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Environmental issues to protection: the United States versus China

The environmental issues are the harmful environmental phenomena on human survival and development in a region of over the world. Here, harmful environmental phenomena may be due to the human activities or not. Based on this, environmental issues may be classified into two types. The first type is “the native environmental issues.” This type of issue is induced by natural evolutions or natural disasters, for example, earthquakes, floods, droughts, typhoons, avalanches, landslides, and mudslides. The other type is human activities induced environmental issues and this type is named as “the secondary environmental issues” or “environmental hazard.” Fig. 2.1 shows an illustration of the classification. Nowadays, environmental issues are often referred to the latter case. One broadly noticed definition in the modern literature is: “An environmental problem is any change of state in the physical environment which is brought about by human interference with the physical environment and has effects

Figure 2.1 The classification of the environmental issues.
which society deems unacceptable in the light of its shared norms” (Blowers, 1995). Based on the definition, the secondary environmental issues can be divided into two categories: the damage caused by the exploitation of natural resources and the environmental pollution caused by industrial development or urbanization, as shown in Fig. 2.1.

### 2.1 Ancient era—environmental issues emerges

In the agricultural civilization, environmental issues started to emerge in both western countries and China. As the population increased, agriculture increased; there was more and more interaction between humans and the environment. People gathered together and large cities were formed. Better tools, increasing the number of livestock, and more resources usage brought environmental issues. In this stage, most issues are the secondary environmental issues under first category, that is, the damage caused by the exploitation of natural resources.

Hughes (2014) discussed some typical environmental issues of ancient Greece and Rome, that is, soil erosion, wildlife depletion, industrial pollutions, agricultural decrease, and urbanization issues. In the United States, numerous cultures of indigenous people were formed before the 17th century; however, the record of that time is very limited.

In China, it is believed that environmental issues also started. Chang’an, one of the largest cities in ancient China, has been the capital of many dynasties. The underground water in this ancient city is believed to be polluted starting from the Han dynasty in CE 582 (Chou, Huang, & Zhou, 2007). The pollution was increasing, and in Tang to Song dynasty from around CE 700–1000, the taste of underground water was salty and bitter. The water was almost not drinkable due to the very bad taste in the Qing dynasty in around CE 1800. The pollution of the underground water of this city is believed due to the increase in the population and thus the increase of the poorly treated waste.

Another example shows in Guanzhong Plain, a historical region in the middle region of China surrounded by Loess Plateau, Qinling mountains, and Daba Mountains. Four passes enclose this densely populated and rich plain and makes it a place contested by all strategists. A large population in the plain causing a large amount of usage of lumber and reclamation of lots of lands, which both largely reduced the forest area of the
surrounding areas. For example, historical data shows in the Zhou dynasty from around 1000 to 200 BCE, the forest area of the Loess Plateau near Granzhong Plain was 79 million acres. The area reduced to 62 million acres in the Qin and Han dynasty from around 200 BCE to CE 200 and further reduced to 49 million acres in the Tang and Song dynasty from around CE 600–1200. In the Ming and Qing dynasty from around CE 1400–1900, the forest area was only 20 million acres (He & Lang, 2009). Due to the artificial land reclamation in ancient China, the area of the forest was largely decreased and thus caused soil erosion. The soil erosion damages the rest vegetation and caused further soil erosion.

These examples show that environmental issues existed in the ancient era. However, during that era, the issues were not being highlighted, and very rare emperors deeply thought about it. Even if they notice the problems, moving and polluting again will be their solution. In this era, the environmental issues were usually not severe, and there is almost no environmental consciousness during this era.

### 2.2 1950s to 1960s—awakening in the United States

Western society not only has the lesson and summary about the relationship with the environment, but also the waked up environmentalists became a forerunner in the western society, while developing countries just have their industrial civilization and did not arouse any consciousness until later.

#### 2.2.1 The United States: budding and awakening

At the end of the 19th century, the United States completed the process of modern industrialization. The total industrial output value began to exceed the total agricultural output value. At the end of the 1920s, the realization of electrification began. In the 1930s, the United States suffered a serious economic recession, along with natural disasters. Out of this crisis, President Franklin Roosevelt took a number of measures, one of which was resource protection legislation, providing work as a form of relief, such as planting trees and grass, and building irrigation. The most outstanding effective measures were the comprehensive treatment of the Tennessee River Valley, the Great Plains dust governance of the United
States, and the building of a series of water conservancy and hydropower projects in the western area.

