

CHINESE PERCEPTIONS OF THE ENVIRONMENT

by

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How to protect the global environment and how to obtain a sustainable development are the major concerns of the international community today. China, with the biggest population and the highest economic growth rate in the last decade, has become the center of the concern. This thesis presents and analyzes some contemporary Chinese perceptions of the environment. It tries to provide a historical origin and a cultural context for these Chinese perceptions of the environment. Everybody in China today has become the daily decision maker for the environment. Since the Chinese perceptions of environment, in some degree, decides the Chinese environmental behaviors, an understanding of these perceptions is important for China's environmental law enforcement and the promotion of public participation in China's environmental protection.

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## INTRODUCTION

The primary concern of this thesis is how the Chinese perceive the environment and human-environment relations. In recent years, environmentalism has been a widely discussed topic in academic and non-academic settings. How to protect the global environment and how to obtain a sustainable development are the major concerns of the international community. China, with the world's biggest population and the highest economic growth rate in the last decade, has become the center of the concern.

Many famous scholars, like Vaclav Smil, Richard L. Edmonds and Mark Elvin, wrote about China's history of environmental degradation and its impact on China's long term development. Some other scholars, like Qu Gepin, wrote about China's environmental policy and its implementation. He Bochuan wrote about China's crisis of ecology and showed his concern on the sustainability of China's development. Some psychologists like Xie Xiaofei from Beijing University are doing research on the Chinese perceptions of risks, which include the environmental risks people are facing during the economic development. Some philosophers like Li Chunshan and Chen Guoqian are searching for the meaning of environmental protection from a philosopher's perspective.

Environmentalism is really a comprehensive issue, which can be approached from different fields and different perspectives. However, what makes the environmental issue in China different from that in many other countries is the Chinese perceptions of the environment. People's environmental perceptions include their environmental consciousness, their conception of human-environment relations and their attitudes toward environmental protection. The Chinese environmental perceptions are influenced by China's history and its traditions, which have worked on China's social structure and have decided how different institutions would work in the society. The Chinese perceptions of the environment further influenced the environmental policy enforcement, which includes different players like the policy maker, the policy enforcer and the general public. The Chinese perceptions of human environment relations also influenced the Chinese people's environmental behaviors.

As a first step in analyzing the contemporary Chinese environmental perceptions and their origins, a survey arranged by the State Science and Technology Commission (SSTC) of China in November 1994 is presented in Chapter II of this thesis. This survey was conducted in the two biggest cities of China -- Shanghai and Beijing. To provide a background setting, in Chapter I, we will first review the development experience of socialist China and its influence

on China's environment. This influence is not only physical, but also ideological. The socialist movements for development influenced Chinese people's conception of the relationship between environment and development. The First Five Year Plan and the Great Leap Forward in China all emphasized the speed of development and the development of heavy industry. The result of this kind of pushing forward was the misuse of natural resources.

According to the SSTC survey, contemporary Chinese urban residents care more about their daily living conditions than the natural environment. They lack a sense of responsibility for environmental protection. Why do they hold these perceptions? In Chapter III, the *gong si* dichotomy (public vs. private) is discussed and related to the Chinese perceptions of the environmental issues. In traditional China, the hierarchical social structure gave the emperor and his bureaucrats power to control the state. The general public were left powerless. It was the emperor and his bureaucrats who took the responsibility for constructing irrigation systems. In the Republican and Socialist China, the parties controlled the state power. The general public still had few chances to exert its power. The socialist public ownership system also influenced the Chinese people's sense of property. The Communist Party, in the form of government and work units, took care of people's job assignment, housing, schooling and medical care in socialist

China. Therefore, the Chinese people have formed the habit of relying on the government for solving problems in their life.

In general, China's social system (either in traditional China and in contemporary China) has helped the formation of the *gong si* dichotomy in people's perception of responsibility. When they apply this perception to environmental protection, they assume that the environmental protection should be the government's responsibility. Since the environment belongs to *gong* category, it should be taken care of by the government.

In the process of China's development of market economy, there has been a lot of changes in the ownership system. Private ownership started to grow, and some Chinese people started to have their own enterprises. With the regional development of the coast areas, the state power is not as strong as it used to be. Many wealthy provinces like Guangdong, Fujian and Jiangsu do things in their own way instead of obeying the government rules. All these changes brought some new problems in environmental protection. Emphasizing people's sense of responsibility has become very important.

The Chinese perceptions of the environment are related to some Chinese traditions like the *gong si* dichotomy. Regarding another important aspect of people's environmental perceptions, the human-environment relations, the Chinese people are very much influenced by a traditional view of man

and nature expressed in the classical notion of *tian ren he yi*.<sup>1</sup> *Tian ren he yi* expressed the environmental ideal of the ancient Chinese, who emphasized a harmonious relationship with the nature. "A reverence for nature runs unmistakably through the long span of Chinese history."<sup>2</sup> However, with the population growing and the increase of human consumption, it was becoming more and more difficult to keep this ideal a reality. The further development of *tian ren he yi* into *tian ren gan ying*, which emphasized the conceivable relationship between man and nature, confined the development of natural science in traditional China.

In contemporary China, the Chinese people are still facing the same dilemma between ideal and reality the ancient Chinese faced. The environmental laws and policies are well established in China. However, enforcing them meets a lot of challenges from reality. Under this circumstance, emphasizing people's sense of responsibility and working more on increasing people's environmental consciousness have become very important issues.

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<sup>1</sup> *Tian ren he yi* (天人合一, nature and man to combine into one) theory is summarized in Xu Deshu's book The Construction of Safety Culture in China (p. 255).

<sup>2</sup> Vaclav Smil, The Bad Earth, Environmental Degradation in China (Armonk, New York: M.E. Sharpe, Inc., 1984), p. 6.

## CHAPTER I

## DEVELOPMENT AND ENVIRONMENT IN SOCIALIST CHINA

China's Development Experience After 1949

Developing economy was the necessity the new government faced when the People's Republic of China was established on October 1, 1949. China's economy was in chaos after many years of civil war and the war with Japan (1937 - 1945). Just before the end of civil war in 1949, China had been experiencing a hyperinflation<sup>1</sup>. The majority of Chinese people were living in poverty. The impact of warfare on China was both economically and physically devastating. China's environmental degradation accelerated during these years. Deforestation increased and many irrigation systems were destroyed by war.

The overriding goal of the new government at the time of its establishment was the development of production in order to provide people daily living supplies. Environmental protection was not a concern for the new government. In order to get rid of the widespread poverty, the most fundamental

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<sup>1</sup> Hyperinflation is an inflation rate that exceeds 50 percent a month.

reform after 1949 was the reform of ownership system. The new government started the land reform in the countryside in 1950. The land which had been owned by the landlords was confiscated and redistributed to landless peasants. The redistribution of land promoted agricultural production. In 1952 and 1953, the government experimented changing mutual-aid teams into cooperatives. In 1958, the people's communes were established. This process of redistributing land to peasants and the establishment of people's communes completed the socialist transformation of land ownership. The sense of individual ownership was reduced and eliminated, which further influenced people's sense of responsibility.

The socialist transformation of capitalism in industry and commerce was a gradual process of takeover with the purpose of restoring the dismantled heavy industries, keeping the already backward economy from collapse and providing workers opportunity to work. At first, the government controlled industries by the allocation of orders and the purchase of products. Private businesses thus became increasingly dependent upon government. The government also controlled the raw materials for production, which made private businesses even more dependent upon government for supplies. In the second stage, the government took direct influence by investing in private businesses. With the increase of government proportions in private businesses, the

private owners became actually state employees who were managing the enterprises for the government. In the third stage, the owners of private firms were paid an annual fixed interest amounting to 5% of their investment. After all private claims were met, the government became the owner of the enterprise. This pay-back process was originally planned to be long. But it was interrupted by the upcoming political campaigns in the 1950s and 1960s.<sup>2</sup> The process of changing from private ownership into socialist public ownership changed people's sense of property and responsibility, which is reflected in the conception of *gong si* dichotomy discussed in Chapter III.

China's First Five-Year Plan (1953-1957) followed the model of the former Soviet Union by focusing on the development of heavy industry as the index of meaningful growth and by emphasizing the need for high growth rate. This kind of socialist industrialization caused serious pollution during the 1950s. One of the reasons for China to follow the Soviet model was that the Soviet Union was one of the few friends China had in the international community at that time. After 1949, most western nations cut off their relationship with communist China. The other reason was that the Soviet Union had been considered the orthodox communist country by the Chinese communist party during its whole

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<sup>2</sup> Willy Kraus, Private Business in China (Honolulu: University of Hawaii Press, 1991), p.p. 53-57.

process of revolution. There was also the assumption that heavy industry would positively stimulate all other areas of the economy.<sup>3</sup> By following the Soviet model, China got a lot of technical and financial support from the former Soviet Union. Thousands of Soviet technical advisers came to China to help with factory building, industrial planning, the extension of the railway network, and even urban architecture.

During the First Five-Year Plan, China's industrial output rose at about 18.7% per year. Agricultural production rose only about 3.8%.<sup>4</sup> This serious imbalance in the economy did not attract enough attention from the leaders. By emphasizing the concept of "continuing revolution", Mao Zedong led the Great Leap Forward movement in 1958, which tried to mobilize the masses towards even faster development. In Mao's own words, "Now we must start a technological revolution so that we may overtake Britain in fifteen or more years."<sup>5</sup> This was definitely an unrealistic dream. In 1959, China's investment in industry rose to 43.4% of national income. Grain exports to the Soviet Union were also increased

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<sup>3</sup> Francis Sandbach, Environment, Ideology and Policy (Montclair: Allanheld, Osmun Publishers, 1980), p. 186.

<sup>4</sup> Jonathan D. Spence, The Search For Modern China (New York: W.W.Norton & Company, 1990), p. 574.

