaders, (Wheeler & Sillanpaa, 1997, p.141) also including such top managers of commercial banks. According to the definition of corporate governance, the Organisation for Economic Cooperation and Development (OECD) provides the most authoritative functional definition: (UTS Centre For Corporate Governance, n.d.)

“Corporate governance is the system by which business corporations are directed and controlled. The corporate governance structure specifies the distribution of rights and

responsibilities among different participants in the corporation, such as the board, managers, shareholders and other stakeholders, and spells out the rules and procedures for making decisions on corporate affairs. By doing this, it also provides the structure through which the company objectives are set, and the means of attaining those objectives and monitoring performance.”

According to a 2002 investigation on environmental credit risk management among ten main banks in Europe conducted by ISIS, a leading European investment manager, it was found that corporate governance has in recent years been an important issues that has gained considerable prominence within banking. The investigation found that six of the ten investigated banks, including Barclays, Credit Suisse Group, HSBC, Lloyds TSB, Royal Bank of Scotland and Standard Chartered, recognised that environmental credit risk management had come to be regarded as a significant element of good corporate governance.. In other words, the focus of corporate governance has gradually shifted to the management of all material risk factors, including environmental and social risks, and consequently, a bank’s ability to adopt an integrated approach within its central risk control system is increasing valued (ISIS, 2002, p.13).

Therefore, in order to successfully strengthen ERM currently, the key precondition is that the ICBC’s top managers, i.e. board members at the head office level²⁷, should foster proactive environmental consideration with enough environmental awareness and put environmental risk management in an important position within its corporate governance. On one side, ICBC’s top managers should commit themselves to significant international environmental initiatives, such as signing the UNEP FI and the Equator Principles. This can help ICBC acquire better social reputation and competitive advantages due to its environmental friendly governance focus and assisting ICBC in incorporating preventive ERM into its current credit risk management system for corporate customers. This should be supported by a close cooperation and partnership with other member banks with successful experiences in ERM. On the other side, they should properly attempt to develop the relevant internal and external pillars for strengthening ERM in ICBC, as well as initiate pilot ERM projects in some selected branches, all of which will make the preventive ERM procedure better put into the daily business operations.

5.4.2 Incorporate preventive ERM procedure into current credit risk management system of corporate customer

According to the previous study, environmental risk management should be performed in a preventive and systematic manner. Therefore, considering the current situation of the credit risk management system for corporate customers in ICBC, it should be incorporated into a preventive environmental risk management procedure as soon as possible. In this section, the author attempts to design a preventive ERM procedure to application in the overall corporate credit risk management process. The procedure is conceived based on a combination of good global practices, such as EBRD’s environmental risk management program, Barclays’ ESIA policy, and Lloyds TSB’s ERA management framework. And about other good practices, such as the environmental policies of World Bank and IFC, ADB’s environmental policy and operation manual, will be utilised and presented in the following part of international cooperation in the section 5.4.4.

²⁷ As ICBC is still a state-owned commercial bank currently, its top managers at the head office level actually have two roles that just are board members and presidents simultaneously. (ICBC, 2004, p.10)

Here, the reason that EBRD’s ERM program is adopted as the basic reference because of its intended application primarily by financial institutions in the countries of central and eastern Europe and the former Soviet Union which are in the transition process from planned economy to market economy, which is similar to the current situation in China. In the EBRD’s ERM program for corporate lending, it is divided into four management steps including environmental screening, environmental risk assessment and reporting, environmental risk approval and control, and environmental risk monitoring. Within the corporate current credit risk management system described in Chapter 4, the appropriate integration of an ERM procedure would be an environmental screening within the pre-lending controls, ERA, reporting, approval and control in on lending controls, environmental risk monitoring in post-lending controls. Although such an environmental procedure is suitable for the general and common management process of all financing business of corporate customer such as the general financing for working capital lending and project financing, Lloyds TSB’s ERA management framework and Barclays’ ESIA policy will be introduced in the of on-lending controls phase as the useful supplement for EBRD’s ERM program.

In addition, it should be noted that all these procedures could be used either to analyse new corporate customers with potential transactions at the time of their application or to identify existing customers with their current credit portfolio that may present environmental risks to the bank (Knecht, 2003, p.13). In order to make the readers have a overall and clear picture on the systematic and preventive environmental risk management procedure incorporated into the whole credit risk management process of corporate customer in ICBC, the author firstly designs a table which illustrates measures to strengthen environmental risk management during the overall credit risk management process in comparison with the previous limitations of CRMS for corporate customers in ICBC (see Table 5-1). A detailed ERM procedure is provided in the following sub-sections accordingly.

Table 5-1 Preventive ERM procedure design in CRMS for corporate customers in ICBC

Management Step	Previous Limitations	Preventive ERM Procedure Design
Pre-lending Controls	<ol style="list-style-type: none"> 1. Basic industrial credit policies depending on initial industry rating without environmental concerns. 2. Specific customer credit rating with lack of environmental indicators. 	<ol style="list-style-type: none"> 1. Basic industrial credit policies should not only involve national environmental policies and laws, but also utilise specific tools, such as Environmental Exclusion List from EBRD’s environmental program for initial industrial rating. 2. Environmental Screening from EBRD’s environmental program should be incorporated into the process of specific customer credit rating.
On Lending Controls	<ol style="list-style-type: none"> 1. As for the general working capital loans, they have not any environmental concerns. 2. As for the project financing, it only focuses on the written environmental permissions from the environmental authorities. 	<ol style="list-style-type: none"> 1. As for the general working capital loans, they should mainly use EBRD’s environmental program with ERA, reporting, approval and control. Meanwhile, Lloyds TSB’s ERA management framework also can be used as the useful supplementation. 2. As for the project financing, it should take good advantage of Barclays’ ESIA Policy to conduct environmental impact assessment.
Post-lending Controls	<ol style="list-style-type: none"> 1. Lack of necessary environmental risk monitoring and prevention. 	<ol style="list-style-type: none"> 1. Utilise environmental monitoring approach from EBRD’s environmental program.

Source: Generalised from the following analysis and discussion

5.4.2.1 Pre-lending controls

As the starting point, the establishment of the basic credit policies for different industries should be incorporated into enough environmental concerns during the initial industry rating. Here, the independent environmental policy or integrated environmental factor both can be used. On one side, national environmental policies and laws should be utilized as the general tools for the establishment of the basic industrial credit policies. On the other side, the specific environmental tools also should be added here, such as an Environmental Exclusion List (EEL). EEL is a list of activities from different industries that should not be financed by commercial banks. EBRD just designs its EEL with three categories including illegal activities list, exclusion list with serious environmental consequences, and referral list with other hazardous activities (EBRD, 2001). Based on EEL, industry rating can be incorporated into specific environmental activities from various industries, and the industry rating results, i.e. the basic industrial credit policies from customer categorization of “supportive”, “maintained”, “forbidden”, and “exit”, will be apt to environmentally sound industries with relevant customers.

As for the specific corporate customer rating and relevant credit limits, Environmental Screening (ES) can be used as an effective tool to initially prevent environmental risks from corporate customers from credit assets. Speaking roughly, Environmental Screening is the simple filter mechanism by which financial institutions decide which transactions should be subject to the following environmental assessment in the phase of on-lending controls (EBRD, 1995, p.30). A common tool in the screening process is the Business Activity Risk List (BARL) that classifies specific business activities as representing high, medium or low environmental risk. Depending on BARL and other factors, such as the size and term of loan, the nature of collateral, the initial environmental risk rating (IERR) can be made and categorised into high, medium and low risk ranks, and then the rating result can be used to support the traditional customer risk rating as well as the following credit limits (EBRD, 2001).

5.4.2.2 On lending controls

According to the system introduction and findings in Chapter 4 and the current problems found in section 5.1, the current on lending controls mainly involve internal authorization management and approval of credit business, and only project financing has been incorporated with some initial environmental concerns such as official environmental permission without detailed internal and preventive environmental risk assessment, but not other credit business yet. Therefore, in this part, the author intends to utilize EBRD’s environmental program and Lloyds TSB’s ERA management framework for the general working capital loans, and Barclays’ ESIA policy for project financing respectively due to their different applicability.

1. **Mainly utilize EBRD’s environmental program for the general working capital loans.** During the process of on lending controls, EBRD’s environmental program mainly focuses on Environmental Risk Assessment and reporting, approval and control.
 - **ERA and reporting:** Based on the results of initial environmental risk rating from environmental screening during the pre-lending controls, credit officers can carry out appropriate ERA for the potential transaction. For transactions screened as low risk, little further environmental investigation may be required. However, a regulatory compliance check and site visit should be always carried out and credit staff should always judge whether the customer is operating legally. For medium risk, a site visit and detailed regulatory compliance check should always be carried out, and meanwhile

the further environmental investigation should also be carried out by credit staff, mainly involving environmental assessment for customer's raw material procurement and sustainability, waste management, water and energy management, production process etc., sometimes also including discussions with customer managers or regulators if required in some cases. Moreover, if particular environmental issues require clarification, it may be appropriate for bank or customer to engage environmental experts. And finally, an environmental report will normally be required. When facing high risk, the bank should consider the use of environmental audit or other input from environmental experts, in addition to the environmental investigation by credit officers. And in the end, findings should be documented in a final environmental report as well.

- **Environmental risk approval and control:** Following the previous ERA and reporting, the bank is in a position to reject the transaction on environmental grounds or accept the environmental risk subject to measures being taken to control the risk. If the customer's environmental liabilities do not present a significant threat to the customer's viability, ability to repay loan or value of the security, and the bank will not be unduly exposed to risk arising from direct liability or reputation damage, such a transaction will have an acceptable level and approved by the bank, and vice versa. Moreover, from the higher ERM level perspective, during the process of transaction approval, a transaction may be made more attractive with indirect incentive on customer to develop cleaner production. For example, the bank, sometimes with the help of environmental experts, may have identified environment-related opportunities for customer to cut cost and increase sales by cleaner production, such as energy conservation, waste minimization, or development of environmentally sound products etc. This not only helps the bank and the customer reduce environmental risk, but also brings more market opportunities for both of them. In other words, such an internal ERM can be utilized as one internal support for the bank and help move toward the offensive phase of sustainable banking as soon as possible.

Having assessed and documented any environmental risks and opportunities related to the potential transaction, the bank should consider what useful methods can be adopted to control the potential environmental risk of the transaction to the bank. The following methods of risk control are frequently used to reduce potential risk to the bank:

- a) **Revised credit terms**, including reducing the credit term; changing the source of security; re-negotiating interest rates and fees; requiring appropriate indemnifications or guarantees; requiring the customer to undertake proper remedial works prior to or after approval of the transaction.
- b) **Revised credit documentation**, involving revised representations and warranties to ensure that the customer is in compliance with environmental laws and regulations, both before and during the term of loan; revised loan agreements to discourage the customer from committing future environmental violations; affirmative covenants to enable the bank to renegotiate credit terms and security if the customer fails to comply with the original credit terms.
- c) **Environmental risk insurance**. As one effective risk transfer method, environmental risk insurance can be used to protect the customer from the potential environmental loss, which also indirectly makes the bank avoid the relevant financial loss from the customer (EBRD, 1995, p. 34-35).

2. **Refer to the Lloyds TSB's ERA management framework as a useful supplementation** when the bank conducts ERA during the on-lending controls of the general working capital loans. As mentioned in Chapter 2, the Lloyds TSB's ERA management framework mainly focuses on three elements associated with environmental management, i.e. land, process and management.

