

# **Summary Report of the Task Force on Financial Mechanisms for Environmental Protection, the Third Phase of CCICED**

**(First Draft as of July 2003)**

## **Executive Summary**

### **1. Background and Objectives of the Task Force**

Amongst many fundamental factors affecting environmental protection, such as environmental policy, investment and technology, environmental investment has been the bottleneck for long constraining the development of environmental protection in China. Current situation in three aspects has highlighted the bottleneck problem. Firstly, China is still facing a severe environmental status. It takes great sum of investment to accomplish environmental objectives set down for the Tenth Five-Year Plan period. Secondly, whilst China is entering the era of constructing a well-off society in an all-around way, its ecological environments will face greater pressures. Economic growth and social development need sustained support from a sound ecological environment. At the same time, public's need for a better living environment is increasingly growing. Thirdly, after three decades of tireless efforts, China has established comparatively holistic environmental legislation and policy systems. In this context, environmental investment is gradually becoming a critical factor for the implementation of environmental policy, research and development of environmental technology, solution of outstanding environmental problems, improvement in overall environmental quality, and achievement of sustainable development. The Chinese Government has incisively identified the bottleneck problem of environmental investment and prioritized it in governmental agenda. There is urgency in finding the solutions to this problem.

In this context, under the financial support of the Japanese Government, China Council for International Cooperation on Environment and Development (CCICED) has approved the establishment of a Task Force of Financial Mechanisms for Environmental Protection in China in the first year (2002) of its third phase activities.

The objectives of such Task Force are, to identify key problems faced by the environmental financing in China, to find innovative approaches to the solution of those problems regarding the

prioritized fields of environmental protection, and to provide the Chinese Government with holistic, strategic, and operational policy recommendations.

## 2. Methodologies and Studies Arrangement of the Task Force

The understanding and opinion on four major issues determines the technical routes and organization of work of the Task Force.

**1) Problems to be addressed by the Task Force.** On the basis of the preparatory study outcome and resources, the Task Force preliminarily concluded that the key problems faced by the Chinese environmental investment are insufficient investment and the low investment efficiency. The studies in recent two years proved the accuracy of this conclusion.

**2) Key study areas of the Task Force.** The Task Force, on the basis of its study on the pollution situation and trends, environmental priorities in the Tenth Five-Year Plan period, and the development momentum of environmental protection in China, believes that urban environmental infrastructure and pollution prevention and control in SMEs (hereinafter referred to as SMEs) would be priorities and nodus for future environmental protection. Therefore, the Task Force oriented its key study field on two key areas, namely urban environmental infrastructure mainly focusing on facilities for domestic waste water treatment and solid wastes disposal, and pollution prevention and control in SMEs. Study would be focused on solutions for the problems of insufficient investment and low investment efficiency in the both key study areas.

**3) Basic study focus of the Task Force.** The Task Force paid attention particularly on the fact that China has achieved substantial progress in the conversion from planned economy to the market oriented economy, and that a socialist market economy has initially taken shape. The environmental management approaches have been continuously innovating based on the market economy, and many good practices and experience have been learnt. China's accession into the WTO provided new opportunities for the environmental protection in China. In conclusion, the Task Force's basis study focus is on solving the key problems faced by environmental investment by market-based instruments and mechanism.

**4) Methodology of study.** The primary guiding ideology for the study of the Task Force are combined approaches of theoretical research and case study and that of basing on domestic situation and learning from international practices.

Following that, the Task Force established six research teams on six studies:

Study 1: Status and problems of environmental investment and financing in China. The objectives are diagnosing, scientifically and accurately, the key problems faced by the environmental investment, analyzing causes for such problems, and formulating holistic strategies and policy framework and orientations for solving the problems.

Study 2: Multiple investment and financing mechanisms for urban environmental infrastructure construction. The objectives are formulating a financing system for the urban environmental infrastructure in China, consisting of a variety of market-based financial instruments. The subject would study and come up with a stable and long-term effective financing approach, which could change the overall financing situation in this field.

Study 3: Mechanism for pollution and prevention in SMEs. This subject also has a core of study on how to finance. The difference with the second subject is that it would study, in the context of SMEs' current financing difficulties and related international experiences, on how to establish a specialized government-supported financing mechanism and institutional arrangement, focusing on the pollution prevention and control in those enterprises.

Study 4: market-based models and relevant policies for environmental pollution treatment, including two areas namely urban environmental infrastructure and industrial pollution treatment. The environmental protection in China launched in the period of planned economy, and thrived in the conversion to the market economy. The features of the planned economy are deeply embedded in the operational models for urban environmental infrastructure and industrial pollution treatment approaches. Since the reform and opening up, particularly in the process of the formulation of the socialist market economy, the conversion of governmental functions, and the improvement of market environment, tremendous practices and exploration have been undertaken on market-based instruments and mechanism in China. A good number of success stories and experiences have been learnt. They have been playing active and positive roles in attracting private fund into environmental protection and improving operational and managerial efficiency. In China such process is referred to as "Marketization". Therefore, this study is determined in light of related practices with the Chinese characteristics in the background of the situation of China. The core of study in this subject is to improve the investment efficiency in the field of urban environmental infrastructure and industrial pollution treatment (including those in SMEs). Market-based financing function is certainly one of the focuses of this subject.

Study 5 is on the Japan's financing experience in SMEs pollution prevention and control, and study 6 is about international experience in financing urban environmental infrastructures. Both studies would further support the second, the third and the fourth studies from international experiences and their adaptability in China.

In this way, the first four studies were carried out with a close focus on solving the two key problems in both key areas in environmental protection, and thereby the research system was established for the Task Force.

The research and experiment in the recent two years indicated that the methodologies and studies arrangement above have been reasonable and workable.

### 3. Major Research Activities, Outcomes, and Impacts

In the recent two year, the Task Force has undertaken substantial research in China. Four core research team meetings, two task force meetings, and dozens of informal workshops were organized, which have played an crucial role in the success of Task Force research and improvement of research quality. The Task Force produced one synthesized reports, six subject reports, one monograph in English and the other in Chinese, over ten papers for academic exchange and seminar, and one collection of papers in both English and Chinese.

In November 2002, an international seminar on environmental investment and financing was organized as a part of the Task Force meeting. Over 100 representatives from U.S., Canada, Japan and E.U., related governmental departments, local governments, and enterprises, and distinguished experts in China participated in the seminar, which brought wide and positive effects.

