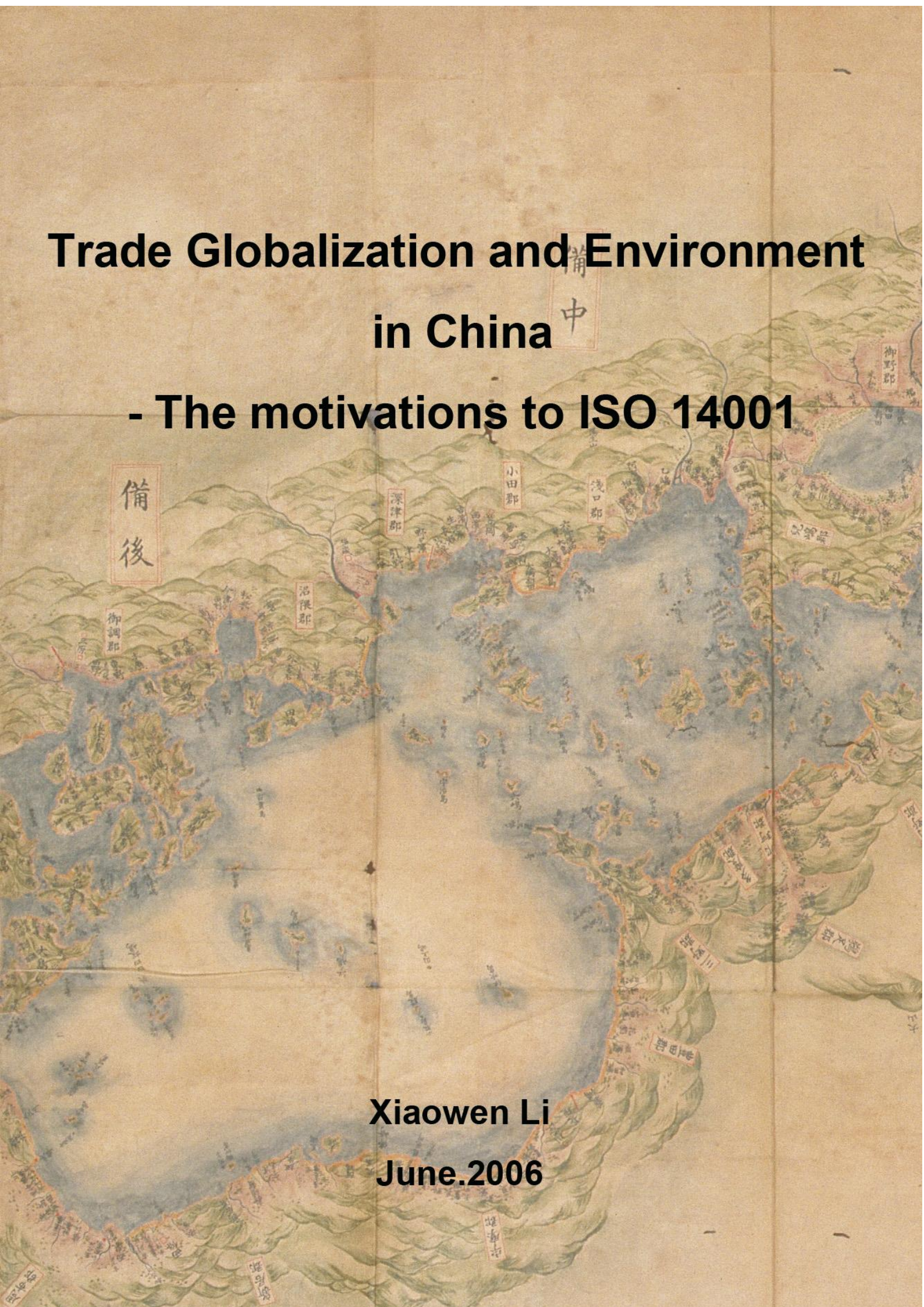
Trade Globalization and Environment in China
- The motivations to ISO 14001



Xiaowen Li

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Trade Globalization and Environment in China
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Student: Xiao Wen Li

Supervisor: Tine Herreborg Jøgensen

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Preface

This report “Trade Globalization and Environment in China - The motivations to ISO 14001” is focusing on the motivations for the Chinese firms to seek ISO 14001 certificaton. The report consists of eight chapters, which are numbered in sequence. Sections and figures are also numbered in sequence under each chapter.

In the report, the three drivers for the Chinese firms to adopt ISO 14001 are analyzed, which are:

- Authority driver
- Trade competitor driver
- Consumer driver

Moreover, in order to reveal the motivations, three ISO 14001 certified Chinese firms and one certifying body were interviewed

Acknowledgements

In the course of my study and the writing of this thesis I received much help from different people. Firstly I would like to thank to those who received my interview during my field study in Shanghai for the informative and pleasant conversations on their works and their thoughts about their motivations to seek ISO 14001.

Secondly, I owe my special thanks to Prof. Tine Herreborg Jøgensen in Aalborg University who guided the development of my study and the thesis writing. Her well-chosen comments kept my study with a clear focus and stopped it from becoming unmanageable. It was with her help I became to know how to carry out a social science study.

To all these my sincere thanks.

Content

Chapter 1：Introduction

An initial impression of the current process of globalization is provided by the consideration of the speed at which the volume of international trade has been growing in the last three to four decades, which has often reached growth rates by far higher than the ones of world production. Between 1996 and 2000 the world production has more than doubled, while the volume of exports has increased tenfold. (World Bank, 2003)

Trade Globalization eliminated the tariff barrier between different countries, and allowed the local firms to involve into the international trade competitions much easier. Moreover, Globalization provided a series of remarkable advantages, such as technology transfer and access to foreign capital, which stimulate and support an acceleration of economic growth in the world. (Alessandro, 2004) In addition, the lower barriers to trade and foreign investment encourage firms to transfer environmental technologies and management systems from countries with stricter environmental standards to developing countries with lack access to environmental technologies and capabilities (Drezner, 2000)

Fierce competition in today's global markets has forced enterprises to improve their quality, cost, delivery, new product introduction speed, customer services, and the ability to be innovative. (Zhao, 2002) This fierce competition also facilitate these nations and corporations especially involving the Trade Globalization to take more care of their environmental performance in order to access the Global market. The corporations focus on not only the quality of the products, but also the environmental impact from the products.

China, as a large country and has one of the fastest growth rates in the world in recent years, has taken the leap from being a closed economy with extensive state control to being the worlds 10th biggest trading nation in less than 20 years. (Nieuwenhuysen, 1998) Especially, after China took part in World Trade Organization (WTO) officially in 2001, trade Globalization promoted the movement of goods and services through trade and investment in China, consequently leading to economic growth. Many multinational companies entry into China much easier than before, it offers more opportunities for Chinese domestic firms to collaborate with them through trade and subcontracting.

In contrast, as the economic growth of the world increase rapidly due to Trade Globalization, at meantime, the environmental depletion is getting worse and worse. Critics assert that Globalization is detrimental to the environment because it encourages location of polluting industries to countries with low environmental regulations. (Petra, 2001) Moreover severe threats to the global environment and ecological systems caused by over-production, consumption and poverty are rapidly increasing. Economic growth does contribute a lot to destruct the environment.

The environmental degradation in China due to economic growth is obviously, China has paid a great cost for its rapid development; severe environmental deterioration including overexploitation of ground water, destruction of the ecosystem, and the other problems related to land, water, and air; become one of the most endangered urban and rural environments in the world. (Wang X, 1999) The levels of major environmental pollutants such as sulfur dioxide emissions and total air-suspended particulates are far worse than those specified by international standards. Trade Globalization stimulates the economic growth in China, at same time; contribute a lot for environmental degradation in China.

It can be seen that there are some kinds of conflicts between Trade Globalization and Environmental protection. With scientific data supporting a greater demand on

environmental protection and increased public awareness and participation, instruments to protect the environment have steadily grown. Much progress has been achieved. However, as Lester Brown writes in State of the World 1998: “while economic indicators such as investment, production and trade are consistently positive, the key environmental indicators are increasingly negative.” To accomplish additional improvements in environmental quality, instruments beyond regulatory requirements are necessary.

ISO14001

Under this background, in common with many other self-regulated codes adopted by corporations over the past two decades, the origins of ISO 14001 are deeply rooted in the process of globalization. The ISO 14001 was launched in September 1996 to provide all industries with a standardized management process to achieve control over environmental impacts. The backbone of the ISO 14000 standards is the ISO 14001 EMS, which can be certified by successfully passing an independent third-party audit. (Uzumeri, 1997) ISO 14001 was primarily conceived to facilitate trade and investment by replacing numerous and often-conflicting national standards for environmental management with a single international one (Davy, 1997; Melnyk et al, 2003; Quazi et al, 2001).

In addition, with the progress of environmental protection in the global context, ISO 14001 standards can be seen as one of the approaches to mitigate the conflict between Trade Globalization and environmental degradation. On one hand, ISO 14001 can offer a more systematic environmental management system for the organizations to handle their environmental impacts, and improve the environmental performance. On the other hand, ISO 14001 as an international environmental standard could facilitate the Trade Globalization to avoid trade barriers and conflicts caused by the different environmental management standard from various countries.

As an international environmental standard, ISO 14001 is attracting more and more nations and corporations" attention, which offer a systematic approach to manage the environmental issues more efficiently. Furthermore, as a voluntary scheme, the standard can"t create an official trade barrier as defined by the World Trade Organization (WTO) in its Technical Barrier on Trade Agreement (TBT). However, the wide implementation of ISO 9000 series of standards has proved that, although the standard is voluntary, they have become a requirement for supplying organizations worldwide. The same is expected to happen with ISO 14001, and there are provisions within the ISO 14001 international standard, which have the potential to create trade barriers, which play a significant role in the international market. ISO 14001 certification might become a de-facto requirement for doing business with companies from developed countries, raising concerns for developing-country firms that ISO 14001 will be become a non-tariff trade barrier (Corbett and Kirsch, 2000)

Globalization and the environment in China

China is suffering more and more pressure of the environment from the Trade Globalization. Especially, China's formal accession to the World Trade Organization begins a process of deep integration that will require the implementation, monitoring and enforcement of newly harmonized standards. (Thiers, 2002) In order to fulfill the promise to be in line with the standards of WTO, the process of China"s trade liberalization is accelerated. Obviously, Trade Globalization played a very crucial role in the economic growth, but as the China"s trade gradually liberalizing, the state of environment is also influenced from those changes. If China is going to continue developing, there can be little doubt that its state of environment will change in the coming years. (Jensen, 1997). Since to some extent, economic growth would depend on more depletion of the environmental resources, i.e. consumption of water, and timber resources etc.

At this moment, ISO 14001 is imported into China, and diffusing rapidly in recent

year, which could be a good instrument for the Chinese domestic enterprises to build up an efficient environment management system, and access to the international market.

The number of ISO 14001 certified Chinese company is increasing rapidly, especially after China"s entry in WTO. In 1999, only 222 Chinese organizations adopted ISO 14001 certification, and it grew rapidly at 50% growth rate from 2000-2002, till the end of 2004, there are 8862 organizations got certified in China. (Year book, 2004) It indicates an increasing interest for Chinese firms to get ISO 14001 certified in recent years.

1.1 Research question

As it was mentioned above, the Trade Globalization stimulates the economic growth in China, at meantime, leads to more environmental degradation. At this moment, ISO 14001 is promoted by the Chinese environmental authorities in order to mitigate the conflicts between economy growth and environmental depletion.

The main purpose of this report is to find out the motivations of Chinese firms to adopt ISO 14001 certification recently. In order to better understand the different motivations in China, it is necessary to take a close look into the various actors to press the firms to seek ISO 14001, such as the Chinese authorities, consumer, and Trade competitors. All of them are very important actors which could influence the firms to improve their environmental performance.

It was suspected that actors for seeing ISO 14001 certification in mainland China is mixed. The different motivations for Chinese firms to adopt ISO 14001 certification will be investigated in this report.

The research question will provide the framework for the report.

What are the main drivers for Chinese firms to become ISO 14001 certified?

To delimit the scope and to elaborate on the exact cause of the report, two background questions have been formulated. They will serve as assistants to better address the research question:

> To what extent did Trade Globalization lead to environmental degradation?
>
> Why could Trade Globalization stimulate Chinese firms to implement ISO 14001?

ISO 14000 are composed of a series of standards, such as 14001, 14004 etc, but ISO 14001 is the only one can be certified. In the report, the author would like to take a close look into the ISO 14001 rather than the whole ISO 14000 Standards. According to United Nations environment programme's synthesis report on "Economic reforms, trade Globalization and the environment", the environmental effects of trade liberalization in global context varies according to the policy regime as well as the sector studied. In this report, the policy regime can be seen as Chinese authorities, and the sector that will be studied is the industrial sector.

The preliminary evidence indicates that the business interest in EMS according to ISO 14001 is particularly notable in several international markets, such as Europe and Asia market, where certification may be viewed as a prerequisite for trade in the future. China is located in Asia with a huge population of 1.3 billion people, which is one of the largest markets in the world. Moreover, I came from China, so it will be easy for me to collect the relevant data in China. Hence, I decided to focus on China. In addition, in this report, it mainly focused on the motivations for the Chinese firms to adopt ISO 14001, rather than investigate the environmental performance and the

environmental impacts.

ISO 14001 certificate is no guarantee for environmental improvement, but is seen as a method that is able to provide environmental improvement if management is committed to do so and environmental pressure from actors in the networks of the firms. In this report selected actors in the networks will be analyzed.

1.2 Structure of the report

This report consists of eight chapters. Chapter one will offer some background knowledge related to the research question, and Chapter two will present the method has been used to carry out the research. Served as the theoretical framework for the empirical part, Chapter three and Chapter four offered different indicators that can be looked into when analyzing the relationship between Trade Globalization and environment, Trade Globalization and ISO 14001, each of them will be analyzed separately in each chapter. Just after these two chapters, it comes to the empirical part in China, Chapter five and six. Chapter five will give readers an overview of the Trade Globalization, environmental degradation, and development of ISO 14001 in China. Chapter six will narrow down to the different drivers to seek ISO 14001 in China by analyzing the findings from interviews with three companies and a certifying body. Chapter seven and eight will make a conclusion for the report and discuss a number of the perspective of the motivations of ISO 14001 in China.

Chapter 2: Research Methodology

Design

I decide to carry out this project according to Brox"s model which is offered by theory of science. In Brox"s model there are seven phases in the research process, they are:

- Research question
- Data collection
- Data handling
- Data manipulation
- Data explanation
- Practical implication
- Feed-back phases

The reason why this research method is used in this report is that the nature of this report is mainly literature studies it is necessary to be critical to ensure the validity of this report.

My study is focusing on the motivations of Chinese firms to adopt ISO 14001 certification, which is neither "theory verification" nor "theory generation". My study is in some sense a descriptive study to interpret and understand the intentions of Chinese firms to get ISO 14001 certified. The general design of my research was not fixed in advance, in the sense that I started with a theoretic framework, which comprised some related issues to the research question. For some reasons which I discuss these issues in detail in first, I found that they could not be directly used to understand the situation of Chinese ISO 14001 certification. But they could provide a kind of theoretical framework that will offer some "hints" or maybe "indicators" to

study the motivations of Chinese firms to be ISO 14001 certified. For instance, Trade Globalization and Environment degradation in the global context was discussed in the theoretical part, which could be served as a clue or hints to better understand the rapidly economic growth leads to serious environmental problems in China.

In the empirical part chapter five and six, reviewing others" literatures which are related to the research question is also very important, which can offer a clear overview picture of Trade Globalization & Environmental degradation, and the development of ISO 14001 certification in China. Based on the overview of China, some interviews were carried out in order to address the research question. With the respect to the selection of the interviewed organizations, I decided to make an interview with three ISO 14001 auditors from the certifying body in the first, since they have a lot of experience in ISO14001 auditing in China, they could know the different motivations to adopt ISO 14001 from various Chinese firms. Their responses could give some clues on the further interviews with other firms who have got ISO 14001 already.

According their suggestions for me to the further interviews, different own-ship firms in China should be interviewed separately; they are state-owned, foreign direct investment or joint venture, and private firms, which are with different motivations to get ISO 14001 certified.

In additional, in order to avoid to be refused by the further interviewed firms, some useful contacts were introduced by these auditors. Since most firms don"t set up any positions or welcome to the personal research interview, they are afraid that it will disturb their working. Moreover the firms usually don"t hold a very open attitude to the public in China. And the structured questions are asked during the interviews, the conversations were noted down.

Data collection

The common methods of data collection involve interview, observation and the literature survey.

