

Environment, Development and Governance: How to Face Environmental Challenges in the New Century

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Abstract

Environmental problem is one of the most rigorous challenges that China has to face in the 21st century. Environmental protection, the key of long-term and steady economic increase and sustainable development, is a basic national interest. In China, the solution of environmental problems has great impact on its national security, its international image and the fundamental interest of public as well as the realization of comparatively well-off society. It is a basic responsibility and duty of government to provide a good resource and environmental base and to let all the people have clean air, clean drinking water and safe food.

International experiences indicate that government plays a dominant role in the area of environmental protection, which means efficient environmental administration institution is the precondition of environmental improvement and sustainable development. In the past 20 years, especially during 1990s, China made achievement in the area of environment and resource protection. To some extent, pollution discharge has been controlled, the discharge volume did not increase with the economic development. Meanwhile, ecological conservation and exploration went into a new era. These achievements, to some extent, came from the constantly improvement of environmental administration system and relevant institutional arrangement.

In accordance with social economic changes, environmental protection work also steps into the phase of transition. We are now facing a very complicated situation with problems of multi-environmental pollution and ecological degradation. The development future is not optimistic. Compared with the situation of 20 years ago, lots of changes of environmental issues occurred including changes in type, structure and region. Comprehensive type of resource and environmental problems (normally raised in the stage of transition) happened during the time of low economic development phase. The severity not only involve in the increase of pollutant discharge and enlarge of ecological degradation scope, but also involve in the interaction between resource, environment, and socio-economic development. The pressure of social, economic and global environmental problems will last for a long period of time. China is now facing a situation that had never happened in any other countries. As a large and responsible developing country, China

has to make right response and reasonable choice to cope with the new phase of environment and development.

In order to cope with the multi-challenge of environment in the new century, and to realize the comprehensive goals of sustainable development, new type of resource/environment administration institution and relevant mechanism should be established. Current resource/environment administration institution has problems of less comprehensive and coordinating capacity and incomplete instrument and lack of unified supervision mechanism. In the strategic report that recently published by the World Bank and UNDP on the environmental issues of China, environmental institutional arrangement and governance reform were put as the top priority.

New resource/environment administration institution should reinforce mechanism of unified supervision and the one of coordination to avoid the problems of function overlapping, cross-sector management and unclear definition of administration. With unified, coordinating, integrated and transparency concept in mind and with the help of unified supervision, coordination, comprehensive decision-making and public participation mechanisms, environment administration institution can be well run and its goals can be realized. And this kind of institution can also reflect the integrity, comprehensive and coordination requirements of environmental protection and sustainable development.

To establish a coordinating organization is very necessary for new type of resource/environment administration institution. Constrained by its characters and rank of government, environment protection or resource management department doesn't have the independent ability to do the inter-ministry coordinating work. It is necessary to set up a coordinating mechanism at national level, such as environment and resource protection committee under the leadership of the State Council.

In the new situation, it is necessary to adjust the environmental protection strategy; to start from the driven force that cause resource/environmental problems to set up environmental friendly and life-cycle socio-economic system through institutional reform and policy innovation which integrates environmental protection into development; to improve governance of environmental protection and to encourage stakeholders get involved in decision-making and increase the capacity building of environmental NGO and to strengthened international cooperation.

PART A: Environmental protection and economic development are two sectors that supplement each other. Environmental protection administration institution,

which consists effective administration organization and healthy institution, is the center for the work of environmental protection and sustainable development. In terms of environmental protection, environmental administration should not be weakened but enhanced.

1.Environmental protection is the fundamental benefit and one of the basic goals of long-term development of China, and sustainable development is still the challenge that China has to face.

Environment and development are two factors that supplement each other. Environmental protection is one important part of development. Development will be decreased without necessary environmental protection; there will be no enough financial guarantee for environmental protection if economic development is not strengthened. In the situation of developing country, conflicts always exist between development and environmental protection. Economic growth may increase environmental pollution and the degradation of resource, it may also bring a better environment, the selection of institution and policy play a very important role in this case. To integrate development and environmental protection and search the way of sustainable development will definitely have to pay; the key work to achieve sustainable development is to keep the balance among economic development, social development and environmental protection and the way to integrate these three components.

2.An effective administration institution, healthy mechanism and good policies are the foundation to realize goals of environmental protection and sustainable development.