For the land, the focus is on whether the site is contaminated or not and whether potential contamination exists and its possibility to cause harm to the site, the watercourses and neighbouring property. This can protect the bank from possible direct liability to clean contaminated land site, in case that the lender has to take possession of the land as collateral when the borrowers fail to repay the loan.

For the process and management, the production processes and the management are examined to identify potential pollutants and pollution sources and to evaluate the environmental management of the potential borrowers. This can prevent the bank from indirect and reputation risks. Although such a managing thinking does not present more detailed environmental procedure to the bank, it can provide one supplementary and significant management framework to the bank when conducting ERA work, by which the most sensitive elements, such as above-mentioned land, process and management, can be taken as priority by the bank to deal with.

3. Take good advantage of Barclays' ESIA policy to conduct environmental impact assessment (EIA) for project financing. As the core business of corporate financing, project financing often requires the necessary EIA during its project appraisal process as the main ground of financing. Due to the limitation of ICBC's project appraisal policy as mentioned before, one systematic and preventive EIA should be adopted urgently as soon as possible. As Barclays, a leading commercial bank with respect to EIA for its project financing, has developed its EIA policy into the new ESIA policy which is of more sustainability and applicability, the author strongly recommends that ICBC should incorporate a similar policy into the current project appraisal process. As mentioned in Chapter 2, such a policy mainly involves the following aspects during policy implementation²⁸ (Barclays, n.d.-b, p.4-5).

- **Scope of Barclays' Environmental and Social Impact Assessment Policy (ESIA):** The Barclays' ESIA policy covers their business worldwide when considering financing, advising or other roles related to projects, and applies in the following circumstances: (1). where there is a legal requirement for the project developer to conduct an environmental and social impact assessment and/or; (2). where Equator Principles apply; (3). where there is a known application of funds to a potentially sensitive project; (4). there is no minimum financial threshold for the application of Barclays ESIA policy.
- **Project Assessment Process:** Barclays requires an ESIA to be undertaken for all transactions that fall within the scope of their ESIA Policy. This must comply with Barclays minimum requirements for an ESIA (See Appendix-5) and be undertaken by an independent consultant that appears on their preferred panel²⁹. If an ESIA has

²⁸ The detailed implementation process is presented in Appendix-3.

²⁹ Barclays has a panel of preferred independent consultants for undertaking ESIA reviews. The panel consists of 19 firms of consultants which have been selected on a global basis for their environmental and social risk expertise, industry and geographical strengths and experience of working with financial institutions. The consultants' ongoing suitability is assessed

already been undertaken in connection with the relevant project, but does not meet the above requirements, then Barclays requires a second opinion of the ESIA be commissioned and undertaken by an independent consultant that appears on their preferred panel, in accordance with their minimum requirements for a second opinion of an ESIA (See Appendix-5). Their aim is to ensure they have access to an objective, comprehensive and professional report on the environmental and social risks associated with the project.

- **Post ESIA process:** In this process, the independent consultant will confirm whether the project currently meets the requirements of their ESIA policy and the Equator Principles. They are required to highlight areas where full compliance is not clear, alongside recommended actions that will need to be taken in order for the project to work towards compliance. The consultant is also expected to provide guidance on the associated costs and timescales. Barclays will then work with the consultants and their customer to understand whether the recommended actions to attain Equator compliance are achievable in the project and commercial context. If this is so, the actions will be incorporated into an Environmental and Social Management Plan.

The implementation and monitoring of such plans is covenanted in the loan documentation, i.e. it becomes a condition of the loan agreement. Additionally, if Barclays feels that that the required action may prove too challenging to implement, or the customer is unwilling to proceed, they will decline to participate in the project. However, as a general rule, Barclays prefers to collaborate to improve project standards rather than simply step aside to allow a potentially less environmentally or socially inclined financial institution to support the transaction.

5.4.2.3 Post-lending controls

As mentioned before, although a set of early warning systems has been established to prevent risks from customers, it is still not enough due to lack of necessary environmental risk monitoring and prevention.

According to EBRD's environmental program, environmental monitoring is the process of regularly gathering and maintaining information related to environmental risks during the lifetime of the transaction (EBRD, 2001).

As environmental risk may change during the term of a transaction, environmental monitoring is needed and should be focus on the following aspects:

1. the customer's ongoing compliance with environmental regulation;
2. the customer's ongoing compliance with any environmental conditions included in the loan agreement;

on a regular basis. The panel was reviewed most recently in Spring 2005. To support the implementation of Barclays ESIA Policy, the process is fully documented with a policy statement, process document, a categorisation tool, ESIA scoping documents and the topical record of preferred consultants. These documents are available to all their employees electronically. (Barclays, n.d.-b, p.7)

3. regulatory trend, i.e. changing environmental laws and regulations may introduce new standards that cannot easily be met by the customer, hence exposing both parties to new sources of risk and liability;
4. changes in the business activities or processes carried out by the customer. As the response to the above-mentioned works, periodic summary environmental report should be required by the bank as one main part of the whole post-lending control report.

5.4.3 Internal pillars for strengthening ERM in ICBC

In order to make the preventive ERM procedure operate more efficiently, the following internal and external pillars for strengthening ERM in ICBC and initial pilot projects in some selected branches are particularly necessary. In this section, the relevant internal pillars are presented firstly, which mainly include restructuring the current organizational structure of credit risk management system. ICBC needs a new ERM function unit at the head office level, and staff training for ERM from all tiers of branches to sub-branches.

From the global sense, some foreign banks have provided good templates for the internal pillars for strengthening ERM. Barclays is just one advanced leader in this aspect. Up to now, it has established a matured ERM organizational structure at its group level. The Group Chief Administrative Officer is the policy sponsor, who is empowered by the Group Chief Executive as the top manager to sanction the subordinate policies and procedures. The Group Environmental Management is the owner of the policy, responsible for ensuring the environmental policies are developed and implemented, through an Environmental Director. The Environmental Steering Group is the consultative body to the policy sponsor, comprising the senior representatives from major business areas and functions, who are responsible for overseeing implementations. The Group is ensuring that an effective structure is in place for delivering compliance with the policy within their own business areas. The Environmental Risk Management Unit is the specific function Unit, responsible for incorporating environmental considerations into the lending process (Barclays, 2005).

According to the good practice from Barclays' staff training program, we also can find some useful implication. As part of Barclays ongoing commitment to sustainability, they continue to focus on raising the awareness of environmental and social risk issues among employees across their global operations. Training frontline employees helps Barclays ensure environmental and social risks are considered alongside more traditional business risks when lending decisions are made. For example, in 2004 members of Barclays Capital's lending, credit and syndication teams took part in a half-day workshop covering environmental and social impact assessments. Additionally, Barclays' Environmental Champions in Africa have undertaken distance learning courses to reinforce their awareness of environmental issues in lending. Further, in 2005 they will be providing training to Barclays operations in Asia, and reinforcing training in their London headquarters (Barclays, n.d.-b, p.2).

According to the three steps of credit risk management for corporate customers in ICBC, (pre-lending controls, on lending controls and post-lending controls), the working capital loan or project financing business will also follow process of business acceptance and initial review at the sub-branch level and submission to higher-level branches for approval or rejection at the city or provincial branch and even the head office according to different potential financing amount, and post-business management at the sub-branch level. Thus, the ERM function, as an integrated part of the overall credit risk management system, should be added into the relevant credit management departments from the head office to sub-branches. In other words, all of relevant credit risk management staff should incorporate relevant ERM

procedure into their daily business operations according to their different business responsibilities and competence. Therefore, the author suggests that at the level of head office, ICBC should be highlighted much more with addition to new ERM function or function unit, whereby ICBC can establish a uniform ERM procedure policy for the whole ICBC scope. Depending on it, the new ERM function should also be added into all tiers of branches and sub-branches accordingly by means of staff training on ERM conducted by the head office, which can make such credit risk managing staff have enough capacity to strengthen ERM in daily business operations.

To further illustrate how the proposed internal pillars for strengthening ERM within the credit risk management system of corporate customer in ICBC, the author hereby suggests a modified organizational structure based on the structure presented in Figure 4-2, Chapter 4. The Business Development System (BDS) is not included in this new figure due to different function for corporate financing (see Figure 5-1).

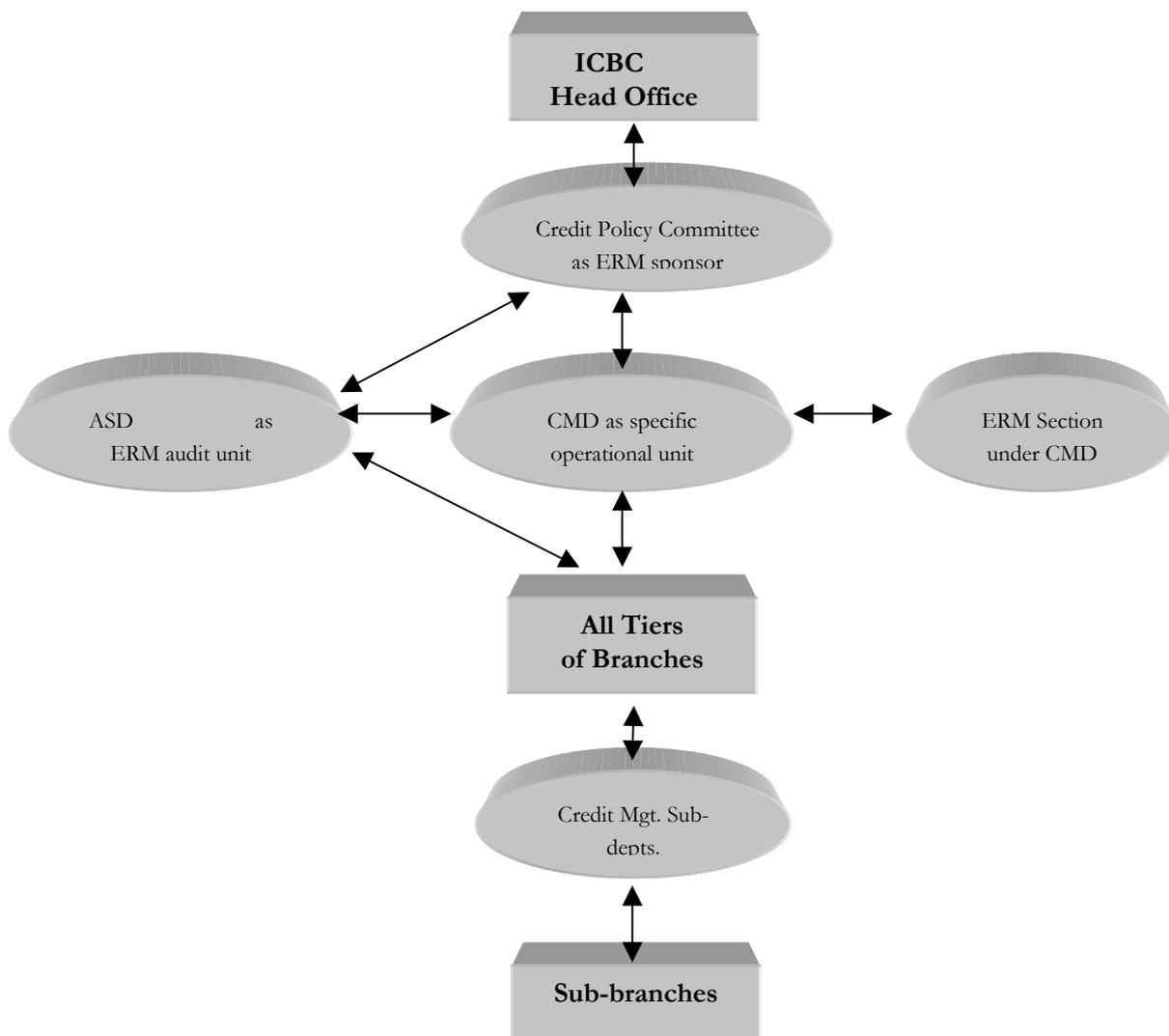


Figure 5-1 Proposed new CRMS for corporate customers with ERM in ICBC³⁰

Source: Generalized from the following analysis and discussion and based on Figure 4-2

³⁰ According to this figure, those rectangles represent different bank levels from head office to sub-branches, and those ellipses represents various function units for credit risk management with ERM function at different bank levels.