First of all, it need to overview the background information about the research area and the relevant readings and literatures about the issues, which need to be investigated. Through literature survey some useful findings will be obtained.

Secondly, interviews were carried out. Before the interview, the fixed questions were prepared. During the interviews, it is very important to both hear form the respondents carefully and note down the conversation correctly. At the same time by using the method of interviewing, observation was also being used. As the action and behaviors of people are central aspects in virtually any enquiry, it is important to watch what they do during the interview. Through observing the expressions of the interviewees, it could found most of them felt free to say, but only the questions related to Chinese authorities, they responded more carefully and slowly.

Data analysis

The literature survey analysis is content analysis and one of the drawbacks of this methods is that it is indirect and at the same time it is non reactive. In other words, that document is not affected by the fact the reader uses it. Also it will be difficult to assess causal relationships. The documents can be written for some purpose other than the research and it can contain biases. Those disadvantages will be overcome by using a multi source approach.

During the literature survey, the research question and selection of scholarly sound documents has been the starting point for the process. Since it is always extremely important to have documents that are properly formulated and serve for the purpose of the research, reliable documents had been chosen while deciding on the scope of the

report.

In addition, the data from the interviews, I have to check the data for errors and missing attributes and to see whether the expectations regarding data characteristics and quality have been met. No matter how carefully I have collected and transformed the data to an analysis medium, there will be errors. I can detect and remove them by some simple checks.

Chapter 3: Globalization and Environment

In this chapter, in order to explore the linkage between Trade Globalization and environment, some related issues will be discussed, which are:

- Globalization, Economic growth
- Environmental Degradation
- The Progress of Environment Protection
- Trade Globalization and Environmental Debate
- Non- Tariff Trade Barriers

All of them will be served as a framework to analyze the situation of Trade Globalization and environment in China.

3.1 Globalization

Globalization refers to a world in which societies, cultures, politics and economies have, in some sense, come closer together. It can be defined as the process of progressive growth of economic activities, which transcends any kind of geographical border. It manifests itself essentially as an increasing movement of goods and services - as well as human resources - though trade and investment. (Alessandro, 2004)

The ongoing Globalization process is characterized by „shrinking space, shrinking time and disappearing borders", has swung open the door to more opportunities. These have resulted from breakthroughs in communications technologies and biotechnology,

and led to integration of global markets, global technology, global ideas and global solidarity. Globalization will not only facilitate the integration of the international economy but also involve an interrelationship between economic, political and social factors. Globalization is more than the flow of money and commodities. It is the growing integration of not just the economy but culture, technology and governance and, therefore interdependence of the world"s people. Economic growth as the one of main tides of the world is more emphasized during the Globalization process. Unsurprisingly, the development priorities of developing countries include income growth, rising investments and exports, creating more and more employment opportunities, and benefiting from technical progress. In order to achieve these objectives, the most of developing countries are also involving the Trade Globalization process actively. (Yusaf, 2000)

The influence raised from the Globalization is getting more and more obviously as the time passed by. It is no doubt that the Globalization contributes a lot to the economy growth, advanced technology transfer, international cooperation. Just like the pro-globalization school believes, Globalization is opening many opportunities for millions of people around the world through increased trade, new technologies, foreign investments, expending media and Internet connections, and fuelling economic growth and human advances. (Anthony Bende-Nabende, 2002). But, this is one side of the coin.

The Anti-globalization activists criticize the aforementioned ideas presented by the pro-globalization economists for focusing on economic issues alone. For instance, when international economic comparisons are being made, there is often a temptation to measure development by the economic growth alone. Even if changes in these aggregates might provide a good index of the development of economic activities in a country, they say nothing about the composition and distribution of income between different groups in society. Nor does economic growth tell us anything about the environmental status of a country. Strong growth in national income may mask

unbridled consumption of natural resources and the pollution. Hence, from their point of view, the nowadays globalization more emphasizes on the economic growth or it can be called international trade and trade globalization. (Clem, 2001)

According to the economist, Globalization stems from the accelerated international Trade process, in the sense that Trade Globalization can be a main driven to hasten the Globalization process deep into more and more fields, i.e. human rights, environment protection, patent protection etc. (Alessandro, 2004) Consequently, as the main factor involving Globalization process, the Trade Globalization will be discussed instead of the whole Globalization process in the report.

Multinational Corporations and Foreign Direct Investment

It is worthwhile noting that the Trade Globalization process has been triggered, encouraged or closely followed by the Multinational Corporations (MNCs) and their associated Foreign Direct Investment (FDI) activities. (Anthony Bende-Nabende, 2002). In the sense that the MNC and FDI play the significant role in the Trade Globalization process. MNCs and FDI is generally considered as driving forces in the integration of developing countries into the globalization that characterizes the world economy. Although most FDI is concentrated in developed countries, developing countries have made the biggest gains in the 1990"s in terms of flows of inward FDI. However, a small number of developing countries in Asia and Latin America (notably China and Brazil) have attracted most of the recent flows of FDI. (Chudnovsky and Lopez, 2002)

Through the Trade Globalization it will be much easier for the MNCs to expand into different countries in order to pursue maximum profits, since Trade Globalization makes the border between countries closer and closer. Moreover, MNCs not only bring the larger capital to the invested counties but also will facilitate the advanced technology (i.e. the Environmental management system, clean technology)

transferring into the local domestic corporations, and create more job opportunities. One other side, the local corporations will access the international competition more easily.

Moreover, although FDI is a comparatively new phenomenon, the significance of the role of it plays in the global integration has been growing in the recent past. Especially, FDI has been growing at a faster rate than exports since the mid-1980s. So FDI is at the forefront of the ongoing globalization process.

MNCs and FDI can be seen the two main factors which will influence the development of the trade globalization process directly. Especially, in order to achieve economic growth rapidly, a lot of measures and activities are carried out by the developing countries to attract more and more MNCs and FDI. It is no doubt that the Impacts of MNCs and FDI in developing countries are getting more and more significantly, including policy change, environmental situation change, Job opportunity increasing etc.

3.2 Environmental Degradation

Many scientists and other critics have been arguing since the mid 1960s that continuing economic growth in developed industrial nations is leading to a depletion of resources and increasing destruction of the environment (Per Kaageson, 1998). And severe threats to the global environment and ecological systems caused by over-production, consumption and poverty are rapidly increasing. Economic growth does contribute a lot to destruct the environment. For instance, the Global Warning, Climate Change which have strong relationship with excessive Green house Gas emissions, Water pollution, Hazardous chemicals, Noise, Biodiversity decreasing, etc.

Between 1950 and 1980, the world economy grew threefold, as did the consumption of fossil fuels. The amount of carbon dioxide in the atmosphere was increased by 25 per cent. About 95 per cent was caused by the combustion of fossil fuels, consumed mostly by the industrialized countries (Uner Kirdar, 1992).

It was also during the 1960s that the destruction of the environment, in its modern guise, began making itself felt in earnest. The scientific study of Commoner, 1972, shows how emissions of tetraethyl I lead and nitrogen oxides in the United States increased by 415 and 630 per cent respectively between the late 1940s and 1970. During the same period the use of synthetic organic pesticides almost trebled, and the annual consumption of nitrogen fertilizers grew by 648 per cent, at meantime, the speed of economic growth is also in the golden ages. Commoner"s conclusion is that "Productive activities with intensive environmental impacts have displaced activities with less serious environmental impact; the growth pattern has been counter-environment."

In this section, Carbon Dioxide, the most main Green House Gas, will be severed as an indicator to demonstrate how far the environmental degradation is, the amount of the emissions accelerated in recent semi century, which can be found in the Figure 3.1, especially after the Industrial Revolution, at mean time, the high-speed economy growth is apparent during this period. On the other side, the potential impact of the excessive emissions of Carbon Dioxide in the world is also getting more and more obvious and serious, which lead to Global Warming and Climate Change worldwide.

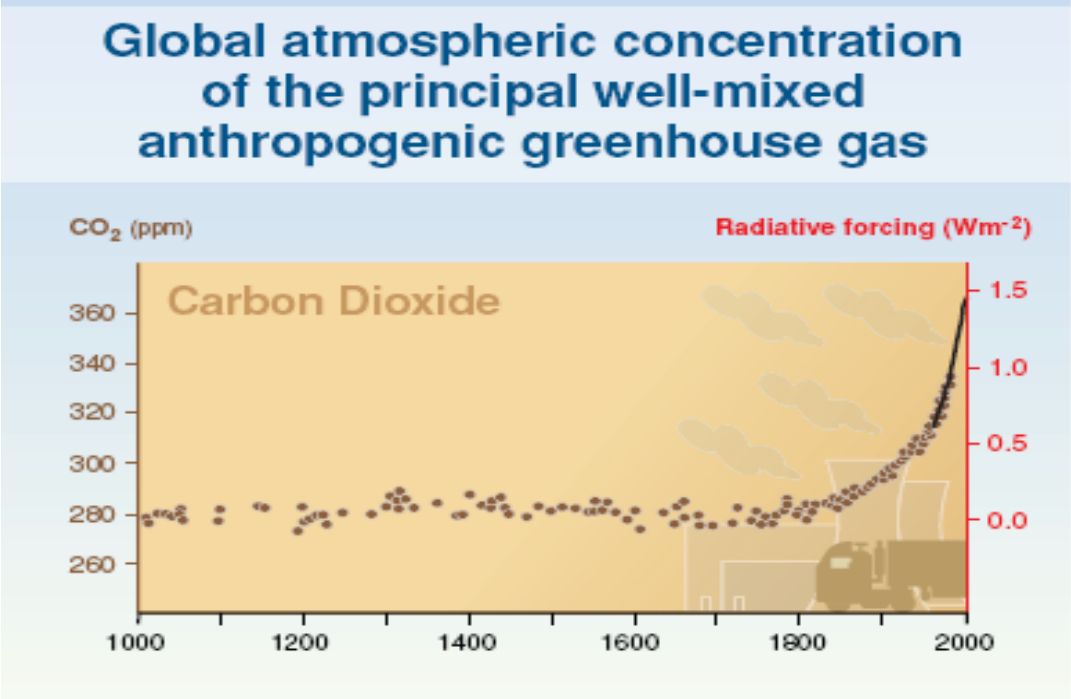

Figure 3.1 Records of past changes in atmospheric composition over the last millennium demonstrate the rapid rise in CO2 concentration that is attributable primarily to industrial growth since the year 1750. (Climate Change and Biodiversity, IPCC, 2002)

Moreover, it is estimated that the consumption, which is nearly 2 billion tons per year, may rise to over 10 billion tons during the next millennium (Uner Kirdar, 1992). As a result of this trend, the earth surface temperature in increasing at the unprecedented speed, it brings a lot terrible impacts to the entire ecosystem in the earth:

- Arctic air temperatures increased by about 5℃ in the 20th century – ten times faster than the global-mean surface temperature – while Arctic sea-surface temperatures rose by 1℃ over the past 20 years.
- In the Northern Hemisphere, spring and summer sea-ice cover decreased by about 10 to 15% from the 1950s to the year 2000; sea-ice extent in the Nordic seas has shrunk by 30% over the last 130 years.
- Arctic sea-ice thickness declined by about 40% during late summer and early autumn in the last three decades of the 20th century.
- Alaska"s boreal forests have been expanding northward by some 100 kilometers

for every one degree Celsius of temperature rise.

- Precipitation has increased over the Antarctic; the Antarctic Peninsula has experienced a marked warming trend over the past 50 years, while the rest of the continent also seems to have warmed.
- Surface waters of the Southern Ocean have warmed and become less saline; the water flowing from the Atlantic into the Arctic Ocean has also warmed, and the water in the Beaufort Sea has become less saline.

(Climate Change and Biodiversity, IPCC, 2002)

These symptoms above, to some extent, are not only just like some kinds of statistic report, but also are a serious alarm to the entire human being. It means if the emissions of the Green house gas are still out of control, the iceberg and sea-ice are going to dismiss, which will be a huge disaster for all the life on the earth. Another consequence of global warming is the expansion of the oceans, in the sense that the land for human being to reside will be more limited than nowadays.

The Global Warming is only one of the serious environmental problems posed in the front of the human being. Therefore, there is now a growing awareness among scientists and policy-makers that eliminating global poverty and sustaining the environment are inextricably linked together are some measures, implemented by many nations, to mitigate the environmental depletion, for instance, the Montreal Protocol, Kyoto protocol. And the concept of Pollution Prevention is also improved a lot in recent decades, which will be discussed later.

3.3 Issues related to Trade Globalization and Environment

With the Trade Globalization process accelerating in the world rapidly in the recent

decade, the issue about the Trade Globalization and Environment is attracting a lot of researchers‟ attentions, the study related to this issue can be mainly divided into two groups, one group take the more positive attitude towards Trade Globalization to the environment, which can be called free trader. The second group is on the other way round, called environmentalist. The debate is getting more intensely in recent years, especially in the developed countries.

Moreover, under the auspices of the General Agreement on Tariffs and Trade (GATT) and now under the World Trade Organization (WTO), the free trade is spreading further in the global level, and the tariff barriers decreased obviously through trade globalization process, at meantime, in order to prevent the domestic industry from the international fierce competitions caused by the reduction of tariff barrier, the non-tariff barriers emerge, they are always caused by the difference between the national environment regulations.

So in this section, in order to better understand the linkage between Trade Globalization and Environment, this is important to take a look into the debate and the relevant issues, such as the non-tariff barrier. Before looking into these issues, it is necessary to review the history between Trade Globalization and Environment.

The History between Trade and Environment

During the late 1970s and 1980s, governments introduced a succession of unilateral trade measures to support self-proclaimed environmental objectives; the US‟s „gas guzzling‟ tax that effectively limited the imports of large cars; the Indonesian government‟s introduction of a series of measures restricting and eventually banning the export of raw timber; the Danish government‟s legislation to enforce the use of returnable bottles for all soft drinks sold in the country (Annie Taylor, 1999).

In all these examples the environmental objectives were clearly stated. However, at no

point did these actions spark off any sustained interest in deepening an understanding of the relationship between world trade and environmental protection, which is just like some remedial activities and can be called End of Pipe approach. Instead, they were seen simply as trade disputes, embroiled in detail about the legality of such measures with in GATT. Each unilateral action was treated on a case-by-case basis and no connection was made that suggested the emergence of „trade and environment" as an issue that needed special attention: „the reaction was in a completely ad hoc, political way" (Medelin, 1996).

It was not until the end of the 1980s that the trade and environment issue was articulated as an issue in its own right. No one person or event can claim complete responsibility for this shift in perception; rather it was a concurrence of pressures from came from international organizations, individuals and NGOs. Arthur Dunkel, then Director General of GATT, is praised by his colleagues for an astute sensitivity to both environmental and trade issues and appears to have played a key role in pushing for the consideration of trade and environment within GATT, an accolade that he does not dispute.

An equally important influence was the breakdown of the Uruguay Round of GATT talks in 1991. This released negotiators from a tight schedule, giving them space to consider issues that were emerging outside the very specific limits of the negotiations (Eglin, 1996). As a direct result, negotiators from the member states of the European Free Trade Association were able to press for the convening of the Working Group on Environmental Measures in International Trade.

Reviewing the history between Trade and Environment above, it can be found the awareness of environmental issues has moved from isolated incidence with a national or local focus to an understanding of a deepening global crisis that links environmental degradation to current economic development patterns. And the interactions between Global Trade and Environment were taken into consideration

further in the world, it might be helpful for people to balance the Trade and Environment, and these interactions are attracting a lot of researcher"s focus, it will be investigated in next section.

The Trade Globalization and Environmental debate

There are two elements of the context in which the majority of business operate today which present quite new challenges to the corporate world: Trade globalization activity and the liberalization of trade which is both its cause and consequence; and growing evidence of environmental damage, and threat, on a global scale, for which business is sometimes blamed, and to which it is increasingly expected to make a sensitive response. (Paul Ekins, 1998)

Threats and opportunities are involving the Trade Globalization process. The opportunity come from an expanding market, with associated possibilities of economies of scale. The threats come from intensified competition, as tariff and non-tariff barriers to trade, which give protection to domestic industries, are removed, in a business environment that is changing at an accelerating pace. In terms of both the risks and the potential rewards, are high. Moreover, conflicts between trade globalization promoted by the World Trade Organization, and demands for environmental protection have the potential seriously to disrupt the world"s trading system to the detriment of the business community.

The linkage between Trade Globalization and Environment is so complex that the fierce debates involved in the recent years. On one hand, the proponents of Trade Globalization argue that in a fully liberalized global trade regime resources will be allocated to the least-cost and highest return production activities thus ensuring that production occurs in the most efficient manner possible. This obviously implies that natural resource use will also be efficient, thus minimizing the quantity of input needed per unit of output, and thereby also keeping associated wastes to a minimum.