In the 1950s, the invention of the transistor caused the United States another scientific and technological revolution. Keypad telephones, stereo radios, drying/washing machines, air conditioners, and frozen foods emerged at that time. The US economy had experienced unprecedented prosperity. As the Americans enjoyed wealth, a blemish of the industrial society appeared gradually. Water pollution, nuclear pollution, chemical pollution, and air and noise pollution caused by the automotive industry, followed the rapid economic development.

The water pollution control law, which was promulgated in 1948, marked the beginning of the federal government’s involvement in environmental protection. However, the environmental pollution of the United States did not become a global issue at that time. The lack of the financial capacity of the federal government limited environmental protection in this period as well. Local governments took care of most of the management responsibilities and focused on the protection of water resources. In conclusion, the effects in different areas varied a lot.

In the 1960s, environmental deterioration, as well as environmental consciousness, was generated among the elite of the United States. In 1962, “Silent Spring” written by American marine biologist Rachel Carson was published with a large number of facts. She demonstrated that industrial pollution damages the life on the earth including human beings and stated that the industrial revolution caused ecological damage and first alarmed the world to the seriousness of environmental protection. Carson said in the book: “For the first time in the history of the world, every human being is now subjected to contact with dangerous chemicals, from the moment of conception until death” (Carson, 1962). The book was widely read and made the public concerned about contamination. In 1972, Carson’s work facilitated the ban on using DDT in the United States.

2.2.2 China: no consciousness

When the new China was just founded, the Chinese industrial foundation was very weak, the population was not too large, and the environment was not a problem. At that time, environmental protection was only considered in keeping the work and living place clean and improving the outlook of urban and rural areas. These were the main contents of the patriotic public cleaning campaign. This situation continued until the
mid-1950s. Due to the limited scale of production, environmental problems had no major effect on economic development. From the country’s overall situation, the main environmental issue was the regional ecological damage and contamination. There was no true sense of the concept of environmental protection in this period; neither was progressing toward the development of related laws and regulations (Qu, 2000).

After the 1950s, the environmental pollution of China became more and more serious. Antipollution campaigns appeared in some developed countries. In China, people had some preliminary understanding of environmental protection. However, most viewed environmental protection as only related to air and water pollution control, solid waste treatment (called “three wastes” treatment), and the elimination of noise with technical measures and management. The main purpose was to eliminate pollution to protect human health.

In addition, since 1957, China experienced the political situation (Great Leap Forward, Great Steel-Iron Making, the People’s Commune Movement), and the economic situation (3 years of natural disasters and food shortages), which made people strongly demand natural resources. However, there was no comprehensive understanding of the proper use of natural resources. Most people were neither familiar with the concept of environmental protection; nor understand the situation in this area. They thought Chinese environmental problems were not important and that they need not be too anxious. At the same time, most people under socialism did not admit there was a problem of environmental pollution. They thought that it was a product of capitalism and was an incurable disease of the capitalist countries. Whoever said that China had a pollution problem was negating the superiority of socialism. Some people thought environmental issues were the same as health problems, overemphasizing the damage to human health by environmental pollution while minimizing the serious harm to society in all other areas.

In the science area, the book Geographical Environment and Social Development (Wu, 1950) published in China written by Ze Wu discussed the geography of social development within the Marxist perspective. At the same time in the 1950s, there was issued another work about the relationship between the natural environment and human society Geographical environment, population, and social development (Wang, 1955) written by Zhende Wang based on Wu’s writing. Wang further added population variables to strengthen the understanding of the relationship between the geographical environment and social development.
2.3 1960s to 1970s—initiation stage in China

As the environmental movement in full swing in the United States from the 1960s, China just noticed the environment may be an issue a decade later. The lessons and experiences that the United States had taken will be valuable for other countries, including China, to learn.

2.3.1 The United States: comprehensive transformation

The study, Longitudinal Studies of Public Concern for Environmental Quality (1968–76), shows that the peak of public concern for environments was at the end of 1969 and the early part of 1970 (Dunlap & Scarse, 1991). The 22 USC Section 2151p–1, adopted by Congress through P.L. 87–195 December 30, 1969, as amended, provides for the protection of tropical forests, by placing a high priority on “conservation and sustainable management of tropical forests” and to “the fullest extent feasible.” With this basic environmental law, environmental protection came onto the legalization.