Government is the key body of macro-institution establishment, policy making and incentive mechanism implementing; government structure will not only be constrained by regulations, it will also be adjusted with the change of time. The innovation of administration institution should not only be made based on the experiences and lessons, more importantly, it should also be made to deal with all conflicts and challenges people has to face in the new century. Therefore, as a country in the phase of transition, it is a very important task to find out a better administration institution, and mechanism innovation and a set of development policies to improve environment and to achieve sustainable development.

3.Environmental protection should be an area where government plays important role.

There is no doubt that market failure and government failure are the two reasons leads to resource damage and environmental pollution. Private factor could almost not provide any innovation activities to improve environment; the externality of social economic activity and the public goods character of the environment require the public actions to solve environmental problems. Unreasonable institution and policies are also the basic driven forces for environmental degradation. Therefore, to a large extent, the work of environmental protection relies on government, and to set up a strong environmental administration institution with constantly improved governance will provide precondition for environmental improvement.

4.The institution establishment for environmental protection enhancement and sustainable development is an international topic. In the “Plan of Implementation” of World Summit on Sustainable Development (Johannesburg), one chapter was used to describe the institution framework for sustainable development, from which we can see the importance of it for sustainable development. In this plan, an effective institutional framework at all level (international, regional and country level) is considered as a key to sustainable development. It also emphasizes that good governance is the fundamental of sustainable development and requires all countries to set up sustainable institution framework at national level in a unified and coordinating method including the establishment/enhancement of necessary decision-making, coordinating and enforcement organizations.

5.In the past more than 20 years, the achievement of national environmental protection and sustainable development, to a great extent, was attributed to the constantly improvement of environmental administration institution and related institution arrangement. Under the pressure of rapid economic development and large amount of population, China is now facing the most comprehensive environmental problems in the world. A series of measures have been taken in China, inter alias, considering the situations in response to particular situation of the country and feature of environmental problems, making fully use of the dominant role of governments with limited capacities of state finance, grasping industrial pollution as the most important environmental problem during the middle and end of the 20th century, formulating laws, perfecting policies, strengthening law enforcement, perfecting monitoring system, improving technological capacities and collecting environmental protection funds through various channels, especially strengthening the functions of government on environmental protection at the twice government’s restructurings in 1993 and 1998 respectively, etc., which had contributed a lot to control the trend of more serious environmental pollution. The dominating function of government at population, resource, and environmental protection is a very important experience we learnt through the work sustainable development.

6.Compared with the development of other issues, environmental protection work and the legislation and institution have been enhanced. Until now, besides the Environment Protection Law of People's Republic of China (1989), 8 specific laws on environmental protection and more than 20 other laws were stipulated and added some items in relation to environmental protection. In order to enforce the national environmental protection law, the state council has promulgated more than 30 rules of law on environmental protection or in relation to environmental protection. Up to 2001, the number of all kinds of environmental standards has reached 459. By passing these laws and regulations, a basic environmental protection law system with China’s characteristics has been established to provide powerful law and policy supports for setting up, carrying out and developing national environmental protection system.

7.Through constantly adjust the way of thinking, work of environmental protection and sustainable development present the concepts of “advance with the times”, current resource/environment administration institution still needed to be reformed and strengthened. Basing on the development of environmental situation, the key efforts of environmental protection were transformed from original point pollution source control to combination of point pollution source control with comprehensive prevention and control, as well as to combination macro environmental management with control of key regions and river basins. During the ninth five-year plan period, the environmental protection guideline pointed that pollution prevention and control should be paid equal attentions. And actions have been taken to promote total amount control, to promote environmental model cities, to strengthen ecological conservation, etc. During the ninth five-year-plan period, the amount of 12 key pollutants discharged was reduced 10-15% respectively with 8% rapid economic growth rate in China. At the same time, a set of actions and policies have been taken by the government for the purpose of sustainable development, all which made China achieved great progress on the areas of population control, human resource development, resource and energy conservation, poverty release and agricultural development. However, on the view of the trends of environment problem change or on the view of social economic development, current resource/environment administration institution and some development policies can not meet requirements of new situation, therefore, the resource/environment administration and development mode should be reformed and strengthened.

Part B: During the last ten years, the character of environmental problems changed sharply, China is in a stage with multi-environmental problems, which bring long-term and deep impact and risks to eco-system, people's health, economic development and even to the national security.