Furthermore, as the OECD (1994) point out, if trade maximizes allocated in accordance with the environmental capacities and conditions of different countries, thus, theoretically, keeping environmental stress to a minimum.

The proponents of Trade Globalization believe the economic growth will provide sufficient economic support for the environmental improvements. For instance, Voigt states that the environmental problems facing Mexico can all be traced to a common source, „That source is the lack of economic resources available to adequately control the environment effects of development in the border region" (Voigt, 1993). A further means by which Trade Globalization may benefit the environment is through the exchange of environmentally clean products, services and technologies. According to the OECD (1994), the worldwide market for environmental equipment and services is valued at $200 billion and growing at a rate of 5.5% per year. If trade allows this market to expand, then countries will have greater access to both ecologically cleaner products and resource efficient production methods, thereby ensuring that their own future production will be environmentally improved.

On the other hand, the opponents of the Trade Globalization, the environmentalists are dissatisfied because they believe that the Trade Globalization has taken insufficient account of environmental concerns, and that it has failed to take account of the view that strong conditions are required for sustainable development (Tisdell, 2000). They argue that the perfectly Trade Globalization will ensure that resources are utilized in the most efficient manner possible, thus minimizing inputs per unit of output, which is only the case in a static framework. However, once we enter a dynamic framework then it is likely that liberalized trade will lead to an expansion of markets and hence economic growth. The increase in income associated with such growth may mean that nations now find themselves with greater resources to protect, but the environmental impact of such an expansion in the scale of production may be considerable. In the sense that the scale effect associated with the Trade Globalization will overwhelm all other positive effects from Trade Globalization.

For instance, Madely (1992) has estimated that transport involved in international trade already accounts for one eighth of world oil consumption. Indeed, the creation of the EU‟s single Market alone was predicted to increase transfrontier lorry traffic by 30-50% (Pearce, 1992). As long as fuel prices continue to externalize environmental costs, product transportation will continue to expand, further damaging the environment.

From the arguments above, it can be seen that the linkage between Trade Globalization and Environment is so complicated, involving different group people with different views.

Is there a race towards the bottom?

Advocates of the harmonization of environmental standards often claim that free trade in the presence of divergent environmental standards provides the nation with the lowest standard with a competitive advantage. As a result, it is feared that pollution havens will emerge and a „race towards the bottom‟ will ensure as nations try to undercut the environmental standards of their competitors, however, this claim is not accepted by all.

On one hand, Nordhaus (1995) dismisses the fear of a „ race towards the bottom‟ by stating that it is not in a country‟s interests to lower the stringency of its environmental standards, since the loss of competitiveness associated with environmental regulation is in fact minimal, and hence so too is the pressure to lower standards. Dean (1991) found that abatement cost a small proportion of a firm‟s total costs and hence have little impact on the firm‟s competitiveness. In addition, Walter, I (1982) found that abatement costs in US export industries were only 1.75% of total costs, whilst Tobey (1990) found environmental regulation costs were less than 1.85% for forty industries, and between 1.85 and 2.89% for twenty-four industries. Jaffe et al.(1995) also found little evidence the environmental regulations have had a

significant adverse affect on competitiveness which lead to „race towards the bottom". In 1997, Jaffe et al. found no empirical evidence to support the „pollution haven" hypothesis i.e. that firms have relocated abroad in response to stringent domestic environmental regulations, again suggesting that such regulations have little impact on competitiveness.

On the other hand, some studies do find evidence in support the pollution haven hypothesis. For instance, Lucas et al. (1992) find that the growth of the toxic intensity of production in developing countries was highest in periods when OECD environmental regulations were strengthened. Similarly, Birdsall and Wheeler (1992) find that pollution intensity in Latin America grew more rapidly after OECD environmental were tightened.

In addition, Revesz (1992) finds little empirical evidence of a „ race towards the bottom", but states that were such a race to take place, the harmonization of environmental standards would not be the answer. Instead, this would simply have the effect of moving the downward spiral to another area of regulation.

Clearly, the impact of environmental regulation on competition is uncertain and empirical studies throw little light on whether pollution havens do exist or whether a „race to the bottom" is occurring.

From above two sections, it can be found the analysis of the relationship between Free Trade and the environment clearly shows such a relationship to be a complex one. The environment will benefit from the Trade Globalization, on other side, the Free trade also contains the potential to damage the environment.

The non-tariff trade barrier associated with Environment

Under the Agreement on the GATT and WTO, the tariff barrier is mitigated further

from country to country; the international business is getting more smoothly within the Globalization context. But the some non-tariff emerges especially in environmental aspect, both GATT and WTO is served as a catalyzer for the Trade Globalization, hence both of them do not contain the precise environmental requirement. Therefore, the international trade is always hampered by the non-tariff barriers, which are caused by the different level and requirement among the national environmental standards.

This phenomenon can be explored in the Global context, especially in export and import sector, in particular, from the nation with relative low environmental standards and environmental technologies export to the nation with high environmental standards and environmental technologies. Sometime these kinds of standards and technologies difference are served as a new barrier by the government to prevent the foreign goods from accessing the domestic market easily, consequently, although the purpose of environmental regulation is to prevent, mitigate or remedy environmental damage, they play a more and more significant role in the Trade Globalization, especially the developing countries, which are always with the behindhand environmental technology, low environmental standards, and weak enforcement comparing with the developed countries, get relative low competitive ability in the Global market, because of the high requirement of environmental standards from the import countries.

Moreover, the barrier can also happened in the collaboration with the MNCs, the firms in the developing country sometimes lose the opportunity to cooperate with the MNCs because of lacking of the environmental management system, low environmental protective technology. Some evidences are showed below:

- A survey of 163 MNCs‟ environmental management in Asia show that 43% set product and process related standards for their local suppliers and subcontractors. Product related requirements (packaging, hygiene, product safety and

environmental quality) are typically more widespread than process requirements (energy consumption, waste, emission, OH&S). (Hansen, 2002)

- A survey of linkage between Danish MNCs and local firms in six developing countries showed that 17% of 52 Danish MNCs providing such information were encouraging their partner in developing countries to become certified according to ISO 14001 or EMAS (Soeren Jeppesen and Michael W. Hansen,2004)
- The presence of foreign firms in South Africa is among the factors that have led to an increasing number of local firms becoming ISO 14001 accredited. Demands are either placed by resident multinationals, or by buyers in EU and North American export market (Peart, 2002).

From these cases, it can be found that the many MNCs and foreign buyers have strong concern on environmental issues. On the other side, these requirements are both the challengers and barriers to the local firms, especially, to the middle-size and small-size firm, which are lack of enough human resource and financial resources to achieve this requirement, such as ISO 14001, OHSAS 18001, etc.

3.4 The Progress of Environmental Protection

In order to mitigate the conflicts between environment and trade, a lot of measures and approaches were implemented by the nations. After Second World War, Development and Peace are the most dominant concepts and tides accepted and followed by the most nations in the world, Economic growth likes an engine to help them to achieve the concept of Development, during these several decades the world economic growth is obvious, at mean time, the world environment depletion is also a serious problem can not be inevitable existing, which was mentioned in the above section. At this moment, the concept of the Pollution Prevention was introduced, which was expected to mitigate the conflicts between the Economic development and Environment degradation.

Pollution prevention means "source reduction," and other practices that reduce or eliminate the creation of pollution through (US. Environmental Protection Agency, 2002):

- increased efficiency in the use of raw materials, energy, water, or other resources,
- protection of natural resources by conservation

"Source **reduction**" is defined (US. Environmental Protection Agency, 2002):

- reduces the amount of any hazardous substance, pollutant, or contaminant entering any waste stream or otherwise released into the environment (including fugitive emissions) prior to recycling, treatment, or disposal; and
- reduces the hazards to public health and the environment associated with the release of such substances, pollutants, or contaminants

The development of the Environmental Prevention during the last several decades is moving forward step-by-step, which can be seen the Table 3.1.

Years	**Understanding of environmental problems**	**Solutions**
1960	Local environmental problems	Dilution
1970/80s	Environmental Protection	
	Emissions from production	Filter/end-of-pipe
	Responsible actor: Government	
1990s	Pollution Prevention	
	Resource use and emissions	Cleaner production
	Actors: Industry & Government	
2000s	Integrated Product Policy	
	Impacts in the product life cycle	Cleaner products
	Main responsible: Industry, consumers &government	

Table 3.1: The development of the Environmental Prevention (Remmen, 2001)

During the 1970s the environmental awareness grew in most industrialized countries, and Environmental Ministries were sat up, environmental NGO‟s were formed, etc. The filter strategy like waster treatment plants was considered the solution to the increasing environmental problems. (Arne Remmen and Mikkel Thrane, 2005) however, the "filter strategy" often creates "end of pipe solutions". End-of-pipe solution includes the use of a variety of technologies and products (chemicals) to treat wastes and liquid and gaseous effluents. These technologies in general do not reduce the amount of waste to be disposed of. They can diminish toxicity but they only transform the pollution into another medium (e.g. air emissions are transformed into waste water; water discharged is transformed into solid waste) (Bosnia and Herzegovina, Center for Environmentally Sustainable Development, 2002). It is obvious that prevention is better than cure.

Since the late 80‟s, enterprises have gradually through pollution prevention taken more responsibility for the environment: from environmental optimization of manufacturing processes, via implementation of environmental management systems, to development and marketing of cleaner products. In the 90‟s, some enterprises have gone one step further and implemented environmental management system like ISO14001 and EMAS to secure continuous improvements of the environmental performance. These methods reduced resource use, emission and waste as well as generated significant economic saving for the enterprises.

However, the life cycle thinks is growing in recent years, in the sense that resource used and emissions generated in all stages in the life cycle of a product will be taken into consideration. Life cycle thinking, environmental assessments of products, eco-design and eco-labeling are some of the concepts and tools applied to develop and introduce cleaner products and to achieve a competitive advantage at the market. (Arne Remmen and Mikkel Thrane, 2005)

The development represented above also a significant change in the understanding of

the relations between economic development and environmental protection. And it can be found that with the environmental degradation getting worse and the economic growth getting better, people continuously improve the various methods to reduce the pollution. In this project, the author would like to take a close look into the Method ISO 14001, which will be analyzed in the next chapter.

Chapter 4:
Trade Barriers and Motivations-ISO 14001

EMS can provide the change industries need to manage their environmental impacts and realize not only benefits for environment but for business as well (Olson, 1999). EMS base on the ISO 14001 be seen as an approach to improve some conflicts between Trade Globalization and Environment, which are mentioned above.

The ISO 14001 standard is implemented by more and more organizations in the world, to some extent, ISO 14001 gradually become a more important role than before in the Trade Globalization. And there are some provisions within the ISO 14001 international standard which have the potential to create trade barrier. In this chapter, the linkage between Trade Globalization and ISO 14001 will be investigated; it also will offer a clue on analyzing in Chinese context. And it is necessary to go through some knowledge of ISO 14001 briefly first.

4.1 The Creation of ISO 14001 and background knowledge

One of the most significant trends in corporate environmental governance since the early 1980s has been the rapid growth of self-regulatory initiatives (Gunningham and Sinclair,2002; Paton, 2002; Rondinelli and Berry, 2000). These comprise a variety of approaches and instruments whereby firms set and enforce rules and standards of permissible behavior on a voluntary basis, rather than in response to formal regulatory requirements (Haufler, 2001; Segerson and Li, 1999) .Yet, arguably, the most visible example of self-regulation has been ISO 14001 an international voluntary standard for environmental management promoted by the Geneva-based International Organization for Standardization (ISO).

In common with many other self-regulatory codes adopted by corporations over past two decades, the origins of ISO14001 are deeply rooted in the process of globalization. ISO 14001 was primarily conceived to facilitate trade and investment by replacing numerous and often conflicting national standards for environmental management with a single international one (Davy, 1997;Melnyk et al,2003; Quazi et al, 2001).

The development of voluntary standards for environmental management started in 1992 in Britain with BS 7750, was followed by several other European countries and European Union‟s Eco-management and Audit Scheme (EMAS) and has now reached an international level. The ISO 14001 standard on environmental management currently was developed by international performance in industry and facilitating trade. By providing an international standard for environmental management systems (ISO 14001), ISO is aiming at achieving a harmonization of national and regional standards. (Kerstin, 1998)

The difficulty of setting a worldwide standard is that it has to be applicable in countries with widely different levels of economic development and environmental regulation. Given both economic and regulatory differences, in particular between developed and developing countries, and the fact that the latter are underrepresented in the process of setting the ISO 14001 standard, concerns might be raised that the standards could lead to the requirements and management systems of advanced industrial sector in developed countries.

4.2 ISO 14001: An International Environmental Management Systems Standard

The 14001 environmental management systems standard is the cornerstone of the ISO 14000 series. It is a prescriptive document against which the company will be

benchmarked and receive certification. ISO 14001 defines an environmental management system to include mainly several elements below:

- An environmental policy
- An assessment of environmental aspects and legal and voluntary obligations
- A management system
- A series of periodic internal audits and reports to top management
- A public declaration the ISO 14001 is being implemented

In order to offer a clear picture of ISO 14001, here, it will be given a short introduction of the main elements of ISO 14001.

Environmental Policy:

The environmental policy is the basis for an ISO 14001 environmental management system. It is only public document that ISO 14001 requires a certified facility to produce. The policy is the statement of corporate environmental mission against which the management system should be designed, implemented, monitored and continually improved, and this policy should be defined by top management.

Environmental Aspects Assessment:

ISO 14001 requires that business conduct conformance assessments. In setting their environmental objectives, the organization will establish and maintain „procedures to identify the environmental aspects of its activities, products or services that it can control and over which the business can be expect to have an influence". Businesses also will establish and maintain a procedure to identify and have access to „legal requirements, and other requirements to which the organization subscribes".

Management System:

A management system must be established to check that the facility is in line with its

environmental policy statement. This management system is based on a regular project cycle, with phases for planning, implementation, checking, review and continual improvement.

Review:

Periodic audits should check that the management system conforms to plans and policy and that it is being properly implemented and maintained. The results of the audit are reported to top management. This could be an external auditor that the company employs like a consultant. In addition to self-audits, a firm can self-certify that it conforms to the standard, or it can seek certification or registration of its environmental management system by an external organization.

An organization certified ISO 14001 could take more responsibility of environment into production (site), increasing self-regulation, and pollution prevention. Though ISO 14001 is no guarantee in itself of environmental improvements and can‟t stand alone. A range of pressures from authorities and society is also necessary for industry to improve their environmental performance. ISO 14001 is a little part of reducing the degradation of the environment.

4.3 Development of Certification to ISO 14001

The wild implementation of ISO 9000 series of standards has proved that, although the standards are voluntary, they have become a requirement for supplying organizations worldwide. Also, ISO 14001 as a voluntary standard created by ISO is the only certifiable standard in the ISO 14000 series. The same is expected to happen with ISO 14001. During the recent decade, the implementation of environmental management system (ISO 14001) is shown great increasing, which can be found in

figure 4.1.

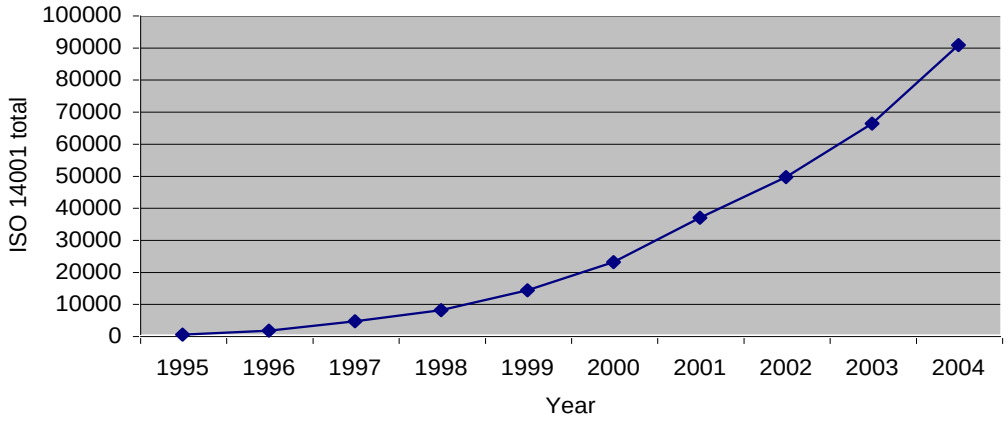

Figure 4.1: Total number of issued ISO 14001 certificates in the world 31st Dec. 1995 to 31st Dec. 2004 (ISO, 2003), (ISO, 2005)

In 2004, the total number of ISO 14001 certificates was up to 90,000, and from 2001 to 2004, the growth rate remained around 25% per year. In figure 4.1, it shows that development in the number of adopting certifications, which points at a continued interest in the next year. Obviously, the ISO 14001 has been recognized as an international standard and accepted by many organization and countries; this experience is more like the ISO 9000 series when it was in the early stage.