5.4.3.1 Restructuring organizational structure at the head office level

In order to develop the uniform ERM procedure within the whole ICBC scope, ICBC head office may need to introduce new ERM function or function unit, whereby uniform ERM procedure policy and staff training at all tiers of branches can be realized. It is not only the requirement of domestic and global drivers for strengthening ERM on the ICBC head office, but also a cost-effective way to restructure organizational structure of credit risk management system.

- **Credit Policy Committee as ERM sponsor**

Under the authorization from ICBC board, Credit Policy Committee (CPC) should be added into the function of ERM sponsor. It should be of responsibility to call on and promulgate the ERM procedure polices, such as Initial Environmental Risk Rating (IERR) Policy, ERA Policy, EIA or ESIA Policy etc. And at the same time, it should control such regulation's implementation and timely update, and make some final approval decisions within its business authorization.

- **Credit Management Department as specific operational unit**

As mentioned above, Credit Management Departments (CMD) at head office is responsible for the overall credit risk management process. Needless to say, the relevant ERM function, such as the detailed implementation of those ERM policies mentioned above, should be incorporated into the whole credit risk management process within such a department according to different financing businesses. Additionally, a new function unit named ERM section should be imperative to be set up under CMD, meanwhile ICBC should foster own environmental specialists through employing the social environmental practitioners with relevant banking training, or bringing up own staff for external environmental education and training, and then empower and appoint them as the managers of the ERM section. As results, such a ERM section with those environmental specialists will act as the following useful business functions:

1. They can become the major members of Credit Policy Committee and be responsible for drafting the detailed ERM procedure policies with other members from different business areas and functions;
2. They can direct the practical implementation of ERM procedure in different financing sections under CMD, such as project financing section, working capital loan section, and provide necessary consultation and mental support to such sections so as to ensure the operating quality of ERM;
3. They can become the main ERM leaders to satisfy the training or consultation demand from all tiers of branches, even as well as the front-line staff training in sub-branches;
4. They also can act as the useful environmental coordinators for external environmental experts and consultant panel, external stakeholder communication, external auditing and international cooperation etc.

- **Auditing and Supervisory Department (ASD) as ERM audit unit**

In order to externally audit and ensure the successful operation of ERM in CMD, ERM audit unit should be established as an independent department in ICBC. In principle, ERM audit unit is mainly responsible for monitoring ERM activities and the implementation of relevant

environmental policies with the function of internal auditing. If discovering potential risk cases, it must report to the top managers with its sanction proposals. Currently in ICBC, ASD has already been established as an parallel department of CMD to audit those business non-compliance cases. Thus, under the empowerment of CPC, ERM audit function should be added directly into this department as soon as possible. As for the capacity building of ERM in ASD, they can ask for the helps of those environmental specialists from the ERM section under CMD. Therefore, all of these will ensure the more safe operation of ERM within the whole ICBC scope.

5.4.3.2 Staff training from all tiers of branches to sub-branches

As mentioned in Chapter 4, one significant barrier to strengthening ERM is a lack of sufficient capacity building with sufficient staff training. As good management derives from good staff capacity, capacity building and staff training should be paid more attention by ICBC head office. Thus, ICBC head office should plan and implement a series of staff training program from all tiers of branches to sub-branches to ensure the successful operation of ERM procedure policy accordingly. As for the proper training resource, the author believes that the above-mentioned environmental specialists from the ERM section under CMD of ICBC head office can be used as useful training resources. Besides that, external resource in various branches, such as external experts or ERM training projects, are also utilised by the branches or sub-branches. As results, the relevant credit risk managing staff from branches to sub-branches, especially the front-line staff in sub-branches, will have enough capacity to implement the ERM procedure policy from the ICBC head office in an efficient and effective way.

5.4.4 External pillars for strengthening ERM in ICBC

In comparison with the above internal pillars, external pillars should be included into ICBC's operation agenda as well, mainly involving environmental experts and consultant panel, ERM technical support, stakeholders' communication, and seeking for more corporation opportunities with international financial institutions.

5.4.4.1 External environmental experts and consultant panel

In order to strongly support for the quality of ERM, external environmental experts and a consultant panel should be needed currently. When referring to the general working capital loans with significant environmental impacts, ICBC should consider employing environmental experts. Such experts should be chosen from those authoritative research institutes or first-class environmental assessment agencies with a credible reputation. According to the appraisal of project financing, ICBC may refer to the experience of Barclays' ESIA policy, and employ a panel of preferred independent consultant for undertaking relevant EIA reviews, and consultants can be choose by individual or organizational standards involving various areas such as the environment, industry and society.

5.4.4.2 External ERM technical support

External ERM technical support should also be urgently needed in ICBC's staff training as well as the practical operational process of ERM. Here, the term technical involves one extensive scope which includes as follows:

- Support from environmental experts and institutions. As mentioned before, authoritative environmental experts or institutions can help ICBC not only improve its practical ERM

but also be used as one good resource for staff training; moreover, some famous environmental academic or research institutions, such as IIIIE of Lund University of Sweden, also provide much help to direct ICBC's staff training and practical works. For example, ICBC Shandong Branch sent one group of senior executives to IIIIE for a short-term environmental management training in October 2003, and meanwhile selected relevant staff to study MSc course of environmental management and policy in IIIIE respectively in 2003 and 2004.

- Knowledge support from certain environmental management manuals and guidelines, such as the World Bank's *EA Sourcebook* and *Pollution and Prevention Abatement Handbook*, IFC's *Environmental Safeguard Policy and Procedure*, EBRD's *Environmental Risk Management Manual*, ADB's *Environmental Operations Manual*, as well as other commercial banks' good ERM procedures, just such as Barclays' *ESIA Policy* etc.
- In addition to the above-mentioned useful resources, some business-related environmental guidelines and training programs also can be utilised to serve for ICBC's staff training and business operations, such as effective reference standards – ISO14001 and CP. Through the analysis above, this risk management process just likes the external environmental auditing to corporate customers. Frankly speaking, this whole process should be based on the concept of Environmental Management System (EMS). EMS provides a framework for any business to improve its environmental performance and provide evidence of environmental improvement to other parties. As the useful international standard, ISO14001 provides huge help for the development of EMS (Brorson, et al, 1999, p.15-16).

As for banks, they should focus on the EMS of potential customers while assessing their environmental performance with the standard of ISO14000. However, from the point view of sustainable banking, this is not enough. When banks implement environment risk management in the phase of preventive banking as mentioned above, they should also consider how to upgrade the management standard on customers so as to provide more incentives on them to develop cleaner production. This will generate investment opportunities which in turn will further motivate banks to move to the next phase – offensive banking and ultimately approaching sustainable banking. Therefore, the credit managers should keep the concept of CP in mind, and at the same time some standards about CP also should be integrated into the whole process of environmental risk management. Accordingly, UNEP's *CP Training Program*³¹ can be used as one effective mental resource.

5.4.4.3 Stakeholder communication

As one significant actor in the society, ICBC should add the elements of stakeholders communication into its ERM practice currently, which can upgrade ICBC's ERM quality, transparency and social reputation. As mentioned in the research findings in Chapter 4, both inadequate internal and external environmental information and some local governmental political interference and lack of leadership will give rise to negative impacts on ICBC's ERM. Therefore, strengthening stakeholders' communication should be imperative. On one side, internal communication among top managers, credit managers, and frontline credit staff from head office to branches, should be strengthened as efficiently as possible. On the other side,

³¹ The training courses in detail can be found available at the following website:
<http://www.financingcp.org/training/menu/NewTrainingModules.htm>. [28 July 2005].

external communication with governments, environmental authorities, customers, NGOs and the public should also be made frequently. Examples could include environmental policy updates and information from governments and environmental authorities, new environmental responses and trends from NGOs and the public and so forth.. Particularly for financing for large projects,, public participation, such as public investigation should be utilised as an important reference element for the project' assessment and approval to avoid reputation risk and potential financial loss.

5.4.4.4 International cooperation

As ICBC has been on the road to international operation, seeking for increased opportunities for cooperation with international financial institutions leads not only to reduced environmental risks through learning from good practices but also to increased market opportunities and a better international reputation for ICBC.. Take the World Bank Group and the Asia Development Bank as examples. These banks have developed relatively complete ERM policies and procedures in their financing projects within their member countries. By aid of the project financing through a financial intermediary from the host country, ICBC can take full advantage of good environmental management resources and “green” funds to re-lend to domestic customers or projects. Through this ICBC can acquire much more ERM experiences and market share while improving its international reputation and competitive advantage as well.

5.4.5 Proposition for pilot projects in selected branches

Although systematic environmental risk management should be strengthened as soon as possible, ICBC has to consider the implementation efficiency and effectiveness of ERM. As different branches have various conditions and background, the success of the overall ERM program could be threatened by some potential uncertainties. Therefore, pilot programs in selected branches should be initiated and developed for creating successful examples that can lead to the final success across ICBC.

Therefore, under the precondition of the first innovation of ERM in ICBC's Head Office, some branches can be selected as pilot branches initially. Here, the author recommends that ICBC Shandong Branch and other branches such as Beijing Branch, Shanghai Branch etc., all can be selected as trial cases. Especially for ICBC Shandong Branch, as it has developed a relatively advanced credit risk management system and staff with increasing environmental awareness while facing lots of environmental issues from its corporate customers, it will be more instructive and meaningful to provide a good example for other branches' ERM innovation.

6 Analysis and discussion II: further implement green financing as offensive strategy in near future

According to the previous analysis and discussion in Chapter 5, we can understand that ICBC have to strengthen its ERM currently in order to move toward the preventive phase of sustainable banking. In this chapter, the author attempts to analyse and discuss the Business Development System for corporate customers in ICBC, aiming to generalise the main limitations of the BDS currently and its current barriers and potential opportunities for implementing a green financing strategy. Based on this, the conclusion can be drawn that ICBC needs to plan its environmental financing business currently and seek potential opportunities to implement green financing as offensive strategy in the near future. That can help ICBC and other Chinese commercial banks to move toward the offensive banking phase, which will support the final goal of sustainable banking. In the end, depending on the above inputs, the author will address the third research question of the thesis, i.e. *what should ICBC's future policies of green financing be?*

6.1 Main limitations of Business Development System for corporate customers in ICBC

With the assistance of the literature review, the questionnaire investigation and personal interviews with ICBC, the main limitations of the BDS of corporate customer in ICBC are generalized in this part.

