

The Evolution of Environmental Policy and its Impact in the People's Republic of China

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Abstract: *Though environmental problems in China are well known worldwide, particularly critical issues such as the Three Gorges Dam Project, acid rain and dust storms, they are misunderstood by foreign politicians and scholars. This article introduces Chinese environmental policy and its efficiency from a Chinese environmental perspective. I will examine the evolution of Chinese environmental policy and its gains and losses in the context of a transforming Chinese economy, society and politics. The first part of this article describes the formation and development of Chinese environmental policy. The second part analyses the implementation of Chinese environmental policy and its impact. The third looks at the obstacles and questions that stand in the way of development and implementation of environmental regulation and protection in China. My argument is that Chinese environmental policy is impressive and comprehensive, but its implementation is incomplete.*

Keywords: environmental policy, China, environmental consciousness, environmental regulation, environmental history

INTRODUCTION

ENVIRONMENTAL PROBLEMS in China were dealt with from the perspective of many disciplines, such as political science (Smil 1993; Shapiro 2001; Yi 2002), however, these studies mostly lack historical background. Though

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China's environmental history is a rising sub-discipline in China and outside, it focused on ancient environmental history (Elvin et al. 1994; Marks 1997; Elvin and Ts'ui-jung 1998; Bao 2004; Elvin 2004). In this article I analyse the evolution of China's environmental policy and its impact in a historical context. I argue that policy evolution was closely related to the context of China's political, economic and social development. Without understanding these circumstances, it is difficult to analyse the growth of China's environmental policy. In this article I examine the evolution of environmental policy and its gains and losses in the context of a transforming Chinese economy, society and politics. I will discuss the reasons why China's environmental policy has been misunderstood by foreign politicians and scholars.¹

Environmental policy in China was transformed from an administrative instrument first to a legal system and second to the integration of economic instruments within the legal system. This was in harmony with the historical trends that China was experiencing as it transformed from the socialist planned economy to a socialist market economy. In comparison with advanced industrial countries, China's environmental policy was formulated and implemented from top to bottom; the grassroots did not participate in this formation. This too was a result of China's centralised socialist political system.

The Formation and Development of Chinese Environmental Policy

After the establishment of the People's Republic of China in 1949, the Chinese Communist Party (CCP) launched a mammoth socialist movement under Marxist, Leninist and Maoist thought. This movement was also, in essence, an activity designed to save the environment since China had accepted Stalin's (1962) views on nature completely. The slogans of this era reflected this desire, such as:

The foolish old man removes the mountain;
Create farmland by encircling the lake;
Man must conquer heaven;
With many people, strength is great;
Cultivate on the top of the mountain, plant rice at the center of lake;
Actively smelt steel and iron;
How much courage you have, how much yield it has;
Don't worry about not doing, just worry about not thinking;
To struggle against the heavens is endless joy, to struggle against the earth is endless joy, to struggle for the people is endless joy.

These activities violated nature and resulted in serious environmental pollution and ecological damage. Since China's leadership purported to employ the mechanism of unified planning with due consideration for all aspects of the

economy and the society, which was supposedly more superior than in a capitalist system, the Chinese government did not recognise environmental problems. The aim of socialism was to satisfy the needs of the masses, so how could it damage the masses? It was only in a capitalist society, where capitalists received profit at the cost of environmental destruction regardless of the welfare of workers and peasants that environmental problems existed. However, there was the question of why the Soviet Union had environmental problems, where socialism was built for the first time in the human history. It was believed that the Soviet Union became a revisionist country. In the context of the ideology of this era, China did not have an environmental policy, even if environmental problems had already appeared. Indeed, both Professor Yunchu Ma, who advocated the control of population growth, and Professor Wanli Huang, who opposed the construction of the Sanmen Xia dam on the Yellow River, were criticised. These attitudes resulted in the serious environmental damage.

Fortunately, this situation changed in 1972. Several factors brought about a change in consciousness about the environment. First, several serious environmental accidents took place. For example, fish were found to have a foul smell in the polluted Guanting Reservoir, sea life died in the polluted Dalian Bay, and Minamata disease appeared in the Songhua River (Japanese Society for China Environment 2005–2006). These problems caught the attention of the Chinese leadership. Second, Sino-American and Sino-Japanese relations improved. Chinese leaders felt the gravity of environmental problems and the rise of environmentalism in these countries when they met American and Japanese guests. Premier Zhou Enlai stated, 'Industrial pollution is a fresh question. If industrialisation begins, this question becomes more and more serious. Now pollution is becoming the biggest problem in the world'. One particularly important turning point was the meeting of Premier Zhou with a famous journalist who specialised in reporting on pollution in Japan. As a result, Chinese leaders paid more attention to environmental problems. They thought that USA and Japan, as capitalist states, could not solve environmental problems. They believed that China, as a socialist country, could solve environmental problems. Third, the United Nations held the conference on human environment in Stockholm. It was an opportunity for China to portray its environmental consciousness in the international political arena. The Chinese government sent a big delegation to attend the conference. As a result, Chinese leaders were motivated to undertake environmental policy work after the delegates reported to them on this conference. It was the interaction of these three main factors that started the formulation and implementation of Chinese environmental policy for the first time.