Even 14001 become a more significant role in the international trade like ISO 9000 series, to some extent; certification of ISO 14001 is a precondition for the companies to entry the international market and competition, which become one of the main motivations for the firms to seek ISO 14001, and it will be discussed in the follow section.

4.4 Motivations for Certification to ISO 14001

Proponents of the standard (e.g. Harrington and Knight 1999; Tibor and Feldman 1996; Woodside 2000) have listed numerous reasons for why firms should seek

certification, such as (1) improved regulatory compliance, (2) increased market share and a potential for premium pricing within certain market segments, (3) response to customer pressures and access to markets, (4) cost reductions from improved efficiencies, (5) enhanced reputation. Darnall and others (2002) classified the numerous motivations for implementing an EMS in terms of their antecedents (i.e., market driven, regulatory driven, and societal driven). In addition, motivation for certification may also be derived from internal factor involving strategic considerations associated with a resources-based view of its assets (Hart 1995; Russo and Fouts 1997): an "enlightened" top management, corporate culture (Egri and Herman 2000). Until recently, the literature on motivations for ISO 14001 certification remained largely normative, over the past few years, there has been an emergent body of empirical research related to this topic.

Steger (2000) reviewed a number of empirical studies, most of them conducted in Germany and Austria, and offered the following generalizations. First, many companies that were first-movers in obtaining an EMS certification had actually set their environmental targets long before formalizing their EMS. Given this, this implementation of standard appears to have had little actual effect on the directions the certified companies actually took and suggests that certification was pursued for other reasons. Second, most of the stated goals of EMS were might be " doable" and what might offer a quick payback, rather than by any in-depth analysis of what the environmental impact of the company"s activities might be. Finally, this study concluded that in granting certification if the EMS "described environmental goals at all". Fortunately, most of these firms were already well beyond compliance and were reducing their pollution levels anyway. However, this seems to have had more to do with the fact that these were leading firms than due to the standard itself. Very few studies have looked at companies lacking a certificated EMS, such that there is a strong selection bias in these studies. Third, the larger question of whether the implementation of an EMS actually leads to any actual improvements in environmental performance (i.e. in terms of reductions in pollutants from either

normal or abnormal operations) remains elusive.

Given the broad range of latitude companies have under ISO 14001 in designing their EMS components, it seems rather straightforward to suggest that EMS should, in general, reflect these motivations for obtaining certification. This argument is simply that the elements of an EMS are designed to achieve objectives that will be a reflection of the firm s" intentions in confirming to the standards.

In a rare study in the United States that examined the relationship between why facilities seek EMS and outcomes related to environmental performance. Andrews (2001) found positive relationships between their measures of environmental performance and motivations to adopt an EMS for competitive and marketing purpose. In comparison, facilities that implemented an EMS to appease regulators had more negative outcomes. Although this study is informative and based on unique data, the small size of the database would suggest that some caution is required in generalizing their findings.

In Europe, Del Brio (2001) examined motivations for seeking certification and found that the standard"s worldwide recognition and broad applicability were of paramount importance. In the context of Asia, China as the largest Country, it is suspect that the mix of drivers for seeking ISO 14001 certification in China is expected to be substantially different from these other research settings, and the motivation of China will be investigated in Chapter six.

4.5 ISO 14001 – the potential for trade barriers

A recent survey conducted by the United Nations Development Program (UNDP) among experts involved in the ISO 14001 standard setting has shown that there is

uncertainty whether the standards will create non-tariff trade barrier or not. One of the main argument against ISO 14001 being discriminatory is that certification to the standard is voluntary. As a voluntary scheme, the standard can"t create an official barrier as defined by the World Trade Organization (WTO) in its Technical Barriers on Trade Agreement (TBT). However, the effect of ISO 14001 on developing country trade will depend on the status that the standard gains in conducting business.

The experience of ISO 9000 series might happen in the process of the development of ISO 14001; it is expected to become a requirement for supplying organization and involving the market competition. As also discussed by United Nation Conference on Trade and Development (UNCTAD) (UNCTAD, 1995) and United Nations Industrial Development Organization (UNIDO)(Luken, 1995) ISO 14001 has the potential of both positive and negative trade impacts. Requirements for ISO 14001 certification, whether demanded by marketplace or government, can disadvantage producers in developing countries which, for various reason, have difficulties in becoming certified. Those producers may suffer a loss of competitiveness or even market access. One the hand, positive trade effect is possible for those developing-country companies that achieve certification. The potential of ISO 14001 to create non-tariff trade barriers is analyzed in the following sections.

Potential Positive Effect on Trade

Exporters in developing countries could benefit if ISO succeeds in harmonizing national and regional EMS standards. Obtaining information about one international standard is easier than finding out about several unilateral standards valid in different trading countries. One international standard avoids conflicting requirements, reduces costs for multiple inspections, and lessens the complication that companies in developing countries have to be accessed for conformity by certification bodies in each importing countries.

The fact that ISO 14001, in contract to the European Union and British Schemes, does not include an absolute performance component might have, apart from possible other shortcomings, positive effects on developing country trade. Certification may be easier to achieve since a company is allowed to set its own environmental performance objectives based on the national regulatory system.

Certification of a company"s EMS may increase credibility with buyers, financial institutions, insurance companies, regulators and consumers. Certified companies might achieve increased competitiveness, faster and wider market access, improved market share and higher export earnings. Participation of developing countries in ISO 14001 may increase the rate of foreign investment via improved confidence in local management capabilities. (Kerstin, 1997)

However, according to a survey conducted by UNIDO among industry associations and standardization bodies in developing countries, non-compliance with ISO 14001 is perceived by majority of organizations as a threat to the competitiveness of local companies and is likely to impose a barrier to trade (UNIDO, 1995)

Potential Barrier to Trade

There are provisions within the ISO 14001 international standard, which have the potential to create trade barriers. A company is encouraged to consider the environmental impact of products when defining its environmental objectives and targets. Products not compatible with those goals might be excluded. Furthermore, procedures and requirements with respect to environmental aspects identified by the company should be communicated to suppliers (ISO 14001, 1996). Large companies in industrialized countries, to become third party certified as a means of improving their own environmental performance and demonstrating their environmental responsibility.

The pressure could go as far as using certification as a criteria to award preferential trade status, fix supplier quotas or even drop suppliers without certification in favor of certificated competitors. This has been the experience with the ISO 9000 series. Certification to this quality standard has often been a requirement for suppliers to maintain trade relations, although registration for suppliers is not a mandatory standard requirement.

Even if companies in developing countries do not have to become ISO 14001 certified themselves, they may have to consider at least certain EMS requirements, if certification spreads among companies in developed countries. The reason is that the life cycle approach underlying EMS considers the environmental performance of suppliers and contractors and this may lead to substitution of inputs or the placing of special requirements on developing country production processes. The fact, an ISO 14001 EMS based company may force suppliers to comply with different requirement for each company to which they sell products. The difficulties of meeting those requirements increase if they are conflicting or if environmental criteria are only of secondary importance in the supplier country (UNCTAD, 1995)

Producers in developing countries might consider the standards a barrier to trade if they face problems in obtaining certification or fulfilling the environmental requirements of their customers. There are a number of likely obstacles on both the policy and enterprise level, such as:

- Lack of participation and information
- Lack of understanding and expertise
- Lack of management commitment
- Lack of technology
- Lack of resource. i.e. human resource and finial resource.
- Small and medium-sized enterprises

(Kerstin, 1997)

These problems are posing in front of the producers in the developing countries;

especially they are going to access the international trade.

4.6 Network relations

The different motivations for the organizations to adopt ISO 14001 certification were introduced above, but the main motivation of seeking ISO 14001 for the different firms could be different. They are influenced by a number of actors, such as Government, Trade Competitor, etc. So in order to address the research question to investigate the intentions of Chinese firms to seek ISO 14001 certification, these actors have to be looked further into.

Before taking a closer look at various actors influence on implementation of ISO 14001 in China, the overall networks of a company will be presented in first. According to Søndergaard"s study, the stakeholders of a company can be divided into three types of networks:

- Business network
- Knowledge network
- Regulation network

They are shown in the figure 4.2. (Søndergaard, 1997) The regulation network consists of all the environmental authorities in different level and standard organizations; the company has to comply with the environmental regulations or standards according to their process and the products they are producing. Within the knowledge network, the actors assist companies with knowledge, for instance new technologies, implementation of ISO 14001, pollution prevention, cleaner technology etc. In addition, the environmental protection demands from all actors in the business networks could stimulate companies to seek ISO 14001. So a company participates in

many networks with different purposes and different types of knowledge. Various actors‟ behavior and demands change over time, and so do the companies network relations.

Hence, the network relations among business, knowledge and regulation, it can be seen that there are a lot of external actors which are able to affect the environmental performance of the company. In the sense that, the company might have to response to the pressure or demands from different external factors in business, knowledge and regulation network. For instance, in the business network, if the customers have many demands on the ISO 14001 certification to the firms, it will produce some kinds of pressures from the customs to the company, which will lead the company to take the adoption of ISO 14001 into consideration. So before investigating the motivations of the firms to adopt ISO 14001 certification in China, it is necessary to analyze those external factors.

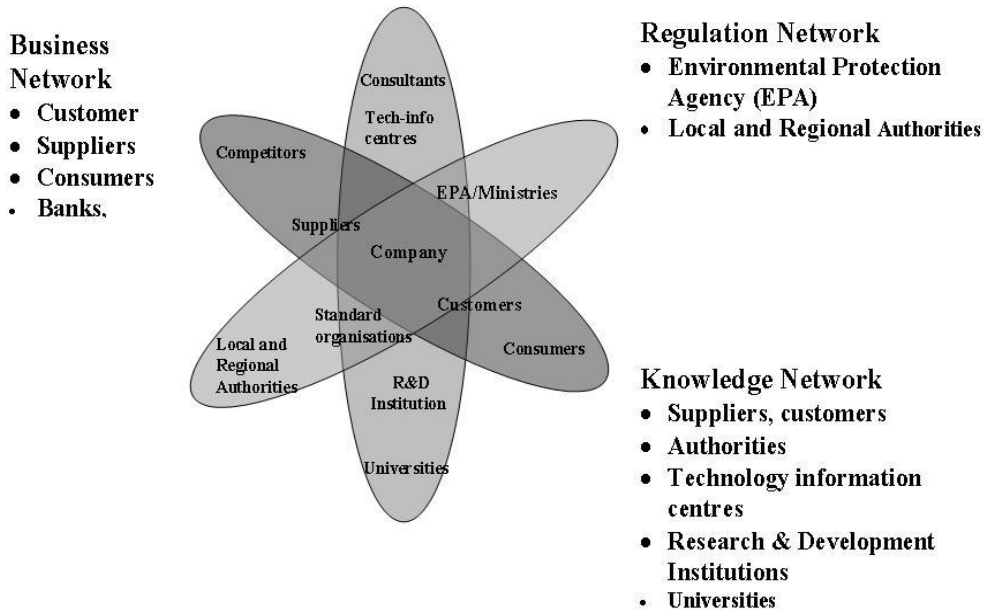

Figure 4.2 Network relations-Business, Regulation, Knowledge (Sændergaard, 1997)

However, there are a wide range of external actors involving the network above; it is time consuming to investigate all of them in the Chinese context in this report because of limited time and available resources. Though the study conducted by the Chinese scholars (Jun BI, 2006), they listed Government regulation, Market Mechanism, and Public Participation as the main external factors towards the environmental pressures in China. So it is chosen to limit the investigation to these three main external factors instead of analyzing all external factors involved in the figure 4.2.

Government regulations about environmental protection in China are still with a lot of problems, and enforcement is not as strong as they should be. Chinese environmental authorities play a significant role in the regulations‟ making and enforcing. So in this report, it is necessary to analyze Chinese environmental authorities. Moreover, as free trade was promoted worldwide, market mechanism could be a mainly factor to influence the firm‟s environmental performance, since the fierce trade competitions don‟t only concentrate on the price or quality now but also the environmental conditions of the involved firms, such as ISO 14001 certificate. Hence, here trade competitor will be looked in Chinese context. In addition, with respect to the public participation, although it is weak in China at this moment, but it is still interested in analyzing the consumers, who could demand the firms to become greener, and indirectly to seek ISO 14001. So the three actors are chosen to take a closer look at, which are shown in the figure 4.3.

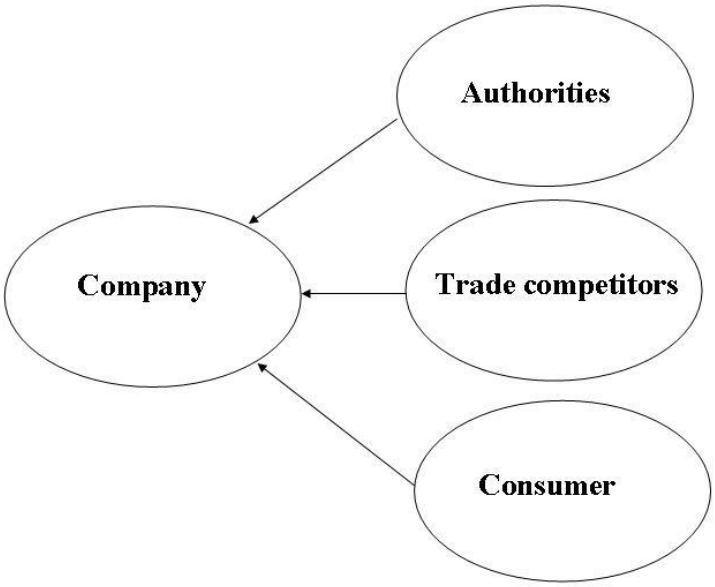

Figure 4.3 Model: drivers of firms to adopt ISO 14001 in China

This model above will be served as a framework in the empirical part to analyze the motivations to obtain ISO 14001 certification in Chinese context.

Chapter 5:
Trade Globalization and Environment, Development of ISO 14001 in China

China, which is the country with high economic growth rate in recent two decades, take part in the Trade Globalization process just several years, however, Trade Globalization brought a great amount of influences (both positive and negative) to China. For instance, undoubtedly, Trade Globalization facilitated trade liberalizing in China; more firms get more opportunities to involve the competitions, which will be helpful for China to achieve high growth rate in GDP. However, high growth rate can‟t cover up the serious environmental degradation in China. Chinese Government is encountering a dilemma, on one hand; the further Globalization might lead to further pollution, and on the other hand, economic growth is the first priority in China.

Moreover, not only Chinese Government but also Chinese firms realize the importance of environmental issues. A lot of firms encountered trade barriers caused by higher environmental standards when they are exporting goods to the developed countries, i.e. EU countries. At this moment, it is found that ISO 14001 might be one of the methods to mitigate these problems in China. This chapter analyzes Trade Globalization and environmental degradation, and development of ISO 14001 in China, which could offer answer to the research question and for the further analysis of firms in the chapter six.

5.1 Trade Globalization and Economic Growth

Before analyzing the influence of Trade Globalization on the environment in China, it

is necessary to gain an understanding of the economic growth due to free trade in China, since the economic growth has contributed a lot to environment changes. Firstly, it is necessary to review the process of Trade Globalization practiced by China during the country"s drive to economic growth. During this period, there are some changes occurring in China, such as, reduction of the tariff and non-tariff barriers, the openness of the market, the increase of imports and exports, and the foreign direct investments increase. China"s economic growth is mainly benefited from implementing the trade liberalization in the market.

Since China opened its doors to the world in 1979, China continued to impose barriers to imports, despite its stated goal of reforming and liberalizing its trade regime. These barriers include not only high tariffs but also stringent import-licensing requirements, import quotas, restrictions and controls, and standards and certification requirement. By the mid-1990s, however, China agreed to eliminate the use of imported substitution policies and measures and "promised not to subject any imported products to such measures in the future. Though not overtly, China started promoting exports. It claimed to have abolished direct subsidies for exports on January 1, 1991. However, many of China"s exports continued to receive indirect subsidies through guaranteed provision of energy, raw materials, labor supplies, and bank loans that have lengthy or preferential terms. Tax rebates became available for exports, as well as duty exemption on imported inputs intended for export production. In recent years, with further expansion of the Trade Globalization in China, especially after the accession of GATT and WTO, the enterprises of China enable to get more access to the international market than before. (Christy Pichel, Fara O"Sullivan, Mary Irene Zemanek. 1999)

With the above process of Globalization gradually implemented by China, it leads to China"s economic grow substantially with annual GDP growth rates of 9% or more during most years table 5.1 in here for instance. Despite the decline to 7.8% in 1998 and to 7.3% in 1999, China"s growth rate was still among the highest in the world.