8.From point pollution pattern to a comprehensive one which combines point and non-point pollution. In the past, industrial point pollution was the key one. Since the 1990s, point pollution has been basically controlled and non-point pollution has gradually become a new problem of pollution control. In the eastern part of China, non-point pollution, which is caused by over or unreasonable use of fertilizer and pesticide together with pollutants from rapidly developed intensive livestock operation as well as urban and rural sewage, is becoming more and more significant. At present, non-point pollution covers half pollution load of the total. In urban areas, the number of automobiles goes up rapidly with the increase of average income and tail gas becomes the most difficult one to be treated. Compared with point pollution, the individual discharge amount of non-pollution is smaller, but the accumulated discharge scope is big and covers large amount of areas. There is no effective measure to control this kind of pollution under the current administration institution and policies.

9.From single industrial pollution pattern to the one with industrial and domestic pollution at the same time. Another character of the environment change in China is that urban industrial pollution has been controlled primarily while the weight of domestic pollution has increased sharply. Due to the improvement of people's lives and the change of consuming pattern, the volume of urban domestic solid waste and sewage increase sharply and the discharge of urban waste is one of key problems of city. In 1999, it was the first time that the volume of urban sewage exceeded that of industrial wastewater, but the second grade treatment rate of sewage was up to only 20%. The composition of wastewater changed due to the increase of chimerical usage, together with the change of chemicals and nutrition in sewage make it more difficult to be treated. Meanwhile, industrial pollution form changed also, the pollution from the state-owned industries has been controlled, while the pollution from township and village industries is becoming more severe and will be the domination industrial pollution in the future.

10.New pollutants emerged constantly, we are in the phase of pollution transition. With the strengthening of industrial pollution control and the increase of income, even though some traditional pollution has been controlled, newly emerged pollutants, such as incertion interferon and POPs, become the new risk of environment and peoples' health. Air pollution in urban areas is now transferring from the pattern of coal smog to the mixture of coal smog and tail gas. Water pollution is from the type of organic pollution to the one of eutrophication. In the stage with new type of pollution and some traditional one, which has not been controlled completely, therefore, more advanced technology and cost are required as well as more comprehensive administration instrument.

11.Long-distance/trans-boundary pollution is becoming more serious. Traditional industrial pollution, which affects local environment quality, has been basically controlled through these years' hard work by taking the concept of total amount control. With the increase of industrialization and rapid development of township industries, pollution impact has enlarged. In recent years, long-distant and trans-boundary pollution (such as acid rain) and watershed pollution problems (such as Haihe River, Huaihe River and Taihu Lake) are becoming more and more significant but not effectively controlled. Local environmental problems cannot be solved by only control local pollution.

12.Ecological problems become more and more significant, which have influenced the security of regional and watershed ecological system and sustainable development. After the enormous flood in 1998 and frequent sand storms happened in recent years, ecological degradation problems especially in the Western Area are becoming more severe; degradation degree and scale as well as the difficulties of ecosystem restoration make ecological issue more and more significant among all the environmental issues. Ecological problems not only cause the

degradation of nature, which is the base of regional subsistence and development, but also cause large scale ecological unbalance, etc. increase the crises of flood and ecosystem and also impair the ecological foundation barrier for economic development social stability. Although ecological conservation has been given top priority, presses and risks of ecological degradation caused by improper activities still exist. Besides all these, bio-safety, invasive species are the new task for ecological conservation.

13.The pressure caused by global environmental issues has direct impact on each area such as political, economic and social life. Global warming, which is caused by the emission of green house gases, is now becoming the most important environmental problem in the world. China is currently the second large country of CO₂ emission in the world , more and more responsibilities that China is asked to take as a big developing country. Global and international environmental issues, especially the convention implementation of Climate Change, Desertification, ODS, POPs, Bio-diversity have or will have great impact on national environment security and long term social and economic development and will be an issue of national benefit. Therefore, how to deal with the global environmental issues and take the opportunity of international convention implementation will influence many issues in political, economic and social prospects.

14.It is a long-term task to optimize energy structure and to solve environmental problems. Although, energy is no longer a bottle-neck for economic development through years hard work, China still has to face the situation of lack of high quality energy supply as well as the energy and environmental problems caused by coal-dominating energy structure. At present, 85% SO₂ and 28% TSP are caused by coal-burning, all which lead to decline of air quality and land degradation (30% of total) caused by acid rain. China's CO₂ emission accounts for about 14% of the world total and it is directly related to the energy consumption. With the constantly increase of energy consumption, it will be a hard work to solve environmental problems by cost-effective and environmental friendly methods.