On April 22, 1970, an estimated 20 million people across the nation attended the environmental movement with the goal of a healthy, sustainable environment (Mitchell & Davies, 1978). It was then celebrated as Earth Day and was marked as the birth of the modern environmental movement with the public concern for environmental quality reaching unprecedented levels. This supportive public opinion provides a valuable resource for the environmental movement. The environmental movement has had a great impact on environmental consciousness and environmental protection, even on socioeconomic policy and the future of the movement will depend heavily on the degree to which environmentalists can effectively mobilize the support (Dunlap & Mertig, 1992).

In the 1970s of the last century, the United States faced too many environmental pollution issues such as acid rain, nuclear pollution, dredged material pollution, oil pollution, and so on. Because of these issues, President Nixon officially brought the United States Environmental Protection Agency (EPA) into existence in 1970. His plan was to establish EPA for pollution control purposes, because “the environment must be perceived as a single, interrelated system” (Nixon, 1970). From then on, the US Congress passed many environmental bills tackling everything from air and water pollution and garbage to protection for fisheries, marine mammals, and endangered species.
As environmental issues appeared on the front page of newspapers and the covers of magazines, words and phrases such as ecology, environmental costs, resource depletion, eutrophication of rivers, environmentalism, and other similar words became popular even in several famous magazines, for example, Times, Fortune, Life, The New York Times, Washington Post, and so on.

The Club of Rome was founded in April 1968 and raised considerable public attention in 1972 with its report “The Limits to Growth.” It is a book modeling the consequences of a rapidly growing world population and its finite resource supplies. After that, “only one earth” became the slogan of the Stockholm Conference or the United Nations Conference on the Human Environment (Ekins, 1993).

The trend data in Gallup surveys, especially covering the years from 1969 to 1970, shows the change in environmental consciousness. About 17% of respondents selected pollution in 1965, make it ranked ninth among the 10 top problems. In 1970, this number is more than tripled: 53% selecting it and it becomes the second problem only after the crime reduction (Dunlap, 1995).

2.3.2 China: initiation stage

The Cultural Revolution put the Chinese economy onto the verge of a collapse between 1966 and 1976 (Qu, 2002). Environmental problems have become more and more serious. Several environmental issues showed destruction and depredation at that time. In 1972 an emergency caused by pollution happened at Dalian Bay. The rising tide brought black water and ebb tide left the beach black. The pollution left more than 800 acres of dead shellfish on the beach. Every year China loses more than 20,000 pounds of trepang, more than 200,000 pounds of shellfish, and more than 300,000 pounds of corbicula. Some fishermen even acquired Shui Yu (methylmercury poisoning) sickness from eating those fish or shellfish.

With the advice of Premier Enlai Zhou, China sent one delegation to participate in the Stockholm Conference on June 5, 1972. This Human Environmental Conference pointed out that environmental problems are not just linked with technology but also have a close relationship with socioeconomics; these problems not only makes the issues local but also global. This conference is recognized as the beginning of environmental concepts that promoted environmental protection in China. The senior leader of China paid much attention to environmental issues after this
conference, and the environment became significant along with social and economic development.

On May 20, 1973, the Chinese Council held the first national environmental protection meeting in Beijing. Protection policy increased in this meeting for the purpose of planning and distributing protection of the environment for the masses of people. On November 17, 1973, three state Commissions co-promulgated the “industrial emissions test standard.” This “standard” provided the basic law for the EPA, ended the unsystematic policy of Chinese environmental protection, and also made feasible environmental monitoring.

Dependence upon those policies was influenced by the Chinese society; people began to understand the relationship between environments, and developed and realized that environmental protection was not only to control but also (or more importantly) to utilize resources rationally. Economic growing is limited by environmental capacity.

2.4 1970s to 1980s—laws established

2.4.1 The United States: the recoil after the recession

In the early 1970s, after the peak of the environmental movement, early environmental protection policies made progress. As a result of sufficient funds and great attention from many people in the United States to the pollution problems, environmental protection methods were greatly enhanced. This enhancement further improved the coordination capacity of the environmental protection systems on all levels. However, the huge expense of environmental protection in the United States became an important component of budget deficits. Strict control measures also caused a negative effect on the economy and this caused great concern for both the US government and the public.

During the years 1973–75, the United States suffered a structural crisis which was characterized by economic stagflation. At that period, the United States and the Western world had a serious economic crisis. The panic over a shortage of resources (especially oil) made environmental concerns take backstage in the United States. The economic issues had a more profound impact on people’s lives than environmental issues. In 1984, compared with 1980 before Ronald Reagan was elected, the laws
and regulations published by the Government to intervene in social activities were reduced a lot, greatly easing the standards and regulations in environmental protection, technology security, health care, and consumer protection which published previously.