<sup>5</sup> Ibid., p. 577.

to pay for more heavy machinery. The average amount of grain available to each person in China's countryside dropped from 205 kilos in 1957 to 156 kilos in 1960 and 154 kilos in 1961.<sup>6</sup>

During the Great Leap Forward (1958-1962), the relationship between China and Soviet Union deteriorated. Some serious ideological disagreements caused a great rift between these two communist countries. After the breakup of Sino-Soviet relationship in 1960, China was bound to a huge amount of debt to the Soviet Union. This deepened the already existing economic crisis of Great Leap Forward. The dry climatic conditions led to low grain yields and widespread starvation from 1959 to 1961.

The failure of the Great Leap Forward caused complaints from the masses and divided opinions in the leadership itself. Being aware of the crisis of his power and status, Mao started the Cultural Revolution in 1966 with the purpose of strengthening his political status and his esteem among the masses. The Cultural Revolution was actually a power struggle. Mao took advantage of the factions within the party and got rid of the leaders who were against him. China was in political chaos and isolated itself from both the Soviet Union and the western world. Its agricultural and industrial production was totally based on its self-reliance policy.

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<sup>6</sup> Ibid., p. 583.

Deng Xiaoping became the paramount leader of China after the death of Mao Zedong in 1976. He was pragmatic and his economic policies focused more on improving people's living standards. In the countryside, he dissolved Mao's communes and leased the land back to private households through the household responsibility system. He practiced the open-door policy and started economic reform which tried to bring some flexibility to China's socialist centrally planned economy.

China's economy has been growing since the 1980s. The country's gross domestic product grew 9 to 10% annually through most of the 80s, and in 1992 it reached 12.8%.<sup>7</sup> In 1968, China's real GDP per person was only one twentieth that of the United States. By 1990, the real GDP per person was one eighth of the U.S..<sup>8</sup>

Although the population increased from 695 million in 1964 to 1.2 billion in 1992,<sup>9</sup> Chinese people are experiencing an income growth of more than 6% a year.<sup>10</sup> The living standards of the Chinese people have greatly improved. China's economy is catching up with the developed countries

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<sup>7</sup> Perry Link, "A Harvest of Empty Notes," Times Literary Supplement (September 10, 1993), p. 6.

<sup>8</sup> Michael Parkin, Macroeconomics (New York: Addison-Wesley Publishing Company, 1995), p. 144. The calculation of GDP per person here is according to the Penn World Table (PWT), which is based on purchasing power prices.

<sup>9</sup> Spence, The Search For Modern China, p. 683.

<sup>10</sup> Parkin, Macroeconomics, pp. 206-209.

rapidly. China's extraordinary rate of economic development is called an "economic miracle" by some Western economists.

### Chinese Concepts of Development and Environment

China, with the biggest population and the most continuous civilization in the world, has experienced some of the most radical social changes ever imposed on a large population in the last five decades. The development experience, the government-imposed ideology, a rapid rise of wealth and the influence of foreign ideas all have great effects on people's perceptions of development.

Regarding people's conception of development, in a study of comparable college student samples tested in Shenyang (PRC), Taiwan, and Washington, D.C. between 1985 and 1989 by the PRC, Taiwan and the US scholars, it was found that:

The notion of advance is uppermost in Mainlander minds when development is mentioned.... Concepts related to it make up about one fourth of the Mainlander image of development. More than for the other groups, Mainlander focus is on society's development. They see this in terms of forging ahead and pushing forward. National defense is part of the picture, but industry and agriculture are more important. In their view, speed in development is important in overcoming backwardness.  
 .....  
 The notion that speed in development is important to overcome backwardness is far stronger among the Mainlanders than among the Taiwanese. <sup>11</sup>

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<sup>11</sup>Lorand B. Szalay, Jean B. Strohl, Liu Fu and Pen-Shui Lao, American and Chinese Perceptions and Belief Systems (New York: Plenum Press, 1994), p.p. 162-167.

Data for the early 1980s indicate that only less than 1% of the total workforce in mainland China received college or higher level education.<sup>12</sup> College students' view can then represent the elite perspective of mainland China. The above mentioned mentality of emphasizing speed of development illustrates that the former Soviet model from early 1950s, which emphasized the development of heavy industry, has great influence on Chinese conception of development, although the former Soviet Union was of very different geographical conditions from China.

When the Chinese people considered development as the most important, they ignored the importance of protecting natural resources, although economic development of the country largely relies on its natural resources. "The first environmental concept to evolve after the founding of the People's Republic in 1949 was that of 'environmental hygiene' which was based on the Soviet model. This meant improved medical care and clean water for China's cities with particular attention being paid to efficient working conditions."<sup>13</sup> The Soviet conception of environment did not fit China in many aspects. The massive structures of urban architecture did not harmonize with China's urban landscape.

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<sup>12</sup> United Nations Industrial Development Organization, China Towards Sustainable Industrial Growth (Oxford: Blackwell Publishers, 1992), p. 51.

<sup>13</sup> Richard Louis Edmonds, Patterns of China's Lost Harmony (New York: Routledge, 1994), p. 228

The industrial pollution problems were very serious in the 1950s because of the intensive development of heavy industry.

The Great Leap Forward movement was an extreme reflection of Chinese mentality of emphasizing the speed of development. "Calls for rapid development through mass movements, the most notable being the backyard furnaces for steel production, led to considerable environmental damage."<sup>14</sup> In order to reach the unrealistic rate of production or to, at least, produce an image of development, some communes and factories even exaggerate their production. During these Great Leap Forward years, China's afforestation efforts of the early and mid-1950s were destroyed. "The Great Leap Forward and the subsequent calls for grain self-sufficiency meant that large forested areas were cleared and cultivated. Chinese sources since the early 1980s invariably label the Great Leap Forward years as one of the great deforestation periods of the People's Republic."<sup>15</sup> The overzealous policies for development and catching-up combined with dry climatic conditions led to low grain yields and widespread starvation from 1959 to 1961. More than 20 million people died in this famine.<sup>16</sup>

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<sup>14</sup> Ibid., p. 229.

<sup>15</sup> Ibid., p. 48.

<sup>16</sup> Spence, The Search For Modern China, p.583.

The Chinese conception of development is also closely related with national strength. According to a well-known government slogan - "if you are backward, you will be beaten" (落后就要挨打 *luohou jiuyao aida*). China had considered itself the strongest and the most civilized country for thousands of years before the 19th century. With the end of Opium War (1842), China suddenly lost its prestigious status and its glamour to the western world. Therefore, Chinese governments (whether it was Qing dynasty, the nationalists or the Communists), as well as Chinese people, have always been obsessed with the idea of catching up with the so called "western imperialists". The process of development is like winning a war, the backward one will certainly lose.

Mao Zedong, the Chairman and primary policy-maker in socialist China, held this view especially. After leading the revolution for several decades and winning the civil war at last, it was very hard for him to change his wartime mentality. He emphasized class struggle and did not pay enough attention to improving the quality of people's life. His economic policy did not adjust to the new phase of the country, which required a stable social environment for economic development. At such times as the First Five-Year Plan, the Great Leap Forward and the Cultural Revolution, the government policies accelerated the pace of environmental degradation.

He Bochuan also commented on this tendency to compare development with a war as follows:

China's own mistakes in economic theory are primarily the result of regarding the economy as a wartime system.

.....  
This is reflected in all the campaigns to "Provide enough food and clothes for ourselves", "Be self-reliant", and "Prepare against war and natural disasters".

.....  
The result was often the irrational use of resources.

...<sup>17</sup>

Western economists use the term *opportunity cost* to emphasize that making choices in the face of scarcity implies a cost. This concept of *opportunity cost* is very significant and suggestive in making economic and environmental policies. It can suggest the scarcity of natural resources in the process of economic development. What human being achieve from economic growth bears a cost to the environment. Unfortunately, this concept of *opportunity cost* was not paid enough attention to in China's political economic theory. The Chinese generally ignored the existence of opportunity cost in making decisions. Chinese people did not often think about the environmental cost either.

Development is a linear progress in Chinese perception. "They produced just for the sake of producing, regardless of demand for the product: output was the only consideration."<sup>18</sup>

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<sup>17</sup> He Bochuan, China on the Edge (San Francisco: China Books & Periodicals, 1991), p.p. 43-46.

<sup>18</sup> Ibid., p.51.

This comment applies to the socialist planned economy. In the process of transition from a socialist economy to a market economy, which has been happening in China in recent years, the lever of demand and supply has started to play a role in economic activities. However, the fundamental change of people's environmental perceptions still require some adjustments of the Chinese concepts of development. Instead of emphasizing development itself, the sustainability of development should be paid more attention to.

China's Serious Environmental Degradation and  
the Reactions From the Chinese Government

China has a population of more than 1.2 billion. With similar land area and about five times the population of the U.S., more and more scholars inside and outside China are becoming worried about whether the fast economic development in China is sustainable. Because of the speedy industrialization and urbanization, China's environmental degradation is obvious from many aspects. This environmental degradation was recorded by Vaclav Smil, He Bochuan and Richard Louis Edmonds. As Perry Link notes in his review of He's *China on the Edge* and Smil's *China's Environmental Crisis*:

China is losing 0.5% agricultural land each year. Most of the disappearing farmland is lost to development. About two-thirds of it is converted to

pastures, fish-ponds and orchards. The rest (about 22%) goes to industrial construction and housing projects. ... Pesticide contamination of vegetables in China is nearly the highest in the world. In 1992, less than 35% of the population had ready access to unpolluted water, and on present trends, wastewater discharges will more than double between 1990 and 2000. There is ten to twenty times as much particulate and sulphur dioxide in the air of Chinese cities as there is in the air of US cities. ... China's forests are being cut down at 40% above sustainable rates.<sup>19</sup>

The serious condition of environmental degradation has caught the attention of the Chinese government, which responded positively since the 1970s. Attending the Stockholm conference of the United Nations in 1972 was China's first effort in joining the international community for improving its environmental protection. Since then, China's environmental policy has been going forward step by step. The Chinese government had passed its first environmental laws (for trial implementation) in 1979 before the process of China's large-scale industrialization began. This is very different from other developed countries, who usually followed the pattern of "pollution first, legislation second" in their process of development. For most of the industrialized countries, legislation came after the pollution from industrialization. China's real and rapid process of industrialization started in 1978. China's environmental legislation, thus, went almost hand in hand with China's industrialization process.