Foreign trade expanded even more rapidly (see Table 5.2) and has played an increasingly significant role in the national economy. As a result, China"s trade to GDP ratio increased from 13% in 1980 to 36% in 1997(see Table 5.2). After 14 years of negotiations, China joined the WTO in 2001.

Table 5.1 Annual Growth Rates (%) of China's economy, 1970-1997

	1970-78	1979-84	1985-95	1996-97
Gross domestic products	4.9	8.5	9.7	9.2
Agriculture	2.7	7.1	4.0	4.3
Industry	6.8	8.2	12.8	11.4
Service	-	11.6	9.7	8.0
Import	21.7	12.7	13.4	10.8
Export	19.4	15.9	17.2	23.8
Population	1.8	1.4	1.37	1.03
GDP per capita	3.1	7.1	8.3	8.2

Source: State Statistical Bureau. China Statistical Yearbook, various issues.

The sheer size of China"s economy and its rapid growth will make the country a crucial player in the future development of the liberalizing markets for inputs and output of food, agricultural products, business and industry etc. Until now trade Globalization process did not end. Chinese government still sticks to the focus on the economic growth, tends to keep relatively high growth rate in the economy by the market further liberalization in the near future, especially after the WTO.

Table 5.2 Foreign Trade to GDP Ratios (%) in China. 1980-1997

Year	Total trade* to national GDP
1980	12.7
1990	29.8
1997	36.0

*Trade=import + export

Source: State Statistics, various issues; China Statistical Yearbook, various issues.

The data listed above reveals that China has gained great benefits from trade Globalization to impulse the rapid economic growth, the result is in line with other‟s researches.

An increasing openness to the international economy can provide a series of remarkable advantages (among others, access to foreign capital, import of capital goods, technology transfer etc) which can stimulate and support an acceleration of economic growth. (Alessandro De Matteis, 2004)

Trade Globalization promoted the movement of goods and services through trade and investment in China, consequently leading to economic growth. Obviously, the economy of China is benefit from the Trade Globalization, just same as in the global context mentioned in the chapter three, undeniable, Trade Globalization contribute a lot to the progress of the economy. Hence, from the economic point of view, China goes through the experience of Trade Globalization which is in line with the Global trend.

5.2 Environmental Degradation in China

During the recent half century, the economic growth is more visible in the globe context, especially in recent decade after Trade Globalization, at mean time, the

environmental degradation is getting worse and worse worldwide, which has been analyzed in the chapter three. Following this trend and as we mentioned above, China has made a great leap on the economic growth after 1990s, but how is the environmental situation in China? Does it still track the global environmental trend? The answer is certainly yes and even worse.

In introducing Greenpeace China"s first national state of the environmental report, executive director Ho Wai Chi said: "China"s environmental problems are world"s and neither can continue to ignore their impact". Direct economic losses from the environmental pollution have amounted to 3% to 5% of China"s annual gross domestic product $ 30 billion- during the 1990s. Yearly losses from natural disasters are expected soon to reach $2.5 billion. Acid rain produces annual losses of 1.8 billion. Around 10 million hectares of farmland are polluted, causing a loss of some 12 billion kilograms of food each year. Among China"s 600 cities, over half have insufficient water supplies, and 108 face serious water shortages. Coastal factories and cities annually channel an average of 10 billion tons of sewage directly into the sea.

Moreover, Chinese is suffering hazards caused by the environmental degradation now. For instance, the Sand Storm in Beijing caused by the expanding of the desert due to a lot of trees were cut down by the manufactories, it becomes a serious environmental problem impacted people"s life and health. The recorded instances of sand storms in Beijing have grow significantly in the second half of the 20th Century, from 5 times in the 1950"s, 8 in the 1960"s, 13 in the 1970"s, 14 in the 1980"s, 23 in the 1990"s. There were 12 sand storms just in the year 2000, and 15 already in 2001. And it is getting more serious today. Recently the Two severe dust storms struck North China March 15-20, dumping 56,000 tons of wind-eroded topsoil on Beijing. The March 19-20 storm was the strongest since China began monitoring the phenomenon. Sand storm can be called the disaster for the resident of Beijing, see the picture 1 below, the bad air quality may develop the disease of breath, during the Sand Storm, and people can"t walk in the street without wearing mask. (Science and Technology, 2006)

Picture1: Sand storm in Beijing 2nd.Feb.2002

Such acute problems, and others like them, are recognized widely, not least by Chinese authorities themselves. Former Premier Li Peng, for example, outlining Beijing"s Ninth Five-Year Plan (1996-2000) a few years ago, noted: "our country"s per capita arable land, water and forests and some mineral resources are below average. Since our country is now rapidly promoting industrialization and since we have adopted methods of extensive production and operation, waste of natural resources and environmental pollution are quite serious. With population growth and economic development, this is problem will probably become even worse" (Li Peng,1996)

In 1998, Xie Zhenhua, minister of China"s State Environmental Protection Administration, remarked before an international audience in the United States: "Due to extensive mode of economic growth which has not been fully transformed yet, as well as the low level of management and technology, environmental pollution and ecological damage are prominent problems in China."(Xie, 1998)

Carbon dioxide as an indicator used in chapter three to describe the environmental degradation worldwide, here, it will be applied again in China. Today, China is the second leading emitter of carbon dioxide, right behind the United States -- despite the fact that China's per-capita CO2 emissions are just one-eighth of those of the United States. Given China's current energy trends, it should occupy first place before the end

of the decade. Between now and 2030, China's CO2 emissions will increase as much as those of the entire rest of the industrialized world. (Scully, 2004)

It can be found that China is suffering the problem of environmental pollution now; moreover it seems that China has the tendency to become one of the biggest resources of pollution in the world, which has got more attentions from different countries.

Furthermore, Trade Globalization do have some positive effects to the economy of China, on the contrast, some negative impacts are also existing, just like the debate for the Trade Globalization and Environment mentioned in the chapter three. China, as a developing country, who joined the development race late in the twentieth century faced a peculiar dilemma; it could neither neglect development nor ignore the environmental concern. At meantime, it was almost impossible for China, the developing country with relatively low income in the world, to take both of them into account at same time. Since to some extent, economic growth would depend on more depletion of the environmental resources, i.e. consumption of water and timber resources etc. Economic growth will lead to a certain degree of environmental degradation. With the same token, economic growth is also one of the necessary conditions to improve the state of environment in China. Since, it might cost a large amount of money in order to improve the environment in the long run. In order to mitigate the environmental problems, some environmental protection policies and measures were implemented by Chinese authorizes, so it is necessary to review the environmental policy progresses in China, which could reveal the changes of the Chinese authorities‟ attitude towards environmental protection.

5.3 Environmental Policy progresses in China

Mao Zedong announced the birth of the Peoples Republic of China from the Gate of

Heavenly Peace on 1 October 1949. But the years of Mao Zedong were not friendly to China"s natural environment. A clean and undegraded environment is, for economist, an example of a "public good" ideally produced (or at least, capable of being produced) in a command economy. But in Mao"s command economy, the overweening imperative of creating a strong, socialist and independent China through heavy industrial expansion and human intervention made it impossible to do this. On the plus side, the concept of "environmental hygiene" borrowed from the Soviet Union, was developed in the 1950s in response to the need to improve the lot of the urban population and the provision of clean water was promoted.

By the time the First Five Year Plan was introduced in 1953, the environmental impact of industrial production was recognized to the extent that the plan advocated the recycling of industrial wastewater. And in 1956, in response to evident air and water pollution, new legislation was enacted to improve the health of the urban population by ruling that industrial facilities should not be sited upstream of major population centers and calling for the promotion of emission-abatement technologies (B Claiser 1990). Also on the plus side, perhaps influenced by the „limit to growth" debate in the West, ecology became a political topic and the concept of „environmental hygiene" was replaced with the concept of „environmental protection". That China was a participant at the first Unite Nations Conference in 1973 in Beijing. At that conference guidelines were drawn up on environmental policy and environmental protection and research for the first time and, in 1974, the Environmental Leading Group of the State Council was formed, thus, at the end of 1976, the early institutional foundations for China"s environmental protection had been laid. (Richard Sanders, 1999)

Deng's period

By December 1978, Chinese government embarked on economic reforms to shift from a socialist industrial country to a more open-door economic policy of

outward-oriented industry. At the Third Plenum of the 11th Central Party Committee in Beijing, Deng was in a sufficiently powerful position to push through measures of a very different nature from those associated with Mao. Deng"s favored policies involved a shift of state investment from heavy into light industry and agriculture. In 1980 the country underwent rapid growth, thus allowing foreign investors to flow into the country, especially in to the big cities and to economic zones. (Bernhard, 1986)

A welter of official activity and policy pronouncement with regard to environmental protection characterize the years of Deng Xiaoping. In 1979 China enacted, on a trial basis, the first Environmental Protection Law of the PRC; in 1982 environmental protection became part of the Constitution of PRC as Article 26-„the state protects and improves the environment in which people live and the ecological environment" (constitution of the PRC, 1988). In 1982 the state set up the Ministry of Urban and Rural Construction and Environmental Protection Administration beneath it. In 1987 the latter elevated from being an office of the Ministry to an agency directly under the State Council, giving it cabinet level status, while its name was changed to the National Environment Protection Agency(NEPA). In 1989 this period culminated with the promulgation of the final and comprehensive version of Environmental Protection Law, exactly 10 years after its initial trial implementation. (NEPA, 1992) From which could be seen that the first decade since 1979 ushered in a vast expansion of environmental protection institutions, laws and policies.

After 1990s

By 1990 environmental protection policies were based on the three principles which are „putting protection first, combining prevention with control", „make the polluter responsible for treating it" and „intensify environmental management" (State Council 1996). There was a pollutant discharge permits system, and local environmental protection bureau which had the power to collect fees and levy fines for excessive discharge of pollutants, the funds so collected to be used for pollution control, and in

extreme cases to order the closure of a heavily polluting work-unit. Environmental impact assessments were encouraged for all major construction projects, responsibility systems for environmental protection devised and environmental monitoring strengthened. (NEPA 1992)

In 1992, China participated in UN Conference on Environment and Development (the Earth Summit) in Rio de Janiero .After this participation, in 1993, special Environment and Resources Protection Committee of the National People"s Congress was established. In 1994, the Chinese government promulgated China"s Agenda 21-its response to the Earth Summit-and in 1996 it adopted in the Ninth Five Year Plan firm commitments to „sustainable development as an important strategy for modernization". Thus by 1996 China had set up a far-reaching network of 8400 environmental agencies, (China Statistical Yearbook 1997) bureaus and offices at a variety of administrative levels, form province through city, county and township, employing a total staff of 96000 people and had drafted an array of (on paper) tough regulations concerning environmental protection.

From the history of the progress of the environmental policy in China above, it can be seen there are several stages of the progress. In an earlier article written by Lin Gan (1993) he briefly discussed the evolution of Chinese environmental policies. He divided the whole development process into five phases: 1949-1957 No Environmental Policy;1958-1965 Massive Environmental Movements; 1966-1977 Environmental Institutional Build-up;1978-.1989 Environmental Management and Law Enforcement; 1990 afterwards Initiation of Global Environmental Policy (Lin Gan ,1993) so it seems that China was more focusing on fundamental environmental protection settings before 1990s, When it comes to the 1990s some significant changes appeared in environmental policies, the concepts of sustainable development was introduced, and environmental policy making and enforcement tended to be improved. (Pei and Zhou, 2004)

Nowadays, although some fundamental environmental settings have already been built up in China in 1990s, and Chinese environmental authorities paid more attentions into environmental protection, there are still huge environmental problems in China, such as water and air pollutions due to overproductions etc. Moreover, there are still a lot of problems within Chinese environmental authorities, such as weak enforcement and incomplete environmental laws etc. Hence, although Chinese authorities take some measures attempt to improve the environmental problems; still a lot of problems should be solved by the authorities. As one of the measures introduced by Chinese authorities, ISO 14001 was promoted by them and it was thought that ISO 14001 might be one of the methods to mitigate some environmental problems in the Chinese firms. And in the following section will take a closer look at the development of ISO 14001 in China so as to assist to address the research question.

5.4 Development of ISO 14001 in China

ISO 14001 was introduced into China in 1997, but it didn"t attract much attention from Chinese companies until 1999, especially after China succeeded taking part into WTO in 2001, which was one of a great milestone for China to join the pace of Trade Globalization officially.（Wang，2005） More Chinese companies gradually realize that ISO 14001 as an international standards which plays an important role in the international business competitions. As mentioned in chapter four, to some extent, ISO14001 has potential for trade barriers in developing countries, for instance, according to the survey conducted by UNIDO in developing countries, non-compliance with ISO 14001 is perceived by majority of organizations a threat to the competitiveness of local companies and is likely to impose a barrier to trade (UNIDO, 1995)

In order to attain international competitiveness, many Chinese organizations have

continued to strengthen their environmental management practices. Pressures have also started to grow with respect to the environmental management of organizations in developing countries, especially China. (Zhu & Geng, 2004) moreover, recently with increasing environmental pressure from both Trade Globalization and government, Chinese domestic companies have attempted to make their best efforts to improve their environmental image through approaches such as cleaner production and adoption of environmental management system (ISO 14001).

Since 1996, organizations in the world have been paying much attention to environmental management system based on ISO 14001 in order to maintain and improve competitiveness. Reflecting this acceptance of environmental practices at the international level, by the end of 2004, 90,569 entities throughout the world had received ISO 14001 certification. (ISO, 2004) However, the total number of Chinese organizations to get ISO 14001 certification before 1999 was rather few, in figure 5.1, there are only 222 Chinese organizations got ISO 14001 certification in 1999,afterwards, it was increasing at high growth rate, especially, in 2000,2001,2002, the growth rate up to 50% per year or even more. When it came to the end of 2004, 8862 organizations adopted ISO 14001.

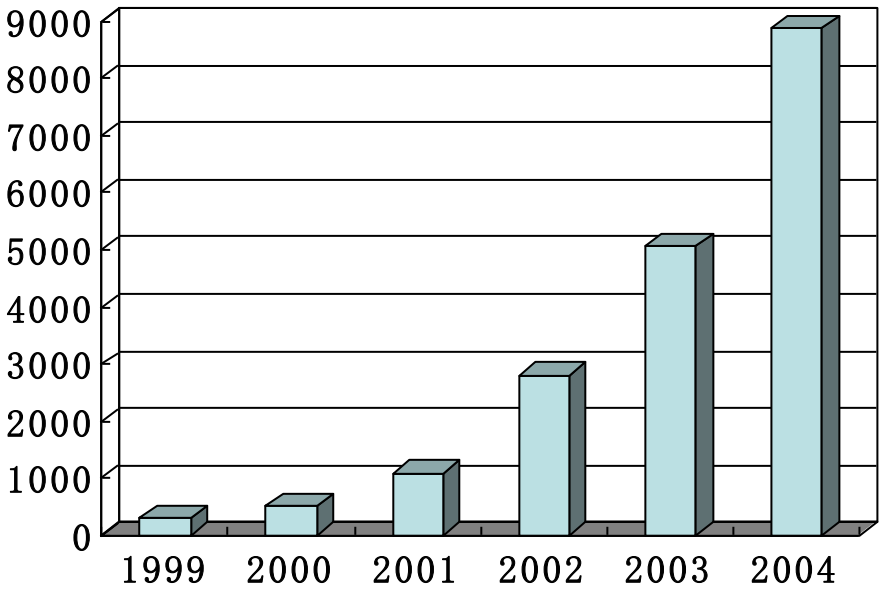

Figure 5.1 the development of ISO 14001 in China 1999-2004 (Year Book, 2004)

Moreover, China became the second largest countries in total numbers of ISO 14001 certification. In table 5.3, it can be seen that China only takes up 1.6% in the total number of ISO 14001 certification in the world in 1999. After several years‟ rapid increasing of the ISO 14001 certification in China, the share to get ISO 14001 certified is around 10% at the end of 2004. It became the second largest countries in total numbers of ISO 14001 certifications.