Nevertheless, after a brief setback in the 1970s and 1980s, the environmental concerns in the United States resumed. Time Magazine’s cover named Endangered Earth the planet of the year was found this quote “For man has reached a point in his evolution where he has the power to affect, for better or worse, the present and future state of the planet” (Sancton, 1989).

Unlike the flourishing environmental movement in the early 1970s, at this time environmental consciousness was deeply ingrained in American people’s hearts.

2.4.2 China: keep up with the pace

China established environmental protection as a basic national policy and specified a three policy system: the first is integrating prevention with control. Second, the-polluters-pay tightening up of environmental management to include payment of pollution cleanup. The third is reaping benefits from environmental protection (Zhou, 2009).

In 1978, China established the National Committee for Man and Biosphere. In 1980, China and the United States signed documents on cooperation in environmental protection, which initiated the process of China’s bilateral cooperation in environmental protection. In 1983, China established the first national-level professional newspaper on environmental protection—“China Environment News.” The second national environmental protection conference convened in 1983, emphasized environmental protection as a basic national policy of China. This strategic policy of environmental protection of China included: synchronized planning, implementation, and development in terms of economic and urban and rural development and environmental protection, bringing about a harmony of economic returns and contribution to society and environmental protection. On September 11, 1989, China signed the “Vienna Convention for the Protection of the Ozone Layer,” which was enforced in China on December 10 of the same year. Then China also joined the “Montreal Protocol on Substance” in 1991 and continues to raise people’s consensus on the protection of the Ozone Layer. The Environmental Protection Law of the People’s Republic of China adopted at the 11th Meeting of the Standing Committee of the Seventh National People’s Congress on December 26, 1989, and replaced the
Environmental Protection Law of the People’s Republic of China (for Trial Implementation). As the basic law of environmental protection, it played a significant role (Ministry of Ecology and Environment of the People’s Republic of China, 1989).

In the meanwhile, during these years, there are only a few major environmental issues, as listed in Table 2.1. Note that these are just typical representatives of China’s major environmental issues, not all.

2.5 1990s—growth of environmental consciousness

2.5.1 The United States: inner consciousness

The modern environmental issues appeared when the relationship changed between human beings and the natural environment. Since the
industrial revolution, human activity has fundamentally changed the resource distribution and environmental conditions at the surface of the earth. While people enjoying significantly better life qualities, more and more secondary environmental issues emerge. For instance, the artificial environment in modern cities significantly reduces the incidence of the disease, but the natural ecosystems have been destroyed. With more and more efficient and easy-to-use machines and tools, people enjoy more comfortable and convenient transportation, lots of energy consumption and air, water, energy, noise pollutions are getting closer and closer to us.

In the meantime, changing the physical environment is also getting faster and milder due to the industrial revolution. Our world, handled the environmental issues brought by the human for thousands of years, cannot catch up with this fast increase of the environmental issues, and these issues start to emerge under the public and bring serious consequence. As western culture suffered environmental issues centuries ago, nowadays, more and more people start to have an awareness to serve for the environmental issues in these countries.

In 1992, the United States had more than 10,000 nongovernmental environmental protection organizations. Members of the largest 10 organizations increased from 500,000 in 1965 to 7.2 million in 1990. For example, members of the Sierra Club were 114,000 in 1979 and reached 325,000 in 1982 (Sierra Club, 2012). The 1989 and 1990 Gallup surveys found around three-quarters (76% and 73%, respectively) of the public responding “yes” to the question “Do you consider yourself an environmentalist?” (Jones, 2016). A 1990 survey by Environment Opinion Study also found two-thirds of the public agreeing that “threats to the environment are as serious as the environmental groups say they are” and only one-quarter saying that “environmental groups are exaggerating these threats in order to get the public to pay attention to them” (Dunlap & Mertig, 1992). So, with the development of the environmental protection movement, the public’s environmental consciousness was also growing.

Environmental issues have become a topic which people can hear from the media and will talk about it every day. Sociologists became providers of environmental concern information daily accessed by the public. Environmental scientists are often invited by the media to talk about science, technology, and the environment. More researchers joined and published their opinions about environmental awareness. Ruttan placed three waves of concern for natural resource implications and
environmental change within a historical and theoretical context (Ruttan, 1993). Table 2.2 was made for a clear interpretation.