The watershed was the first national conference on environmental protection held on August 5–20, 1973 in Beijing. Before this conference, Premier Zhou put forth a systematic theory and principle on environmental questions. He argued: 'Capitalist states were unable to solve their industrial pollution

problems due to their system of private ownership, the anarchism of their production and their orientation towards profits. We can definitely solve industrial pollution because our socialist planning economy serves the masses. While we are engaged in economic construction, we should pay closer attention towards solving this issue and avoid doing something absolute, which may leave troubles to our descendants.²

What was the best way to wipe out industrial pollution? Zhou argued: 'we must promote comprehensive utilisation and turn the three harms to three benefits. While we are engaged in capital construction, in order to avoid trouble, we should pay more attention to this problem from all kinds of projects, equipment and technology. Otherwise, we would take a roundabout course in our work. We will not follow the course of capitalist industrialisation, we should also avoid the roundabout courses.'³

To do this, Zhou Enlai advocated the following policy: 'We should use our heads, learn from workers and arouse the masses to discuss; we should solve the problem one factory by one; we should take charge of one-third of every kind of project and problem first, and then set examples from which everybody can learn.'⁴

Three important achievements were made at the first national conference on environmental protection. First, the fact that there were serious environmental problems in China was nominally recognised. This was difficult to do during the Cultural Revolution. Second, the guiding principle of environmental protection was passed at the conference. Zhou stated: 'Plan comprehensively, distribute rationally, use synthetically, turn harm to benefit, depend on the masses. Everybody starts work; protect environment; bring benefit to people'. Third, the first document of environmental protection in P.R. China entitled 'Some Regulations on Protecting and Improving the Environment' was passed (Zhang 1994: 7).

According to the spirit of this document, the first official organisation in the history of China's environmental protection, 'The Leading Group of Environmental Protection in the State Council' was established. This group formulated a series of effective policies by promulgating regulations such as 'The Essentials of Environmental Protection Program' and 'The Trial Implementation Standard of Industrial Three Wastes Effluent', which were the first standards in the history of Chinese environmental protection concerning solid waste, polluted air and polluted water (Zhang 1994: 15). A committee of experts was called to draw up the 'Ten-Year Program of Environmental Protection' (Zhang 1994: 12, 75). These policies included:

- 1) The Three Synchronisations (literally meaning three-at-the-same-time) System. The Three Synchronisations policy called for the following measures: 'When any enterprise and institution established new factories, or expanded and modified their existing plants, the design, construction, and operation of pollution treatment facilities were to be coordinated with the

design, construction and operation of the main part of the project. Departments responsible for the work, together with the unit of environmental protection and the unit of health, etc., were to investigate the design and strictly oversee the completed project.' This fundamental policy not only reflected the principle of 'Prevention First' but also controlled the emergence of new pollution sources. It was also the first law that the Chinese government created by itself, an instance of effective regulation of environmental management with Chinese character.

- 2) The Limited Time Treatment System. This policy entailed the central government ordering all related work-units to treat the sources of pollution and pollutants within a limited time by creating a treatment plan and a treatment notification deadline. This policy was mainly aimed at pollution practices that were widespread and resulted in serious negative reactions among the masses. Of course, this type of advanced pollution management could only occur in enterprises that had more mature treatment technology, adequate treatment investment and enterprises that could expect immediate results.
- 3) The Synthetic Utilisation System. Beijing also encouraged enterprises to treat the three wastes by way of favourable financial and tax policies. If any of the other other units could use the untreated three wastes as raw material, the effluents were to be supplied freely. In turn, the receiving units could have their taxes reduced or exempted if these units experienced difficulty in paying taxes due to treating the waste material. It was recommended that the supply of fuel and raw material necessary for the treatment of wastes should also be a top priority.
- 4) Finally, a joint working group or special organisation whose responsibility was the supervision of trans-branch and trans-regional pollution management was instituted for the first time. For example, in the case of Baiyangdian, a joint working group was set up which consisted of the nine ministries of the State Council. The objective of these policies was to control pollution within five years and solve the pollution problem in ten years.