At present, although partial business marketing staff to some extent have gradually recognised the concept of CSR and its significance in the credit business marketing, the basic marketing policy mentioned in Chapter 4 has not yet been incorporated into with CSR as one main marketing ethics and mindset. This consequently leads to a lack of a relevant long-term environmental financing vision in marketing objectives, targeted markets and customers, as well as marketing strategies, other than much more concerns in those industries with more obvious short-term economic benefits, such as traditional coal-fired power plant or advanced IT technology and service industry etc.

As for the practical credit marketing business, ICBC still puts green financing in a minor place and does not regard it as the mainstream issues. For example, to date, the industrial categorization of environmental protection sectors are still rated as “forbidden” or “exit” with less funding support and marketing concern. Similarly, renewable energy industries, such as wind power, solar energy related industries and biomass technology industries, have not yet been on the marketing agenda of top managers. In addition, other environmental financing products, such as a CP financing product, has also been in the initial research stage without further actual development and marketing (Zhao, 2005, personal interview).

6.2 Current barriers to implement green financing in ICBC

According to the four-phase theory of sustainable banking, the offensive strategy phase, such as green financing, should be the higher phase approaching sustainability above the preventive ERM stage. However, at present, commercial banks in China still need some time to reach this phase due to the current internal and external barriers to implement green financing within ICBC.

Based on the macro overview of credit business marketing in China and the in-depth case study on the Business Development System for corporate customers in ICBC, we can see that

there are still some barriers to implement green financing in ICBC and also other commercial banks in China. From the internal perspective, it can be seen from the previous research that the main barriers are a lack of environmental financing awareness and vision, as well as lack of competent marketing staff with sufficient green financing knowledge. As for top managers, they have not yet demonstrated interest in green financing projects due to a reduced awareness of environmental financing. There is a belief that such projects require large capital investment and longer return periods, resulting in greater uncertainty and financial risks. Consequently, the relevant marketing policies are also a lack of detailed green financing support which does not provide incentives to frontline marketing staff to market environmentally friendly products. At the same time, most marketing staff have insufficient capacity and knowledge to seek and market environmental financing projects. In these cases, they are usually unwilling to engage in such project areas with their so-called risk minimisation and profit maximisation.

However, the main barrier is from the external factors existing currently in China. One barrier is that government does not presently provide incentives for commercial banks to engage in green financing markets. The government still mainly depends on the fiscal channel or those development projects from the three policy banks, i.e. China Development Bank (CDB), the Import and Export Bank of China (IEBC), the Agricultural Development Bank of China (ADBC). Therefore, there is lack of relevant policy requirements and support which leads to reduced interest among commercial banks to invest such projects. Moreover, in some cases for the sake of political achievement, some local governments also mislead some commercial banks to finance so-called green projects which lack sufficient environmental assessment and management, which will impose the “lock-in” effect on the banks and make them suffer some financial loss in the end. Consequently, some commercial banks have to some extent an aversion to financing environmental projects where government is involved as a sponsor. Additionally, as for the green financing markets, they also have many limitations or barriers for commercial banks to get in. For example, slow development of the CP market, less efficient management and benefits of environmental protection sector, the immature renewable energy market with less price advantage than the traditional energy market etc. All of these factors can lead to commercial banks concluding that the environmental financing market is too risky and complex.

6.3 Potential opportunities for implementing green financing in ICBC

Although currently there are many internal and external barriers for commercial banks, from the sustainable development perspective and the current trend toward environmental financing as main external driving forces mentioned in Section 3.3, there will be numerous potential opportunities for ICBC and other commercial banks in China to implement green financing in near future.

As for the environmental market itself currently, inadequate financing and investment for environmental improvement will lead to the potential huge funding gap and demand for commercial banks' engagement due to intensified market competition among commercial banks stemming the emerging buyer's financial market in China. This will stimulate commercial banks to develop new markets and financial products, such as financing environmental market under the direction of CSR, to retain their competitive advantage., Additionally, as mentioned in section 3.2.4, to meet the requirements of China's ascension to the WTO and the need for increased competitiveness under economic globalisation, Chinese industry will have to become more efficient. This is not only a driving force for exporting enterprises and their financing banks to strengthen ERM currently, but also to some extent an opportunity for domestic industrial enterprises to improve utilisation of resources and conservation. Means to achieve this include importing cleaner and efficient technology, such

as projects under Clean Development Mechanism (CDM) introduced in the Kyoto Protocol. So it can be estimated that Chinese industrial businesses will have higher funding demand to meet their environmental financing projects in near future.

Moreover, the general attitude and response of the government will be more and more proactive, and will adopt more proactive ways to call on and motivate commercial banks to implement green financing in the near future through more policy and financial support. Among others, with the production of environmental improvement laws, such as the Cleaner Production Promotion Act and the Renewable Energy Law, the central government has been placing greater attention on this aspect. Taking the Renewable Energy Law as an example, while it lacked detail in some aspects particularly respecting quantitative targets, time schedules for detailed directives, definite tariffs or principles and definite regulations for burden sharing, it has created a framework for long-term security of investment in the renewable energy market in near future (Langniss, 2005, personal interview). In addition, as mentioned before, the National Eleventh Five-Year plan scheduled to be produced in the near future has been estimated by relevant authoritative experts to demonstrate that the government will further adjust the national industrial structure and adopt more preferable policies to support CP investment, recycling industries as well as environmental protection sectors. Therefore, more funding channel will be produced and more private investors will also engage in the environmental financing market. So as for commercial banks, some proactive and offensive strategies will need to be established as soon as possible and appropriate opportunities sought to enhance the green financing business in near future.

6.4 Initial near term policy suggestions for implementing green financing

Based on the previous analysis and discussion, it can be seen that although ICBC does not yet consider environmental issues or environmental financing due to internal and external barriers, there will be increasing potential opportunities for ICBC to implement a green financing strategy in near future. Thus, in order to increase environmental market share and realise competitive advantages as early as possible, ICBC should establish a relevant green financing policy and afterwards seek for opportunities to gradually penetrate into the environmental financing market. By doing so ICBC can make the transition from preventive to offensive banking in the near future which will support the transition to sustainable banking. Accordingly, initial near term policy suggestions for ICBC's green financing strategy are made as follows:

- **Initially establish an environmental marketing policy with CSR as the marketing direction.**

ICBC should incorporate environmental financing content into its current corporate business marketing policy, and develop a long-term marketing vision or policy for green financing. Among others, a CSR business ethic must be cited and built up by ICBC as a new marketing direction applied to daily external operations. Facing the trend with intensifying competition among commercial banks, ICBC needs to research and develop new environmental or ecologically sound financing products or product group services which will be a new market in near future. Thus, ICBC has to take steps as early as possible to shift such financing areas under the direction of CSR, as was done by Rabobank of the Netherlands as discussed in Chapter 2.

- **Gradually penetrate into green financing market with internal support from ERM.**

As previously mentioned, the offensive phase of sustainable banking is not separated from the preventive phase with internal ERM, which is integral to both. As an internal support, a good environmental risk management system can reduce relevant credit risk from business marketing while also to some extent providing more marketing opportunities identified during the environmental risk management process, such as CP investment. Thus, ICBC's marketing staff should take advantage of those useful resources from internal ERM and identify the environmentally sound projects and financing demand, and then penetrate into environmental financing market gradually.

- **Offensively seek for potential markets by external support and cooperation.**

Offensive strategy for green financing mainly depends on external marketing factors, such as the governmental support for the development of environmental financing markets, external information and technical support, as well as international project cooperation under the policy framework of Cleaner Development Mechanism.

Take cleaner production as an example. The government should work together with the banks to educate staff and the industrial staff of the benefits of CP and provide special training programs on implementing prevention oriented programs in industry. Moreover, the banks should make such education available and should also make many different types of loans available at lower interest rates to companies that incorporate prevention approaches such as CP into their corporate policies, products and stakeholder relations by which CP market will be developed as well as possible (Huisinigh, 2005, personal interview).

Another example comes from the development of the renewable energy market. From the global sense, most fund resources mainly come from commercial banks as private investors in most developed countries. In many cases, such financial institutions usually make the contract or agreement with the relevant governments by which the higher level of credit guarantee from the governmental side will bring more incentives to such banks to engage in those renewable energy markets, such as wind energy power projects, solar-related technical market etc. (Johansson, 2005, personal interview). So as for Chinese governments, they should not complain that most commercial banks are reluctant for those environmental financing projects, and should think about how to bring more incentives to them with higher creditability and profitability for such environmental projects. Methods to achieve this include preferable fiscal policy support with tax credits, financial subsidies, guarantee agreements with commercial banks, as well as creating price advantage for RE projects relative to conventional energy projects. Additionally, as for commercial banks, they should also take active steps to lobby the government to create more preferable conditions of RE market so as to make the banks available in implementing their green financing strategy.

Due to most environmental projects mainly depending on advanced information and technology, it is necessary for commercial banks in China have to seek external environmental technical experts and information systems or organizations to ensure the project's safety and profitability. The following German commercial banks' experiences in RE market will be hoped to bring some implications to Chinese projects. In the past, only a state bank (former Deutsche Ausgleichsbank now merged with Kreditanstalt für Wiederaufbau KfW) provided soft loans with low interest rates and redemption free periods up to 75% of the investment. Wind power plants in particular were in the past

financed in this manner. Commercial banks were rather reluctant to pass through these loans so that in the beginning one small commercial bank which had got acquainted with the technology very early provided most of these loans. Right now, almost all larger commercial banks are familiar with renewable energy technologies and have employed external technical experts and information systems or organizations that apply to all renewable energy technologies (RETs). Additionally, workshops are also a good knowledge resource for commercial banks' staff to acquire relevant green financing information conveniently (Langniss, 2005, personal interview).

Last but not least, seeking new opportunities for international project cooperation under the policy framework of the Cleaner Development Mechanism is another appropriate option to commercial banks in China as well. Although China is not a party to the Kyoto Protocol, the Chinese government has been developing the formulation of climate change policies and is actively seeking international CDM projects (Streets, et al, 2001). With the Kyoto Protocol formally in operation on 16 February 2005, as a potentially huge CDM market, China will have increased opportunities to receive international funding and CP technical support. Therefore, Chinese commercial banks should also shift their marketing focus to such projects with relevant financing or investing consultant services with more profitability, such as Beijing Anding Waste Composting Project, Inner Mongolia Huntenggele Wind Power Farm Project (Ning, 2005).

7 Conclusions and recommendations

7.1 Conclusions

Based on the previous research, analysis and suggestion, relevant conclusions are presented in this section with the aim of addressing the research questions posed in this thesis.

Under the general global trend toward sustainable development financial institutions, particularly commercial banks, have been involved due to their very significant roles in economic life. Therefore, interest in sustainable banking has gradually grown and has come to be regarded as a goal for the banks to pursue.

From the theoretical perspective, there are four development phases for banks to reach the goal of sustainability. These are the defensive phase, the preventive phase, the offensive phase and the final phase of sustainable banking. Among others, environmental risk management and green financing with CSR are regarded as two good development strategies or approaches in the preventive and phases. From the global sense, most banks in developed countries have been in the preventive phase with various ERM policies and tools. These have provided instructive examples for banks operating in developing countries such as the World Bank and IFC, EBRD and ADB, as well as banks such as Barclays and Lloyds TSB. In addition, green financing remains a new business area for most commercial banks to develop, however some leading banks have been in the offensive phase with their environmental financing products. Example so f these are Rabobank of the Netherlands, Barclays, Bank of America, Deutsche Bank, Citigroup and others.