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<sup>19</sup> Link, "A Harvest of Empty Notes," p. 6.

Why did the Chinese government set up a trial law in 1979 instead of establishing an official law from the beginning? Edmonds' explanation for 1979 trial law in China is that it was an attempt to get laws quickly into place without indicating that they were permanent.<sup>20</sup> The trial implementation also showed that the government was not sure about the adaptability and the necessity of an official environmental law in the 1970s. One drawback to this trial implementation format was that some polluters, especially the large state owned enterprises, refused to comply with it as they insisted the law was not yet in force.<sup>21</sup> In December 1989, the 1979 trial law was officially established.<sup>22</sup> Although there were still problems in the law enforcement after 1989, the official establishment of environmental law signaled that environmental protection has become an important national policy for China.

In June of 1992, China attended the United Nations Conference on Environment and Development held in Rio de Janeiro. China's Agenda 21, which emphasized sustainable development, was discussed and approved at the Executive Meeting of the State Council in March 1994. Serving as the

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<sup>20</sup> Edmonds, Patterns of China's Lost Harmony, p. 231.

<sup>21</sup> Ibid.

<sup>22</sup> Zhang Kunmin and Jin Ruilin, A Course in China's Environmental Protection Law (Beijing: Tsinghua University Press, 1992), Preface.

guideline for China's environmental protection, China's Agenda 21 emphasized public participation.

The support and participation of public and social groups is essential to the achievement of sustainable development. The form and degree of their participation determine the rate at which the objectives of sustainable development are realized. ....

New mechanisms are needed for public participation in sustainable development. It is necessary for the public to not only participate in policy-making related to environment and development, particularly in areas which may bear direct impact on their living and working communities, but also to supervise the implementation of the policies.<sup>23</sup>

In an up-to-date version of China's Agenda 21,<sup>24</sup> the general public's participation is emphasized again.

The sustainable development capacity of a nation is closely related to the ability of its people to implement effectively actions to achieve sustainability and to participate in achieving sustainable development. Education is a key to developing public awareness and the capacity for sustainable development that will require changes in values, attitudes and behavior. This will mean that efforts must be directed to educate senior policy makers, scientists, technicians, workers, and the general public.<sup>25</sup>

With China's huge population, the public participation in environmental protection is really important. But how to promote the public participation is a new question.

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<sup>23</sup> China's Agenda 21 (Beijing: China Environmental Science Press, 1994), p. 223.

<sup>24</sup> The web address for Agenda 21 is <http://plue.sedac.ciesin.org/china/>

<sup>25</sup> Ibid. "Education for Sustainable Development in China."

The Importance of Ordinary People in China's  
Environmental Protection

The environment, by nature, is a public good. Everyone can consume it and nobody can exclude other people from consuming it. In protecting a public good like the environment, the government can definitely play an important role in the legislation, the enforcement of laws and policies. On the other hand, environmental protection is also closely related to the collective efforts of everyday people. Environmental protection is the protection of a public good which involves people from all walks of life in the society - consumers, entrepreneurs, farmers and government officials. They have become the real day-to-day environmental decision makers. They can play an important role in improving the environment or in damaging the environment.

We can see from Table 1 that the percentage of Chinese people's household waste water discharge among the total waste water discharge has been increasing from 1986 to 1993. The household use has become a larger portion of water pollution in China. With China's huge population, this portion of household pollution could be much larger than that of other countries. Under this circumstance, the general public's consciousness of environmental problems and their reactions to these problems have become an extremely important issue in China's environmental protection.

TABLE 1. The Ratio of Waste Water Discharge From Industrial Sector and Household Sector (1986 - 1993)

Year	1986	1987	1988	1989	1990	1991	1992	1993
Total Waste Water Discharge (100,000,000 ton)	339	349	367	353	354	336	367	356
Percentage of Industrial Waste Water	77%	76%	73%	71%	70%	70%	64%	62%
Percentage of Household Waste Water	23%	24%	27%	29%	30%	30%	36%	38%

Source: 1990-1994 China Environment Annual Book

In 1973, the U.S. National Academy of Sciences published the following finding based on its research of environmental quality and social behavior:

The public is involved, in greater or less degree, in the definition of national goals, the specification of standards, the formulation of public plans and policies, efforts to alter values, attitudes, and behavior, and the assessment of their results. Consequently, a critical field for research is how people perceive problems and their consequent behavior with respect to them. What information about and insight into environmental matters do they have? How do issues arise and receive public attention? Why are some conditions or developments regarded as serious problems in certain quarters and not in others? In what ways and to what extent are discrepancies between reality and aspiration involved in the perception of problems and the mode of response to them?<sup>26</sup>

<sup>26</sup> National Academy of Sciences, Environmental Quality and Social Behavior (Washington, D.C.: Printing and Publishing Office, National Academy of Sciences, 1973), p.p. 38-39.

This finding was based on the experience of U.S., which has had a democratic social system for many years. It can also apply to China because of the close relationship between human activities and the environment.<sup>27</sup> Qu Gepin, one of the most important officials in China's environmental protection, also emphasized the importance of improving the general public's understanding of environmental issues in his writing.<sup>28</sup>

Environmental protection is greatly influenced by how people perceive the environmental problems. "Research into environmental goals, aspirations, or ideals is as relevant as research into environmental damage, for these enter into the process by which recognition of particular conditions or occurrences are transformed into perceived 'problems' requiring social action."<sup>29</sup> People's perceptions of environmental problems also provide the bases for government policymakings. In Chapter II, we will see how contemporary Chinese people perceive their environmental problems by presenting a survey on Beijing and Shanghai residents.

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<sup>27</sup> Eugene Skolnikoff, The Elusive Transformation (Princeton: Princeton University Press, 1993), p. 184.

<sup>28</sup> Qu Gepin, Zhongguo Huanjing Wenti Ji Duiche (中国环境问题及对策, Environmental Problems and Policies in China) (Beijing: China Environmental Science Press, 1984), p. 5.

<sup>29</sup> National Academy of Sciences, Environmental Quality and Social Behavior, p.p. 38-39.

## CHAPTER II

## CONTEMPORARY CHINESE PERCEPTIONS OF THE ENVIRONMENT

How do the Chinese people perceive China's environmental problems? What are their consequent behaviors with respect to these problems? In November 1994, the Research Center of the State Science and Technology Commission held the first environmental perceptions survey (hereafter, SSTC Survey) in the two biggest municipalities in China. It was a very important breakthrough in the undertaking of China's environmental protection. It signaled the government's growing attention to people's environmental perceptions.

As it is mentioned in China's Agenda 21, "the support and participation of public and social groups is essential to the achievement of sustainable development."<sup>1</sup> In order to promote the public participation in environmental protection, the social system needs to be more democratic. On the other hand, it is also very important to improve people's environmental awareness through education. Only when people become aware of the seriousness of environmental problems, they will be willing to participate. The purpose of managing

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<sup>1</sup> China's Agenda 21, P. 223.

the SSTC Survey is to find out how much the Chinese people know about environmental protection and how much they are willing to participate in it.

Because of China's vast territory, it is hard to arrange a survey to cover all the areas of China. The SSTC Survey distributed 3,200 questionnaires to people living in various areas of Beijing and Shanghai. The survey tried to cover people from all walks of life in these two cities. According to Deng Xueming,<sup>2</sup> the survey was anonymous. However, it was arranged by a government agency, the SSTC, and the residents were requested and obliged to respond by work units' leaders. That's why the rate of feedback was 100%.

The survey on Beijing and Shanghai residents, to a certain degree, reflects the leadership view of Chinese perceptions of the environment. Many residents (Beijing 35%, Shanghai 24%)<sup>3</sup> of Beijing and Shanghai were originally from other provinces. Usually, they came to study in the universities and research institutes of Beijing and Shanghai. After graduation, they stayed there to work for important government organizations, large state enterprises, research institutes and universities. Therefore, in general, Beijing

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<sup>2</sup> Deng Xueming was the director of the SSTC Survey. She was interviewed by the author in December 1996.

<sup>3</sup> Yuan Fang, "Chinese City Residents' Environmental Perceptions: A Sociological Analysis," Beijing, December 1996, p. 5.

and Shanghai residents are better educated than people in other areas.

In this chapter, I will use the SSTC Survey as the major source for analyzing contemporary Chinese perceptions of the environment. At the same time, other sources will also be used to compare and contrast with the SSTC Survey. The following four aspects of people's perceptions of the environment will be analyzed - population growth; natural environment vs. daily living environment; environmental agencies people trust; and people's sense of responsibility for environmental protection.

#### Population Growth

It is well known that the population problem is the most serious environmental problem in China. With similar land area and five times more population than the U.S., how to improve people's living standards and protect the natural resources at the same time has been a big challenge for the Chinese. Most residents (96%) in the SSTC Survey realized the impacts of fast population growth. Among the three major environmental concerns of the public, which were the population growth, industrial production and the increase of individual consumption, the fast population growth was the biggest concern of the Chinese people. In this survey, the

residents all showed their understanding to the government's "one-child policy". They thought that the "one-child policy" has made great contribution to China's modernization and global environmental protection.<sup>4</sup> This finding implies that the government propaganda on population control has been successful. However, because this survey was officially arranged, there was always a doubt whether the residents expressed their real thinking.

On the other hand, the "one-child policy" is found hard to implement in rural areas. China has been an agricultural country for hundreds of years. Even now, most of the population are still living in the countryside and farming is still mostly done manually. He Bochuan commented in this way:

It is quite unrealistic to expect a sudden change in the traditional Chinese belief that "more babies bring greater fortune."<sup>5</sup> ... The backwardness of technology that still prevails in rural areas makes it extremely difficult to insist on limiting families to one child. Without the kind of technology required to reduce the need for physical labor, the peasants still feel a right to demand a bigger labor force to support their families. Consequently, even today, one often sees couplets in front of northern Chinese country homes that read: "Horses and carts before the door do not mean lasting wealth; A home with sons and grandsons may have greater fortune." This ancient Chinese worldview corresponds to the nation's current level of economic development.<sup>6</sup>

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<sup>4</sup> Deng Xueming, "Chinese Residents' Environmental Perceptions and Policy Suggestions," Beijing, December 1996, p. 2.