In summary, during this formative stage, the main characteristic of the Chinese environmental policy was to realise an unrealistic objective by practising administrative and planning methods. The Chinese government recognised environmental problems, although it still insisted on the dogmatism of socialism. This was a result of Chinese politics and society at that time. The major defect of this system was to ignore the enthusiasm of local-level work-units in treating pollution. The local-level units were placed in a passive position where they merely had to execute orders from higher authorities. As investment was tight and supervision was not strict, these policies were often not implemented. Indeed, the rate of implementation of the Three Synchronisations was less than forty per cent in large and medium-sized enterprises.⁵

Ultimately, the general aim of this first era of pollution treatment failed. China entered a new stage after the 'Gang of Four' was arrested in 1976 and Deng Xiaoping implemented reform and open door policies in 1978. The Chinese environmental policy evolved rapidly and entered into the development stage. The symbol of the beginning of this new stage is the constitution of the People's Republic of China that was passed at the first meeting of the Fifth National People's Congress. It included the following clause on environmental protection: 'The State should protect the environment and natural resources, prevent pollution and other environmental disruption'. This was the first constitutional regulation on environmental protection in Chinese history and laid an actual foundation for the legalisation of an environmental protection policy. Simultaneously, the central committee of CCP approved and transferred to lower-level government agencies new administrative policies embodied in the 'Main Points in the Report of Environmental Protection Work' (Zhang 1994: 20). Authored by a leading group of the State Council, it was the first instruction on environmental protection in the history of the CCP. Committees of the CCP at all levels actively responded to the request '...to eliminate pollution and to protect environment were the main part of building socialism and realising four modernisations'. On the basis of this, the 11th Standing Committee of the 5th National People's Congress (NPC) promulgated, 'The Law of Environmental Protection in P.R. China' which became the basic law of managing the cause of environmental protection. The second national conference on environmental protection, which was held from December 31, 1983 to January 7, 1984, announced that environmental protection was a strategic task in the process of modernisation and that it was a basic national policy. The cause of environmental protection was prioritised at an unprecedented level.

Besides enforcing former effective environmental protection policies, some new policies were also announced. An important new policy was 'The Three Simultaneities and Three Unifications system'. This policy held that economic construction, urban and countryside construction and environmental construction were to be synchronised with the design, operation and development of construction projects so that they should result in unified economic, social and environmental benefit. This meant that Chinese environmental protection policies moved from post-pollution treatment to a new stage of emphasising harmony amongst the three benefits. Another new policy was the environmental impact assessment system. This was mainly used to control the formation of new pollution sources and to prevent the harmful environmental impacts of proposed projects. It was also helpful in supervising and managing projects. The third new protection policy was the waste discharge register and permit system. This embodied the principle, 'Prevention first through the incorporation of prevention and treatment', and unified the end-of-pipe treatment and all-process treatment. Next, the pollutant discharge fees system was put into place. Using the 'Polluter pays' principle of the Organization of Eco-

conomic Cooperation and Development (OECD) as an example and inspiration, enterprises were asked to be primarily responsible for pollution treatment. As to the exploitation and use of natural resources, the policy emphasised simultaneous development, utilisation and protection, which included the following concrete measures: Who develops, should protect; who destroys, should recover; who uses, should compensate. The discharge-fee system became the double-fees system. The pollutant discharge fee was divided into two parts: The first was based on the amount of concentration of the pollutant; and the second on the amount which exceeded the effluent discharge standard for those pollutants. These fees have only been used for the development of environmental protection. Finally, the management system was strengthened. In the context of limited investment and backward technology, to intensify the management system was a good way to confront environmental problems. Measures included, for example, the environmental responsibility system, annual assessment of urban environmental quality, etc.

Compared to the first stage, the characteristics of this stage included:

- a) Legalisation of environmental protection. Besides the constitution and laws of environmental protection, the National People's Congress (NPC) promulgated eleven individual laws, including the law of forestry, law of grassland, law of fishery, law of mineral resources, law of land management, law of water, law of wildlife protection, law of water and soil conservation, law of prevention of water pollution, law of prevention of air pollution and the law of protection of sea environment. The Chinese central government also signed several international conventions on environmental protection, such as the Vienna Convention for the Protection of the Ozone Layer, the Basel Convention, and the Convention on Biological Diversity. The State Council promulgated more than twenty-three regulations of environmental protection. Local governments and the Environmental Protection Agency (EPA) issued many local and professional regulations.
- b) Economic instrument and market principles. These included new regulations such as the directive that eighty per cent of the pollutant discharge fees was to be used to treat waste through corporate investment; the remainder was used for the local environmental protection bureaus.
- c) The participation of the CCP at all levels strengthened the enforcement of the environmental policy.
- d) Chinese environmental protection was changing from the simple treatment to harmonised development.