The Pollution Treatment Marketization Team produced a report entitled Problems in the Marketization of Construction and Operation of Urban Environmental Infrastructure in China and Policy Recommendations. The Report was recognized by Mr. Xie Zhenhua, Minister of the State Environmental Protection Administration. It was submitted to H.E. Mr. Wen Jiabao, Premier of the State Council, and to Ministers of the former State Planning and Development Commission and the Ministry of Construction, for reference. At the same time the China Environment Daily published the full text of the report, which drew great attention from the local governments and enterprises.

### **Significant Conclusions and Policy Recommendations**

#### 1. Status and Key Problems of Environmental Investment and Financing in China<sup>1</sup>

##### **1.1 Conclusion 1: in recent years, the investment in environmental protection has been increasing rapidly in China. However, the total investment is still insufficient.**

Since 1990's, the Chinese Government has been attaching great importance to environmental protection. Investment in environmental protection increased rapidly. The total sum of investment

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<sup>1</sup> According to statistics of environmental protection authority in China, this research defines the environmental investment as those in pollution prevention and control, including three parts, namely investment in pollution prevention and control for newly built industrial projects, that for existing industrial enterprises, and the investment in urban environmental infrastructure constructions.

in environmental protection was 360 billion RMB yuan in the Ninth Five-Year Plan period, which was 2.6 times as large as that in the Eighth Five-Year Plan period. The proportion of environmental investment in GDP had increased from 0.7% in the Seventh Five-Year Plan period to 0.87% in the Ninth Five-Year Plan period. It reached 1.12% in 2002. Particularly after the active financial policy was taken in China, the investment in environmental protection increased substantially. The environmental investment (including that in ecological construction) accounted for 580 billion RMB yuan during 1998-2002, which was 1.7 times as large as that during 1950-1997, and took 1.3% of GDP. Treasury bond is an important source, which accounted for 65 billion RMB yuan. The current environmental investment in China is equivalent to the status of moderately development OECD countries in early 1990's. In terms of investment orientation, the urban environmental infrastructure is one of areas with rapid investment growth, whether in terms of total investment or regarding its proportion in the total environmental investment. Investment in urban environmental infrastructure construction accounted for 33% of the total environmental investment in 1991. The rate increased to 55% in 2002.

The rapid increasing environmental investment in recent years has been playing an important role in effective control over total pollutants release and improvement of environmental quality in certain areas and cities in China. At the same time the significant role of such investment were also witnessed in the areas such as enlarging internal demand, creating employment opportunity, and boosting the economic growth. A survey implied that the environmental investment of 1.19% of GDP produced an economic volume equivalent to 1.7% of GDP.

However the current investment in environmental protection is far from adequate to meet the actual needs. In the Ninth Five-Year Plan period, even in light of a favorable situation of active financial policy, the actual environmental investment had not reached 450 billion RMB yuan as planned with a shortfall of 90 billion RMB yuan. In the Tenth Five-Year Plan period, the need in environmental protection is 700 billion RMB yuan. Under existing investment channels and mechanism, a shortfall of over 40 billion RMB yuan is estimated. According to incomplete estimate, the investment demand for environmental protection in the Eleventh Five-Year Plan period would be about 938.8 billion RMB yuan, or 1.1-1.3% of the GDP of the same period, which increases 34% than that in the Tenth Five-Year Plan period.

In the field of urban environmental infrastructure, the problems of great investment demand and insufficient investment will be more outstanding. According to a calculation based on the environment objectives in the Tenth Five-Year Plan period, by 2005, hundreds of billions RMB yuan will be needed for the urban sewage treatment in China, and an investment of 45 billion RMB yuan will be needed for wastes disposal. The total investment to be needed in both of the above-mentioned areas will reach 167.4 billion RMB yuan or so in the Eleventh Five-Year Plan period. At the current actual investment scale, it is extremely difficult to meet such demand. In

some localities, the problem of insufficient investment in urban environmental infrastructure construction is rather severe. The Sichuan Province is planning to construct 14 urban sewage treatment facilities from 2002 to 2020. The fund that could be raised on the current channels only accounts for 2% of the total demanded sum, which is rather worrying.

The problem of environmental investment insufficiency in China is caused by the great demand and the insufficient capability under the current investment and financing mechanism.

The so-called great demand for fund is determined by the severe environmental situation and quality as well as the objectives for environmental protection. With China at a lower stage of economic development, the rapid compressed industrialization process brings about a complicated environmental problem, combining industrial pollution, urban domestic pollution, loss of balance in ecological systems' functions, emerging environmental problems, and global environmental problems. In order to solve such complicated environmental problem, the investment needed is definitely large and unprecedented in any developed countries. In addition, a new round of economic growth is finding its way to a peak and rapid urbanization is coming in the background of well-off society construction. The ecological environment will face sustained great pressures. On the other hand, in order to satisfy the needs for social development in China, the environmental objectives must be increasingly higher. To take the urban environmental infrastructure construction for example, the treatment rate of urban domestic wastewater was merely 36.4% in 2001, among which only 18% met the standard of second grade treatment. The urban wastes treatment rate was 58.2%, among which only 10% received environmentally sound management. According to the environmental protection plan for the Tenth Five-Year Plan period, the centralized treatment rate of urban domestic wastewater shall reach 45% by 2005. That in cities with population larger than 500,000 shall reach 60%. The increased environmentally sound management capacity of urban wastes shall be 150,000 tons per day. It is obvious that these objectives are rather demanding. The Sixteenth Congress of CPC identified higher objectives for the environmental protection in the next two decades in light of constructing a well-off society in an all around way, i.e. continuously improvement in sustainability and ecological environment, and substantial increase in resource utilization efficiency, so as to promote the harmonization between human and nature, and initiate a road of social development with production development, well-off lives, and sound ecological environment.

At the other end of the great demand for investment in environmental protection in China, the existing investment and financing mechanism has not bring all its potential for financing into play in the field of environmental protection. This is the very focus of the study task. With the deepening of reform of economic system and the overall national investment and financing systems as well as the development of environmental protection, an environmental investment and financing structure has taken shape in China with involvement of multiple investment entities,

channels, and instruments. The multiple entities include government, enterprises (e.g. polluting enterprises and other investing ones), and individuals (e.g. urban residents); the multiple channels and instruments include public budget, environmental levies (levies from enterprises and non-profit organizations for pollution discharge, and from urban resident for sewage treatment and wastes disposal), treasury bond, government loan, enterprises' own funds, enterprise loan, and private capital, etc. However, in terms of roles and contribution made by various entities and instruments, the current mechanism mainly relies on measures and channels under governmental plans, e.g. public budget, environmental levies, and treasury bond, etc. And measures relating to non-environmental liable entities and public fund raising approaches are rather insufficient or even absent, e.g. bank loan, bond, and funds, etc. The levy system over urban domestic sewage treatment and wastes disposal is still at an initial stage, whose roles have not yet been fully played. Such environmental investment and financing mechanisms could not accommodate the development of current development of the market economy system in China, and could not fully mobilize the great sum of unemployed social capital. By the end of 2002, the household savings had nearly reached 10 trillion RMB yuan, or 102% of the GDP; the average annual increase rate of the household savings was 21% during 1998-2002. Both international experience and China's recent practices show that market-based instruments could be employed to attract social capital into several areas for environmental protection.