15.Nuclear safety problems are more and more severe. Nuclear safety is one of the special one among all the environmental security problems. At present, there are seven nuclear power generators are under operation. It is estimated that, by the end of the Tenth Five-year Plan, another four will be put into operation to generate electricity. In China, there are different types of reactors in different areas, all these will bring many difficulties of management in the future. Once a large nuclear accident happened, it will not only be a disaster of China, but also of the world nuclear industry. And there is no appropriate method to treat nuclear waste so far, therefore, ten years later, when the capacity of spent fuel storage is fully reached, the waste disposal and transportation will be a very difficult issue to be dealt with. It is not an easy work to safely have the current plant operated and decommission and safe waste disposal. Nuclear safety will be one of the key environmental challenges we

have to face.

16.Environmental health has been put into schedule, the issues of cleaner air, drinking water and food safety get more and more attentions from public. With the development of economy and the improvement of people's life, the type of environmental health risk has changed from traditional one (caused by the lack of infrastructure, such as unclean drinking water, infected disease) to the type of modern one (caused by environmental pollution). Many incident of food pollution have been reported and many shocking figures can be found from some representative investigations. According to the human capital method, it is estimated that the economic loss related to the impact of unexpected death and disease caused by out door air pollution is about 0.6% of GDP (WHO/UNDP, 2001).

Part C: Nowadays, environmental issues are closely connected with social economic development, social economic development, on one hand, brings long-term pressures to environment; on the other hand, it is a driven force of environmental improvement. Attentions of environmental protection and sustainable development has been changed from end-of-pipe treatment to the one of driven forces, which means to get win-win result of environment and development by promoting environment-orientated economic development.

17.Nowadays, environmental protection is closely related to economic development and social development, and they are now the three fundamental components of sustainable development. Social economic development will bring both opportunities and challenges to environmental protection. In the early stage of 21st century, environmental pressure caused by economic development will not be released. The pressures include the one of population growth, of consumption increase, of resource cost expense and pollution discharged increase that caused by economic development, therefore, the environment in the middle of the century is not optimistic. At the same time, with economic development, restructuring, marketing reform, public environment awareness increase, technology advance and the involvement of globalization process will provide opportunities for environment improvement. How to establish a reasonable mechanism to make integrate arrangement and release pressures is an important issue should be considered during the process of institution reform.

18.Large population will continually bring huge pressures on environment and nature resources. In 2001, the population of China was 1.276 billion. Even though the increase has been effectively controlled, the large amount of population is still a rigorous fact that China has to face. It is predicted that the population peak will come during 2030-2050 with 1.6 billion populations in China approximately. The population crises will have great impact on social and economic circumstances with permanence pressure on resources, ecosystem, the environment, employment,

urbanization as well as social insurance system; all these will affect the realization of the goals of sustainable development. Mean while, there is a huge human resource in China. The average education level is only reach to the one of primary school, therefore, in order to cope with the furious international competition situation, to explore the human resources is very necessary. To have people with better education will help the work of environmental protection.

19.Poverty is a key element, which restrict resource conservation and ecological improvement. Since poverty has great relationship with environmental degradation and may form vicious circle, therefore, poverty release is a precondition for sustainable development. There were still 30 million people living under the line of poverty in 2000, if we numbered them according to the standards of UN, the figure could be bigger. Since most of the poverty countries are located in the western area or in environmental fragile areas such as mountain or desertification areas. No ecological restoration activities will reach success or could last long if poverty release and ecological conservation cannot be integrated.

20.The supply situation of strategic resources, such as water, land and oil, is becoming more severe, the problems of sustainable resource usage and resource security become more significant. Large scale and fast economic development as well as rough operation mode speed up the consumption of resources. Some resources are in the edge of exhaustion, the problems if serious lack of land, water are getting worse and the amount of imported oil is becoming bigger and bigger. In the future, the economic development of China will more and more rely on the international resources; more and more basic materials such as food, wood, metal ore , especially oil and natural gas will be imported, all these will bring resource/energy security problems and may have great impact to socio-economic development.

21.Domestic consumption and environment awareness increases constantly. With the increase of average income, and the consumption irreversibly enlarge the cost of resources, which will bring pressures to ecosystem. At the same time, the increase of public awareness of environmental protection requires better environment. Due to the lack of mechanism for environment information release and communication channel, the requirement to improve environment can not be met, in which case, the social stability will be affected. Therefore, in order to keep social stability and meet the requirements of environmental administration in the new stage, it is necessary to set up information sharing mechanism.