Table 2.2 The three waves of concern.

| Three waves time | Focus                                                                 | Concerns                                                                 |
|------------------|----------------------------------------------------------------------|-------------------------------------------------------------------------|
| The late 1940s and early 1950s | The adequacy of land, water, energy, and other natural resources to sustain growth | The quantitative relationships between resource availability and economic growth |
| The late 1960s and early 1970s | Asbestos in our insulation, pesticides in our food, radioactive wastes in the biosphere, and the smog in the air | The capacity of the environment to assimilate the multiple forms of pollution generated by growth |
| The mid-1980s to 1990s | Global warming, ozone depletion, acid rain | Environmental changes that are occurring on a transnational scale |

The environmental consciousness trend extended from concern in the United States to concern around the world. The US government also took the opportunity to construct programs promoting the environmental point of view to other countries and used political intervention in attempts to control the pollution and even the policy of developing countries.

2.5.2 China: reference and development

Since 1990, China has paid more attention to the environmental protection work by holding the third, fourth, fifth, and sixth national environment protection conferences. The Central government held the one-child policy and the environmental protection conferences in 1997 and 1998. From then on, population, resource, and environmental issues became routine topics of conferences in the National People’s Congress (NPC). The Chinese People’s Political Consultative Conference (CPPCC) put forward the transformation that turned concern mainly from pollution control to equally emphasizing attention on pollution control and ecological protection. In the 1990s, NPC and CPPCC put forward the transformation from pollution control to pollution control and ecological protection; from terminal treatment to source and entire control; from discrete point treatment to comprehensive treatment; and from density control to combine density and total control. The conference also decided
to operate a clean process and circle economy, and concentrated on human resource, material resource, and finance resource on the important environmental issues area—“three rivers” (Huai River, Hai River, and Liao River), “three lakes” (Lake Tai, Lake Dian, and Lake Chao), “two areas” (sulfur dioxide control area and acid-rain control area), “one city” (Peking), and “one sea” (Bohai Sea) (Zhou, 2009).

In addition, China cooperated closely with international environmental protection. In 1990, China attended the “Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal.” In 1992, China attended the “Convention on Biological Diversity.” In 1994, China attended the “United Nations Convention to Combat Desertification.” In 1996, China attended the “Convention on Nuclear Safety.” In 1998, China attended the “United Nations Framework Convention on Climate Change” (e.g., Kyoto Protocol), etc.

Since the “eleventh 5-year plan,” the central committee promoted a requirement of accelerating the achievement of the “three historic transformations.” These transformations changed policy from emphasizing economic growth but ignoring environmental protection to emphasizing both environmental protection and economic growth, with environmental protection lagging behind economic growth, to finally synchronizing environmental protection and economic growth. Moreover, these transformations changing from mainly employing administrative measures in environmental protection to the comprehensive use of legal, economic, technical, and necessary administrative measures to solve environmental problems. This requirement established a working idea: “all-around development with breakthroughs in key areas,” put forward the subject that solves environmental issues from the national macrostrategic level, formulate environmental economic policies from entire process of reproduction, let overwhelmed rivers and lakes recuperated, and promote higher integration of environmental and economic policies (Zhou, 2009). During the last 20 years of the 20th century, energy consumption per unit GDP was down by 34% and greater than 1% over the last same period. China achieved its goal of triple the GDP by double energy consumption (Zeng, 2005).

Similar to the last section, a few major environmental issues during these years in China are also listed in Table 2.3, that shows the frequency of the environmental issues was slightly increased compared with the 1970s and 1980s. These are also just typical representatives of China’s major environmental issues in these years.

Environmental issues to protection: the United States versus China
2.6 The 21st century

2.6.1 The United States: reflections on modernity

“If the forecasting of the limits to growth theorists was full of problems, it nonetheless highlighted the truism—conveniently ignored by capitalism and its economists—that infinite expansion within a finite environment was a contradiction in terms. It thus posed a potentially catastrophic conflict between global capitalism and the global environment” (Foster, 2002).

| Name of incidents | Date and place | Major reason | Serious consequences |
|-------------------|----------------|--------------|----------------------|
| Yuanjiang dead fish | May 1991, Yuanjiang, Hunan | Phosphorus waste was discharged from three chemical factories for long term which accumulate in sediments. Heavy rains made sediment churn and released elemental phosphorus | For 40 days, large water area which across five counties suffered serious phosphorus pollution, dead fish reached 500,000 kg |
| Chemical warehouse explosion | August 1993, Shenzhen, Guangdong | Without approval from the environmental protection department, the warehouse stored 49 kinds of chemicals over 2800 tons. They are mostly explosive/toxic substances | Direct contact with oxidizing caused the explosion. About 15 people died, fire lasted 16 h and destroyed seven houses. Two pit reported as 20 m diameter with 9 m deep |
| 98 Flood | Summer 1998, Yangtze River Basin | 1998 summer, south China got rare heavy rain. Continuous heavy rain caused Yangtze River the largest flood since 1954 | Number of million people in 29 provinces/cities/regions became refugee. Economic losses more than 1600 billion Yuan |
Specifically, while the academic community of the United States reexamined the development of environmental consciousness growth into a main social concern, the recognition of challenges from environment sociology is also the symbol of environmental consciousness transformation.

