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Problems and Solutions Facing Environmental Protection Industry in China

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Abstract

As an emerging economy, China has witnessed a great jump in economic development during the past 30 years, depending on its abundant natural and human resources. At the same time, its deteriorating environment draws increasing attention with the ongoing of her industrialization and the growth of the income per capita. While most countries in the world have encountered environmental problems during their development, China has no exception. Environmental protection industry, which provides instruments and technologies to help our environment, acquires a rapid development all over the world after environmental protection awareness grows in minds of the public. This article deals mainly with environmental protection industry in China. Some problems facing this industry and several suggestions are listed on the basis of careful analysis of current situation of this industry here.

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1. Introduction

Economy develops only when it is fueled by energies. In eras dominated by fossil fuels such as coal and gasoline, economic development consumes a large number of these fuels in exchange of power for economic gains, and unfortunately byproducts of sulfides and greenhouse gases. These byproducts are considered factors causing acid rain and global warming. Industrialization has benefited people by ever seeing abundant materials and brought shocking industrial wastes as well. Population increases as economy grows, which guarantees sufficient labor supply for enterprises and increases demand for cereals, farming land, fisheries, forests and so forth. These in all, add too much burden on ecologic system.

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Ecological environment at first was threatened in developed countries, which started their industrialization first and react to environmental problems positively initially. From the end of 1950s to 1970s, developed countries set up programs of scales to fix the environmental problems mainly caused by industrial wastes. Environmental protection industry grasped this opportunity, expanded their business from pollution management and prevention, to assessment of environmental impact, monitoring, technology service and new energy research. Afterwards, it developed into a pillar industry. Environmental protection industry helps a lot in improving our living environment, bringing jobs and interests at the same time. It balances the mutual benefits of environment protection and economic development. Developing countries, especially China, have to face the same environmental problems as well when obtaining their economic success. Their own environmental industry are created under such background.

2. Stages of development and characteristics of the environmental protection industry in China

Environmental protection industry in China was initiated in 1970s. It has gone through the start-up phase, the consolidation stage and the rapid development stage, a history of more than 30 years.

The initial stage dates from 1973 to 1990. In 1973, China held her earliest national wide work conference on environment protection. The State Council issued a document named “some provisions on environment protection”. In 1983, the second national meeting on environmental protection was held, during which environmental protection was made a basic national policy. Under the guidance of strong national will, environmental protection industry came into being. In 1985, there were nearly 1,000 manufactures producing equipments for environment protection. However, this time the industry was dominated by SMEs in towns who centered simply on equipment-producing. This kind of market structure determined the characteristics of the industry: generally small scales, low level of technology, lack of professionals and strategic planning. On the other side, organizations were forced to take measures to control side effects on environment. Their passive attitudes easily led the market to a “lemon market”, which of course was bad for the industry.

The second is the consolidation stage (1991–2000). During this period, China cared more about the environmental protection industry. In 1992, the first national work conference on environmental protection industry, established guiding principles and basic direction of environmental protection industry. In 1993, the number of firms of the industry grew from 2529 in 1988 to 8651. In the "Ninth Five-Year" period, there was a substantial increase in state investment in environmental protection. In 2000, numbers of firms got an increase of more than 1.1 times than that of in 1993, numbers of employees increased by 69%. In the consolidation phase, the environmental protection industry developed a basically sound structure, with expanding market volume. However, the growth was mainly due to the expansion of traditional producing, modern technology and high value-added services had no significant rise. The industry was still not free from the low level of technology and had no gains from economies of scale.

The third stage is from 2001, which is a rapid developing time for the environmental protection industry in China. During the "Tenth Five-Year" period, China continued her polices of the "Ninth Five-Year", and added huge support to this industry. The state investment counted 1.3% of GDP yearly. In the "eleventh Five-Year" plan, China assigned great significance to this industry. In order to achieve the required pollution control, total investment needed is 15,300 billion RMBs, accounting for 1.35% of GDP of the same period. Driven by both market power and polices, the environmental protection industry has gradually become a star in the economy (Wang Qin, Sun Haying). The output value has jumped to 420 billion RMBs, an increase of 4.42 times than that of year 2000.

Through these three stages, with some problems unsolved, the environmental protection industry in China was basically established.

3. Problems Facing China's Environmental Protection Industry

China's environmental protection industry has experienced more than thirty years of development, become an inseparable sector of the whole economy. This industry helps a lot in balance environment and development, however, due to some subject and object factors; it does have several tough questions to be resolved.

3.1 Output of the industry is small so as the scales of enterprises

30 years of development have turned the industry into an independent sector, while the total value produced yearly is not satisfying. It is not yet a pillar industry till now. In 2005, the ratio of output value to GDP reached the maximum of 2.1%, followed by gradual decline. It ranges from 0.5% to 2.1%, and has never break through 5% which is the number shared by environmental protection industries in the USA and Japan. This proves that environmental protection industry in China is still young and its potential in promoting social welfare has not been fully explored. Meanwhile, 90% of the enterprises in China are SMEs, producing mainly traditional pollution control equipments. Giant businesses that are qualified to accomplish environmental programs independently are rarely seen. SMEs with limited resources cannot get economies of scale at all.

3.2 Improper market structures failed to provide a leader in the industry.

In 1930s, professor Bain and Scherer put forward the famous SCP model, which tells that market structure determines market behavior and market behavior decides market performance. When applied SCP model to environmental protection industry in China, it is easy to predict that SMEs in the industry are experiencing overwhelming competition in traditional product market with similar products, low prices and low profit margin. This kind of products is easy to be produced with few demands on high technology. While knowledge and capital-intensive products, like automated intelligent products, environmental consult and technology services are shortly provided. As the industry is dominated by SMEs, it is difficult to nurture giant enterprises. Lack of leading enterprises, technology updates and outlets throughout the industry, are insufficient.