The study also found that the enterprises' low environmental awareness and the lack of external restraining forces, due to insufficient environmental enforcement, are the main causes of poor effective demand of enterprises for pollution control investment, insufficient investment, and low investment efficiency.

## **1.2 Conclusion 2: the low environmental investment efficiency is widely existing, which, in addition to the demand for financing, facilitates the marketization (market-based) practice of pollution prevention and control with Chinese characteristics.**

The low environmental investment efficiency in China is mainly reflected by the low construction and management efficiency of urban wastewater treatment and wastes disposal facilities as well as industrial pollution treatment facilities, particularly the failure or the unachieved designed effects and efficiency of some facilities, which could be widely found. There was once a saying in the environmental community of China, based on survey and common understanding, that 1/3 pollution treatment facilities could operate normally, 1/3 do not work, and the rest 1/3, though working, could not achieve the efficiency and effects, which they were designed for. This Task Force also deeply noticed the severity and generality of this problem during the process of data collection and research.

The causes of such problem cover a wide range, for instance, low environmental awareness of enterprises, ineffective and unsustainable supervision and management of the authority, which lead to the attempted halt or less operation of those facilities for the purpose of saving operational cost; lack of operational fund, incompatibility with pipelines, which cause a total failure of urban sewage treatment plants and wastes disposal facilities; blind decision on facilities construction, inappropriate choice of technology or equipment; managerial and operating personnel lacking fundamental techniques, etc.

It is certain that the problems in system and mechanism for construction, operation, and management of pollution treatment facilities largely and fundamentally lead to the low efficiency of environmental investment. For years, in the field of urban environmental infrastructure, government has been funding construction of such facilities, and the government affiliated non-profit organizations have been responsible for operation and management of such facilities. The patterns of government monopoly have been squeezing out competition institutionally and, hence, lack efficiency. In this regard, similar cases could be found in the history and even present situation in developed countries. However the problems following the government monopoly formed under the planned economy are rather complicated and severe. In the field of industrial pollution control, China only implemented a basic policy that “polluter is responsible for treatment”<sup>2</sup>. All polluting enterprises all built and operated their own treatment facilities. Little consideration was taken of leaving pollution treatment with specialized enterprise through a levy mechanism, which could bring the social labor division and economy of scale into full play. The pattern of “polluter treat pollution” brought a gravity of loss in investment efficiency to SMEs. The emerging of this situation was certainly associated with the development process of environment-related service sector in China.

With the deepening reform of market economy system and the continuously developing environmental service industry, China started an active exploration into market-based patterns for pollution treatment, based on international practices, such as the New PPP and PFI<sup>3</sup>, in the end of 1990's. In the field of urban environmental infrastructure, the marketization, per se, contributes to breaking the structure of government-dominated construction and operation, levying domestic wastewater treatment fee and wastes disposal fees from urban residents, encouraging the participation of any economic entities apart from governmental agencies in construction and operation of the facilities, attracting social capital, introducing market competition mechanism, and establishing a management system, under which various entities participate in facility

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<sup>2</sup> The current practice is a combination of this policy and the “polluter pays principle”.

<sup>3</sup> The New PPP refers to establishing partnership between public departments and private sectors in the field of urban environmental infrastructure; PFI refers to private investment initiative or private capital participation, both of which break the government monopoly structure, per se, and encourage private participation in the construction and operation of associated facilities.



construction and the corporate operation of those facilities is based on market mechanism. In the field of industrial pollution treatment, the essence of marketization is that either specialized enterprises were chosen for pollution treatment through a levy pattern (“polluter pay principle”), with socialized labor division and economy of scale, or polluting enterprises could handle their own pollution treatment (“polluter treat pollution”) according to the cost-effectiveness.

Since market-based patterns could increase investment efficiency and achieve financing function, active practices have been undertaken in recent years in China. Ground-breaking progresses are made in both policy and patterns for marketization of pollution treatment, though the practices are still on initial stage in the context of overall situation in China.

### **1.3 Conclusion 3: SMEs hold about half shares in not only economic contribution but also pollution discharge in China. However, they are faced with particular difficulties due to their weak position in terms of financing and investment under the current relevant system and mechanism.**

SMEs are playing an utmost significant role in national economic development in China. In terms of numbers, 99% of Chinese enterprises are small- and medium-sized. They contribute 50.5% of GDP, 76.6% of industrial output growth, and 43.3% of revenue, as well as 57.1% of commodity sales value. Over 75% of corporate employment are made by SMEs. Particularly, most of increased employment in recent years is occurring in them. Among an annual export of \$2000 in recent years, SMEs accounted for about 60%. In addition, they are flexible and innovative, and hence the most flexible force in national industrial upgrade and economic restructuring and indispensable for the optimization of resource allocation.

On the other hand, SMEs are major sources of industrial pollution in China. According to preliminary estimate of this Task Force, they contribute about 50% of the whole industrial pollution discharge. And their discharge reveals an increasing trend. Furthermore, they cause decentralized pollution with serious structural pollution problems. The business of SMEs mainly lies in sectors such as paper making, curry, electroplating, printing and dyeing, cement, brick-making, and mining for coal, ferrous and non-ferrous metal, and nonmetal, etc., which have low technological and financial requirements, and, however, high difficulties in pollution treatment.

Enterprises as a whole have been regarded as an subject for study on environmental management. SMEs have not been identified as a particular subject for management and service, and for policy implementation for “polluter pays” and “polluter treats pollution”. In recent years, taking the advantage of industrial re-structuring, a great number of SMEs with serious pollution and no hope for treatment have been closed according to administrative orders. In the overall trend of environmental protection, most of SMEs take positive attitude towards pollution control, either actively or passively. Compared with large enterprises, the most critical constraining factor

they encounter is fund for pollution treatment. Firstly, their poor economic strength limits their self-operated fund. Secondly, they have specific difficulties in financing for pollution treatment due to the highly costly and risky nature of financing and credit for such treatment, etc. Thirdly, they are often in an unfavorable situation in term of sharing government-controlled financing channels such as the subsidy for pollution discharge levy and some local subsidies.

In conclusion, the issue of pollution treatment in SMEs must be prioritized in China. Particular emphasis shall be laid on solving their specific difficulties regarding financing and investment for their sound pollution treatment.