<sup>5</sup> He, China on the Edge, p. 8.

<sup>6</sup> Ibid., p. 14.

Except for the level of technology, the level of education is another aspect that influences the rural people's environmental perceptions. In 1992, China's university students only represent 0.18% of the country's population. Roughly half of all peasants remain illiterate.<sup>7</sup>

The low level of education attainment amongst the contemporary Chinese peasant population makes environmental conscious raising difficult. Data from China's 1982 and 1990 censuses do suggest that the illiteracy rate of fifteen year olds and above dropped from 22.81 per cent to 15.88 per cent. However, virtually no progress was made in raising rural literacy rates during the 1980s with statistics showing illiteracy amongst the rural labor force climbing from 20.89 per cent in 1984 to 22.57 per cent in 1989.<sup>8</sup>

Also, in the countryside of China, there is no pension system. The peasants have to rely on their children to support them when they are old. In this sense, more children will bring them more sense of security. In order to change people's traditional idea regarding having more children, it is necessary to arrange some social reforms in the pension system and insurance in the countryside. It is also important to improve the agricultural technology and education. Improving the general public's education level is an important and inseparable part of improving the Chinese people's environmental perceptions.

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<sup>7</sup> Vaclav Smil, China's Environmental Crisis (New York: M.E.Sharpe, Inc. 1993), p. 13.

<sup>8</sup> Edmonds, Patterns Of China's Lost Harmony, p. 17.

Natural Environment vs. Daily Living Environment

That Beijing and Shanghai residents in the SSTC Survey showed a higher perception of the population problem not only indicates the importance of education, but also indicates the relationship between the environmental reality and people's environmental perceptions. Beijing and Shanghai are the most crowded cities in China. Both cities have more than ten million people. According to Edmonds' population density figure, both Beijing and Shanghai are having more than 499 persons per square kilometer.<sup>9</sup> Their daily living circumstances make them very conscious of the population problem.

Table 2 indicates that people's awareness of environmental problems is closely related to their daily living conditions. In Beijing, wind and sand pollution has been an old problem because of the increase of desertification in the Inner Mongolia region. Water pollution has been a serious problem in Shanghai. "Rivers such as the Suzhou Creek in Shanghai are anoxic - unable to sustain any form of life."<sup>10</sup> Therefore, Beijing residents' perception of wind and sand pollution is higher than Shanghai residents, and Shanghai residents' perception of river pollution and

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<sup>9</sup> Ibid., p. 13.

<sup>10</sup> Ibid., p. 2.

drinking water pollution is much higher than Beijing residents. (See Table 2.)

The SSTC Survey further discovered that Chinese urban residents were more sensitive to the circumstances of daily living (small environment) rather than to the natural environment (big environment). Most of the surveyed residents were very aware of air pollution, river pollution, drinking water pollution, scarce grassland and noise pollution, which were directly related to their daily living. However, about half of the residents in the survey are not clear about the seriousness of the problems like deforestation, desertification and extinction of scarce species. (See Table 3.)

Friends of Nature, an environmental organization in China, conducted a survey on environmental reporting in Chinese newspaper in 1996. In this survey, the newspaper contents are divided into four categories - environmental hygiene; pollution and its cure; population, resources and ecological problems; environmental education and knowledge popularization, which are categorized according to the degree of greenness - from light green to darker green as the content goes into deeper problems.<sup>11</sup> If we use this classification to analyze Chinese people's perceptions of the

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<sup>11</sup> Friends of Nature, "Survey on Environmental Reporting in Chinese Newspapers," April 1996.

environment, they are still in the "color" of light green, and are going to the direction of darker green.

Yuan Fang, in his analysis of the SSTC Survey, found that the higher education people have, the more they know about the seriousness of the problems like deforestation, desertification and extinction of scarce species.<sup>12</sup>

Environmental education can especially increase people's consciousness to the degradation of natural environment and teach people how to prevent environmental problems from happening. The high percentage of Beijing and Shanghai residents ignorant to the degradation of the natural environment indicates that China's environmental education should focus more on increasing the general public's consciousness and knowledge of the natural environment.

On the other hand, since the government has been educating people about the importance of population control and the "one child policy" has been strictly enforced from the 1970s, the Chinese, in general, understand more in this aspect than in other aspects of environmental protection. Environmental education and law enforcement are of the same importance in promoting people's environmental consciousness. They just work in different ways. While environmental education works on people's environmental consciousness directly, law enforcement works on improving people's

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<sup>12</sup> Yuan, "Chinese City Residents' Environmental Perceptions: A Sociological Analysis," p. 16.

environmental awareness by punishing the polluters and teaching them a lesson.

#### Environmental Agencies People Trust

The situation that the Chinese government has played a dominant role in the society was illustrated in the SSTC Survey while the surveyed residents were asked to choose agencies which would provide reliable information. Most surveyed residents chose central government, municipal government, county government and the court, which are governmental or quasi-governmental agencies. The Chinese people tended to have less trust in pollution victims, work unit leaders and individuals like environmental experts and professors. Within the governmental agencies, the higher rank administrative agencies tended to get more trust from people.<sup>13</sup> (See Table 4.)

Did people really trust the government? Or did they just answer the question in this way because it was an officially arranged survey? According to Yuan Fang, it did not show people's trust on the government. It only indicated that, in the socialist centrally controlled society, the Chinese people have formed a habitual reliance on the government for

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<sup>13</sup> Ibid., p. 14.

taking care of every aspect of their life.<sup>14</sup>

When the surveyed residents were asked to choose the most important thing in solving current environmental problems, 69.8% residents chose "environmental law", 7.4% chose "individual efforts" and only 1.1% chose "anti-pollution movement of local residents". When asked "if you are a pollution victim, which of the following agencies will be able to solve your problem?", most residents of the two cities chose central government, municipal government or quasi-governmental agencies like the court and the news agencies. (See Table 5.)

News agencies also have high credit in Chinese people's mind. In China, most news agencies are quasi-governmental. People's reliance on news agencies is actually a reliance on their publication of environmental problems, which can attract the government's attention to solve the problem.

From the environmental agencies people trust, we find that the Chinese people are fundamentally relying on the government to solve the environmental problems. They are reluctant to solve problems by themselves. They rely on the government to initiate programs on environmental protection. Their dependency on the government suggests their lack of sense of responsibility for environmental protection.

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<sup>14</sup> Ibid.

People's Sense of Responsibility and Their Willingness to  
Sacrifice for Environmental Protection

The SSTC Survey prepared three groups of questions to test people's willingness to sacrifice for environmental protection. The first group of questions was about the relationship between environmental protection and the speed of economic development. About 54.9% residents thought that the speed of economic development would have to be slowed down, if it was for the purpose of preventing pollution and damage for environment. 45.1% residents thought that even if there was pollution and damage for the environment, the speed of economic development should be kept the same.<sup>15</sup> People showed a high perception of environmental protection in answering this group of questions.

However, when self-interest was involved, the answer became a little bit different. The second group of questions was about the price increase for the purpose of environmental protection. Only 19.5% surveyed residents agreed that the price should go up due to the environmental protection purpose. 55.2% surveyed residents were reluctant for the price increase and 25.3% disagreed.<sup>16</sup>

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<sup>15</sup> Deng, "Chinese Residents' Environmental Perceptions and Policy Suggestions," p. 5.

<sup>16</sup> Ibid.

The third group of questions was about the usage of electricity. According to Vaclav Smil, outdated technologies, heavy reliance on coal and widespread poor maintenance resulted in the large inefficient consumption of electricity in China.<sup>17</sup> And the heavy reliance on coal for generating electricity has also become an important source of air pollution. However, there is another side of this story. "Average annual household electricity supply prorates to less than 10 kWh/capita, an equivalent of a 60W light bulbs switched on for less than thirty minutes a day."<sup>18</sup> This is a description of the situation of China in 1990. With thus limited resources of personal consumption, it is not strange that, when questioned about the restriction on electricity consumption, only 36.3% surveyed residents agreed that they should restrict their usage of electricity for the purpose of environmental protection. 63.7% residents disagreed.<sup>19</sup> Here, technology becomes the concern again. If the technology can be updated and the reliance on coal can be reduced, more electricity can be generated for people's consumption with less pollution to the environment.

In the SSTC Survey, most surveyed residents (95%) thought that people's attitude toward environmental

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<sup>17</sup> Smil, China's Environmental Crisis, p. 124.

<sup>18</sup> Ibid., p. 109.

<sup>19</sup> Deng, "Chinese Residents' Environmental Perceptions and Policy Suggestions," p. 5.

protection was closely related to the improvement of environment. They were very positive about the potential improvements of China's environmental condition. But, on the other hand, most people lacked the sense of responsibility. They thought environmental protection was the government's business. They were not very confident in individual efforts and the capability of non-governmental organizations.

Why do Chinese people assume that the government is responsible for environmental protection? How is their view related to the deep-rooted conceptual dichotomy of *gong* (public) and *si* (private)? These will be the questions discussed in the next chapter.

TABLE 2. The Percentage of Surveyed Beijing and Shanghai Residents Who Think the Following Pollution Problems Are Serious or Fairly Serious in Their Respective Cities

	Air		Wind & Sand		River		Drinking Water		Grassland		Foul Smell	
	B	S	B	S	B	S	B	S	B	S	B	S
Serious	28	31	10	7	22	34	13	42	29	46	20	12
Fairly Serious	37	43	22	14	24	41	26	38	35	44	21	28

\* B for Beijing, S for Shanghai. The numbers are in percentage.