Table 5.3 the share of China in the total number of ISO 14001

ISO 14001	1999	2000	2001	2002	2003	2004
World total	14106	22897	36765	49449	66070	90569
The share of China	1.6%	2.2%	3%	5.7%	7.7%	9.8%

ISO survey, 2004

In addition, recently with involving the Trade Globalization much further, more Chinese organizations are tending to apply for ISO 14001. According to the Chen, the ISO 14001 auditor from Bureau Veritas Quality International (BVQI), ISO 14001 is tracing the trend of the development of ISO 9000 in China, after several years instead of Japan; China may occupy the biggest share in the total number of ISO 14001 certification in the world(interview, Appendix I).

5.5 Environmental Pressures

Globalization, especially after China‟s entry into the WTO, results in both pressures and drivers for Chinese enterprise to improve their environmental performance. As a developing country, China has to balance economic and environmental performance.

To establish their environmental image, enterprises have to re-examine the purpose of their business. Approaches such as environmental management systems (EMSs) and cleaner production (CP) have been implemented for green management practices in Chinese enterprises.

Enterprises in China have begun to consider environmental management. However, different enterprises have different motivations. Among these, the two most important are export requirements and the pressure from downstream foreign enterprises in China.

The Environmental pressures from the Trade Barriers

Export has been encouraged by some preferable policies, such as export tax reimbursement and export subsidies. China"s exports have continuously grown in the past five years. However, Chinese enterprises have begun to experience pressures from green barriers when exporting their commodities. During the three years from 1997 to 1999, the value of the commodities that were rejected because of such barriers is about 20 billion US dollars (Xinhua News Agency 2001). For example, many countries require a certificate for wood products in order to show that their harvest does not harm their forest"s sustainable development, but many Chinese enterprises have failed to sell their wood products because they do not have such a certificate. Another example is that shoes made in Fujian, a province in Southeast China, could not be exported because the glue used couldn"t satisfy the environmental requirements of the customers. Some countries, including Japan, the USA, Netherlands, Norway, France and Sweden, have also put forward different environmental requirements for the fabrics and dyes of clothes imported from China (Ministry of Foreign Trade and Economic Cooperation of PRC, 2002). The benefits from China's hard-won membership in the WTO could be diminished unless it meets the relevant international environmental standards.

Becoming suppliers of foreign enterprises in China

China received much foreign direct investment in the last five years, and China should be able to attract more foreign investments after joining the WTO. However, most joint ventures or foreign direct investment (FDI) enterprises in China purchase key raw materials and components mainly from their home countries, or from their upstream enterprises in their supply chains already operating in China (Zhu and Geng 2001).

The main reason for this phenomenon is that Chinese enterprises cannot provide products that meet foreign enterprises' requirements on environmental standards. For example, some leading enterprises from developed countries evaluate not only their direct suppliers but also second-tier suppliers (suppliers' suppliers) (Zhu and Geng 2001). In this regard, it is noteworthy that in their investigation Carter et al. (2000) put forward ten top environmental supplier evaluation criteria and that, among these, environmentally friendly practice (EFP) evaluation on second-tier supplier is the second most important criterion. Therefore, it would seem that it is increasingly important for enterprises to apply environmental standards in their supplier selection process. This is the case for those enterprises that want to become long-term suppliers to China's joint ventures or FDI enterprises with strong environmental policies. Besides these two above reasons, pressure from government and improvement of environmental awareness are also important pressures for Chinese enterprises to implement environmental practices.

It can be seemed that the trade barrier caused by higher environmental requirements, which mentioned both in chapter three and four, do happen in China. Further, the current low environmental standards hinder Chinese firms to access the international business competitions.

Governmental policies for enterprises on environmental practices

The Chinese government has stipulated some new policies to promote environmental practices for Chinese enterprises primarily to export more products and to attract more foreign investments. Main efforts include encouraging enterprises to establish EMS.

As for policies on EMSs, the Chinese government agencies have focused on helping the enterprises to pass ISO 14001 certification by providing training and subsidizing part of certification fee. This has also indirectly encouraged the enterprises to carry out green supply chain management because certified enterprises will only realize continuous improvements by involving their suppliers in order to fully meet with the requirements of ISO 14001. In fact, the demands of ISO14001 certification are partly the result of pressures from some foreign enterprises. For instance, Bristol-Myers Squibb, IBM and Xerox have encouraged their Chinese suppliers to develop environmental management systems consistent with ISO 14001, while Ford, GM and Toyota have required their Chinese suppliers to obtain the ISO 14001 certificate (Global Environmental Management Initiative 2001: 7).

Some demonstration projects on ISO 14001 certification have been implemented. For instance, in 1999 four industrial zones, namely Tianjin Economic and Technological Development Zone, Dalian Economic and Technological Development Zone, Yantai Economic and Technological Development Zone and Suzhou New District, initiated efforts to assist their tenants to obtain ISO 14001 certification. Special offices were established in the four zones and the relevant policies were promulgated. For example, the Dalian zone government subsidizes 50% of the certification fee and exempts part of the income tax for those certified enterprises or those in the process of application. A special award was also established for those ISO14001 certified enterprises with excellent environmental performance. As of now, nineteen enterprises have received the ISO14001 certification. This should benefit them in exporting more products or become the long-term suppliers of foreign enterprises in China. (Yong, 2003)

The Chinese government has also taken some measures to ensure the credibility of the certification because ISO 14000 series is regarded as the international standard for environmental protection by the WTO, and at the same time some customers, especially those in western Europe, recognize that even ISO 14001 certified enterprises may have EMS that vary in quality and scope. Thus, these customers are scrutinizing the content of their suppliers" EMS and not merely whether or not a company is certified; enterprises holding an ISO14001 certificate are inspected at least once a year and those failing the inspection will first be warned and may even lose their qualification if they cannot improve in the due time (Darnall and Gallagher 2001). Chen Yanping, secretary general of the China Accreditation Committee for Environmental Management System Certification Bodies warned that if Chinese certification bodies, driven by economic interest, give certificates to unqualified enterprises and thus ruin their reputation, this will defeat the efforts of the Chinese government to expand export and foreign investment (State Economic and Trade Commission 2002).

It is clear that Trade Globalization stimulated the economic growth in China, and brought the negative impact on the environment. This problem has been taken into serious consideration by Chinese government, moreover, ISO 14001 as one of possible approaches to mitigate environmental problems, recommended by Chinese government, also, just like the experience of ISO9000, ISO 14001 intended to be a precondition to involve the international competitions.

Chapter 6:
Motivations: for ISO 14001 in Chinese firms

Under the pressures from both sides, Trade Globalization and Environmental degradation, as mentioned above, Chinese Government attempt to take some measures to balance Trade Globalization and Environmental degradation, such as introducing ISO 14001 certification to the domestic firms actively. With this background, how do the Chinese firms response these pressures from Government, Trade Globalization and other actors mentioned in the theoretical framework to get ISO 14001 certification? In order to reveal the different motivations of Chinese firms to get ISO 14001 certified, in this chapter, figure 6.1 model: drivers of firms to adopt ISO 14001 in China, mentioned in Chapter 4 as figure 4.3, will offer a framework to analyze the motivations of Chinese firms in order to address the research question, which is: What are the main drivers for Chinese firms to become ISO 14001 Certified?

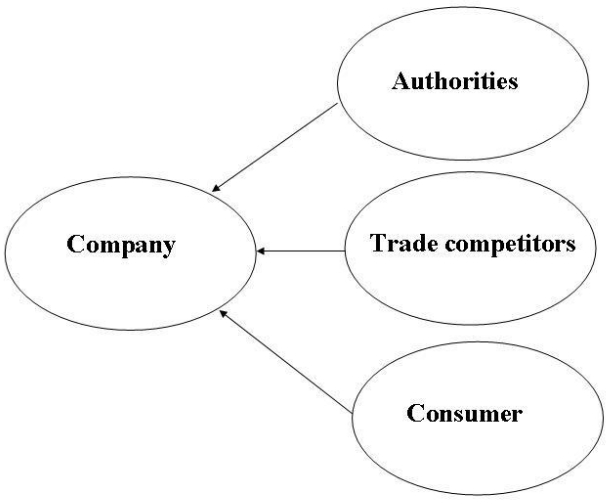

Figure 6.1 Model: drivers of firms to adopt ISO 14001 in China

Here, authorities mean the Chinese environmental authorities in all the levels. Consumer include the finial user and residents in China, the last one trade competitors mean the rivals of the Chinese firms in the both national business and international business. All these three actors to some extent could influence the firms to adopt ISO 14001, which will be analyzed in this chapter so as to address the research question.

In additional, Chen, ISO 14001 Auditor from Bureau Veritas Quality International (BVQI), said that the motivations of Chinese firms to adopting ISO 14001 vary in accordance with the ownership structure of the firms, such as state-owned, foreign direct investment or joint venture, and private firms, In addition, these firms are mainly driven by different actors mentioned in the above model. (Interview, Appendix I)

6.1 Interviews and Profile of the interviewees

From above chapter, it can be seen that the number of the organization adopted ISO 14001 is increasing rapidly in China, but Does all the Chinese firms apply for ISO 14001 due to same motivations or pressures? In order to reveal the intention of Chinese firms to seek ISO 14001, some interviews to the ISO 14001-certified companies were conducted in Feb.2006, mainly focusing on the following area:

The different motivations for seeking ISO 14001 certification in China

Before conducting the interviews to the ISO 14001-certified firms, three ISO 14001 auditors who are working in Bureau Veritas Quality International (certifying body) were interviewed together. With respect to the selection of the ISO 14001-certified firms to be interviewed, some suggestions were provided by them. Since they know the situation of ISO 14001 certification in China very much by many years experience

of ISO 14001 auditing, as they recommended, three types of firms were interviewed, which are state-owned, foreign direct investment or joint venture, and private firms. It was said that all the ISO 14001- certified firms in China can be attributed to these three types, in addition, different type firms are mainly driven to get certified by different actors. (Interview. Appendix I)

Till the end of 2004, 3.25 million enterprises were registered in the industrial sector in mainland of China. 34.2% of them are state-owned firms, 61% are private firms. 4.7% are foreign direct investment or joint venture firms. And one third of total GDP of China in 2004 was contributed by state-owned firms, the rest GDP was contributed by both private firms and foreign direct investment or joint venture firms. (China statistic year book, 2004) As my personal knowledge, in China most state-owned firms are big size with a large number of employees, the private firms usually concentrate on small size, and the foreign direct investment or joint venture firms usually attribute to Middle and Small size.

The interviewed firms could be seen as the representative of each type of firms in China mentioned above, here, it will be given a brief introduction of the background of each interviewee, and the details of each interview can be found in Appendix.

● Auditors from BVQI (certification body)

The personal background of respondents

Name: Zhengming Chen, Zhaoyi Nan, Lingjun Li

Occupation

They are working in Bureau Veritas Quality International (BVQI), Shanghai branch, and the main job responsibility is ISO 14001 auditor. Moreover, Chen was engaged in EIA for 12 years, had participated in several Environmental Projects of World Bank.

Bureau Veritas Quality International (BVQI)

BVQI Shanghai Branch, offer solutions in the key strategic fields of your operations: Quality, Health & Safety, Environment and Social Responsibility. BVQI is the most widely recognized certification body in the world. These accreditations cover areas such as:

Quality Management Systems: ISO 9001

Environmental Management Systems: ISO 14001

Health & Safety Management Systems: OHSAS 18001

Social Responsibility: SA 8000

Food: HACCP

● State-owned firm

The personal background of respondent

Name: Wang Qian , the assistant manager of environmental protection department , Baoshan Iron & Steel Co., Ltd.

Baoshan Iron & Steel Co., Ltd. (Baosteel for short)

Baosteel, located in Shanghai, is the largest and most modernized iron and steel complex in China. Baosteel has established its status as a world grade steel producer with comprehensive advantages in reputation, talents, innovation, management and technology. According to "Guide to the World Steel Industry", Baosteel was ranged among the first three of the most competitive steel producers globally. Baosteel was also believed the most potential iron and steel enterprise in the future.

The company specializes in producing high-tech and high-value-added steel products. Meanwhile it has become the main steel supplier to industries of automobile, household appliances, container, oil and natural gas exploration and pressure vessel, Baosteel exports its products to over forty countries and regions including Japan, South Korea and countries in Europe and America. It is the first steel producer to get

the ISO14001 environment certificate in China's metallurgical industry in 1998. There are around 90,000 employees in Baosteel.

● Joint venture firm

The personal background of respondent

Name: Lu Jie, the internal auditor of ISO 14001, Hangzhou HuaFeng Chain CO.,Ltd

Hangzhou HuaFeng Chain CO.,Ltd(HuaFeng for short)

HuaFeng, located in Hangzhou, which is professional manufactures all kinds of types chains、commond and high intension industry chain. HuaFeng has passed ISO9001 certification in 1997and ISO14001 certification in 2000, as well as germany technique supervise institute products security certification (TUVGS). HuaFeng owns sel-dealing export right. Total employees are around 700.

● Private firm

The personal background of respondent

Name: Bao Jie, General Manager, Shanghai Hotel Equipment Corporation

Shanghai Hotel Equipment Corporation (HEC for short)

HEC is a group company with over years of expertise in catering/food service equipment industry. HEC"s core businesses cover Supported by the robust system resource; the entire HEC group is committed to pursuing utmost customer satisfaction through our sophisticated service.

There are over 300 employees in the HEC; moreover, HEC has passed both ISO 9001 in 1998 and ISO 14001 in 2002.

6.2 Findings and Analysis

The interviews explored the different motivations for the state-owned, foreign direct investment or joint venture, and private firms to implement ISO 14001 in China. And it is mentioned in section 6.1; the main drivers for the firms to adopt ISO 14001 varied from different actors, such as: authorities, trade competitors, consumer driver. So in this section, the author would like to investigate the main driver or mixed drivers for the firms in different ownership in China through the findings from the interviews.

The findings from the discussions with the interviewees can be found in the table 6.1 below, it can be seen that the priority motivation to seek ISO 14001 are varied among the state-owned, foreign direct investment or joint venture, and private firms. The motivations for seeking ISO 14001 certification were measured by three drivers. All of drivers were scored on a four-point, rang from 4=Most important to 1=unimportant. Each of these is listed in order of descending importance.

Table 6.1 Motivations for ISO 14001 certification

Motivation for ISO 14001 certification	Baosteel	Huafeng	HEC
Government driver	**4**	**2**	1
Trade driver	**3**	**4**	4
Consumer driver	**1**	**1**	1

(Interview, Appendix II, III, Ⅳ)

From the results listed in Table 6.1, it indicates the different ownership firms in china are with dissimilar motivations to get ISO 14001 certified. Below, it will be analyzed according to different drivers.

Driver of Authorities

Although ISO 14001 is a voluntary standard for environmental management system, a lot of countries are holding a very positive attitude to introduce it to the domestic firms. Since, it is mentioned in the chapter three, one of the main benefits of ISO14001 implementation is improved regulatory compliance (Tibor and Feldman, 1996; Woodside 2000), which means that ISO14001 will be helpful for the government to enforce the firms to comply with the environmental regulation. Even more, some governmental environmental agencies are making ISO 14001 certification a requirement for suppliers. For instance, U.S Department of energy and National Aeronautics and Space Administration (NASA) require the suppliers adopting ISO 14001. Government mandates are one of main drivers to the firms for adopting ISO 14001, for example, Regulators in several states are moving to increase regulatory flexibility for facilities that implement ISO 14001. (Wayne, 1997)

Moreover, as mentioned in chapter five, Chinese environmental authorities have focused on helping the firms to implement ISO 14001 by providing training and subsidizing part of certification fee. And some demonstration projects on ISO 14001 certification have been implemented in China, especially after China joined WTO, ISO 14001 certification was attracted more concerns from the regulators, some measures to ensure the credibility of the ISO 14001 certification were enforced by the Chinese environmental authorities. Hence, it can be seem Chinese regulators adopt a positive attitude towards ISO 14001 certification, which is a similar to international trend mentioned above.

The pressure to adopt ISO 14001 from the Chinese government seems strong, however, the impact of this pressure are varied for the different type of firms, which can be seen from the table 6.1 above. The Government driver plays a significant role to push the state-owned firms to adopt ISO 14001, From discussions with the interviewee,Wang, from Baosteel (state-owned firm), in order to encourage Baosteel

to adopt ISO 14001, the local related authority offered some special helps, such as Local authority invited some experts specialized in ISO 14001 certification for Baosteel to introduce ISO 14001, and offered part of the ISO14001 certification fee as subsidy. Moreover, as the state-owned firm, usually firms had to be in compliance with the mandate from the authority; most state-owned firms were still following the traditional administrative order. The main motivation of Baostell to adopt ISO 14001 is to be in compliance with the suggestion from the local authority. (Interview, Appendix II) obviously, from this case government pressure is a main driver for the state-owned firms in China.