Although much advancement in the field of policy happened at this stage, several problems still existed. These included the lack of supervision of rural construction and the lack of strict implementation and compliance with environmental laws. The great flood in 1998 and increasingly serious dust storms threatened the life and property of the Chinese people. Coincidentally, China

successfully applied for the 2008 Olympics and promised to hold an ecologically sound event. China also launched the strategy of the Great West Development in order to balance the gap between the eastern and western parts of the country. Finally, China began to adjust economic structure and to practice the strategy of cutting down internal demand, especially after the Asian financial meltdown of 1997. All of these factors together pushed the policy of environmental protection to a new stage.

This change in policy, however, also required theoretical justification. The CCP and the Chinese government searched Marxism and found theoretical justification in the 'Dialectics of Nature' by Friedrich Engels (1971). The Chinese environmental protection policy entered a period of rapid improvement. The new, concrete policies included:

- 1) Strengthen former policies further. For example, the fines and fees levied were so low that they could not serve as an incentive to clean up the three wastes, but now the government increased the fees and penalties and realistically approached the standard that reflected the 'polluter pays/treats' principle.
- 2) Discharge permit trade system. Although this system was mandated in 1984, it was actually implemented in just a few trial spots. It explored whether the emission quota could be exchanged beneficially. This experiment would generalise this policy.
- 3) Promulgating policies that were responsible for rural environmental management. In river/lake and desertification areas, the central government enforced new policies such as converting farmland into forest, converting farmland into grassland and converting farmland into lakes, by means of paying money and distributing grain to the farmers on this farmland. The central government also allocated huge funds for ecological construction, such as harnessing wind and sandy sources around Beijing and Tianjin and the deforestation prevention project in northeast, northwest and north China.
- 4) Prohibiting pollution transfer. The central government strictly forbade the east to transfer its polluting industries to the west in the name of western development. It also announced that China would not accept industries with serious pollution emissions in the process of absorbing foreign investment on the southeast coast.
- 5) Strengthen environmental cooperation with international organisations and states around China. This measure was important in gaining international support to administer regional and global environmental problems. International cooperation was helpful in forming the new open-door pattern of environmental protection.
- 6) Advocate sustainable and cyclical economic development. More ecological agricultural practices were encouraged in China. Cleaner production practices aimed at saving energy, decreasing exhaust and reducing pollu-

tion were employed. The measure employed to achieve this objective was to find 'clear and civilised factories' and 'model enterprises of environmental protection' and to publicise their experiences.

A number of important milestones were achieved during this period. These are mentioned below:

- 1) The economic instruments within environmental policies were strengthened and incorporated within the legal system, and the institutionalisation of environmental management was improved.
- 2) The phenomena of focusing on urban environmental problems and neglecting rural environmental problems ended; the new environmental policies tended to emphasise rural ecological construction.
- 3) New industries were developed in the process of environmental protection. The environmental industry included ecological tourism, sand industry, development of environmental technology and so on. The economic structure was also adjusted. For example, the style of animal husbandry was also changed from seasonal pasture to barnyard raising. Rather than just growth-orientation, economic development also stressed on quality and benefit orientation. This change created not only economic value, but also social value. China followed the road of integrating economic, environmental and social benefits.

The Implementation of Chinese Environmental Policy and its Impact

The implementation of China's environmental policies also experienced a complicated process of evolution. The main practice in its initial phase of development was to issue an administrative order; its typical model was the working group that consisted of various departments working under the guidance of a national planning committee or state council. Working groups formulated plans, transferred funds and verified implementation directly. The working group was a centralised and vertical implementing system; its main focus was on rapidly solving concrete questions. At the same time this was unavailable for generalisation. The second stage was structured around the simultaneous use of legal and economic instruments. The main units for policy implementation were the court, tax bureaus and Environmental Protection Agencies. The importance of artificial factors in this process decreased. The main practice in the third stage was to emphasise the integration of party participation, along with legal and economic measures. The dynamics of policy enforcement were strengthened. Moreover, since investment corporations also participated, fund turnover increased and new benefits appeared. Environmental law, along with the improvement of law consciousness throughout society, was strengthened. General Secretary Jiang Zemin asked party committees and leaders at all levels to lead and participate in the work at the

Conference on Population, Resources and Environment. Central government leaders were to be responsible for implementation. They were to be investigated and charged with dereliction of duty if they were not qualified through examination.⁶ The strengthening of the party and the administrative participation had actually reflected the stagnation of reform in the Chinese political system since 1989. It was different, however, from the pure administrative order of the first stage. In particular, it was the implementing system that integrated the economic, legal and party and administrative instruments under an authoritarian control system.