Source: 1994 Environmental Perceptions Survey by the State Science and Technology Commission

TABLE 3. The Percentage of Surveyed Beijing and Shanghai Residents Who Are Not Clear about the Following Environmental Problems

	Deforestation	Pesticide Pollution	Desertification	Extinction of Scarce Species
Beijing	46%	41%	57%	47%
Shanghai	47%	27%	61%	51%

Source: 1994 Environmental Perceptions Survey by the State Science and Technology Commission

TABLE 4. The Percentage of Surveyed Beijing and Shanghai Residents Who Think the Following Agencies Are Reliable or Comparatively Reliable in Providing Information on Environmental Problems

Beijing:

	Reliable	Comparatively reliable
News Agency	46%	39%
Central Government	71%	24%
Municipal Government	69%	26%
County Government	54%	37%
Residential	50%	38%
Victim's Unit	31%	36%
Unit's Leaders	24%	42%
Court	55%	33%
Experts and Professors	44%	42%
Family members and Friends	26%	42%

Shanghai:

	Reliable	Comparatively reliable
News Agency	46%	44%
Central Government	76%	21%
Municipal Government	75%	21%
County Government	52%	40%
Residential Government	47%	41%
Victim's Unit	28%	43%
Unit's Leaders	22%	49%
Court	50%	41%
Experts and Professors	40%	47%
Family members and Friends	21%	46%

Source: 1994 Environmental Perceptions Survey by the State Science and Technology Commission

TABLE 5. The Percentage of Surveyed Residents Who Choose the Following Agencies for Solving the Environmental Problems If They Are Victims of Pollution

	Central Gov't	Municipal Gov't	News Agencies	County & Residential Gov't	Court
Beijing	36%	29%	11%	9%	8%
Shanghai	20%	28%	22%	12%	7%

Source: 1994 Environmental Perceptions Survey by the State Science and Technology Commission

## CHAPTER III

GONG SI DICHOTOMY IN CHINESE PERCEPTIONS OF  
ENVIRONMENTAL PROTECTION

In Chapter II, I presented the SSTC Survey which showed that there exists a *gong si* (公私 public vs. private) dichotomy in Chinese perceptions of environmental protection. Although most of the surveyed residents were aware of the harms that pollution did to their health as well as to their later generations', they were not motivated to organize residents' anti-pollution movement or non-governmental environmental agencies. They thought that it was the government who should take the responsibility and the initiative for environmental protection. Because of this conception, Chinese ordinary citizens are reluctant to sacrifice their own interests (*si*) for the undertaking of environmental protection. They care more about their daily living conditions than the natural environment. In the rural areas, people would still prefer to have more children in order to have more labor force. Environmental protection, in Chinese perceptions, belongs to the *gong* (public) category,

which should be taken care of by the government instead of the ordinary people.

In Chinese language, *gong* has the meaning of "public, state-owned, collective; equitable, impartial,"<sup>1</sup> while *si* means "private, personal and selfish."<sup>2</sup> *Gong* also has the meaning of "belonging to the government or community."<sup>3</sup> Several Chinese proverbs, like *da gong wu si* (大公无私 selfless, unselfish) and *jia gong ji si* (假公济私 to use public office to work for private interests), all describes the *gong si* dichotomy.

Yuan Fang described the *gong si* dichotomy in the Chinese environmental perceptions.

The *gong si* dichotomy existing in Chinese environmental perceptions does not imply that Chinese people believe in the government and its policies for protecting their interests. It just reflects the Chinese people's conceptual reliance on the government. They believe that environmental protection is in the *gong* category, and it is the government's business. The ordinary residents, being in the *si* category, should not take the principal role in environmental protection. They just need to cooperate with the government. This conception of environmental protection is a reflection of the circumstance that the Chinese government has always been dominant in every sphere of the society.<sup>4</sup>

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<sup>1</sup>Editorial Division, ed., *A Modern Chinese-English Dictionary* (Beijing: Foreign Language Teaching and Research Press, 1991), p. 295.

<sup>2</sup> *Ibid.*, p. 840.

<sup>3</sup> Editorial Division, *Cihai* (Shanghai: Shanghai Dictionary Press, 1989), p. 730.

<sup>4</sup> Yuan Fang, "Chinese City Residents' Environmental Perceptions: A Sociological Analysis," Beijing, December 1996, p. 19.

This circumstance described by Yuan not only exists in contemporary China, but also existed in traditional China. China had more than two thousand years history of an imperial system. The hierarchical social structure that formed in this long period of time has great influence on Chinese conception of the state even for today. To analyze the role of the state in environmental protection in China, it is important for us to look back at the hierarchical social structure in traditional China and the history of environmental protection in China.

#### Hierarchical Social Structure and Gong Si Dichotomy in Traditional China

The ancient Chinese classic, *Yi Jing* (易经 Book of Changes), describes the origin of the universe and of human institutions in the following passage:

Heaven and earth existing, all material things then got their existence. All material things having existence, afterwards there came male and female. From the existence of male and female there came afterwards husband and wife. From husband and wife there came father and son. From father and son there came ruler and minister. From ruler and minister there came high and low. When (the distinction of) high and low had existence, afterwards came the arrangements of propriety and righteousness.<sup>5</sup>

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<sup>5</sup> Yang Tai-shuenn, "Property Rights and Constitutional Order in Imperial China," Ph. D. dissertation, University of Indiana, p.p. 24-25.

This description illustrates the Chinese view on cosmology, which emphasized the polarity of the universe (eg. heaven and earth, male and female) and human institutions (husband and wife, father and son, ruler and minister). It also described the hierarchical social structure in traditional China, in which the ruler (i.e. the emperor) had the highest position and was assisted by different layers of bureaucrats. The emperor and his officials formed the ruling class in traditional China. The ordinary people had low social status. They were peasants, workers and servants of the ruling class. Compared to the ruling class, they were powerless in the society. The emperor and his bureaucrats assumed the power of the state.

The essence of propriety in traditional China was to confine people to their social status. Everybody was obliged to behave according to the propriety for his position in the society. For the emperor and his officials, they were supposed to work for the public without thinking about their own interests, as described in *da gong wu si*. Because of this principle according to traditional propriety, environmental protection, mainly flood control, was organized by the emperor and his bureaucrats in ancient China.

Many passages in the Chinese classics refer to the ruler's duty to safeguard the environment. In *Shi Ji* (史记 *Historical Records*) written by Sima Qian (145 BC -87 BC?),

there is a story about Shang Tang, founder of the Shang dynasty (ca. 1766 BC - ca. 1122 BC).<sup>6</sup> Shang Tang persuaded a person named Zhu not to trap animals because it would lead to their extinction. The officials in the story commented: "Shang Tang is the more virtuous. He has attained knowledge of birds and beasts."<sup>7</sup> As a ruler, Shang Tang showed his concern over the environment.

Environmental consciousness was an expected part of the behavior of a ruler as the following quote from the Spring and Autumn Era (722-481 BC) classic, the *Guanzi*, suggests:

people who are of ruling quality but are not able to respectfully preserve the forests, rivers, and marshes are not appropriate to become rulers.

Guan Zhong (the author of the *Guanzi*) further notes fire prevention and strict regulation of tree cutting as important aspects of environmental protection.

In Spring if the government does not prohibit (cutting) then hundreds will not grow. In summer if the government does not prohibit (cutting) then the crops will not succeed.<sup>8</sup>

Guan Zhong also said that "people who are good at managing a state should first get rid of the Five Disasters. Of the Five

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<sup>6</sup> Edmonds, Patterns of China's Lost Harmony, p. 23.

<sup>7</sup> Sima Qian, Shiji (Beijing: Zhonghua Shuju, 1959), Vol. 1, p. 95.

<sup>8</sup> Edmonds, Patterns of China's Lost Harmony, pp. 24-25.

Disasters, flood is the biggest."<sup>9</sup> It suggested that the ruler and the bureaucrats should take the responsibility for flood control and the prevention of other disasters.

In ancient China, most of the irrigation works were actually built under the supervision of the ruler or his officials. Many Chinese classics<sup>10</sup> recorded the famous legend of *dayu zhishui* (大禹治水 Dayu controls the water). Dayu led his people and people from other tribes to regulate the rivers and watercourses of Huang River for more than ten years. Finally, they controlled the flood and people moved back to the plain to live. According to these Chinese classics, Dayu was a leader with strong power and high authority. At a meeting on flood control, he killed a minister who showed up late for the meeting.<sup>11</sup> Dayu was also recorded as a selfless hero. In order to control the flood, he did not have time to take care of his family for ten years. The story of *dayu zhishui* showed the strong power of an ancient tribe leader and the importance of *gong* at ancient times.

The state played a dominant role in irrigation

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<sup>9</sup> Guan Zhong cited by Xu Deshu in The Construction of Safety Culture in China (Chengdu, Sichuan: Sichuan Science and Technology Press, 1994), p. 55.

<sup>10</sup> These Chinese classics include Hanfeizi (韩非子), Shangshu (尚书), Xunzi (荀子), Mengzi (孟子), Huainanzi (淮南子) and Shiji (史记).

<sup>11</sup> Editorial Division of Wuhan Hydro-power College, Zhongguo Shuili Shigao (中国水利史稿 The History of Chinese Irrigation Works) (Beijing: Hydro-power Press, 1985), p. 44.

constructions in ancient China. During the Qin dynasty (221 BC - 207 BC), the famous Zhengguo (郑国) Canal was constructed under the supervision of Qin Shi Huang (秦始皇). The irrigation networks covered a wide area. It promoted agriculture production and helped Qin become the first centralized state in Chinese history. After the Qin dynasty, many other irrigation works were constructed. All these irrigation works required a huge amount of labor. In traditional China, only the emperor could have the power and authority to recruit so many people for irrigation construction.

All these irrigation works not only promoted economic development, but also showed the strong state power. The irrigation construction in ancient China interacted with state power. When the state power was strong, the irrigation works were well managed and the peasants enjoyed good harvests. If it was in wartime and the state power was weak, the irrigation works were poorly managed, and people suffered from flood and famine.<sup>12</sup>

After the abolition of China's emperor system in the early 20th century, the Chinese state still kept a totalitarian nature. Although there was no longer an emperor, the party which was in power, through controlling the government, played a dominant role in the society. In the

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<sup>12</sup> Ibid., pp. 118 - 131.