## 2. Recommendations on Overall Strategies for Environmental Investment and Financing in China

Based on its analysis on current status, problems and their causes of China's environmental investment and financing, the Task Force made the following recommendations on the overall strategies for environmental investment and financing.

**The master-plan shall focus on increasing total investment and investment efficiency, and investment duties and responsibilities of each responsible actors shall be legitimately defined. Government's leading investment function shall be brought into full play through a variety of approaches and measures. Ultimately the environmental investment mechanism and system shall be established and improved with participation of multiple investment actors and involvement of multiple financing instruments.**

The core and objective of this strategy are to increase the total investment and to improve the investment efficiency. The system and mechanism consisting of multiple investment entities and financing instruments serve as institutional guarantee to achieve this objective. The defining of duties and responsibilities of investment entities is the basis. And the leading investment role by the government is essential.

The multiple environmental investment entities include responsible entities and non-responsible ones. Non-responsible investment entities refer to any economic entities and individuals without pollution, which pursue profit. They are major subjects to be encouraged by government to make environment investment. Certainly non-responsible entities actually also include those responsible investment entities (enterprises and individuals) that have fulfilled their environmental investment obligations. Responsible investment entities include government, polluting enterprises and individuals such as urban residents. Comparatively speaking, responsible enterprises' and individuals' duties and responsibilities, investment orientation, and patterns are clear. Polluting enterprises must comply with the "polluter treats pollution" and

“polluter pays” principles. Those who discharge domestic wastes, vehicle owners, and agrochemical users shall fulfill their investment obligations by paying related taxes and levies. Government’s investment duties and responsibilities are more complicated. The leading role of the government must be given a full play (See Table 1).

**Table 1: Composition of Multiple Responsible Entities for Environmental Protection, and Investment Orientation and Patterns in China**

Investment Orientation		Investors	Investment Patterns	Operation Mechanism
Industrial Pollution Prevention and Control		Polluting Enterprises	Corporate Investment, and Governmental Support	Marketized Pollution Treatment (Polluter Pays, and Polluter Treat Pollution)
Urban Domestic Wastes Treatment	Household Wastewater and Solid Wastes	Government, Enterprises, and Citizens	Led by Government, Supplemented by Market Financing, Citizens Pay	Multiple Investment Entities, Marketized Construction and Operation
	Vehicle Pollution	Vehicle Owner and Government	Owners Pay with Governmental Support	Government Supervision, and Controlled by Vehicle Producers and Owners
Ecological Construction and Conservation	Nature Reserves	Government	Governmental Investment	Direct Government Management
	Ecological Construction	Government, Collective Entities, Enterprises, and Individuals	Led by Government and Participation by Enterprises, Collective Entities, and Individuals	Government Supervision, Investment and Construction with Multiple Entities’ Participation
Non-point Agricultural Pollution and Rural Environmental Protection		Government, Agrochemical Users	Led by Government and Users Pays	Government Supervision and Users Control
Regional Environmental Protection		Government	Governmental Investment	Supervision Organized by Government, Marketized Operation
Implementation of Multilateral Environmental Agreements		Government, Related Responsible Parties, and International Organizations	Led by Government, Related Responsible Parties Pay, and International Assistance	Facilitated by Governmental Agencies
Environmental Management Capacity Building		Government	Governmental Investment	Implemented by Governmental Agencies

The leading investment role played by government is determined by two important factors in environmental protection.

Firstly, environmental protection is in the interest of the public. In particular, only government could play the leading role in the following three types of areas: (a) the areas where it is hard to determine the responsible party or there are too many of them, (b) the areas solely for public’s interest and with little profit return, and (c) the government-administered areas.

Ecological construction and conservation, regional pollution control, implementation of Multilateral Environmental Agreements, capacity building for environmental management, and urban environmental infrastructures in some cities, e.g. pipeline network construction, etc., all reveal the above-mentioned characteristics. Little attraction could be found to social capitals.

Secondly, with existence of policy environment, the final investment and operational cost are bore by government and users, even in the area of environmental infrastructure sectors, to which social capital is ready to be invested, e.g. urban domestic sewage treatment and solid wastes disposal, and gas and heat supply systems. The involvement of social capital just allows government and users to enjoy the service by the infrastructure in advance, and the huge sum of cost has to be repaid by stages. Although PPP and PFI are currently very actively carried out internationally, no evidence could prove urban environmental infrastructure could be constructed and perfected without the leading role played by government.

Nevertheless, the leading role of governmental investment could be achieved through several approaches or measures. As illustrated in the Table 2, according to international experiences and existing national practices and those currently under research in China, the investment and financing mechanism with multiple channels and measures in China may include national environmental budget or special fund, environmental economics, policy-guided investment, advanced project financing, long-term capital financing, and direct foreign fund, etc.

**Table 2: Main Options for Environmental Investment in China**

Conventional Investment and Financing Approaches	National Budget or Specialized Fund for Environmental Protection	General Fiscal Budget or Other Public Fund
	Environmental Economics Measures	Pollution Discharge Levies, and Sewage Treatment and Solid Wastes Disposal Fees.
		Environmental Tax, Tax over Products with Pollution, and Emission Trade, etc <sup>※</sup> .
	Policy-guided Investment	Environmental Policy-guided Investment: Simultaneous Implementation of EIA in Design, Construction and Operation Processes of Construction Projects, Fund for Technical Innovation, Revenue From Integrated Utilization, etc.
Preferential Loan <sup>★</sup> Preferential Taxation <sup>★</sup> and Subsidies.		
Market-based Financing Instruments <sup>★</sup>	Project Financing <sup>※</sup>	BOT (Build-Operate-Transfer), BOO (Build-Operate-Own), and TOT (Transfer-Operate-Transfer)
	Long-term Capital Financing <sup>※</sup>	Commercial Bank Credit, Treasury Bond, Municipal Bond, Corporate Bond, Trust Fund, multi-lateral authorized bank loans, and Environmental Lottery, etc.
Foreign Fund	Bilateral Assistance, e.g. Aid Provided to China by Japan	

	Preferential Loans from Multilateral Channels and International Financial Agencies, e.g. Loan in Japanese Yen and Loans from Asian Development Band and World Bank.
	Financial Mechanisms under Multilateral Environmental Agreements, e.g. the Financial Mechanisms under the Montreal Protocol and United Nations Framework Convention on Climate Change (GEF)

Note: The approaches marked by “※” have not been adopted in China, or are financial approaches still under research; Those marked by “★” indicate that further strengthening is needed.

In addition, according to some European countries’ experiences, the implementation of total cost recovery or pricing policies, i.e. integrating cost for pollution control in the cost of products or service, and transferring the cost to consumers through adjusted prices, has played an significant facilitating role in corporate pollution control. Such approach deserves careful study and learning in China.