22.Economic restructuring provides a chance to integrate environmental protection and economic development. Economic development of China is now step into a key stage of large scale restructuring. Economic restructuring will play a key role during the time of the tenth-five-year plan or the development in the next 10 years. The restructuring will provide a good opportunity to reduce high energy-consumed and pollution-intensive industries and products; it also provides a

good opportunity to change the traditional industrial mode and set up an environmental friendly economic system in China. The strategy revision on industrial restructuring will drive the reform of urban and rural and regional structure; and it will also bring great impact on our modernization progress and sustainable development. To promote and guarantee the integration of environmental protection in economic restructuring progress and achieve the win-win principle between economic development and environmental protection, a corresponding environmental administration institution and policies are required.

23. Rapid urbanization process will bring large amount of environmental problems. Followed by the industrialization process and the transferring of spare labor force of rural areas, the process of urbanization will be speed up rapidly. By 2020 urbanization rate will reach at 50%. On one hand, the volume of pollution discharge in urban areas will increase, which need large amount of investment for environmental infrastructure.; on the other hand, more problems will emerge, especially that of transportation caused by the increase of car. Traffic problems will become restrictive element for sustainable development as well as the problems caused by tail gas. At present, there is no ideal method to solve urban traffic problems. It should be given priority to establish a proper transportation mode to cope with local situation and demonstrate it broadly.

24. The accession of WTO is like a two-edge sword to the work of environmental protection. At the time when international resources are used, the pollution could be transferred. After the entry of WTO, China is further involved in the process of economic globalization, which provides China more opportunities to practice "Comparative Advantages Strategy", to fully use both national and international resources, markets, technologies and funds, to explore the capacity of resource and space usage, and to provide external condition to solve the problems of population, resource, the environment and development. On the other hand, the entry of WTO brings more challenges especially the pollution transfer caused by the transferring of industries. In spite of these, green trade barrier, international environmental certification, environmental standards influence product export.

25. To protect environment by using market mechanism. In terms of environmental protection, it may not be better than planning economic one if it were not controlled well. There are many experiences of developed countries of using market mechanism to conduct the work of environmental protection, more and economic incentive instrument are adopted. Different actions have been taken, such as to decrease subsidies, to take environment tax and to have trade mechanism of pollution discharge license, through which integrate the cost of environment to the internal cost and to decrease the market loss. Reasonable price and environmental tax will encourage public and private to put their investment in environmental/resource friendly projects and projects of environment infrastructure construction. At present, wastewater treatment fee has been raised to more that one yuan in many eastern cities, which

effectively promote the multi-investment in wastewater treatment plants. Public investment in environment/resource management area is one part of economic development and it is also an important part of sustainable development.

26. Technology development will help the solution of environmental problems.

General speaking, technology development has the positive impact on environmental protection, new technology can increase the ratio of resource usage and decrease the intensity of pollution discharge. The solutions to many environmental problems are more and more depends on technology development; new type energy, information and bio-technology will bring bright future for environmental protection. Of course, we have to admit that new technology will bring new environmental challenge, for example, the bio-safety problems caused by trans-gene technology.

27. Followed by the change of the characters, type and the structure of environmental problems as well as the increase of economic pressure, it is can be seen that the tradition environmental management and development mode, which mainly focused on industrial pollution control, cannot meet the requirement of current time. It is now a time to conduct a work of comprehensive environmental protection. Environmental protection task in the new stage has been set up to solve environmental problems, to release social economic pressure, to improve government administration capacity and to prevent corruption, it also has set up new requirements for environmental protection administration. To deal with multi-environmental challenges, we have to have institutional and legislative preparation, environmental administration department has to closely cooperate with economic department and participate important decision-making process; and to make comprehensive economic and environmental policies; to encourage public participation, to have comprehensive environmental management and to have win-win result of environmental protection and development.

Part D: To face environmental challenges in the new century, current resource/environment administration institution cannot cope with the new environmental problems, and the comprehensive and coordinating capacity of current institution is far beyond the requirement with less instrument. There is a lack of supervision mechanism for the work of ecological conservation. Lack of cooperation between different departments makes the work of environmental protection with less integrity and far from the goal of sustainable development, therefore, it is a very urgent to take the innovation work for resource/environment administration institution.