Republic of China, it was the Nationalist Party which was in power. After the civil war, the Communist Party controlled the power of the state. Because of this circumstance, environmental policy in China has been closely tied to the views of the central party leadership.<sup>13</sup>

Gong Si Dichotomy and Property Rights Issue  
in Socialist China

The Communist Party brought to China some fundamental changes. One of the most important changes was in the assignment of property rights. Private ownership was gradually eliminated in China after 1949, and the socialist public ownership (*gong you zhi* 公有制) came into place. Until 1978, the constitution recognized only two forms of ownership of productive means: "socialist people's property" and "socialist collective property of the toiling masses."<sup>14</sup> "The productive means" here referred to the natural resources and tools needed for production.

In theory, China's public ownership should be beneficial to environmental protection, because every citizen is supposed to be the owner of the socialist collective property. He should be responsible for this collective property. However, in reality, it becomes the mere reason for

<sup>13</sup> Edmonds, Patterns of China's Lost Harmony, p. 228.

<sup>14</sup> Willy Kraus, Private Business in China (Honolulu: University of Hawaii Press, 1991), p. 35.

public neglect and ignorance to environmental problems. The government, in the form of work units, takes care of every aspects of people's life including housing and medical care. People are left with few rights as well as little sense of responsibility.

In this kind of centrally controlled economy, the government makes decisions for the general public. Even though there is pollution, the ordinary people have no power to deal with it. Unlike a market economy, where people can use market mechanisms to boycott the products from polluters. In a centrally planned socialist economy, people do not have many choices. Usually, the state enterprises are the sole providers for people's basic needs and supplies. If they are polluters at the same time, closing these polluting factories for protecting the environment will cause serious shortage for people's daily supply.

Although the economic reform started in 1978, the problems of these state enterprises could not be solved in a short time. Smil cites an official statement that, in 1988, 250,000 of 400,000 state enterprises were still serious polluters. A survey of 168,000 enterprises listed total discharges of nearly 30 billion cubic meters of polluted water and over 300 million tons of solid wastes.<sup>15</sup> In the

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<sup>15</sup> Vaclav Smil, "China's Environmental Morass," Current History (September 1989), p. 287.

socialist system, people have to rely on government commands and regulations for solving pollution problems.

With the beginning of Deng Xiaoping's economic reform in 1978, there were a lot of changes in the property rights system in China. The new constitution of 1982 emphasizes the socialist economic order as the basis of the national economy, apart from which other forms of ownership of production means may exist.<sup>16</sup> Private businesses started to grow after this change of the constitution. Many entrepreneurs started to own their enterprises. A lot of things like factories and residential houses, which used to be completely *gong*, now started to have *si* elements. The border of *gong* and *si* category has blurred.

In the process of China's transition from centrally planned economy to market economy, the poorly specified property rights causes some new problems in environmental protection. Some village and township enterprises are owned by the local government in name, but actually are owned and managed by a group of villagers, who only need to pay the local government a certain amount of fee per year. This situation causes the ambiguity of environmental responsibility and the neglect of environmental monitoring.

"The virtual explosion of small rural and suburban manufacturing enterprises has been a great boon to China's

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<sup>16</sup> Kraus, Private Business in China, p. 36.

rural prosperity and a welcome absorber of surplus peasant labor."<sup>17</sup> China's 23 million rural businesses contribute half of the country's industrial production.<sup>18</sup> "However, the environmental impact of these largely unregulated workshops and factories is considerable. Often they are only sources of noise and air pollution from the inefficient combustion of raw coal, but they cause the greatest damage by the uncontrolled release of polluted water."<sup>19</sup> They have also been wasteful in terms of consumption of natural resources, commented Zong Jinya, vice director of the Chinese Agriculture Ministry's Township Enterprises Bureau. Since last September, the government has ordered the shutdown of more than 70,000 polluting factories, most of which were small pulp and paper mills, dye factories and tanneries.<sup>20</sup>

#### Gong Si Dichotomy and the Sense of Responsibility

Because of the public good characteristic of the environment, environmental protection requires the government's commands and regulations. On the other hand, China's institutional changes have changed people's

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<sup>17</sup> Smil, "China's Environmental Morass," p. 280.

<sup>18</sup> Wei He, China News Digest - Global, February 21, 1997

<sup>19</sup> Smil, "China's Environmental Morass," p. 280.

<sup>20</sup> Wei He, China News Digest-Global, February 21, 1997

incentives in economic activities. With the privatization of factories and lands, protecting the environment requires more and more public participation. In the transitional period, environmental protection in China has relied more on people's sense of responsibility. As Edmonds emphasized "there must be changes in social attitudes for individuals to assume responsibility for the ecological consequences of their actions."<sup>21</sup>

Chinese people's current sense of responsibility, which is still influenced by the traditional and socialist *gong si* dichotomy, causes the discrepancy between theory and practice in China's environmental protection. On one hand, Chinese people think that environmental protection is very important. On the other hand, they do not like to take the responsibility for it. Smil noticed that this discrepancy between the environmental ideal and reality was caused by "casual neglect, astonishing irresponsibility, and staggering outright destruction."<sup>22</sup>

He Bochuan, a Chinese scholar, also mentioned this discrepancy in his work. "Anyone who does research on China will soon discover that theory and practice, what people say and what they do, can be two entirely different matters in China. Nor is this simply an individual trait: sometimes the

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<sup>21</sup> Edmonds, Patterns of China's Lost Harmony, p. 20.

<sup>22</sup> Smil, The Bad Earth, p.p. 6-8.

state behaves the same way."<sup>23</sup> Smil, a western scholar, emphasizes the "traditional discrepancy between the environmental ideal and reality, the clash of attitude and actual behavior" in traditional China.<sup>24</sup> Only with responsible attitude, environmental ideals, which are reflected in environmental policies, can become reality.

The economic reform after 1978 has brought many changes to the Chinese society. One important change is that people are permitted to pursue personal properties. Long forbidden to pursue personal wealth, Chinese people have responded feverishly; everyone seems to be pursuing individual profits. The distinguished journalist Liu Binyan has observed that the re-emergence of individualism in China has exposed the atrophy of personal responsibility. "For too long," he wrote, "the Chinese people have not been allowed to shoulder responsibility. Because everything was decided for them, they have been left with the sense that they have no responsibilities. They are alienated from their workplaces. Workers steal from factories. Peasants burn the land with chemical fertilizer for short-term gains." The irresponsible behaviors are called by a young Chinese scholar as "the forbidden fruit syndrome."<sup>25</sup>

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<sup>23</sup> He, China on the Edge, p. 51.

<sup>24</sup> Smil, The Bad Earth, P. 8.

<sup>25</sup> Link, "A Harvest of Empty Notes," p. 6.

The irresponsible attitudes and behaviors have devastating impacts on the environment of China. In order to pursue wealth fully, people tend to exploit the natural resources to an unsustainable rate. "China's forests are being cut down at 40 percent above sustainable rates."<sup>26</sup> "Between 1979 and 1988, forest areas shrank by over 23 percent and usable reserves of timber declined by 22 percent."<sup>27</sup>

Environmental protection in China needs Chinese people's collective efforts. Environmental policy enforcement, in some degree, depends on people's self-discipline. The economic reform has made private ownership a larger portion of China's economy. *Gong* changed from production *gong* to regulation *gong*. The role of government decreased. Ordinary people have become more and more important daily decision makers for the environment. With China's huge population and rapid economic development, how to improve people's environmental consciousness and people's sense of responsibility for environmental protection have become an important issue.

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<sup>26</sup> Ibid.

<sup>27</sup> Smil, "China's Environmental Morass," p. 279.

## CHAPTER IV

## THE PERCEPTIONS ON MAN AND NATURE IN ANCIENT CHINA

Environmentalism has been one of the most discussed topics in the western academic world in recent years. Among these environmental debates, the discussion on man and nature relationship occupies an important position. Man and nature are interacting factors in the environment. Man is an important part of nature. Human life depends on the consumption of air, water and plants. On the other hand, man is alienated from nature with the development of his social systems, his cultural traditions, and lately the development of industry and technology. Human activities have great influence on the environment. Environmental degradation and pollution are caused by man's unsustainable management of natural resources.

Debates on the environment have also become an important issue and attracted more attention among Chinese scholars. In this chapter, I will present a recent debate on *tian ren he yi* (nature and man to combine into one 天人合一), which has been brought up by some Chinese scholars who are interested in studying Chinese perceptions on man and nature in ancient China. These scholars tried to analyze Chinese conceptions of

man and nature relationship by reflecting on the classical philosophical idea of *tian ren he yi*. This strategy emphasizes the importance of the cultural context of man and nature relationship in environmental studies. In order to provide some background knowledge for the contemporary *tian ren* debate, we will first review some ancient concerns of the environment in China and make some clarifications of the meaning of *tian* and *ren*.

#### Ancient Concerns of the Environment

Most classical Chinese proverbs contains stories that reflected people's thinking at that time. The ancient proverb "*Qi Ren You Tian* (杞人忧天 A person from Qi worrying about the sky)" contained a story on man and nature. It talked about a man from Qi State,<sup>1</sup> who worried that the sky (*tian*天) would fall and the earth (*di*地) would sink. He then would have nowhere to hide. He worried and could not eat and sleep well. A wise man, thus, went to explain to him that the sky would never fall because it consisted of very light and clean air. Although man could not see and feel it, it was always surrounding man. The earth would never sink because it consisted of very solid rocks that man stood on everyday.

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<sup>1</sup> One of the states in Warring States Era (403BC - 221BC).

After hearing this explanation, the person from *Qi* felt a little relieved. The proverb of *Qi Ren You Tian* has been interpreted by the later generations as an irony for a silly man worrying about impossible happenings.

However, with China's environment degrading in recent decades, human environment relations have no longer been the unnecessary concerns like in *Qi Ren You Tian*. From the above story of *Qi Ren You Tian*, we can also see that the relationship between man and environment had already been a concern of the ancient Chinese. They were curious about the natural setting they were living in and tried to search for answers about the natural world. However, because of their limited knowledge, nature seemed to be very mysterious for them.

In Smil's *China's Environmental Crisis*, he quotes a number of classical Chinese writings on the environment:

The ideal land is small, its people very few, where tools abound ten times or yet a hundred-fold beyond their use. ... Where folks grow old and folks will die and never once exchange a call.