### 3. Policy-oriented Conclusions and Specific Policy Recommendations on Market-based Financing Mechanism for China’s Urban Environmental Infrastructure

#### 3.1 Policy-oriented Conclusions

**3.1.1 Conclusion 1: in the light of the financial system reform and current commercial financing methods in China, urban environmental infrastructure can be funded through a marketized system of multiple financing modes, including commercial bank loans, bond, trust investment fund and multi-lateral authorized bank loans.**

(1) Currently, commercial bank loans can be the most important or preferred method for urban environmental infrastructure financing, so long as necessary reforms are implemented concerning loan obtainability and debt repayment. Such reforms include:

Firstly, separate the borrower from the legal person of the environmental infrastructure project. Urban infrastructure development agencies will be selected as borrowers. Local governments will grant preferential treatment to the borrowers in terms of project development, land lease, financial discount and guarantee, bond and stock issuance, which will strengthen their ability to repay the debt.

Secondly, the holding owner of the project will provide guarantee facility for the borrower. Under such arrangement, the borrower remains the project owner. However, the leading financier of the project is required to provide financial guarantee. The guarantor still chooses the government-supported urban infrastructure development agencies.

Thirdly, local governments endow the borrower with the right to develop other projects, and the return from these projects will be appointed to repay the debt for environmental projects.

Fourthly, the environmental project will be bundled with the other infrastructure projects for a packaged loan. For instance, sewage treatment project and water supply projects can be put together for loan applying. And return from the various projects will be used to repay the debt.

Lastly, enhance the repayment ability of the borrower through government discounted capital, bond issuance, bond-to-stock transfer and inviting the lending bank to act as the financial advisor of the borrower.

(2) Of the bond financing methods, municipal bond is the common international practice. 85% of the investment in US water sector (including water supply, sewage pipe net and treatment facility construction and river cleaning) comes from municipal bond. In Japan, municipal bonds account for 20-40% of the total investment in urban sewage treatment facilities. The conditions are becoming mature for issuing municipal bond in China. Relevant researches and trial issuance are now called for.

The potential for corporate bond is huge, according to the latest development of financial policy reform. This financing method should be actively used for urban infrastructure construction with the financial reform development.

(3) Government policy on trust investment financing for environmental purposes is already in place. The more urgent task for now is to carry out feasibility study for environmental fund. Specifically, such public welfare funds can take the form of trusts and can be jointly financed by government treasury, private companies and urban residents. The government environmental protection agency, after approving the fund, also acts as the trust supervisor. The trust will be managed by professional trust investment institutions.

(4) In China, there have been successful cases of financing urban environmental infrastructure through multi-lateral authorized bank loans. In future, this practice should be used more often with reference to relevant financial policy development.

**3.1.2 Conclusion 2: based on the substantial environmental, social and economic benefits generated by treasury bond-financed environmental protection projects, government should increase its support for these projects.**

**3.13 Conclusion 3: From a long-term perspective, however, using either of the following five financing methods for urban environmental infrastructure: commercial bank credit, corporate bonds, trust investment fund, multi-lateral authorized bank loans and treasury bond, will, to certain extent, result in adverse effects.**

First, to some degree, the nature of corporate bonds conflicts with the public good feature of urban infrastructure. In recent years, one of the reasons for financing urban infrastructure through this method has been to circumvent certain legal restrictions. Though the company takes the risk and is responsible for repayment, it also receives support and subsidy from the government. The

stringent approval procedure of corporate bonds, coupled with high issuing cost and the long time it takes explains why the development of this method has stagnated.

Second, although trust investment fund may be used widely, it is not a special financing channel for urban infrastructure construction. Moreover, trust investment institutions are not among the major players of the Chinese finance industry. In terms of either their coverage or their financial strength, they lack the ability to be the main financing channel for urban infrastructure in China.

Third, under the arrangement of multi-lateral authorized bank loans, though the bank-trustee is not responsible for debt repayment, lenders still count on the creditworthiness of the bank. As such, certain degree of social risk is involved under this method.

Fourth, bank credit plays the major role in the finance sector. Banks enjoy the most financial resources as well as wide presence across the country. This method, per se, is likely to become the major way of financing urban infrastructure. However, from a macro perspective, several problems still have to be considered. For one thing, banks will take undue financial risks; for another, the development of direct financing in China requires that the proportion of bank financing be reduced, thus diversifying the investing outlets for the resident. In the long term, therefore, urban infrastructure financing should not rely too heavily on bank credit.

Lastly, the major purpose of treasury bond issuance is to generate capital for macro-economic control, economic restructuring and balancing regional development, or for nationwide sustainable development in areas including environmental protection by the central government. Urban infrastructure is part of the city function, which lies with the local government, not the central government. Therefore, using capital generated through treasury bond for urban infrastructure may lead to confusion in the jurisdiction of central and local governments and other adverse effects. Therefore, it is neither necessary nor possible for the central government to take the responsibility for urban infrastructure construction and financing. On the contrary, local governments should take charge of the financing, construction and operation of local urban infrastructure. In addition, it is impossible to maintain a high volume of treasury bond in the long run due to the significant risk thus involved. Further more, based on the analysis of management efficiency of the capital generated by treasury bond, high efficiency over the long term is very difficult, if not completely impossible. Central government, as the issuer of treasury bond and the user of the generated capital, does not have the ability to manage urban infrastructure of the specific cities. Apart from this problem, efficiency in capital use may turn out very low because the bond capital has to go down a pyramid of agencies before it reaches the end user. Last but not least, wide gap in economic development between different cities has meant considerable difference in financing capability as well. If urban infrastructure is financed solely by central government through bond issuance, it may lose sight of the above-mentioned difference. More

over, it may become different to engage the initiative and enthusiasm on the side of the local governments.

### **3.2 Specific Policy Recommendations**

**Based on the above conclusions, municipal bond should be used as the major financing tool for urban environmental infrastructure in China. Specific recommendations include:**

**First, State Council appoints relevant agencies for feasibility study and assessment of municipal bond issuance, after which an implementation plan should be submitted.**

**Second, one or two cities selected out of the economically advanced cities, such as Beijing, Shanghai, Guangzhou and Shenzhen issue municipal bonds on a trial basis under the approval of central government. The use of the proceeds from the issuance will be restricted and the issuance volume will be rigorously reviewed by central government.**

**Third, study and experiment with ancillary policies necessary for municipal bond issuance. The first thing is tax incentives. Grant tax reduction or exemption on the investment return from municipal bonds so as to attract individual and institutional investors. Secondly, give commercial banks access to the municipal bond market. Thirdly, allow municipal bonds to be traded freely on the national securities market. When possible, create an over-the-counter market, which, along with the primary market, will greatly improve the liquidity of the bonds and hence reduce the investment risks. Lastly, establish an effective issuance and guarantee system for municipal bonds. Promote marketization in bond issuing and underwriting, by way of which appropriate issuer, underwriter and issuing methods can be selected by the market. At the same time, use proper guarantee structure to identify guarantee responsibility and risks.**

**Fourth, after sufficient pilot work, make preparatory research for the amendment to provisions in the *Budget Law* that forbid local governments to issue municipal bonds.**

Based on the following facts, it is feasible for local governments to issue municipal bonds.