In order to explore the appropriate pathway for Chinese commercial banks toward sustainable banking, the whole Chinese banking internal system and the main external driving forces towards sustainable banking in China was firstly presented as macro level background information for readers. Through it, it was shown that Chinese banking has evolved into an advanced economic system. Nonetheless, it still lacks sufficient environmental considerations, such as an ERM system and green financing and marketing according to CSR principles. At the same time, those issues related to sustainable banking in China have also been providing huge external driving forces to commercial banks for their sustainable development.

As for strengthening ERM currently, the main external driving forces are:

1. Domestic drivers, including increased industrial environmental pollution and insufficient environmental management from industrial enterprises, more stringent governmental environmental regulations, huge public green procurement, and more positive environmental response from NGOs and the public;
2. Global drivers, such as growing environmental concerns arising due to economic globalisation and China's ascension to the WTO, including global demand for green trade and economy, potential losses for exporting enterprises from green non-tariff barriers due to a lack of qualified green products produced under CP approaches or ISO 14001 certification.

As for implementing green financing in near future, the external driving forces are mainly involving:

1. Inadequate financing and investment for environmental improvement which will become potential and huge fund demand market for commercial banks;
2. More proactive environmental response from the government to call on commercial banks to finance environmental market.

In order to seek an appropriate pathway for Chinese commercial banks to sustainability, ICBC was chosen as a focus area to research its financing system for corporate customers by means of a case study. Through the initial research and findings on this system, the first research question is was addressed, i.e. *how should the current financing system of corporate customer in ICBC deal with issues related to environmental risks and financing at present?*

Currently, the financing system for corporate customers in ICBC is divided into the two sub-systems of an internal control system (credit risk management system-CRMS) and an external marketing system (business development system-BDS). According to the CRMS, ICBC established a comparatively advanced internal credit risk control mechanism used to avoid financial risks from corporate customers. it can be said that some initial environmental considerations have been integrated into its daily business operations including seeking written official authentication from relevant environmental authorities prior to providing project financing. From the perspective of sustainable development and banking, however, such a system is insufficient to mitigate the increasing environmental risks from current and future customers in the absence of a systematic and institutionalised ERM system. With respect to the BDS sub-system, green financing has not yet been included in the current marketing agenda of corporate financing.

Green financing is positively expected to become a major aspect of future marketing, and at the same time the concept of CSR should become the primary business ethic to direct future marketing activities. But currently, the main barrier to implementing green financing is mainly from sources external to ICBC. Specifically, inadequate support from government has affected the competitive position of environmental financing projects. Therefore, based on the above initial research in combination with the four-phase theory of sustainable banking, the author takes the position that an appropriate pathway for ICBC and other commercial banks in China lies with strengthening ERM currently and further implementing green financing in near future.

Just following such a pathway to sustainable banking, the credit risk management system was first analysed and discussed in depth to address the second research question, i.e. *how can ICBC strengthen ERM as preventive strategy towards sustainable banking currently?*

As previously mentioned, while ICBC has already established a relatively advanced ERM system based on purely economic terms, due to numerous environmental challenges, ICBC needs to incorporate a systematic ERM into its overall credit risk management process currently. Therefore, the relevant management design can be made as follows based on based on ERM best practice in international banks and the internal ICBC situation:

1. Corporate governance with proactive environmental consideration;
2. Incorporate a preventive ERM procedure into the current credit risk management system for corporate customers. Relevant examples can be found in the EBRD environmental program, Lloyds TSB ERA management framework, and Barclays ESIA Policy;

3. Internal pillars from restructuring of the organizational structure of the credit risk management system at the head office level, and staff training from all tiers of branches to sub-branches;
4. External pillars from external environmental experts and consultant panel, external ERM technical support, stakeholders communication and international cooperation;
5. Proposition for pilot projects in selected branches.

Based on the previous analysis and discussion, we can see that although at present ICBC has not yet enough environmental consideration for environmental financing due to internal and external barriers, there will be increasing potential opportunities for ICBC to implement green financing strategy in near future. Thus, in order to win a greater environmental market share and competitive advantage as early as possible, ICBC should establish a relevant green financing policy to be applied now and in the future. Thereafter, opportunities should be sought to gradually penetrate into the environmental financing market, by which ICBC can complete the transition from preventive to offensive banking in near future to further approach the sustainable banking phase. Accordingly, initial policy suggestions for ICBC's green financing strategy in the near future are made here to address the third research question of the thesis, i.e. *what should ICBC's future policies of green financing be?* The relevant suggestions are presented as follows:

1. Initially establish an environmental marketing policy using CSR as a marketing direction;
2. Gradually penetrate into the green financing market with internal support from ERM;
3. Offensively seek potential markets taking advantage of external support and cooperation.

In summary, according to the global trend and the current Chinese banking situation, strengthening environmental risk management should be an imperative task for ICBC and other commercial banks. This is the first step toward the preventive phase of sustainable banking. At the same time, ICBC should also establish an offensive green financing policy and strategy from now on and actively seek potential opportunities to enlarge market share in environmental financing in near future. This will help the bank further move toward the offensive phase of sustainable banking. To sum up, the appropriate pathway for ICBC and other Chinese commercial banks to sustainable banking should be through strengthening ERM currently and implementing a green financing strategy in near future – in words from ERM to green financing.

7.2 Recommendations

Of course, the pathway to sustainable banking in China is just one general and appropriate alternative for most commercial banks to pursue. But, it is not to say that such a pathway is absolutely fixed and once for all. Due to the complexity of banking and different situations within different financial units, other potential pathways could also be followed. For example, a new niche player may be able to operate in an offensive or even sustainable manner from the outset (Jeucken, 2001, p.71). Therefore, specific banks will need at times to consider its management priority and actual operational conditions so as to design an optimal pathway toward sustainable banking. For example, some small-scale commercial banks can implement an offensive strategy to support SMEs' CP investment and other environmental financing as their particular competitive advantage and business ethic.

Additionally, as for banking regulatory organisations such as PBC and CBRC, they should consider establishing appropriate policies to ensure the effective enforcement of ERM in commercial banks. As one effective external force, they should include some more compulsory provisions into the current banking legislation and regulations, or establish and promulgate new banking regulations on ERM policy or procedure to commercial banks as a potentially useful command-and-control approach.

As for the government, it should further improve the conditions of the environmental market to provide more incentives for commercial banks to engage in environmental financing. Specific measures as examples include more preferable governmental fiscal supports, such as environmental funds, tax credits, fiscal subsidies, and policy banks' credit with lower interest rates and so forth. At the same time, commercial banks with the assistance of banking associations should actively lobby government to develop new environmentally sound policies to motivate these banks to implement green financing in near future.

Bibliography

Printed References

- Asian Development Bank (ADB). (2005). *ADB's Annual Report 2004*. Manila: Asian Development Bank.
- A Great Wall of Waste. (2004). *The Economist*, 372 (8389), p. 55-57.
- Bessis, Joel. (1998). *Risk Management in Banking*. West Sussex: John Wiley & Sons Ltd.
- Bouma, Jan, Jaap, Jeucken, Marcel & Klinkers, Leon. (2001). *Sustainable Banking: The Greening of Finance*. Sheffield, UK: Greenleaf Publishing Limited.
- Brorson, Torbjorn, & Larsson, Gosta. (1999). *Environmental Management* (3rd ed.). Sweden, Stockholm: EMS AB.
- Chen, Chunlai & Huang, Jikun. (1999). *Effects of Trade Liberalization on Agriculture in China: Institutional and Structural Aspects*. Bogor, Indonesia: CGPRT Centre.
- China Workshop for Environmental Financing Mechanism (CWEFM). (2004). *Innovation on the financing and investment mechanism of environmental protection*. Beijing, China: China Environmental Science Press. (Chinese).
- Coulson, Andrea B. (2001). *Corporate Environmental Assessment by a Bank Lender: The reality*. In Bouma, Jan, Jaap, Jeucken, Marcel & Klinkers, Leon, *Sustainable Banking: The Greening of Finance*. Sheffield, UK: Greenleaf Publishing Limited.
- Davis, Leon A. (2001). *The Social Responsibility of Corporations*. *The Journal of Corporate Citizenship*, 4, p.23-30.
- Dong, Fureng. (2001). *Environmental Industry and Financing*. In State Environmental Bureau of China, *Article Collection from the Second-Session Senior Workshop for Environmental Protection Industrialisation*. Shengzhen, China: SEBC. (Chinese).
- European Bank for Reconstruction and Development (EBRD). (1995). *Environmental Risk Management for Financial Institutions: A Handbook*. London: European Bank for Reconstruction and Development.
- European Bank for Reconstruction and Development (EBRD). (2001). *Environmental Risk Management for Financial Institutions: a manual for EBRD's for financial intermediaries Version 2*. London: European Bank for Reconstruction and Development. (CD-ROM).
- European Bank for Reconstruction and Development (EBRD). (2003). *EBRD Environmental Procedures*. London: European Bank for Reconstruction and Development.
- Ferris, Richard J., Wu, Changhua, Barlow, John. (2000). *Environmental Implications of China's Accession to WTO: Policy and Law Considerations*. In *Sinosphere* vol. 3 (3): 5-8.
- Hess, Peter & Siciliano, Julie. (1996). *Management: Responsibility for Performance*. New York: McGraw-Hill, Inc.
- Hu, Haiou & Sun, Hui. (2004). *The Reform and Development of Chinese Financial System*. Shanghai, China: Fudan University Press. (Chinese).
- ICBC. (2002). *Credit management Manual*. Beijing, China: ICBC Head Office. (Chinese).
- ICBC. (2002a). *Operational Guidance on Corporate Financial Business*. Beijing, China: ICBC Head Office. (Chinese).
- ICBC. (2005). *ICBC's internal credit auditing reports from the relevant city branches within the Shandong province*. (Chinese).
- ICBC Shandong Provincial Branch. (2005). *The urgent notice on strongly strengthening credit management of industrial enterprises involved wastewater discharge*. Jinan, Shandong, China: ICBC Shandong Provincial Branch. (Chinese).
- Jeucken, Marcel. (2001). *Sustainable Financing and Banking: The Financial Sector and the Future of the Planet*. London: Earthscan Publication Ltd.
- Jeucken, Marcel. (2004). *Sustainability in Finance – Banking on the Planet*. The Netherlands, Delft, the Netherlands: Eburon Academic Publishers.