28. After 30 years development, China has formulated a administration mechanism of “unified supervision and separate management”. The responsibilities of current environmental protection system are: the authority of

supervision and administration for pollution prevention and control is concentrated to SEPA and the environmental protection departments of various level local governments. The responsibilities for nature and resource conservation are disseminated to the departments of environmental protection, resource, agriculture, forest, water resource, and land separately. Although national environmental protection administration department plays a dominating role on the area of environmental protection, its administration functions are enlarged, the structure of it is getting improved and the rank of it is getting higher, some inevitable problems are still exist.

29.Lack of necessary instrument to have environmental protection work integrated in social economic development decision making. In order to improve the capacity of integrating environmental protection into comprehensive decision making, in 1998, the institution reform of the State Council prescribed that SEPA should carry out environmental impact evaluation (EIA) work for all significant economic and technology policy making, for development planning and significant economic development planning on behalf of the State Council. Actually, the function of comprehensive decision-making involvement of environmental protection department is not put into practice; compared with economic development, environmental protection is normally in passive situation. Local environmental protection bureaus have the same kind of problems. Nowadays, the environmental protection has close relationship with social and economic development, if the environmental protection department cannot be positively involved in relevant legislation progress or significant social and economic development planning or policy making, it will definitely loss opportunities to solve environmental problems during the time of economic development.

30.The decline of environmental protection coordination ability. The previous Environmental Protection Committee was repealed after the institution reform of the State Council in 1998 and its basic competency was handed over to Nation Environmental Protection Administration (SEPA). In fact, SEPA, which is not a member of the State Council, does not have necessary authority or implementation instrument; therefore the coordination function of the previous “Committee” has not been implemented. Although the affiliation scheme among ministries on the issues of national environmental protection had been approved by the State Council in 2001, so far the scheme is consummated. Under the conflicts brought by unclear definition and some relevant legislation, it will take some time to exam how this scheme will work. Environmental protection task cannot be only conducted by environmental management organization in any country; it is a task requires cooperation between different departments. It does not matter what kind of resource/environment administration institution to be set, an effective cooperation scheme setting is the most important.

31.Unreasonable competency definition between environmental protection

department and natural resources management department makes it impossible to have unified supervision on ecological conservation. First, Government function of ecological conservation are scattered in different departments according to the management of ecological and resources factors. There is no strong or unified supervision mechanism for ecological conservation. The lack of “unified decision making and supervision” mechanism in the areas of environmental management brings overlapping and malfunction among different government departments, management work done by department with no specific authority as well as conflicts between public and department benefits. Secondly, law and regulations made by different departments for the resources that the department managed will try to put more authorities to the department through laws/regulations making process. All these will make conflicts between laws/regulations bring more difficulties of law/regulation enforcement; thirdly, there is gap between lawmaking and planning. In this case, there are different standards of ecological conservation, therefore, there must be lots of difficulties of macro-control or fully use of investment in the area of environmental protection. Lastly, there is no clear distinction between administration function and that of development of resource management departments, which means, those departments have both resource conservation, supervision and ecological conservation and that of resource exploration. Ecological conservation work cannot be conducted under this circumstance.

32.Necessity on regional and watershed management institution reform. A comprehensive resource/environment administration institution for regional and river basin management has not been set up in China. In China, environment is managed according to administration definition. There is no cross-sector administration or trans-boundary ecological conservation or environmental protection administration institution and relevant actions. In this case, driven by local benefits, there is no development linkage between different regions or watersheds. The difficulties of coordination between regions aggravate ecosystem degradation. Driven by the sector benefits, the difficulties to coordinate environmental issues among regions prick up the degradation of eco-system. There is no ecological compensation mechanism; therefore, there is no guarantee mechanism for the environmental coordination between watershed/regions. Therefore, it is very urgent to have regional and watershed resource/environmental protection administration institution reform.

33.To have continually environmental protection administration institution reform at local level. With a consideration of national benefit and the character of trans-boundary environmental problems, the current environmental administration department at provincial level is under the leadership of both national environmental protection administration and provincial government. This kind of mechanism, to some extent, restrain some behaviors/activities which against the national environmental protection policies due to the short-term consideration of local government. But main function the current mechanism is to appoint the leaders of provincial environment protection administration department, while, there is no

effective supervision mechanism for the detailed work and for the one which is lower the provincial level. In the future, environmental protection administration institution at local level reform should be continued and to strengthened the national environmental protection administration leadership to the one of provincial level. Meanwhile, innovation work should be conducted in some pilot to promote vertical management from provincial level to municipal level and from municipal level to the one of county.