- Laozi, *Dao de jing*<sup>2</sup>

When the people have more grain, more fish and turtles than they can eat, and more timber than they can use, then in the support of their parents when alive and in the mourning of them when dead, they will be able to have no regrets over anything left undone.

- Mencius<sup>3</sup>

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<sup>2</sup> Smil, *China's Environmental Crisis*, p. 3.

<sup>3</sup> *Ibid.*, p. 138.

In forest lands we hack at firewood, with kindling  
for the fires to cook our food.

- *Shi jing*<sup>4</sup>

These classical writings either pictured the life style of ancient Chinese like in *Shi jing* or expressed their belief in how they should live. Both Laozi and Mencius emphasized that having enough or more than enough material supply for people's life is very important for keeping people happy. Among the classical Chinese writings on man and nature, the writings that are quoted and discussed the most are those which expressed the idea of *Tian Ren He Yi*. Ancient Chinese philosophers like Mencius, Confucius, Zishi, Xunzi and Zhuangzi all took their efforts into understanding the relationship between man and nature. Their writings and ideas on human environment relations will be presented when we discuss about *tian ren he yi* in history later in this chapter.

#### *Tian and Ren in Ancient China*

Before discussing *Tian Ren He Yi*, we first need to clarify the definitions of *tian* and *ren* in classical Chinese. *Ren* refers to man or the human being in both modern and classical Chinese. *Tian*, in modern Chinese, can be translated

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<sup>4</sup> Ibid., p. 59.

as "sky" or "day". In classical Chinese, the meaning of *tian* is ambiguous. *Tian* has 12 different meanings in the *Dictionary of Chinese (Cihai 辞海)*.<sup>5</sup> The most popular ones include "sky," "God" or "Heaven," and "nature". Since there are so many different meanings of *tian* in Chinese, can we still consider *tian ren he yi* as a reflection of ancient Chinese philosophy on man and nature? The answer is positive by observing some other scholars' research.

In Edward J. Machle's book *Nature and Heaven in the Xunzi, a Study of the Tian Lun*, Machle pointed out the ambiguity of *tian* and suggested not to translate *tian* into any English word. In proving his points, Machle presented some different versions of translation and argued that any one of these translations could not cover a specific part of the meaning of the Chinese word *tian*.

The word *Tian* has been long translated in the West as "Heaven," a translation requiring qualification because few in the West would confuse what the Chinese were talking about with some popular uses of "heaven". "Heaven" has become useful primarily because no more suitable alternative word has been found.

"Nature," however, is a word with a long history of uses and a wide range of meanings in the West, and one may well doubt that it corresponds closely enough to any Chinese word to be really useful translation.

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 In his chapters of *Xunzi*, Hu (Shih) translates *Tian* sometimes as "Heaven," but also directly as "nature".

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 When Knoblock, in his valuable set of volumes on the *Xunzi*, says flatly, "The term that the Chinese use

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<sup>5</sup> *Cihai* (Shanghai: Shanghai Dictionary Press, 1989), p. 3201.

to refer to Nature is *tian*," he is guilty of serious overstatement, but is not entirely wrong.<sup>6</sup>

These quotations from Machle show that it is hard to find a suitable translation for *tian*. However, although there is ambiguity and complexity in the meaning of *tian*, we can use the overlap of *tian* and nature to analyze the *tian ren* relationship in ancient China. This method is actually used by some Chinese scholars like Xu Deshu and Li Chunshan.<sup>7</sup> The notion of *tian ren he yi*, thus, has become related to the man and nature relations discussion. It has become important for both ancient and modern Chinese philosophers.

#### Contemporary Debate on *Tian Ren He Yi*

The recently developed concept of "sustainable development (可持续性发展 ke chixu xing fazhang)," which emphasizes harmonious relationship between man and nature, is associated with the classical Chinese philosophical idea - *tian ren he yi* by some contemporary philosophers in China. They think that the idea expressed by *tian ren he yi* is similar to the idea embodied in "sustainable development". Because of this similarity, many Chinese scholars have

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<sup>6</sup> Edward J. Machle, Nature and Heaven in the Xunzi, A Study of the *Tian Lun* (Albany: State University of New York Press, 1993), pp. 1-16.

<sup>7</sup> Xu Deshu is the author of The Construction of Safety Culture in China. Li Chunshan is a researcher from China Social Science Magazine.

started to rethink the meaning of *tian ren he yi* and its relationship with environmentalism.

Li Chunshan from *China Social Science Magazine* questions this similarity. He writes about the anthropocentric characteristic of Chinese traditional culture, in which nature existed for serving the needs of the human being. This anthropocentric tendency decides that, in ancient China, the development of science and technology was confined to daily living and agricultural production practices. Pure science was not developed independently in traditional China because of the lack of curiosity to nature itself.

Li also comments that "the most distinguished characteristic of Chinese traditional culture was considering morality the first priority."<sup>8</sup> Traditional Chinese people paid more attention to individual morality and proprieties than to the natural sciences. They wrote more about the laws of human society than about the laws of nature. Li also points out the existence of different interpretations of *tian ren he yi*.<sup>9</sup>

Fang Tongyi, from Political Education Department of Zhejiang Normal University agrees with Li's view and thinks that *tian ren he yi* of Confucianism emphasized man's morality

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<sup>8</sup> Li Chunshan, "China's Traditional Culture and Modern Economic Development," *Zhexue Yanjiu* (哲学研究 Research of Philosophy) (September, 1994), p. 3.

<sup>9</sup> *Ibid.*, p.p. 3-8.

and the proprieties.<sup>10</sup> He comments that traditional Chinese philosophical thinking lacked the understanding of the objectivity of the universe. He thinks that it was absurd to exaggerate individual morality as the solution to problems between man and nature.

Chen Guoqian, from the Center of Environmental Science of Beijing University, holds a different view from Li and Fang. In his writing "Philosophical Thinking On Environmental Problems," he first tries to distinguish environmental philosophy from environmental science. Environmental philosophy is about man's environmental value and ideal, while environmental science is about the practical knowledge of the environment.

Chen then tries to analyze the differences between Chinese traditional philosophy and the western Marxist philosophy. He thinks that Chinese traditional philosophy emphasized the harmony of the universe, while western Marxist philosophy emphasized the contradiction and struggle of the universe. Environmental philosophy should be a philosophy of harmony, instead of struggle. Therefore, Chinese traditional philosophy is more suitable to be adopted as the environmental philosophy.

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<sup>10</sup> Fang Tongyi, "Noumenon and Conception," Zhexue Yanjiu (March 1993), p.p. 50-55.

Chen also divides man's conceptions of the environment into three levels, from lowest to highest logically: utility conception of the environment, ecological conception of the environment and universal conception of the environment. In the first level, man just utilizes the environment as a tool. Man conquers nature as a superior being. In the second level, man and nature are equal. The existing world is the harmonious combination of man and nature. Man is living in the environment, but not above the environment. In the third level, man is not only equal to the environment, but also part of the environment. Man and nature are like different organs of the body of the universe, which is limitless and boundless. He concluded that *tian ren he yi* belongs to the third level of understanding of environment, according to which man and nature are one.<sup>11</sup>

Chen's classification of different levels of environmental conception provides an interesting approach to see environmental problems from a philosopher's perspective. I agree with his positive assessment of the role of *tian ren he yi* in environmental thinking. In the contemporary reflection of human environment relations, it is necessary to emphasize the notion of *tian ren he yi* with its meaning of keeping a harmonious relationship with nature.

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<sup>11</sup> Chen Guoqian, "Philosophical Thinking On Environmental Problems," Zhexue Yanjiu (May, 1994), pp. 32-33.

All the above mentioned contemporary discussions on *tian ren he yi* are reflections of, or at least efforts to reinterpret, this classical notion. *Tian ren he yi* is definitely a very important notion regarding the relationship of man and nature in China's philosophical tradition. In order to get a better understanding of this ancient perception of man and nature, I present here the origin of this notion and the controversy on this notion in history.

#### Tian Ren He Yi in History

*Tian ren he yi* emphasized the inseparability of *tian* and *ren*, man and nature. The theory of *tian ren he yi* was originated by Zishi (子思)<sup>12</sup> and Mencius (孟子), who were famous philosophers in Warring States Era. Zishi and Mencius thought that man, by improving his morality, would be able to raise himself to a certain level where he would be able to understand the objective laws of nature.<sup>13</sup> They both emphasized the importance of improving man's morality. According to their theory, nature (*tian*) is superior to man.

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<sup>12</sup> According to Shiji, Zishi wrote Zhongyong (中庸). The famous philosopher Feng Youlan also thought that Zhongyong was written by Zishi.

<sup>13</sup> Xu Deshu, Construction of Safety Culture in China (中国安全文化建设 Zhongguo Anquan Wenhua Jianshe) (Chengdu: Sichuan Science And Technology Press, 1994), p. 255.

Zhuangzi (庄子), another philosopher of later Warring State Era, thought that man and nature were combined together originally. What separated man and nature was man's subjectivity. He emphasized that human beings were dependent on nature for living. Man should comply with the laws of nature and be obedient to nature.<sup>14</sup> According to Zhuangzi, man should give up his subjectivity in order to become combined with nature again. In his writing *Zhuangzi*, the question about "what is natural and what is man-made (*renwei* 人为)" was raised. He answered, "Four legs on horses and cows is natural. A horse's harness and a bull's nose ring are man-made. Man-made knowledge, morality, and laws all work against nature, just like a horse's harness and a bull's nose-ring."<sup>15</sup>

Although Zhuangzi thought differently on morality from Mencius and Zishi, what unites them is the theory of nature being superior to man, a theory very popular in primitive society when man had little knowledge about nature. This relationship of nature and man, which puts the former in a superior position, is also reflected in Chinese language. In modern Chinese, *ziran* is the more general and more accepted translation for "nature". However, in classical Chinese, there is no single term for the meaning of "nature". The terms like *tian* (the sky), *di* (the earth) and *wanwu* (ten

<sup>14</sup> Ibid., p.p. 254-255.