The political implications made environmental policy changes during the new century. In the Clinton administration, the environmental policy obtained great support and developed both domestically and abroad. After George W. Bush became president, the environment policy experienced decreased attention. Shortly after he became president, he set aside the previous environmental laws, refusing to undertake the liability protection. President Obama differs greatly from Bush in policies concerning the environment and climate change. On January 26, 2009, President Obama signed two related presidential memorandums. In what he called “a down payment on a broader and sustained effort to reduce our dependence on foreign oil,” Obama directed the Department of Transportation to establish higher fuel efficiency standards for carmakers’ 2011 model year (Javers, 2009).

The global economic crisis outbreak at the end of 2008, which had its source in the United States, is inextricably linked with the environmental policy of President Obama. People believe that the reorganization of the energy industry will be a reorganization of the United States’ global strategic force. It will bring the United States out of the current economic, environmental, and national security crisis. This energy revolution will let Obama successfully promote a new economic revolution primarily of a green economy. Moreover, the establishment of a clean energy structure will completely change the produce and lifestyle of the United States. The energy revolution will be based on the American Recovery and Reinvestment Act (Obama, 2009). The energy structure revolution will be the greatest economic, social, and environmental revolution in the 21st century.

2.6.2 China: mobilization of the nation

Resource-saving is an urgent task of China’s development, and also is a common sustainable development demand by countries around the world. Western developed countries accumulated a lot of experience in reducing resource waste and improving the efficiency of resource use. The experience learned from the western combined with China’s own national characteristics, leads China to walk in its own harmonious environment way.

Based on the thinking of previous economic growth methods and developmental paths, building a conservation and environment-friendly
society and realizing sustainable development is the people’s right choice to alleviate the contradiction between population, resources, and environment. At present, China has a serious environmental situation. With the industrial and urban development, the environment pressure continuously increases, and the contradiction of environmental deterioration has been developed to a critical juncture. The seriousness of resources and environmental problems in the socioeconomic system has been shown. Yue Pan, vice-minister of the Chinese Ministry of Environmental Protection gave an emphasized speech in the Fortune Global Forum, entitled “China’s environmental issues are mainly caused by our distorted concept of development.” In his speech, he said: “In the recent 50 years, the population of China increased from 600 million to 1.3 billion. However, the habitable land due to soil erosion reduction decreased from 6 million square kilometers to more than 3 million. One-third of the land has been acid rain polluted. Two-fifths of the major river systems have become worse than Grade V. More than 300 million rural residents are not able to get safe drinking water. More than 400 million city residents are breathing polluted air. Consequently, 15 million people get bronchial cancer or respiratory diseases” (Pan, 2005).

The minister of the Chinese Ministry of Environmental Protection Zhou believes that China’s dangerous economic growth causes the increase of environmental damage. His published article wrote, in the history of civilization for thousands of years in China, the contradiction between human and nature has never been such a serious problem. The decay, deterioration, depletion, and deterioration of the ecological environment of resources becomes a bottleneck and restricts the economic and social development of China (Zhou, 2011).

A summarized table, about China’s major environmental issues since 2000, is shown in Table 2.4. This table shows environmental issues outbreaks within an increased rate and confirmed the seriousness of the Chinese contemporary environmental issues. This table also shows typical representatives of China’s major environmental issues, not all. For instance, from January to December 2007, pollution incidents reported by media reached 105 times.