Comparing with the stated-owned firms, foreign direct investment or joint venture firms and Private firms in China didn‟t get many pressures from the local environmental authorities. According to Lu, Huafeng didn‟t suffer strong pressure from local authority; they only offered a presentation of the benefits of ISO14001 implantation. And local authority didn‟t invest more attentions on the foreign direct investment or joint venture firms, since in their impression, most foreign direct investment or joint venture firms were advanced in the technology and manager system, moreover the awareness of environmental protection is higher than the local firms, even the local authority thought foreign direct investment or joint venture firms are more credible in environmental protection. (Interview, Appendix III) so it can be seemed, from the foreign direct investment or joint venture firms point of view, government driver to seek ISO 14001 certification is not as strong as it did to the state-owned firms.

In addition, in the table 6.1, with respect to private firms, the strength of the ISO 14001 enforcement from the local authority is not as strong as what they did to the state-owned firms. Refer to Bao, from HEC, the pressure from the government is rather weak; we only know the local authority is encouraging firms to implement ISO14001, but actually we didn‟t see any actions from authority. As my experience, the local authority mainly aimed at the state-owned firms and large size firms. And

usually, the size of most private firms in China is correspondingly small, which are lack of financial resources, human resources. The local authority knows there are some difficulties for the private firms to get ISO 14001 certified, so they didn"t put more stress on it. (Interview, Appendix Ⅳ)

The discussions with interviewees above unveiled that state-owned, foreign direct investment or joint venture, and private firms in China are suffering different extent pressure from the authority. Since the administrative model, the state-owned firms got the strongest stress directly from the local authority to implement ISO 14001. It seems that the foreign direct investment or joint venture firms didn"t attract more attention from the authority to encourage them to be certified due to their positive impression in the environmental protection. Moreover, the pressure to the private firms is rather weak.

Driver of Trade Competitors

The linkage between Trade Globalization and Environment is very complex, which has been discussed in the previous chapter. The international trade is always hampered by the non-tariff barriers, which are caused by the different level and requirement among the national environmental regulations, further, the survey mentioned in Chapter four.

- A survey of linkage between Danish MNCs and local firms in six developing countries showed that 17% of 52 Danish MNCs providing such information were encouraging their partner in developing countries to become certified according to ISO 14001 or EMAS (Soeren Jeppesen and Michael W. Hansen,2004)

It can be seem that Many Multinational national companies require or encourage their suppliers to get ISO 14001 certified. So the experience of ISO 9000 series might happen in the process of the development of ISO 14001, to some extent, it become a

requirement for the supplying organization and involving the market competition, especially those supplying organizations in the developing countries, one of the main motivations to seek ISO 14001 is due to the Trade driver. For instance, in South Africa, the presence of foreign firms is among the factors that have led to an increasing number of local firms becoming ISO 14001 accredited. Demands are either placed by resident multinationals, or by buyers in EU and North American export market (Peart, 2002).

In addition, this phenomenon also can be found in China, the local firms are suffering the trade barrier due to the ISO 14001. According to the chapter five, Bristol-Myers Squibb, IBM and Xerox have encouraged their Chinese suppliers to develop environmental management systems consistent with ISO 14001, while Ford, GM and Toyota have required their Chinese suppliers to obtain the ISO 14001 certificate (Global Environmental Management Initiative 2001: 7). It means that, China as one of the biggest so-called “World Manufactory”, a lot of firms are acted as the supplying organizations in the chain of Trade, hence, the demands of ISO 14001 certification are partly the result of pressures form the Trade driver, which plays an important role to stimulate local firms to get ISO 14001 certified.

Moreover, according to the results in Table 6.1, it seems that all the firms thought trade competition is an important motivation for them to get certified. According to Wang, except the pressure from government, trade driver is an important factor to push Baosteel to implement ISO 14001. In the beginning, ISO 14001 certification has attracted less attention in large Chinese firms, which are state-owned and control big part of the domestic market; Baosteel as a big state-owned firm is less likely to feel pressured to improve its environmental image in order to gain more market share. However, after China‟s entry into the WTO, tariff on foreign goods is rapidly reduced and import quotas is canceled. As a result, the large state-owned firms like Baosteel have to compete with their foreign counterparts in a more opened market. At this moment, getting ISO 14001 certification will be helpful for Barsteel to keep the

domestic market and expand to the foreign market. (Interview, Appendix II) from this case, although the big state-owned firms are more like to following the traditional administrative order and occupy big part of the domestic market share, they still thought ISO 14001 as one of the barriers to access the competition in the trade.

From the table 6.1, foreign direct investment or joint venture firms also rank trade driver as a main motivation for them to seek ISO 14001 certification. Usually, the foreign direct investment or joint venture firms in China are with more advanced technology and environmental management system than the state-owned firms". In the business competition, how to keep ahead in the competition has been taken into consideration by the foreign direct investment or joint venture firms, getting ISO 14001 certified was regarded as one advantage to keep ahead in the business competitions by the foreign direct investment or joint venture firms. From the discussion with Lu, Huafeng has implemented EMS already before getting ISO 14001 certified, because of good environmental image, Huafeng are more competitive than other firms without EMS, and recently years, ISO 14001 are tending to be a pre-requirement in the competition, hence in order to keep ahead than other firms to possess more mark share, getting 14001 certified will be helpful. (Interview, Appendix III)

Trade driver as the most important motivation for the private firms, could be seen in table 6.1. Many private firms in China are the suppliers of the big size firms, such as the state-owned and foreign direct investment (MNC) or joint venture firms, who are with correspondingly high environmental requirements. In order to survive, private firms have to take action to meet the requirements from their venders, such as getting ISO 14001 certified. Referred to Bao, Hec got ISO 14001 certified is due to the needs of business. HEC lost several opportunities to be the supplier of several big projects carried out by the Multi-national Companies because of non ISO 14001 certification. After getting ISO 14001 certification, HEC is more competitive than before, especially after China entry the WTO, for example, HEC exports products to Japan,

Japanese firms prefer the suppliers with ISO 14001,and if the qualified firms with ISO 14001 certification will be considered first. (Interview, Appendix Ⅳ)

From the discussions with the interviewees, to some extent, it seems that the ISO 14001 has created a non-tariff barrier for the trade towards the Chinese firms. Hence, Demand of trade becomes one of the most important motivations for Chinese firms to get ISO 14001 certified.

Consumer driver

In the table 6.1, all the firms ranked the consumer driver as 1 point; it indicated that consumer pressure is quite weaker than other pressures in China. On the contrast, in the developed countries, consumers driver is also a very important factor to press firms to get ISO 14001 certified. Which is mentioned in Chapter four, one of reason for firms to seek ISO 14001 is for responding to consumer pressures, which will be helpful for the firms to enhance reputation and access to markets. (Woodside, 2000) While in China, the consumer will consider more about the price and quality of the products instead of environmental protection when they are purchasing. The awareness of environmental protection is weak within the Chinese consumers.

From the discussion of the interviewees, the same results came out, which are in line with its situation in China mentioned above. According to Wang, Baosteel only got a few of complaints of the environmental problems most from residents around the manufactory per year, and the main complaints are about the noise and lights produced by Baosteel disturbed the near residents. (Interview, Appendix II) moreover, refer to Lu, Huafeng didn‟t feel strong pressures from the consumer, consumer focus much more on the price and quality of the products, the environmental concern is get little attention. They didn‟t care much about whether the firms get certified or not. And as my point of view, there were few official complaint channels available, so even consumer want to give some complaints or comments, there are very few way

available for them to make it. (Interview, Appendix III)

Bao, The General Manager of HEC, said that the purpose for us to adopt ISO 14001 certification is simple, which is the demands of business. The consumer driver didn"t function to stimulate us to get certified. (Interview， Appendix Ⅳ)

To sum up, first the environmental protection awareness of Chinese consumers is lower than those in the developed countries, hence it didn"t act as main driver for the firm to get ISO 14001 certified in China at this moment. Secondly, there are few communication channels open to pubic to express the opinions, it might be another reason for the weak pressure from the consumer.

Chapter 7: Perspective

From chapter six, it seems that Trade Globalization acted as a main role to make pressures on Chinese firms, including state-owned, foreign direct investment or joint venture, and private firms, to adopt ISO 14001 certification at this moment, and to some extent the other drivers, such as authorities and consumer driver are not as strong as the driver of trade competitor. The pressures towards Chinese firms to get ISO 14001 certified are unbalanced now. But how is the future? Will this situation get more balanced in China in the future? Here in this Chapter, the possible development of different drivers for ISO 14001 certification in China will be discussed.

Trade Globalization

In the global context, the progressing step of Trade Globalization accelerated in recent years. When Agreement of WTO entered into force on 1st. Jan. 1995, there were involving 128 countries, and in 1999, the number of the member of WTO grew to 134 countries. When it came to the end of 2005, 149 countries has taken part into WTO. (WTO) In addition, more and more countries are tending to become the member of WTO, moreover, there were 30 countries are in the process of ongoing accessions till March 2006, such as Afghanistan, Iran, Russian Federation, etc. (WTO) This phenomenon reveals that the process of Trade Globalization is expanding into more counties in the world. Trade Globalization lowered the tariff barrier between countries, which could offer more opportunities for the local firms to access the international market and involve the business competitions, especially for developing countries, such as China. On the other side, the local firms in the developing country have to improve due to WTO, in order to achieve the some pre-requirements to access the international competition, such as ISO 9001 and ISO 14001 certification.

China which is the biggest developing country in the world, involved in the Trade

Globalization in 2001.Which brought great effects to China, including both positive and negative impacts, which mentioned in previous Chapters. With the respect to development of ISO 14001 in China, it could be foreseen that Trade driver will still be strong. Since according to the China"s key concessions below due to entry WTO,

- Reduction of the average import tariff from 24.6 to 9.4 per cent, From 25 to 8.9 percent for industrial products, especially after 2005 down to 3.4 percent
- Elimination of quotas by 2006
- Firms from WTO member countries to enjoy the same rights to trade as Chinese enterprises
- All enterprises will have the right to import and export goods and conduct trade within 2008

  (Carlos A. and Francisco C., 2002)

These concessions could be seen as a signal or an alarm to the Chinese domestic firms; since the tariff will not protect them from the international competitors any more as same as it does today, the barrier for the international firms" entry into Chinese market will be completely eliminated in the near future. So Chinese firms will compete with the foreign firms both in international and Chinese market, but low efficiency, old management system and low environmental protection standards will become vital barriers for them to succeed from the competitions. Just like ISO 14001 as one of potential trade barriers, mentioned in previous chapter. In order to response this pressure from the trade barrier, a lot of Chinese firms adopt ISO 14001 certification during recent years, as mentioned in Chapter five. In addition, with China involving WTO more actively, it could be found that more Chinese firms will take actions to adopt ISO 14001 in order to response the pressures from Trade Globalization in the near future. Hence, it seems that the pressure for the Chinese firms to adopt ISO 14001 from the trade competitors will still keep strong in the near future.

Driver of Authorities

From chapter five and six, especially the speech about environmental protection given by the Chinese official, it can be found that Chinese Government has expressed significant appreciation for the potential benefits of ISO 140001. And Chinese authority adopted a very positive attitude to promote ISO 14001 to domestic firms by offering some subsidies and carrying out some pilot project of ISO 14001 certification.

Moreover, China"s implementation of the earlier ISO 9000 series of standards dealing with product quality control may provide one clue as to the likelihood of development of ISO 14001 in China in future. ISO 9000 first introduced by the International Organization for Standardization in 1987, the standards were not used in China until 1993. (Vice, 1995) ISO 9000 certification has not been required by law for all business in China. Particular government bodies such as the Ministry of Metellurgy, however, have moved to bring all firms under their supervision into compliance with the ISO 9001. (Guang li, 1996) Moreover, ISO 9000 certification has been strongly encouraged by Chinese government,(Pan, 1997) and by 1997 ten certification bodies had been established within China to conduct ISO 9000 auditor. According to Tang, Technical Director for Environmental Resources Management in HongKong, the larger number of Chinese firms implementing ISO 9000 suggests that the Chinese government is encouraging certification, a sign it may encourage ISO 14001 certification as well. So here using ISO 9000"s application as a test case, ISO 14001 may got more encouragement by Chinese government in the near future, which means the pressure form the government to domestic firms to adopt ISO 14001 might be getting stronger.

However，some problems exist in the Chinese environment enforcement system, which weakened the effect of the environmental measures and regulations implemented by Chinese government. These measures and regulations are essentially

enforced administratively rather than through the legal system, there is a real need to establish clearer parameters of liability; and system places too much emphasis on punishment as opposed to material incentives in order to secure compliance. (Palmer, 1998) and currently the administration bureaucrats still retain considerable power, and can use their discretion to influence local environmental protection measures to suit their need. (S.X.Zeng, 2005) All these lead to some violations of environmental laws often go unpunished and some environmental protection technologies or measures, such ISO 14001, encouraged by centre authority can"t be enforced very smoothly in the local level.

Hence, if the Chinese authority does not improve these problems, even they are encouraging ISO 14001 very positively, but the effect to the firms will not be as good as they anticipated.

Consumer driver

With the respect to consumer driver, it was very weak in the Chinese history, and some indications of citizen"s participation are shown in Table 7.1, from year 1987 to 1993, offering data on the number of officially recognized complaints about pollution. There is no evident trend to indicate an increasing or decreasing public participation in terms of complaints among Chinese citizens. The most significant point is that citizen complaints on a per capita basis are minor. These data support the impression that the overall impact of citizen opposition to polluting behavior has only a marginal significance. The few successes of popular protests have ultimately depended on support from high levels in the Chinese government. (Lotspeich and Chen, 1997)

Table 7.1 Citizen Complaints about Pollution to Environmental Authorities in China

	1987	1988	1989	1990	1991	1992	1993
Letters	64	57	53	60	56	55	54
Visits	78	76	78	81	82	79	85
Combine	142	133	131	141	138	134	138

Source: Statistical Yearbook of China (Beijing: Statistical Publishing House of China)

But the environmental protection awareness is growing in China in recent years, especially in the coast big cities. Since the worse environmental situation stimulates the residents to pay more attention to the environment they are living in.

Even, the worse and worse living environment is attacking the health of the residents in China. 9 of the 10 cities with the world's worst air pollution are found in China, and respiratory diseases linked to poor air are the leading cause of death among both children and adults, according to a November 1999 report by the World Resources Institute, Urban Air Pollution Risks to Children: A Global Environmental Health Indicator. Water pollution is a serious public health hazard in China, perhaps even more so than polluted air, some experts say. Nearly half of China's 1.3 billion people drink water contaminated with chemicals and biological wastes, and chronic water shortages plague much of the population. A popular saying in the country's developed eastern region is "The house is new, the money is enough, but the water is foul, and life is short." (Charles W., 2002)

These diseases due to the pollutions will make Chinese to demand a more clean living environment. Moreover, as the economic growth in China, people's income increases rapidly and more people get higher education than before, which will make more and more Chinese realize that pollutions will be detrimental to their health. So it could be seen as a good signal that Chinese consumers will take more environmental protection

into consideration than before. It could be foreseen the consumers will have more demands on the green technologies such as implementation of ISO 14001 to the manufactory which are located near them. But a great amount of Chinese are living in the rural countries, they are with low educations, incomes, and the awareness of environmental protection. It will be a long way for awareness of environment protections growing in China. So even pressure from the consumers to the Chinese firms to be ISO 14001 certified will be growing in the future, but at low speed.

Chapter 8：Conclusion

The main aim of this report is to reveal the different motivations for Chinese firms to seek ISO 14001, in order to address the research questions, “What are the main drivers for Chinese firms to become ISO 14001 certified?” And some evidences show that there are some kinds of linkage between ISO 14001 and Trade Globalization & environment degradation.

The relationship between Trade Globalization and Economic growth in both global context and China has been analyzed; and it seems that Trade Globalization plays a significant role to stimulate the economic growth in both global context and China. In China especially after WTO, more and more foreign direct investments and multinational companies enter Chinese market, which contribute a lot for the Chinese economic growth.

Moreover, as the economic growing rapidly due to Trade Globalization, the environmental degradation is getting worse. It can be seen that there are some kinds of linkages between Trade Globalization and environmental degradation. The linkages included both conflict and mutual benefits. On one hand Globalization eliminate the trade barriers between different countries, which will facilitate the environmental friendly technology to transfer into the developing countries; on the other hand, more productions due to Trade Globalizations will lead to more pollution, such as more energy consumptions, which is detrimental to the environmental protection. In Chinese context, since the priority task for China is economic growth; a lot of environmental problems were ignored, which leads to serious environmental degradation. In chapter five, carbon dioxide is applied as an indicator to reveal the serious environmental degradation in China; they offer very clear evidence that China is suffering serious environmental pollutions at this moment. Hence, Trade

Globalization brings both positive and negative impacts to China.