3.3 Institutional environment needs to be improved for fair competition in the industry

As institutions are set unreasonably; the regulatory role of environmental protection departments cannot be fully realized. In government institutions, an environmental protection sector is a subsidiary of a local government, which means that different administrative areas have different environmental sectors. This institutional structure ignores results of natural geographic features and externalities of environmental management. First, benefits from environmental damage are got at one region, due to geographical factors, other areas may have to pay the price such as the flow of polluted underground water. Second, environmental protection department mainly struggles to work on environmental problems in their own region, the cost of environmental management falls to the Treasury in this place, but benefits are shared by relevant parts, which will inevitably lead to inadequate environmental management. Strict enforcement of environmental protection policies by one local environmental department will make enterprises in this region move to areas with loose environmental requirements. For the sake of local economy, its behavior is usually restricted by the local government. In environmental protection market,

lacking of demand, enterprises are facing a buyer's market, these enterprises have to seize the limited local market, and form local monopoly. Fair and free competition is seriously inadequate.

3.4 Environmental protection enterprises have few financing channels therefore lack of financial support.

Environmental protection industry produces much positive externalities. Positive externality makes revenue from a project in green industry less than the total social benefits, but private cost is equal to total social costs. Thereby private investment is often insufficient to meet total demand of environmental protection. Bank loans to enterprises on environmental protection programs, because of positive externalities, will be less than desired. Apart from some state-owned environmental businesses in public infrastructures' field which can obtain subsidies from the Treasury, most enterprises are not so lucky, their financial support mainly come from bank credit loans (Lou Xinhua, 2010). In the environmental protection industry, government support is absent in most circumstances for most private enterprises which can only have limited funding.

4. Policy Recommendations To Speed Up Development Of China's Environmental Protection Industry

4.1 Expand financing channels; implement joint R&D model

Environmental technology is the life of environmental protection industry. Environmental protection enterprises engaged in manufacturing, a low profit-margin sector in a supply chain, can change their resource endowments to high return sectors like design, technology innovation through capital accumulation, introduction of talents, increase R & D investment and so on. Facing generally low level of industrial technology, environmental protection enterprises should be flexible in response to industry competition and cooperation. In the product market, competition is encouraged; but in key technology or materials research or large-scale environmental protection projects, enterprises should have a global view and team work spirits, try joint research and development model. Enterprises, environmental research institutes, along with environmental protection funds and international environmental organizations, on the common basis of environmental or economic interests, can carry out technical R&D cooperation. Joint research and development model, not only can enable companies gain greater funds, personnel, research experience, but also share the risk. Through mergers and acquisitions within the industry, advanced enterprise can gain economies of scale, and broaden sources of funding.

4.2 Implement standardized production, enhance in specialization

When the basic production technology matures and industrial experience accumulates to a rich level, environmental protection industry associations can develop appropriate quality standards of products, environmental technical standards, and environmental standards of service. With strict implementation of certification standards of environmental products, communities can get standardized and specialized products and services. Under the guidance of these standards, environment-friendly products producers should avoid weaknesses, specialize in their comparative advantages, and focus on their niche products or accessories. Standardized and specialized production help improve the efficiency of enterprises, also their professional level which are essential to technological innovation. At the same time a variety of industry standards should be based on market demand and technical levels of current enterprises. Continuous improvement in standards is necessary to enhance the technological level of the industry, gain higher products and service satisfaction and active response to external competition.

4.3 Develop technology development strategies to improve technical level of the environmental protection industry

R&D investment in environmental protection industry is a source of technological innovation. China's environmental protection enterprises are subject to too many subjective or objective constraints to launch their own R&D project. Therefore, to increase the general technological level of this industry, the state must take measures without excuses. This state-led technology enhancement in environmental protection industry is not new. Advanced economies like the U.S. and EU all have issued plans to ensure that environmental technologies transform smoothly from the "laboratory" to "market". In 1995, the United States released the National Environmental Technology Strategy, and had taken specific measures. These measures include provisions of public platform for testing, demonstration of new environmental technology and so on. The USA and EU have one in common: their environmental enterprises are mighty enough to invest in R&D to sustain technological innovations by themselves. For example, the U.S. waste disposal company Waste Management was once ranked one of the Fortune 500 companies. What the USA and EU need to do, is to balance the patent protection and maximized adaptation of advanced environmental technologies. It concerns technology transformation won't hurt enthusiasm of private investors. For Chinese government, it is not only to balance the conflicts between maximized promotion and application of environmental technologies and patent protection, but also to increase R&D investment in the industry, to provide advanced technologies for the industry.

4.4 Promote fair competition and give national treatment to private environmental protection companies

It is time for governments to abolish super-national treatments to these state-owned environmental protection enterprises and give national treatment to private environmental protection companies. Only in the same market environment, can private enterprises compete with state-owned environmental protection enterprises fairly for better market performance. Market is a powerful tool to distinguish the bad from the excellent, survival of the fittest. On the other hand, all levels of government and public procurement of environmentally friendly products should be completely monitored by the public for a fair game. Effective and transparent principles must be followed, which means to a certain level of environmental protection, purchasers must only seek environment-friendly products or services of the lowest cost. The government should fulfil obligations which others can't do for it, such as public security management, market supervision and rules-making and so forth. In a fair competitive environment, more resources flow to efficient, more technologically advanced enterprises, thus these enterprises can further grow to giants. Environmental protection enterprises have to participate freely in the market as to let the market play a greater role in natural and social resources.

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