After the development of environmental governance for thirty years, some successes were achieved in the process of implementing environmental policy. This is evident in many areas. The first success was that the rate of pollution emission to unit production was brought down in some sectors, while the acceleration of environmental pollution, in some cases, was controlled. Compared to the state of environment in 1998, the total amounts of primary pollutant emissions dropped in 2002. The emission of SO₂ dropped by 10.3 per cent, the emission of smoke by 26.1 per cent, the emission of industrial powder by 35.3 per cent, the emission of CO₂ by 10.3 per cent and the emission of industrial solid waste by 58.9 per cent. Ninety sewage-treatment plants were built in the areas of 'three rivers' and 'three lakes'. One hundred and seventeen automatic monitoring stations of water quality were built, and 486 automatic monitoring systems of air were built in 179 cities.⁷ Although this was just the beginning of control of environmental pollution, nonetheless it was an achievement that was not easy for the Chinese government. Initial pollution control was undertaken in China at a time when the growth of GDP was 8.3 per cent and per capita GDP was less than US \$800.

Another success was the increase in the number of nature reserves (State Environmental Protection Administration 2006). Vegetation cover also increased (State Environmental Protection Administration 2002). At the end of 2001, there were 1551 nature reserves covering 129.9 million hectares (12.9 per cent of the national territory). China notified thirty-one natural wetlands and nine man-made wetlands with a total area of 65.9 million hectares (not including rivers and ponds), which amounts to 10 per cent of the world's wetlands. This wetland system is the fourth largest in the world and the largest in Asia. The vegetation and species in the wetlands also gained protection. The reforestation area was raised to 5.3 million hectares in 2001. Hillsides closed to facilitate forestation increased by 6.1 million hectares. Currently, forest coverage is 16.6% of the national area. Since the project of converting farmland to forest started, the cumulative area conversion reached 2.2 million hectares in 2001. The central government invested 314.1 million Renminbi (RMB, Chinese yuan) to construct wildlife reserves and nature reserves in the areas of origin of three rivers and invested 400 million RMB to carry out 65 projects for recovering and restoring natural grassland vegetation.⁸ All these efforts restrained the acceleration of damage to nature.

Next, large amounts of energy were saved as a consequence of dealing with environmental pollution. The main source of energy in China is coal that contains large amounts of sulphur. Most air-borne pollutants are related to the practice of coal burning. This means that pollution prevention is also related to energy saving. The essential way is to improve the technology including the centralisation of heat supply in urban areas, the rationalisation of distribution and use of gas and coal in cities, increasing the productivity of burning installations and the cleaning of smoke. Emissions from coal-burning industrial and power plant boilers and coal consumption reduced drastically after new standards for smoke emissions were enforced. The energy consumption/ten thousand Yuan GNP was decreased by 39.7 per cent, from 2.5 tonnes standard coal in 1995 to 1.5 tonnes in 2001. From 1990 to 2001, Beijing saved 91.5 million tonnes of standard coal.⁹ In the life of urban residents, the coal-savings per year was about 3.5 million tonnes with the use of honeycomb briquettes. The total savings for standard coal reached 13.5 million tonnes at the end of 1989 with the implementation of a centralised heating supply. The average saving in coal per year was 3.2 million tonnes after urban residents changed from burning coal to coke-oven gas (Zhang 1994). As environmental technology and standards were improved, the rate of energy savings continued to improve.

Another positive development was that the implementation of environmental standards and policies promoted the rapid development of technology and the industry of environmental protection. Leaders at all levels emphasised the role of science and technology in the cause of environmental protection. They believed that controlling environmental pollution and improving environmental quality depended on the advancement of science and technology. They asked to improve the comprehensive technology that was used to manage the most widespread environmental problems. The strategic idea, that the essential path to solving the problems of environment and development lay in the advancement of science and technology, was issued after the United Nations Conference on Environment and Development in 1992. The central government allocated 175 million Yuan for research projects of environmental science and technology that belonged to the instructive plan, which meant that these projects were funded by the central government through the socialist planned model. Achievements were obtained in some fields, including paper-making, printing and dyeing, the processing of high-density organic waste water, the treatment of urban sewage and its recycling into resources, cyclical vulcanisation, removing smoke and dust effectively and incineration of harmful waste. Since these fields were at an advanced stage, they were easily transformed into productive forces. The environmental protection industry also developed quickly by taking advantage of the national structural adjustment of the industry. The number of units engaged in design and manufacture of environmental protection increased to 2529. By 1998, they created an output-value of 3.79 billion Yuan per year. In the nineties, the environmental protection in-

dustry grew by 15 per cent every year; its output value reached 160 billion Yuan. It is estimated that the environmental protection industry will continue to grow by 20 per cent.¹⁰

In addition, the environmental consciousness of urban residents also improved. Environmental consciousness got rooted in the minds of people during the process of implementation of the environmental policy. Ordinary people then turned the embryonic environmental consciousness into conscious activity through publicising the environmental policy. Some training courses, advancement classes and discussion seminars were conducted for personnel responsible for environmental protection. Environmental education entered kindergarten, elementary school, high school, college and university. The news and deep analysis of environmental problems appeared in various forms of the media. Some environmental NGOs propagated and organised the masses to protect the environment in their communities. According to a 1993 study, 63.2 per cent of the people who participated in the study thought that environmental problems affected the quality of the lives of Chinese people (Dachun 1995).