(1) Municipal bond issuance is in line with the market economic reform China now is undergoing. It is also an important component of the pro-active fiscal policy. Municipal bond is a type of government bond, which is issued by the local government and the proceeds are used mainly for local infrastructure. Therefore it is consistent with the central government strategy to enhance the national economic growth through infrastructure development. Meanwhile, this can also help relieve the mounting demand for public good, including infrastructure facilities. It will, furthermore, improve the local economy, as long as the local government, under the macro-management by the central government, devises the bond issuance plan in accordance with the specific situation of the regional economy.



The issuance of municipal bonds can help readjust the debt structure and put more variety in bond types. On the other hand, the central government, by distributing the bond issuance to different cities, can reduce its risks, as the local governments are now responsible for the repayment.

(2) The features of municipal bonds dovetail with the public-good nature of urban infrastructure. Municipal bonds are normally issued under conditions different from purely commercial bond issuance (though their issuing methods are more or less the same.). The issuance and trading of municipal bonds are usually tax-exempted. The difference between the interest rate of the municipal bond and the market interest rate is paid for through local fiscal revenue or returns from other projects. The reason for such preferential treatment is exactly the public-good nature of the projects financed by municipal bonds. As such, the proceeds from the municipal bonds have to be used for such projects, whose cost recovery is difficult or takes a long time. Typical of these are urban environmental protection projects.

(3) The application of municipal bond reflects the significant role played by the municipal government. One important function of the municipal government is planning and organizing urban infrastructure construction. Municipal bond issuance, more than other financing, manifests the status of the city government and capitalizes on the creditworthiness of the municipal government. In fact, though there are no municipal bonds in the strict sense of the word in China, many of the other financing tools used in municipal infrastructure projects take a great deal into account the creditworthiness of the local government. Where bank credit and other tools are used to finance urban infrastructure projects, municipal governments have also imparted substantial support in terms of land leasing, project development and guarantee facility. Direct issuance of municipal bonds by the local government for urban infrastructure in fact combines the function (or responsibility) of the government with its credit, and its financial capacity with the financing right. The issuance of municipal bonds will elicit the enthusiasm of the local government in infrastructure development. Further more, the local government is in a better position to pool financial resource (including that of the city residents) for urban infrastructure according to the local needs.

(4) The financing cost can be knocked down if municipal bonds are used. Municipal bond issuance requires lower cost compared with other financing because the government, which enjoys a high creditworthiness, acts as the issuer or the guarantor of the project. The risk involved is therefore much lower. In addition, investors in municipal bonds usually enjoy preferential tax treatment. Consequently, the interest rate offered to the investors is comparatively low. On the other hand, the total volume of municipal bond issuance is normally based on the overall construction needs of the city, which is generally much larger than if a single project is financed. The large scale also helps reduce the financing cost.

(5) The financial conditions and the capital needed for municipal bond issuance in China are now available. By the end of 2002, total deposit of Chinese residents has almost reached RMB10 trillion, which is equivalent to 102% of the GDP. From 1998 to 2002, bank deposit of Chinese residents increased by an average annual rate of 21%. Such rapid growth, on the one hand, reflects the fast economic development in China. On the other hand, it points to the lack of other investment outlets. Under such a backdrop, sufficient financial resources are now available for municipal bond issuance, which will then be used for urban infrastructure, including environmental protection facilities. In terms of financial environment, China has tentatively established well-functioning financial institution, financial market system and financial supervision and management regime. The financial conditions for municipal bond issuance are now mature.

(6) Under the arrangement of municipal bond issuance, financial risks can be effectively controlled. This is due to the following factors: first is the sound credit of the issuer, which is the municipal government or someone guaranteed by the government. The municipal government collects the taxes while at the same time takes charge of the city construction and management. Such roles of the government are essential to reducing the risks of municipal bond issuance. A second factor is the way the proceeds from municipal bonds are used. These bonds, unlike commercial bonds, are aimed to finance urban infrastructure. Generally speaking, the operational risk of infrastructure projects, so long as they are properly managed, is much lower than that inherent in common commercial projects. Third, the issuer of municipal bonds also takes on the managerial role. One of the important responsibilities of the municipal government is to maintain financial stability and to reduce financial risks. Therefore the local government has to control the financial risks of bond issuance in two senses, as the issuer, and as the city administrator. Thus, risk control in the context of municipal bonds goes beyond that of a specific transaction; it also includes controlling risks from the social perspective. It is only natural that the government pays close attention to risk control in municipal bond issuance.

#### 4. Policy-oriented conclusions and policy recommendations on market-based approaches to the construction and operation of urban environmental infrastructure

##### 4.1 Policy-oriented Conclusions

**4.1.1 Conclusion 1: market-based approach (marketization) institutionally guarantees the investment efficiency of urban environmental infrastructure while at the same time plays an important part in project financing.**

Marketized operation overcomes the institutional deficiency under government operation because it ushers in the market competition mechanism and attracts private companies. Efficiency is raised in project construction and management.

**4.1.2 Conclusion 2: in terms of infrastructure construction, the government must play the leading role in making investment. On the other hand, in areas of facilities operation, waste collection and disposal, market-based mechanisms can be applied everywhere. In the marketization process, the major task of the government is to create, standardize and support the market.**

In the current marketization practices, two extreme opinions exist on the relationship between the government and the market: one arguing for complete government control, the other considering the market as a panacea. Opinions also vary across regions. The function of the market is more emphasized in the east of the country, while the west more relies on the government. According to the experience of developed countries, the analysis on marketization of urban environmental infrastructure internationally, and the situation in China, the government must play the leading role in investment, while letting the market rule in areas such as project operation, waste collection and disposal.

With reference to market creation, the responsibility of the government is to transform the potential market for pollution control to actual demands through rigorous law enforcement. An appropriate tariff system has to be established based on the rules of “polluters pay” and “investors gain”. The tariffs must be soon raised to ensure profit. The government should also improve the ownership system. The nature of urban environmental infrastructure of being pure public good must be changed to price-exclusive public good. Another task of the government will be to accelerate restructuring of the environmental infrastructure agencies and recognize the legal entity status of private enterprises in such fields as sewage and waste treatment.