More and more environmental problems appear in China, however, improving the quality of the environment is a long-term and arduous process. To address this issue, the Chinese government put forward the concept of building an environment-friendly society (Hu, 2005). In order to accelerate building the environment-friendly society, the Ninth National People’s Congress Standing Committee 30th meeting accessed “Law of
| Name of incidents                   | Date and place                   | Major reason                                                                 | Serious consequences                                                                 |
|------------------------------------|----------------------------------|------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| “9.29” Danjiang sodium cyanide pollution | September 2000, Danfeng County, Shanxi | Unqualified vehicles transported 10.33 tons of sodium cyanide, overturned in the halfway | Caused Danjiang serious sodium cyanide pollution. Direct economic losses reported 11.88 million Yuan |
| SARS epidemic                      | From November 2002 to August 2003, China and worldwide | Viral respiratory illness caused by a coronavirus                            | November 16, 2002, the first cases appeared in China. The disease has a strong infectious virus which can severely damage the human body and leads to death. China reported a total of 5,327 cases, 349 died |
| Chongqing Kaixian blowout accident  | 22:15 p.m. December 23, 2003, Gaoqiao Town, Kaixian County of Chongqing | Oil drilling company Chuandongbeiqi gas field 16H well got suddenly blowouts during drilling. Hydrogen sulfide gas ejected up to 30 m high | Toxic gas rapidly spread in the air and caused a major disaster. 243 deaths and More than 4,000 injured. More than 60,000 been evacuated |
| Tuojiang water Pollution           | March 2004, Tuojiang, Sichuan     | Fertilizer plant discharged high concentrations wastewater into Tuojiang      | Drinking water interruption for 26 days. Impacted nearly a million people and a large number of enterprises. The direct economic losses about $300 million Yuan. Tuojiang’s ecological system cannot be recovered for less than 5 years. |
| Songhua Jiang water pollution      | November 2005, Jilin City, Jilin Province | Benzene plant explored, hundreds of tons of nitrobenzene and other toxic chemicals polluted the Songhuajiang water | About 8 died and 70 injured because of the exploration. Water pollution into 135 km. Drinking water for Harbin city has been cut off for 4 days, which impacted millions of people |

(Continued)
| Name of incidents       | Date and place                  | Major reason                                                                 | Serious consequences                                                                 |
|-------------------------|---------------------------------|------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| Yueyang Arsenic         | September 2006, Yueyang, Hunan  | Drinking water protection area got polluted by arsenic                        | Arsenic has been found 10 times higher than the standards. It impacted 80,000 residents |
| Contamination           |                                 |                                                                              |                                                                                      |
| Taihu Lake Cyanobacteria| May 2007, Taihu, Wuxi           | A large area of Taihu lake suddenly occurred cyanobacteria Break-out under high-temperature conditions | Drinking water quickly been contaminated. Wuxi suffered a water shortage              |
| Break-out               |                                 |                                                                              |                                                                                      |
| Sanlu scandal milk      | September 2008. A number of provinces simultaneously broke | Sanlu Group Co., Ltd. Production, Sanlu infant formula powder milk contaminated with melamine | “Kidney stones’ baby” appeared throughout the country within 2 months. Gansu 59 cases, 1 death; Jiangsu 20 cases; Hubei 3 cases; Shaanxi 2 cases; Anhui 3 cases. Shandong, Jiangxi, Ningxia and other provinces also found similar cases |
|                         |                                 |                                                                              |                                                                                      |
| Yancheng water crisis   | February 2009, Yancheng, Jiangsu| Morning on February 20, the water supply plant contaminated by phenol.        | Two water plants had been shut down. Yancheng suffered a water shortage              |
|                         |                                 |                                                                              | Bottled water price has been raised twice in 10 min. It impacted 200,000 residents  |
| Xingang pipeline        | July 16, 2010, Xingang, Dalian  | Dalian Xingang oil pipeline exploded. The preliminary estimate of discharged oil was 1500 tons | Chinese ocean surveillance ship monitoring at 13:30 on the 19th and reported 430 km² pollution area, with heavily pollution about 12 and 52 km² general pollution area |
| bombings                |                                 |                                                                              |                                                                                      |
the People’s Republic of China on the Environmental Impact Assessment” on October 28, 2002. The State Council issued a decision that implements the scientific development view and enhanced environmental protection on December 3, 2005. “Creating a resource-saving and environment-friendly society” development strategy, in essence, is a value that concerns people’s livelihood and social development.