Moreover, 58.5 per cent and 57.9 per cent of the people, respectively, thought that 'strengthening the environmental education' and 'implementing the related laws strictly' were the first ways to improve the environment (Dachun 1995). According to a national study in 2002, 98 per cent of Chinese people are concerned about the problem of environmental protection and most participated in the activities of environmental protection; 48 per cent of them thought citizens should play a greater role in environmental protection, exceeding that of the government, business houses and NGOs. These findings reflect the growing environmental consciousness of the Chinese people.

Another positive development was that cooperation and exchange with international society and environmental organisations was strengthened by formulating and implementing new environmental policies. One of the main dynamics that promoted the development of the Chinese environmental policy was to learn from international society, especially from the developed countries. In turn, cooperation and communication with international society improved during the process of policy implementation. China signed several international environmental conventions and agreements, including the Kyoto Protocol. China is also a standing member of the UN Environmental Programme. In order to coordinate the standpoints on environment and development of developing countries and publicise China's views, the 'Ministerial Conference on Environment and Development of Developing Countries' sponsored by the Chinese government was held in 1991 in Beijing. It issued the 'Beijing Declaration' and made contributions to the United Nations Conference on Environment and Development in 1992. The increasing cooperation for implementing Chinese environmental policy and international environmental conventions was formulated with the United Nations Development Programme (UNDP), the Global Environment Facility (GEF), the

World Bank and the Asian Development Bank. China also signed various bilateral agreements on concrete environmental problems with the United States, Great Britain and Germany. For example, China and USA signed the 'Convention for Cooperation of Environmental Protection in Science and Technology' in 1980. Regional environmental cooperation was improved with neighbours. For instance, a meeting of environment ministries of China, Japan and South Korea was organised. Japan and South Korea also actively took part in the Chinese project of dust bowl management (Bao 2003). The development of international environmental cooperation provided not only the financial assistance for the implementation of the environmental policy, but also a new momentum for strengthening and revising the environmental policy.

The positive impact of the Chinese environmental policy increased along with its development and implementation. The cause of environmental protection in China won not only more and more domestic support but also more international understanding and cooperation. In other words, at least theoretically, China is following the path of sustainable development that integrates economic, social and environmental benefits. Lester Brown in his book *Who will feed China?* (Brown 1995), expressed anxieties about the environmental problems faced by China and his fear of its harmful impact on the world. Six years later, Brown is no longer worried about China's food problem. On the contrary, he praised China for striving for sustainable development (Brown 2001). This change in attitude reflects the increased positive impact of implementing the environmental policy.

Challenges in the Development and Implementation of Chinese Environmental Policy

Although some achievements were made in the development and implementation of a Chinese environmental policy, it has not achieved the expected results. The state of the environment in China is unsatisfactory¹¹ and the future of the environment is still rather grim and does not allow for much optimism. The total amount of pollutant emissions is still high, the level of pollution is rising, the environmental quality of many cities is deteriorating, the pollution of surface water is widespread, the demand for water far exceeds supply, the quality of rural environment is falling and the degradation and desertification of grassland is increasing. These concerns seemingly contradict the achievements described above, but, in fact, both are two sides of the same coin because various elements of the environment are not only independent subsystems, but also integral parts of a whole system. Furthermore, these concerns were the environmental reflections of deep contradictions that developed in the course of practicing the reform and open door policies of the 1980s and 1990s. For example, the transformation from a traditional agricultural society to a modern industrial one and Chinese national rejuvenation in

international structure, were root causes. From this perspective, we can better understand the difficulty of environmental management and restoration. In turn, the obstacles and concerns that have existed in the process of implementing the environmental policy are also some of the most important factors, which resulted in this dilemma.