- Knecht, Franz. (2003). *Environmental Risk Management: Reference Manual for the ICBC Executive Training Course on Banking and Sustainable Development*, Oct. 2003. Lund, Sweden: International Institute for the Industrial Environmental Economics, Lund University.
- Li, Jingjing, Zhuang, Xing, Delaquil, Pat, Larson, Eric D. (n.d.). *Biomass energy in China and its potential*. In Energy for Sustainable Development by CCICED. Beijing, China: China Environment and Science Press. (Chinese).
- Liu, Victory(Shengli). (2004). *Environmental Considerations and Business Operations of Commercial Banks in China- A case Study of the Project Loan Appraisal Policy of ICBC*. M.Sc. Thesis. Lund: International Institute for Industrial Environmental Economics, Lund University.
- OECD. (2002). *Sustainable Development Strategies: A Resource Book*. London: Earthscan Publication Ltd.
- Pojasek, Robert B. (1999). *Practical Pollution Prevention - P2 Programs, Plans, and Projects Some Thoughts on Making Them Work*. In Pollution Prevention Review/Spring 1999. New York: John Wiley & Sons. Inc.
- Shandong Provincial Government. (2005). *The aviso of Shandong provincial government on punishing 16 industrial enterprises such as the Catalyzer Factory of Shandong Petrification Company duo to their non-compliance with relevant environmental laws and regulations*. Jinan, Shandong, China: Shandong Provincial Government. (Chinese).
- State Statistics Bureau of China (SSBC). (2003). *China Statistical Yearbook 2003*. Beijing, China: China Statistics Press. (Chinese).
- Steger, Ulrich, Fang, Zhaoben, Lu, Wei. (2003). *Greening Chinese Business: Barriers - Trends and Opportunities for Environmental Management*. Sheffield, UK: Greenleaf Publishing.
- Stockholm Environment Institute (SEI) & United Nations Development Programme (UNDP). (2002). *China human Development report 2002 – Making Green development A Choice*. London: Oxford University Press.
- Streets, David G., Jiang, Kejun, Hu, Xiulian, Sinton, Jonathan E., Zhang, Xiao-Quan, Xu, Deying, Jacobson, Mark Z., Hansen, James E., (2001). *Recent Reductions in China's Greenhouse Gas Emissions*. In Science's Compass – Policy Forum.
- SustainAbility, International Finance Corporation, Ethos Institute, (2002). *Developing Value – The business case for sustainability in emerging markets*. London: SustainAbility Ltd.
- UNEP FI Australasian Advisory Committee on Insurance. (2003). *Risk, the Environment and the Role of the Insurance Industry*. Victoria, Australia: UNEP Finance Initiatives Australian Liaison Office.
- Wang, Duogang. (2004). *Study on Credit Risk Management of Chinese Commercial Banks*. Beijing, China: Forumcn. (Chinese).
- Wheeler, David & Sillanpaa, Maria. (1997). *The Stakeholder Corporation – a blueprint for maximizing stakeholder value*. London: PITMAN PUBLISHING.
- Wong, Y. C. Richard & Wong, M.L. Sonia. (2001). Competition in China's Domestic Banking Industry. *Cato Journal*, 21 (1), pp. 19-41.
- Working Group on Energy Strategies and Technologies (WGEST). (n.d.). *Energy for sustainable development in China: report at the end of Phase II to the China Council on International Cooperation on Environment and Development*. In Energy for Sustainable Development – The Journal of the International Energy Initiative (Volume V No.4. December 2001).
- World Commission on Environment and Development (WCED). (1987). *Our Common Future*. New York: Oxford University Press.
- Zhang, Kun. (1999). *The Environmental Problem and Countermeasure in China*. In Environment and Sustainable Development (Sequel), Beijing: Qixiang Publication, p. 3-19. (Chinese)
- Zhang, Xuetao. (2005). *Marketing and Commercial Banks*. Beijing, China: Finance Press of China. (Chinese).

Electronic Sources

Asian Development Bank (ADB). (n.d.). *Environmental Policy, Operations Manual and Guidelines*. [Online]. Available: <http://www.adb.org/Environment/policy.asp#guidelines>. [10 July 2005].

Bank of China (BOC). (n.d.). *About BOC*. [Online]. Available: <http://www.bank-of-china.com/about/index.shtml>. [11 July 2005].

Barclays. (2002). *Including you: Barclays PLC Social and Environmental Report 2001*. [Online]. Available: http://www.society.barclays.co.uk/social_report.pdf. [10 July 2005].

Barclays. (2004). *Barclays PLC Corporate Social Responsibility Report 2003*. [Online]. Available: http://www.personal.barclays.co.uk/PFS/A/Content/Files/CSRlowres_final.pdf [10 July 2005].

Barclays. (2005). *Environmental Management: Our Policy Statement*. [Online]. Available: http://www.barclaycardbusiness.co.uk/Environmental_Policy_2005.pdf. [July 28, 2005].

Barclays. (n.d.-a). *Environmental Impact Assessment Policy Statement*. [Online]. Available: http://www.personal.barclays.co.uk/PFS/A/Content/Files/Environmental_Impact_Assessment_pdf.pdf [10 July 2005].

Barclays. (n.d.-b). *ENVIRONMENTAL AND SOCIAL RISK ASSESSMENT IN LENDING*. [Online]. Available: http://www.personal.barclays.co.uk/PFS/A/Content/Files/Environment_and_Social_Risk.pdf. [31 May 2005].

Cheng, Qingxiu. (n.d.). *Develop the organic foodstuff and ensure foodstuff safety*. [Online]. Available: <http://www.cssn.net.cn/article/2005.JUNE.0811182153093468536.xml>. [24 July 2005]. (Chinese).

China National Gate Daily. (2002). *How do Chinese textile enterprises evade technology wall in trade*. [Online]. Available: http://news.xinhuanet.com/chanjing/2001-10/29/content_63176.htm. [24 July 2005]. (Chinese).

Cui, Rubo. (2002). *Green economy: the leading form of sustainable economy in 21st century*. [Online]. Available: <http://past.people.com.cn/GB/guandian/29/163/20020903/814551.html>. [24 July 2005]. (Chinese).

Equator Principles. (n.d.) *Become an Adopting Institution*. [Online]. Available: <http://www.equator-principles.com/join.shtml>. [8 July 2005].

Fang, Jiaping. (2005). *European Union's "green wall" will challenge Chinese IT industry*. [Online]. Available: http://marketing.chinatimes.com/ItemDetailPage/MainContent/05MediaContent.asp?MMMedia Type=china_byte&MMContentNoID=18475. [24 July 2005]. (Chinese).

Freshfields Bruckhaus Deringer (FBD). (2005). *The World Bank is not enough-Equator Principles Survey 2005-Part I: The Banks*. [Online]. Available: <http://www.freshfields.com/practice/disputeresolution/publications/pdfs/10942.pdf>. [6 July 2005].

Ganzi, John, Huppman, Reed, Marcoaldi, Carlo Alberto. (n.d.). *CREDIT RISK MANAGEMENT – BANKING INDUSTRY INTEGRATING ENVIRONMENTAL AND SOCIAL ISSUES - How Much and How Fast?*. [Online]. Available: [http://www.erm.com/ERM/Website.nsf/GFN/Credit_Risk_Management_Survey.pdf/\\$file/Credit_Risk_Management_Survey.pdf](http://www.erm.com/ERM/Website.nsf/GFN/Credit_Risk_Management_Survey.pdf/$file/Credit_Risk_Management_Survey.pdf) [23 April 2005].

Guo, Peiyuan, Yu, Yongda. (n.d.). *Sustainable Financing in China : the Progress and the Future*. [Online]. Available: <http://opim.wharton.upenn.edu/gc/philadelphia/abstract/Guo.pdf> [1 May 2005].

ICBC. (1997). *ICBC Fixed Assets Project Loan Appraisal Provision*. [Online]. Available: <http://www.law999.net/law/doc/c003/1997/07/15/00085137.html> [May 11, 2005]. (Chinese).

ICBC. (2003). *Annual report 2002*. [Online]. Available: http://www.icbc.com.cn/e_icbcmodule/thirdindex.jsp?column=About+Us%3EAnnual+Report%3E2002 [22 April 2005].

ICBC. (2004). *Annual Report 2003*. [Online]. Available: http://www.icbc.com.cn/e_icbcmodule/thirdindex.jsp?column=About%2BU%3EAnnual%2BReport [22 April 2005].

ICBC. (n.d.). *Introduction to Industrial and Commercial Bank of China*. [Online]. Available: http://www.icbc.com.cn/e_about/index.jsp?column=About%2BU%3EBrief%2BIntroduction. [16 July 2005].

- International Finance Corporation (IFC). (2004). *Doing Business with IFC*. [Online]. Available: <http://www.ifc.org/ifcext/proserv.nsf/Content/home>. [9 July 2005].
- ISIS. (2002). *A Benchmarking Study: Environmental Credit Risk Factors in the Pan-European Banking Sector*. [Online]. Available: http://www.fandc.com/uploadfiles/co_gsri_banking_report_sep_2002.pdf. [8 July 2005].
- Li, Qing. (2004). *Enhance the industrial competitive capacity of Guangdong province by environmental protection*. [Online]. Available: <http://www.southcn.com/opinion/politics/200404281061.htm>. [24 July 2005]. (Chinese).
- Luo, Ping. (2003). *Challenges for China's banking sector and policy responses*. [Online]. Available: <http://www.imf.org/external/np/apd/seminars/2003/newdelhi/ping.pdf> [8 May 2005].
- Ning, Yi. (2005). *The Commercial Opportunities of The Kyoto Protocol*. [Online]. Available: <http://www.newenergy.org.cn/cdm/2005-2/20052416.html>. [30 July 2005]. (Chinese).
- People's Daily. (2001). *The Bank of Shanghai signed the Statement of UNEP FI, aimed to become the "green" bank*. [Online]. Available: <http://www.people.com.cn/GB/huanbao/58/20011205/619518.html>. [12 July 2005]. (Chinese).
- People's Net. (2002). *The Governmental Procurement Law of the People's Republic of China*. [Online]. Available: <http://www.people.com.cn/GB/shehui/43/20020710/772676.html>. [12 August 2005]. (Chinese).
- People's Net. (2005). *The Xiluodu Hydro-Power Project of the Jinsha River with the investment of RMB 40 billion stopped working due to environmental issues*. [Online]. Available: <http://news.sina.com.cn/c/2005-02-05/23385791680.shtml>. [22 July 2005]. (Chinese).
- Pu, Wenpeng. (2005). *Return of environmental protection – Behind the "Environmental Storm"*. [Online]. Available: <http://www.h2o-china.com/news/viewnews.asp?id=27778>. [22 July 2005]. (Chinese).
- Rabobank Group. (2005). *Corporate Social Responsibility*. [Online]. Available: http://www.rabobank.com/content/rabobank/sustainability/productsandservices_4.jsp. [11 July 2005].
- Standing Committee of National People's Congress of China (SCNPC). (2002). *The Environmental Impact Assessment Act of The People's Republic of China*. [Online]. Available: <http://www.people.com.cn/GB/shehui/212/3572/3574/20021029/853043.html>. [22 July 2005]. (Chinese).
- Standing Committee of National People's Congress of China (SCNPC). (2005). *The Renewable Energy Law of The People's Republic of China*. [Online]. Available: http://www.law-lib.com/law/law_view.asp?id=89167. [1 July 2005]. (Chinese).
- State Environmental Protection Bureau of China (SEPBC). (2003). *The air quality in Two Control Areas*. [Online]. Available: <http://www.zhb.gov.cn/650490891709972480/20030214/1036814.shtml>. [23 July 2005]. (Chinese).
- State Environmental Protection Bureau of China (SEPBC). (2004). *Report on the state of the environment in China 2003*. [Online]. Available: <http://www.zhb.gov.cn/eic/649368303189360640/index.shtml>. [14 July 2005]. (Chinese).
- State Environmental Protection Bureau of China (SEPBC). (2005). *Report on the state of the environment in China 2004*. [Online]. Available: <http://www.zhb.gov.cn/eic/649368307484327936/index.shtml>. [14 July 2005]. (Chinese).
- Su, Yang, Lin, Jiabin, Zhou, Hongchun. (2005). *The environmental protection and ecological development strategy in the Nation Eleventh Five-Year Plan*. [Online]. Available <http://jjckb.xinhuanet.com/www/Article/20055141350-1.shtml>. [23 July 2005]. (Chinese).
- UNEP. (n.d.). *Profiting from Cleaner Production*. [Online]. Available: <http://www.financingcp.org/training/menu/NewTrainingModules.htm>. [July 28, 2005].
- UNEP. (n.d.-a). *Training Course: The Bank's Perspective*. [Online]. Available: <http://www.financingcp.org/training/menu/independentmodules.htm> [6 July 2005].
- University of Technology Sydney (UTS) Centre For Corporate Governance. (n.d.). *Corporate Governance – The Significance of Corporate Governance*. [Online]. Available: http://www.business.uts.edu.au/management/research/CCG/corporate_governance.htm. [25 July 2005].
- World Bank (WB). (2004). *The World Bank Operational Manual: Operational Policies: Environmental Assessment*. [Online]. Available:

<http://wbln0018.worldbank.org/Institutional/Manuals/OpManual.nsf/0/9367A2A9D9DAEED38525672C007D0972?OpenDocument>. [5 July 2005].