In 2007, the Organisation for Economic Co-operation and Development (OECD) published OECD Environmental Performance Reviews: China. In this review, it is believed that the “efforts (regulatory, economic instruments, and policy) have neither been sufficient to keep pace with the environmental pressures and challenges generated by the very rapid growth of China’s developing economy nor to capture the potential economic benefits to be obtained from improved pollution abatement and nature protection. Overall, environmental efforts have lacked effectiveness and efficiency, largely as a result of an implementation gap. The weaknesses in the present system are demonstrated by the failure to achieve some of the key objectives of the 10th FYP, and the severity of environmental problems in many parts of China” (Organisation for Economic Co-operation and Development, 2007). In addition, the Chinese Public Environmental Protection Index by the China Environment Culture Promotion Association (CECPA) is considered as the Chinese public environmental protection awareness and behavior’s “barometer” and it is also the first environmental protection annual index. In 2008, the environmental pollution problem ranked third in “public most concerned social hot topics.” It is the third time the environmental pollution problem entered the top three rankings. Secretary-General of CECPA Shaomin Zhang said: “Environmental pollution problems closely follow the ‘price issue’ and ‘food security.’ The public concern rate is 37.7%. Environmental pollution and various environmental events still exist as threats to the socioeconomic sustainable development and personal life of the public. Some of them are very serious. The environmental problems have risen to the height and level which impact of social harmony and stability.” Facing the serious environmental situation, the Chinese government did not give up efforts but instead used the 2008 Olympic Games as an opportunity to increase environmental protection efforts and enhance environmental consciousness.

“Green Olympics” was an important vow taken by Beijing to the International Olympic Committee. The so-called “Green Olympics” was goals of comprehensive movement to enhance the city’s sustainable development capacity, provide a clean and beautiful environment for the
### Table 2.5 The concept historic evolution of the relationship between human and nature (Cai, 1989).

|                        | The hunter-gatherers civilization | The agricultural civilization | The industrial civilization | The post-industrial society |
|------------------------|----------------------------------|-------------------------------|-----------------------------|-----------------------------|
| **Relationship with nature** | Worship of nature | Transformation of nature | Conquest of nature | Seeking human nature coordinate |
| **Productivity level** | Low productivity, increase slowly | Continued to rise | Rapid increase due to the technical rapid development | Continuously increase at an astonishing rate |
| **Human activities** | In the hunter-gatherers civilization, feed on animals and plants | Into the agricultural civilization, development and utilization of land, water, climate and other resources | Entered the industrial civilization, attempt to dominate nature, sacrificing nature, accumulate the wealth | Re-examine the economic behavior, concern the environment and development issues |
| **Human nature relationship** | Fear and dependence | Dependence weakened, confrontational enhanced | Uncoordinated, people and nature conflicts intensified | Seek the coordination of resources, environment and development |
| **Population** | Limited | Start rise | Fast rise | Rapid rise continuously |
| **Environmental issues** | Nothing serious | Geographical environment worsening | Environmental pollution, ecological damage, endanger the survival of mankind | Flood hazards, humans began to realize that environmental issues, and gradually solve environmental problems |
Olympic Games 2008, organize the Olympic Games with sustainable development perception that protect the environment, conserve resources and protect ecological balance, minimize the Olympic Games’ negative impacts to the environment, play an exemplary role for environmental protection work all over the country, carry out environmental education activities extensively to enhance public environmental consciousness, emphasis on harmony purposes between man and nature, and comprehensive enhancement of public ecological civilization literacy (The official website of the Beijing 2008 Olympic Games, 2008).

In fact, the Olympic Game was like a “catalyst.” With the policy, funding, and public support, environmental protection concepts had been fully released. In addition to the policy change, individuals all changed their behaviors to protect the environment. At the same time, the Olympics provided an opportunity to apply the laboratory phase environmental protection technology and environmental protection products. For example, in the process of building the Olympic venues, many new technologies were utilized including stormwater utilization, solar photovoltaic, the light tube system engineering, ecologic water system, recycled water utilization, high efficient energy-saving lamps, water-saving toilets, new energy utilization, and solid waste collection and treatment. This collection of technologies of environmental protection used in the Olympic Center’s facilities can be seen as “Fair” for environmental protection design. There is no doubt that Chinese environmental consciousness and environmental management were significantly increased by the Olympic Games. Environmental policies and systems were becoming better and approaching perfection day by day. Although it is difficult to pass on environmentalism as a heritage, the Chinese will try their best to do so. Director of Beijing Municipal Environmental Protection Bureau Shaozhong Du said that “the reduced pollution measures will be certain as the fixed form and even more stringent after the Olympic Games. Beijing, and other cities will play an exemplary role and have a durable influence in the coming days” (Zha, 2008).

At the end of this chapter, we review the environmental issues on the timeline. The evolution of the relationship between humans and the natural environment is demonstrated more clearly. In 1989, Yunlong Cai of China systematically summarized the concept historic evolution of the relationship between humans and nature in the hunter-gatherers’ civilization, agricultural civilization, industrial civilization, and postindustrial society (Cai, 1989), as shown in Table 2.5.