The first problem is bureaucratic fragmentation. The various organisations that are responsible for formulating, implementing and supervising environmental policy have overlapping functions and unclear rights and responsibilities. This situation has greatly interfered with the efficiency of policy implementation. The National People's Congress is the highest legislative body. The Committee of Environment and Resources is responsible for crafting law on the environment and natural resources. It mandates that the national Environmental Protection Agency (EPA) drafts environmental legislation because the members of this committee are usually retired officials from the CCP and administrative organisations who are not themselves qualified to undertake investigation and to draft law. The national EPA is the highest administrative organisation that is responsible for implementing environmental protection policy. Currently, however, it is not only responsible for drafting law and some regulations on environmental protection issued by the State Council, but it is also in charge of its implementation and supervision. The National Committee of Environmental Protection in the State Council, which consists of the members from various ministries and committees, is in charge of harmonising the environmental affairs of related departments. It also supervises the State Council in creating the national policy of environmental protection within the context of drawing up a national economic plan. The Committee of Environment and Resources of the National People's Congress has started supervising and checking. It is obvious that these three organisations have no separate functions and lack the mechanism of supervising each other. Various ministries and committees have their own environmental bureaus that are not subordinate to the national EPA (it was approved as a ministry in 1998). From the perspective of administrative relations, these bureaus generally follow the regulations of their own ministries and committees when the ideas of the national EPA and its own ministries differ. Local environmental protection bureaus at all levels have incomplete vertical relations with the national EPA. While the national EPA leads the professional work and policy decisions of the local bureaus, local party committees and governments allocate their personnel and administrative funds. When local authorities push for high economic growth and pursue administrative goals, local environmental protection bureaus are often unable to implement environmental protection policies. In certain cases, some even become accomplices of the polluters they are supposed to oversee. This system cannot ensure the effective implementation of the environmental policy.

The second problem is that environmental protection is in conflict with economic growth. The core work of the CCP and the central government still

focuses on the economic development of China. This means continuing to seek high economic growth, while trying to follow sustainable development. Promotion for officials at all levels is mainly based upon their ability to promote economic growth. Under such circumstances, environmental policy is mainly an economic instrument. Therefore it has defects. First, there were previously no available concrete environmental policies for townships and village enterprises that were developing rapidly. The discharge fee and penalty system were aimed mainly at state-owned enterprises. They were allowed to add this fee into the cost of the product and transfer it to the price of the product. The increase in price did not affect its sale because most of these enterprises were monopolies. The rural township and village enterprises depended on the low price of products to scramble for market shares because they lacked monopoly privileges. Once the fee was added to the cost of product, the enterprise was less competitive. Therefore, these enterprises attempted to escape the fee levy system by every means possible. Since the number of rural township and village enterprises was very large and dispersed, the local environmental protection bureaus were unable to manage these enterprises, which often lacked their own environmental protection departments. Serious environmental problems also took place in private enterprises. These defects resulted in rampant environmental deterioration in the countryside. Second, the standard of discharge fee and penalty is far too low to push enterprises to treat environmental pollution actively. For example, the discharge fee of noise is only 0.3 per cent of the cost of product in a levied enterprise. The discharge fee of sewage is only 0.03 per cent of gross production and 0.05 per cent of the total cost of a levied enterprise. The discharge fee of SO₂ for industrial coal is only 0.20 Yuan/kg. These penalties are low especially when compared with a growing national economy and the per capita income. In a sense, maintaining these standards seems to mean that the ideas of 'growth first' and 'development is the only truth' still play a leading role. Finally, the scope of the levy is narrow. As to the pollution caused by burning coal, only suspended particulates and SO₂ were levied a fee, other pollutants caused by burning coal such as CO₂ and NO_x were excluded. It is true that China intends to follow a sustainable development strategy in principle, but this approach needs to be more strictly and persistently implemented.

The third problem is the structural contradictions or defects within the system of law and its implementation of environmental protection standards and practices. China's environmental law system contains eleven sources (Alford and Shen 1998). They are: the constitution of the People's Republic of China; the international agreements that China has signed; the basic law of environment enacted by the National People's Congress (NPC); other laws related to the environment issued by the NPC's standing committee; interpretations of the constitution and the basic law issued by the standing committee; administrative regulations having the force of law issued by the State Council; ministerial regulations and national environmental standards issued by national

ministries and commissions; interpretations issued by the State Council, national ministries and commissions, the Supreme People's Court and the Supreme People's Procurator to carry out their work; environmental regulations issued by the People's Congresses at the sub-national level; regulations and other legal orders issued by the executive branch of the people's governments at the sub-national level; individual cases decided by the Supreme People's Court and lower level courts. Confusion between law and administrative regulation weakens the seriousness and authority of law, while also reducing the efficiency of administrative regulation. For instance, the discharge permit license system was not codified within the body of law for prevention of air pollution and the law for prevention of water pollution until recently. This made it difficult to implement these regulations without the support of the law. Furthermore, administrative regulations were aimed mainly at the work-unit, not the individual. During the 1990s, more and more individuals separated themselves from their former units and became part of the migrant population within the practice of strengthening reform and the open door policy. The result of this was that administrative regulations could not curb the environmental pollution caused by economic activities. Second, courts and procuratorates at all levels have the right to interpret law and regulation in the process of implementing and supervising laws and regulations. The Supreme People's Court and the Supreme People's Procuratorate should have had the highest right of interpretation, but all the courts and procuratorates at sub-national levels offer their interpretations in the light of locally specific conditions. Thus various explanations resulted in confusion and lower efficiency of law implementation and local protection. Additionally, since the funds and salary of courts at all sub-national levels are allocated by the local government and they are answerable to (because the court is appointed by the local people's congress) the local people's congress, party committee and government, the judiciary could not be independent and was heavily influenced by local officials. The implementation of environmental law often served the so-called overall situation of local economic development. Thus, environmental law lacked the power of criminal punishment and its standards were seriously distorted. Ultimately, the efficiency of its implementation was seriously damaged. Environmental targets and goals were not completely complied with.