ISO 14001 can be seen as a method to mitigate the conflicts between Trade Globalization and Environmental problems. On one side, ISO 14001 serves as an international standard to harmonize different standards from various countries, which will be helpful for the Trade Globalization. On the other side, ISO 14001 will contribute a lot to improve the firms‟ environmental performance. And ISO 14001 certification is prevalent in the world, and it seems to be able to create a non-tariff barrier, since to some extent, ISO 14001 certification is tend to become a precondition for the organizations to involve trade competitions.

In China, ISO 14001 certification is also attracting more attentions from the Chinese firms. In chapter five, it is mentioned that the number of ISO 14001 certification firms in China is increasing rapidly especially after WTO in 2001. Through investigation of this phenomenon and the analysis of the data from the interviews in China, different motivations for Chinese firms to get ISO 14001 certified was partly revealed, especially, it was found that the different own-ship Chinese firms, such as state-owned, foreign direct investment or joint venture, and private firms, have different motivations, are with different motivations to be certified.

It seems that the trade globalization acted as a significant role to make pressures to the Chinese firms to adopt ISO 14001 certification. Since, ISO 14001 was expected to follow the experience of ISO 9001 certifications, and in some sense has already become a barrier for the Chinese firms to access the international market and succeed in the trade competition. Hence, just in line with the results from the interviews, state-owned, foreign direct investment or joint venture, and private firms in China considered Trade competition driver as a mainly motivations for them to get ISO 14001 certified.

Moreover, the authorities towards to ISO 14001 certification also seems positive in

China. Since environmental problems can‟t be neglected at this moment in China, a lot of environmental concerns were rising in the authority; and some environmental protection measures were enforced. ISO 14001 as one of the measures was promoted by Chinese authority actively. So state-owned firms in China is benefited from these activities of the government in the first, because of the traditional administrative order, mainly Chinese state-owned firms will follow the commands from the authorities. However, the foreign direct investment or joint venture and private firms didn‟t suffer strong pressures form the authority to adopt ISO 14001 certification. It was suspected the low efficiency of environmental protection enforcement counteracted the pressures from the authorities. So the environmental authorities who should be the closest to take care of the environment are weaker than the market demand.

In additional, only limited complaints about environmental pollution were made by the consumers to the manufactories, and there are few communication channels available for the public to make complaints or comments to the Chinese firms. So consumer driver didn‟t act as a mainly motivation for the most Chinese firms to seek ISO 14001 at this moment.

Hence, the trade competitor driver is stronger than other two drivers towards Chinese firms. And only state-owned firms suffer the pressures from the authority driver to seek ISO 14001, authority drivers for rest two types of firms are weak. In addition, consumer driver seems very weak in the Chinese firms. So if authorities and consumers are weak drivers there will be a risk that the environment management system will not have high ambitions for reducing environmental impacts, ISO 14001 can‟t stand alone.

With the respect to the perspective of ISO 14001 developments in China, there is a growing evidences show that awareness of environmental protection is growing from broth consumers and authorities. So the consumer driver might tend to be stronger in the future. Moreover, since the process of Trade Globalization will expand further in

the global context in the near future, ISO 14001 as a kind of precondition to access trade competition will be pursued by the Chinese firms actively.

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Appendix I

Interview with Bureau Veritas Quality International (BVQI)

Interview with Chen, Nan, Li (ISO 14001 auditors)

I became to know BVQI from internet. I would like to know more about BVQI. Could you give me a short introduction of BVQI?

Yes. BVQI Shanghai Branch, offer solutions in the key strategic fields of your operations: Quality, Health & Safety, Environment and Social Responsibility. BVQI is the most widely recognized certification body in the world. These accreditations cover areas such as:

Quality Management Systems: ISO 9001

Environmental Management Systems: ISO 14001

Health & Safety Management Systems: OHSAS 18001

Social Responsibility: SA 8000

Food: HACCP

Could you tell me something about your job position descriptions in BVQI? And if you not mind, I would like to know something about your experiences.

Yes. We are working in Bureau Veritas Quality International (BVQI), Shanghai branch, and the main job responsibility is ISO 14001 auditor, as auditor we mainly inspect whether the firms has met the requirement of ISO 14001.

Chen said: Before I work in BVQI, I was engaged in EIA for 12 years, had participated in several Environmental Projects of World Bank.

Nan said: I worked as an ISO 14001 auditor for 5 years, till now is over 2 years in BVQI.

Li said: I worked in the Wuxi City Environmental authority for 5 years, and worked here as ISO 14001 auditor for almost 3 years.

Because my thesis is focusing on the ISO 14001 in China, so according your experience, could you tell me how is going about ISO 14001 certification in China? Increasing rapidly or just so so?

Yes. As our point of view, the total number of ISO 14001 certified company is increasing rapidly especially after 2001, when China took part in WTO. A lot of companies have applied for ISO 14001 during these several years; moreover also more companies are going to apply for ISO 14001 now. So we thought ISO 14001 will trace the trend of the development of ISO 9000 in China, after several years instead of Japan, China may occupy the biggest share in the total number of ISO 14001 certification in the world.

I have also read a lot of literatures about the rapid growth of ISO 14001 in China, and found there are different motivations for the firms to seek ISO 14001 in China. As your opinions, how do you think about the intentions of the Chinese firms to apply for ISO 14001?

In fact, when we are in the auditing process, we usually will discuss with the staff in the firm who is charge of implementation of ISO 14001 about their motivations to seek ISO 14001. Usually, we found the mainly force to them are due to the pressures from the Chinese environmental authorities and the demands of the venders or the upstream in the supply chain, which can be called trade barrier because of non-ISO 14001. So trade competitions is one of the main motivations for the Chinese firms, because to some extent, ISO 14001 tend to be one of a preconditions to access the competitions just like ISO 9000, so a lot of firm applied for ISO 14001 in order to be more competitive. Moreover, the pressures from the Chinese environmental authorities are getting strong, especially to the state-owned firms.

I am very interesting in the different motivations for Chinese firm to seek ISO 14001; it is also the focus of my report. I would like to investigate it in this report, and want to make some interviews with ISO 14001 certified firms. As experts, could you give me some comments for my further investigations in China?

Sure. From our points of views, we found the motivations of Chinese firms to adopt ISO 14001 usually vary in accordance with the ownership structure of the firms, such as state-owned, foreign direct investment or joint venture, and the private firms. And all the ISO 14001 certified firms in China can be attributed to these three types. They are driven by different actors, as we mentioned above, such as authorities, trade competitors, and self improvement. So we thought if you want to go further, you had better look at the firms with different ownership, and make some interviews with them. You will find different intentions for seek ISO 14001.

Thank for your comments, and I will attempt to contact some ISO 14001 certified firms. But as my experience, I have contacted several certified firms for the personal interview, but the response is usually like "sorry, we don't accept any personal interviews or we are busy". Could you give me some tips for making the interviews?

Yes. It is a problem, usually these firms don"t very welcome the personal interviews, because they don"t know the real purpose of the interview, and they are afraid you will disturb their working. If you not mind, we have a lot of contacts of the certified firms we made before. We can introduce you to them, which will be better than you contact with them by yourself.

It is great for me, thank you very much. I really need this help. Could I get these contacts now?

Sure. We could some firms for you after this interview.

Appendix II

Interview with Baoshan Iron & Steel Co., Ltd (Baosteel)

Interview with Wang Qian

I am the student of Aalborg University in Denmark, and I am writing my master thesis now, the topic is related to the motivations for Chinese firms to seek ISO 14001.The purpose of this interview is mainly focusing on the intention of Baosteel to get ISO 14001 certified. So I will have several questions related to this field.

Ok. I have heard about your study from Mr. Chen in BVQI, please just feel free to ask the questions.

Thanks. Could you tell me when did Baosteel get ISO 14001 certified?

We got certified in 1998.

As I know Baosteel is one of the biggest manufactories in producing steel in China. Could you give me a short introduction of Baosteel? And is the ownership of Baosteel is state-owned?

Sure, Baosteel is state-owned company. And we are the largest and most modernized iron and steel complex in China. Baosteel has established its status as a world grade steel producer with comprehensive advantages in reputation, talents, innovation, management and technology. According to "Guide to the World Steel Industry", Baosteel was ranged among the first three of the most competitive steel

producers globally. We also believed the most potential iron and steel enterprise in the future.

We specialize in producing high-tech and high-value-added steel products. Meanwhile we have become the main steel supplier to industries of automobile, household appliances, container, oil and natural gas exploration and pressure vessel, Baosteel exports its products to over forty countries and regions including Japan, South Korea and countries in Europe and America. There are around 90,000 employees in Baosteel.

Could I know your title?

I am the assistant manger of environmental protection department in Baosteel.

In order to know much clearer about the motivations for Baosteel to seek ISO 14001, here, I listed some possible motivations, 1, environmental authorities' pressure 2, Trade competition 3, consumer's demand 4 others, according to the situation of Baosteel, could you rank them from 1=unimportant to 4=most important? If you know any others motivations for Baosteel , please tell me.

Sure.
Authorities =4
Trade competitions=3
Consumer=1

According to your reply, you ranked Authorities as the most important motivations for Baosteel to adopt ISO 14001, could you tell me more detail?

Yes. In order to encourage Baosteel to adopt ISO 14001, the local related authority

offered some special helps, such as Local authority invited some experts specialized in ISO 14001 certification for us to introduce ISO 14001, and offered part of the ISO14001 certification fee as subsidy. Moreover, as the state-owned firm, usually firms had to be in compliance with the mandate from the authority; most state-owned firms were still following the traditional administrative order. So I thought that the main motivation of Baostell to adopt ISO 14001 is to be in compliance with the suggestion from the local authority.

Why did you rank trade competitions as 3, important motivation?

Since, except the pressure from government, trade competition is an important factor to push Baosteel to implement ISO 14001. In the beginning, ISO 14001 certification has attracted less attention in large Chinese firms, which are state-owned and control big part of the domestic market; Baosteel as a big state-owned firm is less likely to feel pressured to improve its environmental image in order to gain more market share. However, after China"s entry into the WTO, tariff on foreign goods is rapidly reduced and import quotas is canceled. As a result, the large state-owned firms like Baosteel have to compete with the foreign counterparts in a more opened market. At this moment, getting ISO 14001 certification will be helpful for Barsteel to keep the domestic market and expand to the foreign market.

According to your reply, you only ranked consumer pressures as 1- unimportant, so the consumer pressure is very weak, right?

Yes. We feel it is very weak now, and Baosteel only got a few of complaints of the environmental problems most from residents around the manufactory per year, and the main complaints are about the noise and lights produced by Baosteel disturbed the near residents. And we will solve it very quickly; there is no any demand of ISO 14001 from them.

Appendix III

Interview with Hangzhou HuaFeng Chain CO.,Ltd(HuaFeng)

Interview with Lu Jie

I am the student of Aalborg University in Denmark, and I am writing my master thesis now, the topic is related to the motivations for Chinese firms to seek ISO 14001.The purpose of this interview is mainly focusing on the intention of Baosteel to get ISO 14001 certified. So I will have several questions related to this field.

Ok. I know you from Mr. Chen in BVQI, please just feel free to ask the questions.

Thanks. Could you tell me when did Baosteel get ISO 14001 certified?

We got certified in 2000.

Could you give me a short introduction of HuaFeng? And is the ownership of HuaFeng is joint venture?

Yes. Huafeng is a joint venture firms. we are professional manufactures all kinds of types chains、commond and high intension industry chain. HuaFeng has passed ISO9001 in 1997 certification and ISO14001 certification in 2000, as well as Germany technique supervise institute products security certification(TUVGS). HuaFend owns sel-dealing export right. Total employees are around 700.

Could I know your title?

Internal auditor of ISO 14001(Part time)

In order to know much clearer about the motivations for HuaFeng to seek ISO 14001, here, I listed some possible motivations, 1, environmental authorities' pressure 2, Trade competition 3, consumer's demand 4 others, according to the situation of HuaFeng, could you rank them from 1=unimportant to 4=most important? If you know any others motivations for HuaFeng, please tell me.

Sure.

Authorities =2

Trade competitions=4

Consumer=1

Why did you rank Authorities as 2- average level?

Because we didn"t suffer strong pressure from local authority; they only offered a presentation of the benefits of ISO14001 implantation. As my point of view, the local authority didn"t invest more attentions on the foreign direct investment or joint venture firms, since in their impression, most foreign direct investment or joint venture firms were advanced in the technology and manager system, moreover the awareness of environmental protection is higher than the local firms, even the local authority thought foreign direct investment or joint venture firms are more credible in environmental protection.

According to your reply, you ranked trade competition as the most important motivations for Huafeng to adopt ISO 14001, could you tell me more detail?

Because usually the foreign direct investment or joint venture firms in China are with more advanced technology and environmental management system than the

state-owned firms. And in the business competition, how to keep ahead in the competition has been taken into consideration by Huafeng, moreover, getting ISO 14001 certified was regarded as one advantage to keep ahead in the business competitions by the foreign direct investment or joint venture firms. For example, Huafeng has implemented EMS already before getting ISO 14001 certified, because of good environmental image, Huafeng are more competitive than other firms without EMS, and recently years, ISO 14001 are tending to be a pre-requirement in the competition, hence in order to keep ahead than other firms to possess more mark share, getting 14001 certified will be helpful.

According to your reply, you only ranked consumer pressures as 1- unimportant, so the consumer pressure is very weak, right?

Yes. We didn"t feel strong pressures from the consumer, consumer focus much more on the price and quality of the products, the environmental concern is get little attention. They didn"t care much about whether the firms get certified or not. And as my point of view, there were few official complaint channels available, so even consumer want to give some complaints or comments, there are very few way available for them to make it.

Appendix Ⅳ

Interview with Shanghai Hotel Equipment Corporation (HEC)

Interview with Bao Jie

I am the student of Aalborg University in Denmark, and I am writing my master thesis now, the topic is related to the motivations for Chinese firms to seek ISO 14001.The purpose of this interview is mainly focusing on the intention of Baosteel to get ISO 14001 certified. So I will have several questions related to this field.

Ok. I know you from Mr. Chen in BVQI, please just feel free to ask the questions.

Thanks. Could you tell me when did Baosteel get ISO 14001 certified?

We got certified in 2002.

Could you give me a short introduction of HEC? And is the ownership of HEC is private?

Yes, HEC is a private firms, and HEC is a group company with over years of expertise in catering/food service equipment industry. HEC"s core businesses cover Supported by the robust system resource; the entire HEC group is committed to pursuing utmost customer satisfaction through our sophisticated service.

There are over 300 employees in the HEC, moreover, HEC has passed both ISO 9001 in 1998 and ISO 14001 in 2002 .

Could I know your title?

General Manager

In order to know much clearer about the motivations for HEC to seek ISO 14001, here, I listed some possible motivations, 1, environmental authorities' pressure 2, Trade competition 3, consumer's demand 4 others, according to the situation of HEC, could you rank them from 1=unimportant to 4=most important? If you know any others motivations for HEC, please tell me.

Sure.

Authorities =1

Trade competitions=4

Consumer=1

Why did you rank Authorities as 1- unimportant level?

Because I thought the pressure from the government is rather weak; we only know the local authority is encouraging firms to implement ISO14001, but actually we didn"t see any actions from authority. As my experience, the local authority mainly aimed at the state-owned firms and large size firms. And usually, the size of most private firms in China is correspondingly small, which are lack of financial resources, human resources. The local authority knows there are some difficulties for the private firms to get ISO 14001 certified, so they didn"t put more stress on it.

According to your reply, you ranked trade competition as the most important motivations for HEC to adopt ISO 14001, could you tell me more detail?

Yes, HEC got ISO 14001 certified is due to the needs of business. HEC lost several opportunities to be the supplier of several big projects carried out by the Multi-national Companies because of non ISO 14001 certification. After getting ISO

14001 certification, HEC is more competitive than before, especially after China entry the WTO, for example, HEC exports products to Japan, Japanese firms prefer the suppliers with ISO 14001,and if the qualified firms with ISO 14001 certification will be considered first.

According to your reply, you only ranked consumer pressures as 1- unimportant, so the consumer pressure is very weak, right?

Yes. The purpose for us to adopt ISO 14001 certification is simple, which is the demands of business. The consumer driver didn"t function to stimulate us to get certified.