<sup>15</sup> Tsai Chin Chung, *Zhuangzi Speaks* (New Jersey: Princeton University Press, 1992), p. 60.

thousands of natural things), as the major components of nature, were used to refer to nature. This way of expression itself, in some degree, expressed the hierarchical world-view in ancient China. With *tian* on top of the hierarchy, it became a symbol of power and authority. That is why the emperors of ancient China were called *tianzi*, the son of *tian*, to show their insurmountable authority. The traditional hierarchical social structure was also based on this cosmological view.

Xunzi,<sup>16</sup> also from the Warring States Era, did not agree with the ideas Zhuangzi and Mencius summarized above. He said that nature would not change its objective laws because of man's will. "*Tian* would not stop the coming of winter because of my hatred to coldness. *Di* (the earth) would not stop being broad because of my hatred to broadness."<sup>17</sup> Man and nature were actually different and separated. Man had man's laws in human society and nature had nature's laws in the natural world. Only by understanding this fact, man could become superior.<sup>18</sup> Xunzi's theory, which emphasized the dualism of man and nature, was considered "a view of nature akin to that

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<sup>16</sup> Xun Zi, also called Xun Qing or Xun Kuang (305?-225? B.C.), was a famous philosopher in early China.

<sup>17</sup> Xu Deshu, Construction of Safety Culture in China, p. 255.

<sup>18</sup> Ibid.

which lies behind the sciences as they have developed in the West."<sup>19</sup>

Confucius (551-479 B.C.), unlike Zhuangzi, emphasized the subjects of man and human relationships. Regarding *tian ren* relations, his position was profoundly unclear.<sup>20</sup> He restricted his concerns largely to human institutions. "In the *Analects*, *tian* is unquestionably anthropomorphic."<sup>21</sup> In his writings, *tian* was described as a powerful deity. Confucianism did not emphasize struggle. In general, it emphasized morality, propriety and the harmony of the society.

In Han dynasty, the *tian ren he yi* theory was further developed into Dong Zhongshu's *tian ren gan ying* (天人感应) theory, which emphasized the mysterious conceivable relationship between man and nature. In this theory, nature was personalized more than in earlier philosophers, to the extent that "*tian* also has the spirit of anger and favor, the heart for sadness and happiness."<sup>22</sup> Nature could interfere with human affairs by sending disasters or bringing good harvests to human beings. Disasters or good harvests were indications of nature's punishment or award to human

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<sup>19</sup> Machle, Nature and Heaven in the Xunzi, A Study of the Tian Lun, p. 5.

<sup>20</sup> David L. Hall and Roger T. Ames, Thinking Through Confucius (Albany: State University of New York Press, 1987), p. 197.

<sup>21</sup> *Ibid.*, p. 205.

<sup>22</sup> Cihai, p. 3216

behavior, especially to emperor's command.<sup>23</sup> In one legend, Emperor Shangtang decided to sacrifice himself after his country had suffered drought for seven years. At the moment he lit the firewood to burn himself, *tian* was moved and rained to put out the fire. The drought was then relieved. This was a typical story about *tian ren gan ying*.

Geomancy (Fengshui 風水), which relates the natural setting to an individual's fortune, was based on the idea of *tian ren gan ying*. The main content of geomancy is to decide the location and position of a building according to its natural settings. If a city or a house is built according to geomancy, people living there will have good fortune. Otherwise, they will have bad fortune. Although geomancy sounded mysterious and was criticized as feudal superstition in China's Cultural Revolution, it was brought up again and considered to be the theory of ancient environmental engineering by a researcher, He Shuiyi, from the Department of Architecture of Southeast University.<sup>24</sup> He thought that the rules of geomancy were similar to the rules of urban design and construction composition today. Yu-shi Mao also emphasized the importance of geomancy for environmental protection. Mao thought that because of people's belief in geomancy, the layout of the beautiful gardens in Suzhou, the

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<sup>23</sup> Ibid.

<sup>24</sup> Xu Deshu, Construction of Safety Culture in China, p. 45.

magnificent Forbidden City in Beijing, and many other ancient buildings were in wonderful harmony with their surroundings.<sup>25</sup>

What is described above is the theoretical and philosophical thinking of ancient Chinese. In reality, the growing population in ancient China increased the human needs, and "keeping harmonious relationship with nature" as the old version of *tian ren he yi* had to be discarded. Anthropocentrism emphasized human needs and considered human beings as the most important in the universe. "The damage to the environment, some argue, can be attributed to anthropocentrism, which asserts that human beings are the rightful possessors of the universe and other creatures and plants are only servants to the owners. Humans can use the environment at will, without concern for the needs of others. These background beliefs about the relation between nature and humanity have clearly affected environmental conservation."<sup>26</sup>

Instead, the ancient proverbs like *ren ding sheng dian* (人定胜天 man's will can conquer nature) and *yu gong yi shan* (愚公移山 old man Yu moves the mountain), which in some degree expressed this anthropocentric idea, became more and more popular. *Tian ren he yi*, with the meaning of

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<sup>25</sup> Yu-shi Mao, "Evolution of Environmental Ethics - A Chinese Perspective," in Ethics And Environmental Policy: Theory Meets Practices (Georgia: University of Georgia Press, 1994), ed. by Frederick Ferre & Peter Hartel, p. 43.

<sup>26</sup> Ibid., p. 44.

"keeping harmonious relationship with nature", only existed as an ideal in people's mind. In reality, when there was a conflict between human needs and environment, "these older cultures could not withstand the pressure exerted on the environment by the growing population."<sup>27</sup> Human needs became the first priority.

Since Qin (221 BC - 207 BC) and Han dynasty (207 BC - 220 AD), China's environment has been experiencing a gradual process of degradation. Qin and Western Han dynasty (207 BC - 25 AD) were the start of this process. "The Huang River Valley was to suffer severe deforestation during the Qin and Han dynasties. Forests in the Wei River Valley of Shaanxi were further reduced. In part these forests were cut to meet the needs of Qin capital located at Xianyang near modern Xian."<sup>28</sup> These forests were used for palace construction and to provide fuel for the capital.

The second period of environmental degradation was from Tang (618-906) to Yuan dynasty (1276-1367). During these years, China's economy was prosperous and the population was growing fast. "Han-Chinese settlers pushed into the hilly south during the Tang period. The environmental impact of this migration was soil erosion coupled with deforestation."<sup>29</sup>

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<sup>27</sup> Ibid.

<sup>28</sup> Edmonds, Patterns of China's Lost Harmony, p. 32.

<sup>29</sup> Ibid., p. 31.

After Ming dynasty (1368-1644), the environment was seriously damaged and kept on degrading.<sup>30</sup>

The pace of deforestation was to pick up from the fourteenth century setting the trend of increasing deforestation which has continued down to today. Starting from the Ming period, all the forests in the central part of Huang River Valley as well as Xiang River Valley were seriously denuded. The remaining forests in the mountains to the west of Beijing were exploited to build palaces at the beginning of the Ming when the dynasty established its capital there. As the forests around Beijing were insufficient, timber for palace construction was shipped to the capital from as far away as Yunnan, Shanxi, and Hunan. Firewood became so scarce that it had to be shipped to the capital from hundreds of kilometers away. From the Ming period, the whole of the central reaches of the Huang River Valley began to undergo extreme deforestation accompanied by expansion of agriculture, in some cases at the expense of grazing land. ... All this deforestation was to have an impact on the Huang River as flooding became more common than in the past with silt loads reaching new heights during the Ming. The hills of the Loess Plateau took on their bare appearance of today. It is from the sixteenth century that natural vegetation in portions of the far south became severely degraded. In one case along the Xi River in rural western Guangdong, the government cleared forest land to eliminate hiding places for pirates which stimulated hillside erosion.<sup>31</sup>

The historical development of environmental degradation showed that nature was sacrificed for the increase of human needs. The ancient idea of *tian ren he yi* had become only an ideal, not reality.

The contemporary debate on *tian ren he yi* is very interesting. It showed a Chinese tradition of using classical

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<sup>30</sup> Li, "China's Traditional Culture and Modern Economic Development," p. 8.

<sup>31</sup> Edmonds, Patterns of China's Lost Harmony, p. 33.

Chinese proverbs and philosophy as a basis for discussion of contemporary issues. Emphasizing the idea of keeping harmonious relationship with nature will increase people's awareness of environmental protection. *Tian ren he yi* can be a very important notion for contemporary environmental education.

## CONCLUSION

The ancient Chinese philosophy on man and nature still influences the contemporary Chinese perception of the environment. Ideally, the contemporary Chinese know the importance of keeping harmonious relationship with nature. The environmental laws and policies are well established. But the question is how to enforce them, or how to make the environmental ideal into reality. And, who should take the responsibility for environmental protection? The ancient Chinese faced the dilemma between ideal and reality. The contemporary Chinese still do. And the discrepancy between ideal and reality is even bigger today than in the past, with a much larger population and a rapid growth rate of industrialization.

In order to make the environmental ideal expressed in *tian ren he yi* become reality, environmental education is very important. When the general public and policy makers have enough knowledge on the environment, they will know how to maintain the environment clean and livable. Their daily behavior and decision regarding the environment will be environmentally sound. Policy enforcement tends to be easier with high environmental perceptions from the general public.

In the process of China's transition to a market economy, the sense of responsibility from the general public should be strengthened. Since everybody lives in the environment and is the daily decision maker for the environment, everybody should be responsible for the environment. The former conception of *gong si* dichotomy, which still exists in China, needs to be rethought. Although the environment belongs to the public sphere, it requires the collective efforts to protect it from the general public. It is the responsibility of each member of the society to take care of the environment they live in. More non-governmental environmental organizations, like the Beijing Global Village Environmental Culture Center established by Liao Xiaoyi and Li Hao in March 1996, should be encouraged to work on environmental education and policy enforcement.

With China's economy developing and the private enterprises growing, the newly emerged entrepreneurs will play a very important role in Chinese society. How to increase their sense of responsibility for environmental protection and how to improve their environmental consciousness is also very important. China's future environment is depending on everybody living in the present China. A high environmental perception from everyone in the society will bring a bright future for China's environment.

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