The fourth problem is that peasants need to turn their environmental consciousness into practice and grassroots environmentalism should play a more prominent role in environmental decision-making. Traditionally, Chinese peasants have a nice and simple environmental protection consciousness, such as 'Harmony between the heavens and humankind', but it has been destroyed since the liberation in 1949. Under Mao, peasants became the main force who fought against heaven and earth and tried to conquer and remake nature. Under Deng, peasants cultivated new value orientations that include 'Looking toward money in everything' (Shapiro 2001). Peasants over-cultivated and over-used chemical fertiliser and pesticides in their contracted land; herdsman

overgrazed in contracted pastures; peasants created farmland in the contracted waste hillsides. The only aim of these activities was to get rich actively, which not only resulted in the exhaustion of fertility in contracted land, degradation of vegetation, soil erosion and desertification in contracted grassland, but also created a serious 'tragedy of the commons' in public land. Since they did not carry forward new measures for rural reform, especially with respect to the right of property, the task of improving the rural ecological environment is still extremely arduous (Menzies 1991; Yeh 2000). Grassroots environmentalism only appeared in urban areas and peasants were hardly involved. The first environmental NGO in China was set up on March 31, 1994. It was the Academy for Green Culture (now called the Friends of Nature) established by historian Liang Congjie. Another is the Global-Village Environmental Culture Institute of Beijing (Global Village of Beijing, for short) established in 1996 by Liao Xiaoyi, which won the Sophie Award in 2000. Over 2000 environmental NGOs were established by November 2001.¹² These NGOs gradually united and organised the 'Chinese Environmental NGOs Network' and the 'Earth Day 2000: China Action'. China's environmental NGOs have devoted themselves mainly to reclaiming wasteland, observing birds, planting trees, protecting endangered animals, establishing green communities and launching green consumption, etc. It has been difficult for them to register and to get adequate funds. Membership is composed mainly of the middle class; ordinary people and peasants have not taken part in them. Thus, the efficiency of their activities has been unsatisfactory (Brettell 2000). Environmental NGOs can play a more prominent role in China only by combining environmental protection with poverty elimination. The weakness of environmental awareness amongst Chinese peasants has seriously affected the implementation of the environmental protection policy in China.

CONCLUSION

The formulation and development of China's environmental policies experienced a process which grew from a weak foundation, and evolved from an administrative instrument as the main measure to the integration of the party and administrative, economic and legal systems. China formulated some comprehensive environmental policies and a few achievements were made during their implementation. To realise the unification of economic, social and environmental benefits, however, China truly needs to overcome some structural issues. The experience of the development and implementation of China's environmental policy indicates that environmental problems are not just scientific and technological questions; they are integrated with China's social, economic and political development. The formulation, implementation and efficiency of environmental policies are the reflection of China's reforms and open door policies in the area of environment.

Notes

1. Indian environmental historian Ramachandra Guha (2000) expressed a similar argument after he visited USA.
2. Premier Zhou's speech on September 8th, 1972, when he listened to the reports of leaders of national planning committee and Provinces, Municipalities and Autonomous Zones.
3. Premier Zhou's speech on April 5, 1972, when he met a journalist from *The Times Sunday*.
4. Premier Zhou's speech on February 15, 1971, when he met some members who attended the national conference of planning.
5. In fact, due to the lower environmental standard, serious environmental pollution took place in these enterprises after many years.
6. General-secretary Jiang Zemin's speech at the conference of population, resources and environment held on March 13, 1999.
7. Xie Zhenhua, *Newspaper of Environment in China*, January 8, 2003.
8. China's EPA, Report on the state of the environment in China 2001.
9. Chen Shouchun, Beijing saved 90 million tonnes of coal in ten years, *The Newspaper of Environment in China*, November 4, 2002.
10. *Newspaper of Environment in China*.
11. The official evaluation on the state of environment in China is always that it is turning better in some sectors, but deteriorating as a whole. Such as the atmospheric quality is better than before, but it is worse in China.
12. China's Environmental NGOs, <http://www.China.org.cn/english/2002/Jul/36833.htm>

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