World Business Council for Sustainable Development (WBCSD). (2000). *Corporate Social Responsibility: Making Good Business Sense*. [Online]. Available: <http://www.wbcsd.ch/DocRoot/5mbU1sfWpqAgPpPpUqUe/csr2000.pdf>. [10 July 2005].

World Bank Group (WBG). (2003). *IFC provided US\$22 million as investment for the Bank of Shanghai in China*. [Online]. Available: <http://www.worldbank.org.cn/Chinese/ifc/news1.htm>. [12 July 2005]. (Chinese).

Xia, Shaomin & Peng, Jinyu. (2004). *Sustainable Development and Broad Participation of Banking*. [Online]. Available: <http://www.riel.whu.edu.cn/show.asp?ID=1427> [18 June 2005]. (Chinese).

Xie, Xiuseng, Chang, Qing, Xie, Wenjun. (2004). *The history, trend and strategy for commercial bank marketing*. [Online]. Available: <http://www.zgjrj.com/scyx/20040618-4.htm>. [12 July 2005]. (Chinese).

Xinhuanet. (2003). *Evergrowing Bank has been the 11th stock-joint commercial bank in China*. [Online]. Available: http://news.xinhuanet.com/fortune/2003-08/01/content_1004525.htm. [11 July 2005]. (Chinese).

Xu, Huandong. (2005). *Appropriately choose the green way of governmental procurement*. [Online]. Available: <http://www.ccg.gov.cn>. [8 August 2005]. (Chinese).

UNEP Financial Initiative. (2005). *UNEP FI 2004 Overview*. [Online]. Available: http://www.unepfi.org/fileadmin/documents/unepfi_overview_2004.pdf [26 April 2005].

World Bank Group (WBG). (2004). *Development Policy Lending Replaces Adjustment Lending*. [Online]. Available: <http://web.worldbank.org/WBSITE/EXTERNAL/NEWS/0,,contentMDK:20237378~menuPK:34457~pagePK:64003015~piPK:64003012~theSitePK:4607,00.html>. [9 July 2005].

World Bank Group (WBG). (2005). *Project Cycle*. [Online]. Available: <http://web.worldbank.org/WBSITE/EXTERNAL/PROJECTS/0,,contentMDK:20120731~menuPK:41390~pagePK:41367~piPK:51533~theSitePK:40941,00.html>. [9 July 2005].

World Bank Group (WBG). (n.d.). *What is the World Bank*. [Online]. Available: <http://web.worldbank.org/WBSITE/EXTERNAL/EXTABOUTUS/0,,contentMDK:20040558~menuPK:34559~pagePK:34542~piPK:36600~theSitePK:29708,00.html>. [9 July 2005].

Yi, Hong. (2005). *Bank's credit marketing suffers more risks from funds over-convergency*. [Online]. Available: http://www.hn.xinhuanet.com/misc/2005-07/03/content_4559572.htm. [13 July 2005]. (Chinese).

Yintong Investment Consulting Corporation (YICC). (n.d.). *Analysis on the Development Situations and Solutions of Environmental Protection Industry*. [Online]. Available: <http://www.yicc.com.cn/hangyefx/baogaosz/03.htm> [15 July 2005]. (Chinese).

Zhang, Weimin. (2001). *ICBC sets up the new rule of corporate customer credit rating*. [Online]. Available: <http://www.cnnb.com.cn/gb/node2/node743/node748/userobject7ai19291.html>. [17 July 2005]. (Chinese).

Abbreviations

ABC	Agriculture Bank of China
ADB	Asian Development Bank
ADBC	Agricultural Development Bank of China
ASD	Auditing and Supervisory Department
BARL	Business Activity Risk List
BDS	Business Development System
BOC	Bank of China
BOS	Bank of Shanghai
CBD	Corporate Banking Department
CBRC	China Banking Regulatory Commission
CCB	China Construction Bank
CDB	China Development Bank
CDM	Clean Development Mechanism
CEA	Country Environmental Analysis
CMD	Credit Management Department
CP	Cleaner Production
CPC	Credit Policy Committee
CRMS	Credit Risk Management System
CSPEC	China Society for Promoting Environmental Culture
CSR	Corporate Social Responsibility
EA	Environmental Assessment
EACs	Environmental Assessment Checklists
EAGs	Environmental Assessment Guidelines
EBRD	European Bank for Reconstruction and Development
EC	Environmental Categorization
EEE	Electrical and Electronic Equipment
EEL	Environmental Exclusion List
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EMS	Environmental Management System
EPR	Extended Producer Responsibility
ERA	Environmental Risk Assessment
ERM	Environmental Risk Management
ES	Environmental Screening
ESIA	Environmental and Social Impact Assessment
EU	European Union
FBD	Freshfields Bruckhaus Deringer

FON	Friends of Nature
GEV	Green Earth Volunteers
IBRD	International Bank for Reconstruction and Development
ICBC	Industrial and Commercial Bank of China
ICSID	International Centre for Settlement of Investment Disputes
IDA	International Development Association
IEBC	Import and Export Bank of China
IERR	Initial Environmental Risk Rating
IFC	International Finance Corporation
MIGA	Multilateral Investment Guarantee Agency
MOSTC	Ministry of Science and Technology of China
NGOs	Non-Governmental Organisations
UNDP	United Nations Development Programme
NPLs	Non-Performing Loans
N&RE	New and Renewable Energy
OECD	Organisation for Economic Cooperation and Development
PBB	Polybrominated Biphenyls
PBC	People's Bank of China
PBDE	Polybrominated Diphenyl Ether
PCBC	People's Construction Bank of China
PPP	Polluter Pay Principle
RETs	Renewable Energy Technologies
RoHS	Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment
SAPs	Structure Adjustment Projects
SCNPC	Standing Committee of National People's Congress of China
SDPCC	State Development Planning Commission of China
SEI	Stockholm Environment Institute
SEPBC	State Environmental Protection Bureau of China
SMEs	Small and Medium-sized Enterprises
SPC	State Planning Commission
SSBC	State Statistics Bureau of China
UBS	Union Bank of Switzerland
UNEP	United Nations Environmental Program
UNEP FI	UNEP Financial Initiative on the Environmental and Sustainable Development
UTS	University of Technology Sydney
VOCs	Volatile Organic Compounds
WB	World Bank
WBCSD	World Business Council for Sustainable Development
WBG	World Bank Group

WCED	World Commission on Environment and Development
WEEE	Waste Electrical and Electrical Equipment
WTO	World Trade Organization

Appendix-1 List of personal interviews

1. Huisingh, Don, The University of Tennessee, USA, feedback about financing CP, 20 June 2005 by email (dhuising@utk.edu).
2. Jeucken, Marcel, research economist of the Rabobank in the Netherlands, about sustainable banking, 21 June 2005 by telephone (+31 30 6942618).
3. Johansson, Thomas B., director of IIIIEE of Lund University, about financing renewable energy, 30 June 2005 by actual meeting.
4. Langniss, Ole, Centre for Solar Energy and Hydrogen Research Baden-Württemberg, Stuttgart, Germany, feedback about financing renewable energy, 30 June 2005 by email (ole.langniss@zsw-bw.de).
5. Lu, Wei, deputy manager of credit risk management dept. of Bank of Shanghai, about environmental risk management and green financing , 28 June 2005 by telephone (+86 021 62955327).
6. Wang, Lin, staff member of credit policy management dept. of the People's Bank of China, about environmental risk management, 11 July 2005 by telephone (+86 010 66194114).
7. Xu, Luhai, general manager of Jinan Huayuan Asia-Pacific New Technology Co. Ltd., about renewable energy market in China and RE financing from banks, 5 June 2005 by telephone (+86 13001722558).
8. Zhao, Qing, credit manager of credit management department of ICBC Head Office, about environmental risk management and green financing, 22 July 2005 by telephone (+86 010 66106114).
9. Zhang, Maoxin, senior engineer of Shandong Environment and Science Institute, about China's environmental management and financing, 10 June 2005 by telephone (+86 531 86400116).

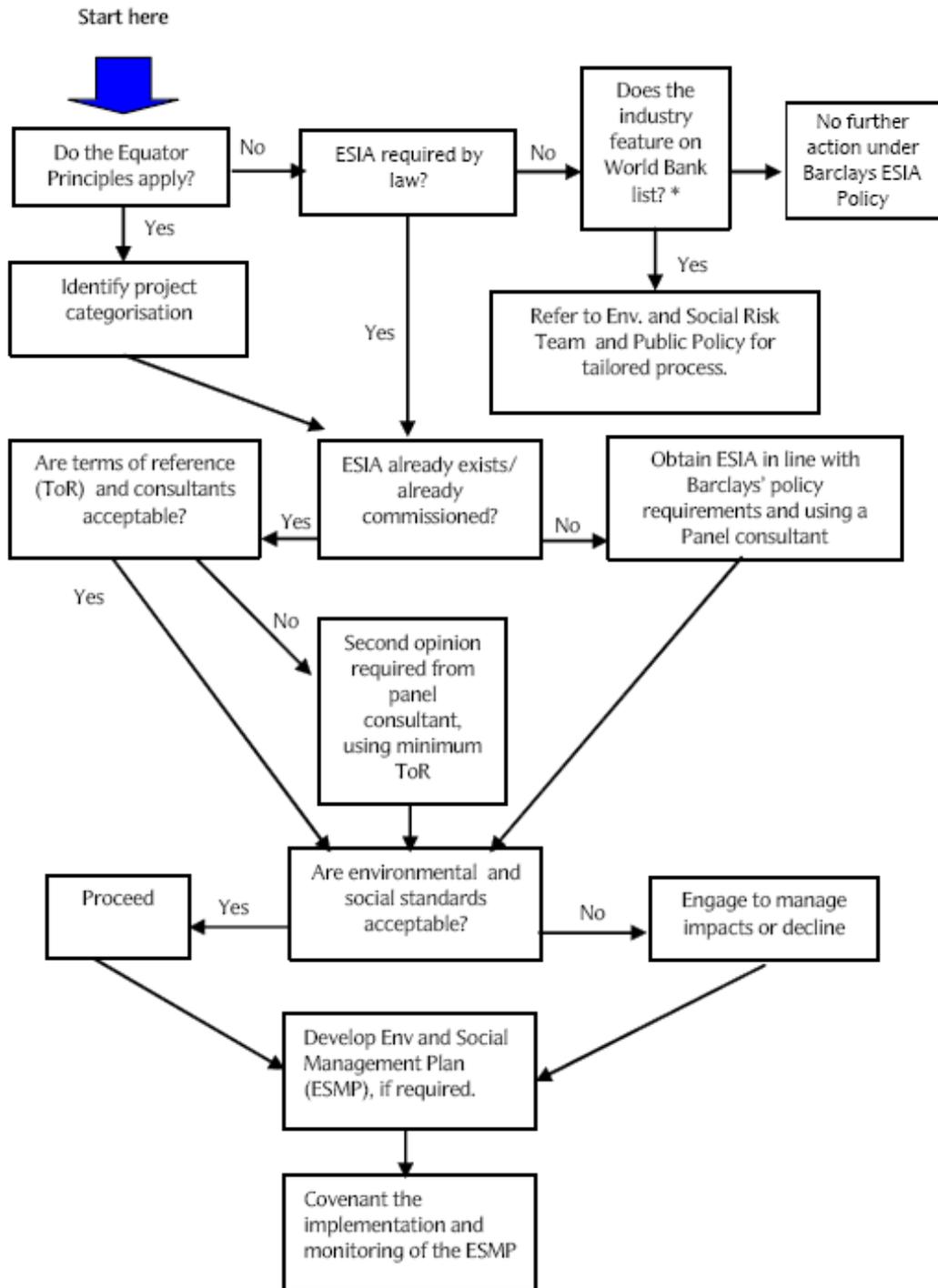
Appendix-2 List of the interviewed international financial institutions by questionnaire interview