As for market supervision and standardization, the government should prepare comprehensive programming for urban infrastructure so as to avoid irrational development in the course of marketization. Rules of market access and fair competition for private enterprises have to be established, by which the good players and the bad ones can be differentiated and vicious competition can be averted. Another thing is for the government to remove administrative barriers and regional separation by establishing a public bidding system, thus creating an open, fair and just market environment. The government also has to ensure that every person can enjoy the facilities. Lastly, it must strengthen supervision to prevent second-time pollution.

With regard to support for the market, the government can provide more financial support by setting up a special fund for pollution control. It can also make preferential policies in taxation,

land use and electricity supply, as well as offering technological advice and information, so as to engage the interest of relevant enterprises. Favorable tax treatment can be granted to enterprises in the pollution control sector.

**4.1.3 Conclusion 3: the eastern China could widely carry out marketization in area of urban sewage and waste treatment, but the western China should gradually introduce such practice with priorities in both market-based models and cities.**

The conditions for across-the-board marketization in urban sewage and waste treatment are now mature in eastern China. Specifically, four models of marketization can be followed:

First. Restructure the con-commercial institutions engaged in sewage and waste treatment and waste disposal. These institutions will be transformed to companies. Beijing and Shanghai have set good examples in this transformation. The restructured enterprises can be state-owned or a public-private corporation. The experience of Shenzhen in such restructuring can also be applied to other cities. It has adopted a mode of “integrating water supply with the drainage sector”. However, it must real-sense transformation from non-commercial institutions to companies. Otherwise the government will still have to take the burden and it will be hard to improve the service quality in these sectors.

Second. Contract with the restructured companies or private companies for the operation of existing facilities, such as what Longtian and Shatian Sewage Treatment Plants have done. The TOT model can also be applied so that state-owned assets can be retrieved for new facilities.

Third. Using open bidding and leasing for the new facilities financed by the government. Or use TOT to recover the investment for new projects.

Fourth. Where possible, apply BOT and quasi-BOT model to build new facilities. In this area, there have been successful cases in some eastern cities.

Compared with eastern China, western China is not as well conditioned for marketization due to lack of policy concerning fee collection, low charges, low awareness of marketization and insufficient capacity. As such, the restructuring model can be adopted first. As for the problem of low tariffs, which has been a barrier to attracting private investment, the government can grant financial subsidy. Quasi-BOT will be given priority in the marketization process in the west region, followed by gradual application of TOT and BOT. Western China can draw on the successful experience of the eastern cities.

**4.1.4 Conclusion 4: at the beginning of the restructuring the current system, the main job of the government will be to solve the problems of personnel relocation and tax increase.**

Restructuring the institutions engaged in facility operation and management is the major form and task of marketization in urban sewage and waste treatment and disposal. However, two

problems emerge: relocation of the laid-off workers and increased operating expenses due to tax payments. Once the non-commercial institutions are restructured into companies under the *Company Law*, they become independent legal entities and have to pay income tax and other taxes. These two problems have resulted in lukewarm interest in restructuring in many places.

According to the experience of Beijing, the government has to give priority to solving the two problems if the restructuring process is to be accelerated. People laid off in the process will receive preferential treatment in medical care and old-age insurance, in addition to the normal support given to all laid-off workers. The government also provides training to help them find new jobs. On the other hand, the government can formulate a list of enterprises in public welfare services. Different levels of favorable tax treatment can be granted to different companies engaged in pollution control according to their various situations. Other special methods may be adopted in the light of the local conditions.

## **4.2 Specific Policy Recommendations**

The task force presents the following recommendations on urban environmental infrastructure marketization based on the above research conclusions:

**4.2.1 Recommendation 1: formulate regulations on marketization of urban environmental infrastructure construction and operation.**

**4.2.2. Recommendation 2: make training plans for the promotion of marketization of urban environmental infrastructure development and operation.**

**4.2.3 Recommendation 3: clarify or establish organizations for regulating and providing services for the marketization**

*(these recommendations will be further elaborated )*

**5. Policy-oriented Conclusions and Specific Policy recommendations on Government Supportive Mechanism for Financing SMEs' Pollution Control and for Investment Efficiency Improvement.**

## **5.1 Policy-oriented Conclusions**

**5.1.1 Conclusion 1: the government should play an active role in SMEs environmental protection financing.**

SMEs in different countries across the world have encountered difficulty in pollution control financing. Japan, however, has successfully resolved the problem and has gained valuable

experience. Zhejiang province in China has seen several successful cases of government support too. This indicates that the government should give active assistance to SMEs in pollution control financing. Such assistance will not only help the enterprises to meet environmental standards, but is also in line with the current policy of encouraging SMEs development and industrial innovation. Though the government will have to spend some money on SMEs pollution control, the improved investment environment as a result of this will bring more economic benefits to the region.

Regarding pollution control financing, the government need not pay much attention to the big companies, but should focus on the SMEs. A simplistic attitude of “ I only want you to comply with the environmental standards, but I don’t care how you finance pollution control” will not work.

### **5.1.2 conclusion 2: the enterprises must eventually pay the expenses for pollution control**

Although the government should provide support for SMEs pollution control, the enterprises themselves ultimately must pay all or most of the expenses for pollution control according to the principal of “who pollutes, who pays”, which gives the companies incentive to improve production and management. The government facilitates SMEs financing, but does not make the payment for them. The experience of Japan and successful cases in China also indicate that the proper mode is for the government to create favorable conditions, but the companies pay. Therefore it has to be clarified that the enterprises are the ultimate payer in the financing mechanism for SMEs pollution control.

### **5.1.3 Conclusion 3: private institutions can carry out the activities of financing and investing assistance**

In facilitating SMEs pollution control financing, the government does not have to implement the specific tasks by itself, but can authorize other institutions for this purpose. This way, the government can concentrate on policy making.

### **5.1.4 Conclusion 4: in order to improve investment efficiency, the government should encourage or require concentrated pollution control by establishing industrial parks where possible. For non-concentrated pollution control, the government should encourage professional methods, such as contracted pollution control.**

Such marketized models as contracted pollution management and concentrated control have emerged in the area of professional control of industrial pollution in China. These models have demonstrated strength in improving environmental investment efficiency and pollution control effectiveness as they take advantage of division of labor and economy of scale. At the same time, such professional methods have increased and stabilized the compliance rate of discharge of the

pollution-generating companies, enhanced the competitiveness of these companies and helped achieve total emission control.