1. European Bank for Reconstruction and Development, feedback about ERM and green financing, 10 July 2005 by email (generalenquiries@ebrd.com).
2. Financial Sector Knowledge and Information Services, The World Bank, feedback about ERM and green financing, 24 June 2005 by email (askfinancialsector@worldbank.org).
3. Kermode, Yann, Group Environmental Policy, Union Bank of Switzerland, feedback about ERM and green financing, 9 May 2005 by email (yann-x.kermode@ubs.com).
4. Kessler, Regina, UNEP FI, feedback about environmental credit risk management and green financing, 10 May 2005 by email (regina.kessler@unepfi.org).
5. Patel, Nita, environmental manager of Barclays Group, feedback about ERM in Barclays, 31 May 2005 by email (nita.patel@barclays.co.uk).
6. Schreve, Leonie, the secretariat of Equator Principles, feedback about environmental credit risk management and green financing, 4 May 2005 by email (Leonie.Schreve@ingbank.com).
7. Willott, Joanna, Environmental Finance Group, International Finance Corporation, feedback about ERM and green financing, 6 July 2005 by email (JWillott@ifc.org).

Appendix-3 Semi-structured questionnaire for interview with international financial institutions

1. What is the status of environmental credit risk in the global sense?
2. Do you know what is the best practice in environmental credit risk management of commercial banks?
3. What right tools can be used to support such environmental credit risk management in practice?
4. According to the commercial banks in developed countries, about how many banks have had formal environmental credit risk management policies and actual units? Do they only focus on risk management or they also promote business's cleaner production?
5. As for the developing countries, how far are commercial banks involved in environmental credit risk management at present? What suggestions could you give to them?
6. In order to achieve sustainable banking, what suggestions do you have such as from environmental risk management to green financing? How do you define "green financing" according to commercial banks? Does it have different content between commercial banks in developed and developing countries?
7. How do you contribute to environmental credit risk management and green financing for sustainable banking?

Appendix-4 Barclays ESIA Policy Process³²



Source: Barclays, n.d.-b, p.5

³² In the process, World Bank list with "*" just means that a list of environmentally sensitive industries taken from the World Bank Operational Manual [OD 4.01] – October 1991, and re-confirmed in the World Bank 'Pollution Prevention and Abatement Handbook 1998'." (Barclays, n.d.-b, p.5)

Appendix-5 Barclays minimum requirements for an ESIA and a second opinion of an ESIA

- An assessment of the project impacts and related project categorisation in line with the Equator Principles.
- An assessment of the project against:
 - IFC Policies
 - World Bank Guidelines
 - Currently and reasonably anticipated environmental legislation (both national and international)
 - Current and reasonably foreseeable sector-specific policies, e.g. forestry, water infrastructure, which are proposed/supported by internationally recognised non-governmental organisations
 - Voluntary Principles on Security and Human Rights (where appropriate)
 - Industry best practice.
- The ESIA scope takes into consideration:
 - Physical resources - landscape, topography, soils, air quality and climate (including global warming/Kyoto Protocol), surface water, ground water, geology/seismology,
 - Ecological resources - flora, fauna, habitats and species, fisheries, aquatic biology, wildlife, forests, rare/endangered species, wilderness or protected areas,
 - Marine issues – bathymetry, currents, waves, tides, sediment transfer, sea level rise, marine water quality, sediment quality, marine archaeology,
 - Human and economic development - including, but not necessarily limited to, population and communities (numbers, locations, composition, resource dependency, employment); industries; infrastructural facilities (including water supply, sewage, flood control, drainage); transportation (roads, harbours, airports, navigation) and traffic (particularly during construction); land use planning (including dedicated area uses); power sources and transmission; agricultural development; mineral development; tourism resources,
 - Quality of life values - including, but not necessarily limited to, socio-economic values; public health; noise disturbance; recreational resources and development; aesthetic values; archaeological or historical treasures; cultural values,
 - The level and adequacy of public consultation. This should include details of: public meetings/hearings and attendance; press releases; a list of questions asked and the project responses to these; notifications/consultation with the principal community/interest groups, timing of consultation and whether it would constitute prior, informed consultation,
 - A review of material relating to the assessment of alternatives (including project approaches and locations which could achieve the same or equivalent results, as well as the 'Do-Nothing' option) made by the project sponsor. This should consider, from a broad perspective, whether there are alternative approaches or locations which require more detailed consideration and how that may be undertaken,
 - Identification of the extent to which the proposed project would irreversibly and irretrievably commit resources or curtail the potential uses of the environment. For example, highways that cut through wetlands or a natural estuary can result in irretrievable damage to those sensitive ecosystems.

Source: Barclays, n.d.-b, p.6

Appendix-6 Credit risk management system of corporate customer in ICBC

	Risks Management Steps	Risk Management Policy and Improvement
Pre-lending Controls	Credit Policy and Management Rules	Based on customers and their industries, national policies and regional economic situations, classify different industries, regions and customers and apply different credit policies accordingly.
	Customers Credit Rating	Use internal rating system to judge customers' grading from AAA to B, twelve grades in total, accurately, objectively and fairly. Form a business evaluation system, which uses an enterprise evaluation standard value designed for different industries and scales as measures of corporate credit conditions, focuses on solvency, and uses quantitative evaluation index, quantitative rectification index and qualitative evaluation index for gradual correction.
	Centralized Review of Customer Credit Limits	Establish credit granting center and carry out centralized credit lines review for corporate customers. Based on customer's actual operating and financial performance with solvency as the core factor, conduct comprehensive customer risk analysis to set credit limit ceiling for single corporate customer, for related companies under one group, which will be strictly applied for all financing activities of the customer.
On-lending Controls	Authorization Management	Compose of an annual basic authorization, re-authorization and special authorization to domestic branches and functional departments.
	Approval of Credit Business	Adopt properly centralized credit business approval mechanism with Chief Reviewer responsibility system established at different levels. Large value credit deals and special designated credit business have to be approved by the Head Office's Credit Policy Committee and Credit Approval Center, and tier-one and tier-two branches can approve credit business within their authorization limit.
Post-lending Controls	Credit Monitoring	Monitor credit business through comprehensive credit management system and specialized reports. Check the quality of new credit facilities on a daily and case-by-case basis, and also by regions, industries and accounts. Penalties such as warning circular, warning and rectification on business, and even suspension of business would be levied on those branches not complying with internal credit rules.
	Field Inspection	Analyze and identify risk level and risk developing trends through on the spot internal audit. Based on credit risks, launch early warning signal, adopt measures to resolve problem credits, and prevent and control credit risk promptly.

Source: ICBC, 2004, p.32-33

Appendix-7 The list of the interviewees in ICBC by questionnaire investigation

Name	Position	Contact	Feedback Date
Liu, Feng	ICBC Head Office Business Manager	liufeng@icbc.com.cn	7 July 2005
Wu, Beihong	ICBC Head Office Credit Manager	wubeihong@icbc.com.cn	18 July 2005
Wei, Dong	ICBC Head Office Credit Deputy Manager	weidong@icbc.com.cn	11 July 2005
Teng, Haibo	ICBC Shandong Branch Business Manager	tenghaibo@sd.icbc.com.cn	16 May 2005
Kong, Dekuan	ICBC Shandong Branch Credit Manager	kongdekuan@sd.icbc.com.cn	8 July 2005
Tong, Lumin	ICBC Shandong Branch Investment Manager	tonglumin@sd.icbc.com.cn	1 June 2005
Shi, Haihong	ICBC Shandong Branch Investment Manager	shihaihong@sd.icbc.com.cn	20 June 2005
Liu, Chao	ICBC Shandong Branch Credit Deputy Manager	liuchao@sd.icbc.com.cn	21 June 2005
Hou, Xianting	ICBC Shandong Branch Credit Deputy Manager	houxianting@sd.icbc.com.cn	11 July 2005
Ji, Changchun	ICBC Heze City Branch Credit Deputy Manager	jichangchun_hz@sd.icbc.com.cn	27 May 2005
Ji, Tao	ICBC Dezhou City Br. Business Deputy Manager	jitao800@sina.com	27 May 2005
Fang, Lei	ICBC Weifang City Br. Credit Deputy manager	fanglei_wf@sd.icbc.com.cn	27 May 2005
Shi, Yan	ICBC Taian City Br. Business Deputy Manager	shiyant_a@sd.icbc.com.cn	1 June 2005
Wei, Xing	ICBC Jining City Br. Business Deputy Manager	wxzhqwmz@163.com	10 June 2005

Appendix-8 The semi-structured questionnaire for investigation in ICBC

1. Are there any detailed environmental credit policies produced and implemented by ICBC currently?
2. How does ICBC deal with environmental issues in its daily credit risk management currently? Are there any environmental considerations taken into account by ICBC in its credit risk management system of corporate customer?
3. What are the past environmental lessons and potential environmental challenges to the credit risk management system of corporate customer in ICBC?
4. Do you believe whether the concrete environmental risk management should be necessary to be strengthened during the whole process of credit risk management of corporate customer in ICBC? If so, what are the main current barriers and opportunities for ICBC to strengthen environmental credit risk management currently?
5. How do you evaluate the current marketing strategies of corporate customer in ICBC? Does ICBC incorporate green financing into its marketing agenda?
6. Do you believe whether corporate social responsibility (CSR) should become one business ethics to direct ICBC's business marketing?
7. What are your comments on the trend of green financing in ICBC? What are mainly the current barriers and potential opportunities for implementing green financing in ICBC in near future?