## 5.2 Specific Policy Recommendations

Under the guiding principles mentioned above, the task force proposes three recommendations on government support mechanism for SMEs pollution control financing.

### 5.2.1 recommendation 1: establish SMEs pollution control fund under the national “Small and Medium Enterprises Development Foundation” and “Special Fund for SMEs development support”

According to the supportive policy for SMEs development and specifically the provisions on “SMEs Development Foundation” and “special fund for SMEs development support” in the *Small and Medium Enterprises Promotion Law*, the task force proposes the following recommendations:

**First, the government can establish “special appropriations for SMEs pollution control” under the “SMEs development fund”. The appropriations will be used for:**

(1) Company relocation subsidy. The amount of subsidy will generally be within 10% of the total relocation expense;

(2) Preliminary construction for concentrated pollution control. If the concentrated pollution control project is planned by the government, the facility construction before the companies relocate can be financed entirely by the appropriations. After the relocation has completed, the initial investment can be collected from the companies under an installment plan. The repayment can be made in five to ten years;

(3) Preferential loans for clean production and pollution control projects. If the enterprises pollution control measures other than concentrated control, preferential loans can be granted by this fund if they lack capital. The interest rate of such loans will be 1-3 percentage points lower than the market rate. The difference will be covered by the fund; and

(4) Providing guarantee for environmental protection projects. According to the “*SMEs Promotion Law of China*”, one purpose of the “SMEs Development Foundation” is to provide guarantee for SMEs. Therefore, guarantee facility for environmental project loans is legitimate so long as it is done within the framework of the foundation. Additional guarantee arrangement is not necessary.

**Second, establish “sub-appropriations for SMEs pollution control” under the “special fund for SMEs development support”. The appropriations will be used in the following areas:**

(1) Construction of service system for SMEs pollution control ( for instance, establish organizations that provide services for SMEs pollution control);

- (2) Research in policies and laws on SMEs environmental management;
- (3) Technological support for SMEs pollution control; and
- (4) Other services for SMEs pollution control.

### **5.2.2 Conclusion 2: establish “SMEs pollution control appropriations” under the “pollution source control subsidy”**

Under the principal of “focusing on the environmental financing of SMEs, paying less attention to big enterprises”, governments at province, city and county levels can recast the “pollution source control subsidy” to make it more favorable to the SMEs.

Specifically, establish “SMEs pollution control special fund” under the “pollution source control subsidy”, which will be used to support the construction of end/terminal pollution control facilities of SMEs, especially the construction of concentrated pollution control facilities.

Apart from the “pollution control subsidy”, three other sources can provide capital for the “SMEs pollution control special fund”:

- (1) Appropriations under government budget. Transfer a certain amount of fiscal capital to the fund regularly or on a lump-sum basis. Some regions in China have already done something more or less the same.

- (2) Fiscal borrowing. Borrow from fiscal sources for capital. Such sources can be funds controlled by fiscal agencies for reserve or risk prevention, for instance pension fund or social security fund. The objective of these funds is to establish security against future uncertainty. However, they can be invested for appreciation currently. If the funds are transferred into the SMEs pollution control special fund, the principal will be repaid with interest in the future by those enterprises that have used the capital. The actual role of the fiscal funds is providing guarantee facility. Japan has had successful experience in this area.

- (3) Foreign aid and international donations

### **5.2.3 Recommendation 3: incorporating financing support for SMEs pollution control into government administration and setting up environmental organizations for serving the SMEs.**

The *SMEs Promotion Law of China* has a provision which reads: governments above the county level and the affiliated agencies responsible for industrial affairs and other relevant agencies in these governments should provide guidance and service for the small and medium enterprises within their jurisdictions. According to this provision, SMEs pollution control, which is an integral component of SMEs development, should also be an important part of the responsibility of these government agencies.

The problem now is that such government agencies have mostly focused on the “economic development” of SMEs, in particular, on the establishment, innovation and market development



of the SMEs, while “SMEs pollution control” has not been considered as an important job yet. Worse, some agencies have not even thought of it as one of their obligations. The environmental agencies, on the other hand, have always looked upon all the enterprises as one single body and have not set SMEs apart as a special group which requires tailored management and service. Consequently, no special institutions have been established to take charge of SMEs pollution control. The result is neither of the two sets of government agencies, which are legally responsible for providing guidance and service for SMEs pollution control, have paid enough attention to this issue. Service for SMEs pollution control has been but indiscriminately carried out within the bigger framework of “enterprises environmental management”, its special traits not recognized. In such a context, support for SMEs pollution control financing cannot be deployed. In order to implement the relevant provisions in the *SMEs Promotion Law*, the responsibilities of industrial affairs agencies and environmental agencies for SMEs pollution control must be clearly identified, so that these government agencies will really provide instructions and support for SMEs pollution control financing.

In summary:

(1) “SMEs Environmental Management Office” should be established under the State Environmental Protection Administration. The main responsibility of the office will be to ensure the implementation of relevant provisions in the *SMEs Promotion Law of China*, including SMEs pollution control.

(2) When the conditions are mature, a work conference on SMEs pollution control financing should be jointly held by SEPA, State Development and Reform Committee, the Finance Ministry, and the People’s Bank of China.

(3) The above-mentioned departments will jointly formulate and release *Opinions on the Policy for SMEs Pollution Control Financing*, which will provide guidance for SMEs pollution control financing in different regions.

SMEs are large in number and represent a wide variety of industries, while the capacity of the government is limited. Therefore governmental aids for SMEsS pollution control cannot all be carried out by the government itself. A better alternative is to establish non-profit environmental organizations, which will only serve the SMEs, or such organizations whose mandates include such a function.

Recommendations:

**(1) Establish “SMEs Environmental Protection Service Company” under the instruction of SEPA.** The company will be responsible for implementing the supportive measures for SMEs pollution control. This will include three parts: industrial operation, financing activities and third, authorized management.

Industrial operation refers to the actual project construction, for instance, leveling up land in the industrial parks, building factories and construct sewage treatment plants. After these facilities have been completed, pool the SMEs for concentrated production and pollution control.

Financing activities include such financial functions as providing loans, discounts, subsidy, guarantee and fund raising, which will ensure the implementation of the financial support for SMEs pollution control.

Authorized management means the company will provide service and management for SMEs under the authorization of the government. For example, help those enterprises to find pollution control technology or facility and inspect their emission and discharge.

**(2) Clarify the non-commercial nature of this institution.**

The essence of this institution is to carry out particular affairs of the government. As such, it is a non-commercial or policy institution in nature and should not be treated as a pure commercial company in the market. In other word, the government will pay the operating expenses of the institution, or will allow it to collect fees from the users for its operation.