34. Compared with the function of government on environmental management, the role of environmental protection that legislation sector, public and individual play is limited. Environmental law has paid great emphases to environmental protection authority of government, but there is no clear definition for public environmental authority and rights. Penalty is not serious and the process is too complicated, which will constrain the involvement of legislation department and also influence the enthusiasm of public participation.

35. Serious lack of personnel and funds. Although the purpose of institution reform is to increase working efficiency by decrease the number of staff, the lack of staff has greatly affected the normal operation of government environmental protection administration. The percentage of professional staff of the total population is only one tenth or one of several tens of that of the developed countries. Because of the lack of human resources, the administration staff is busy dealing urgent issues and has no time to make long time development plans/strategies. Environmental protection work is one of the basic government functions, which demands large amount of financial support. But within the financial plan, the percentage of the budget for environmental protection administration work cannot meet the actual need that the environmental protection administration institution. This problems is very significant in ecological conservation administration, there is not enough financial support for environmental protection. If this situation lasts for a long time, it will definitely cause short dated government behaviors and against the principle that environmental protection administration institution should fully consider long term and the whole national benefits.

36. In the strategic report that recently published by the World Bank and UNDP on the environmental issues of China, environmental institutional arrangement and governance reform were put as the top priority. They believe that environmental protection can only make achievement with high attentions from government, with cooperation of all government departments. In the report, suggestion and recommendation have also been made in the aspects of comprehensive decision-making enhancement, legislation system, cross-sector coordinating, comprehensive watershed management, institution capacity building, public participation, etc. Therefore, national environmental administration institution reform should reflect the concept of Advance with the Time, through institution and legislation innovation to cope with the change and requirements in the new situation

and to realize the new management goals.

37. From international experiences, it can be seen that most developed countries have unified supervision and comprehensive decision making power in the area of environmental protection and ecological conservation. There are clear legislation basis of government administration department in the area of environmental and resource protection. Also in those countries, there are healthy coordinating mechanisms and process between different departments. The administration methods have changed from passive to active and comprehensive management, including river basin management, integrated ecosystem management and economic incentive instruments. Since the 1990th, environment protection has started to be considered as a key element of national development policies of those countries and good governance framework has been set up since then. All these experiences are worth to learn during our governmental restructuring process.

Part E: To establish a new type of resource/environment administration institution to increase the authority of unified decision-making and supervision. By institution and comprehensive policy arrangement to integrate environmental protection and economic development and to promote sustainable industrialization and urbanization; to improve governance and get stakeholders broadly involved and increase the capacity building of environmental NGO, to enhance international environmental cooperation can provide guarantee to control environmental degradation and to achieve sustainable development.

38. Goals for establishing new resource/environment administration institution. New resource/environment administration institution should reinforce mechanism of unified supervision and the one of coordination to avoid the problems of function overlapping, cross-sector management and unclear definition of administration. With unified, coordinating, integrated and transparency concept in mind and with the help of unified supervision, coordination, comprehensive decision-making and public participation mechanisms, environment administration institution can be well run and its goals -- environmental pollution prevention, health risk reduction, ecological degradation control and resource security -- can be realized. And this kind of institution can also reflect the integrity, comprehensive and coordination requirements of environmental protection and sustainable development.

39. Institution innovation is the basic to guarantee the realization of management goals. In the past, even though there were many effective environmental protection mechanisms, most of them were set up within the sector of environmental protection. In the new stage, mechanism should be set up to strengthen and promote the cooperation between environmental/resource management department and other governmental sectors and public sectors. Through regulation setting to eliminate institutional barrier of environmental/resource management and to make sure the new

resource/environment administration institution can be well run and to get the goals realized. Four mechanisms are necessarily to be set up including unified supervision, coordinating, comprehensive decision-making and public participation.

- **Unified supervision mechanism.** It should be clarified by regulation, procedure and standards to make sure the unified supervision function of environment and resource protection is under the resource/environment administration institution; to make sure that the long-term benefits of environment protection as a whole can be reached; to make sure that division of each department is under a unified framework, which means that environmental protection work in each area should be under the supervision of environment/resource protection department.
- **Coordinating mechanism.** To provide a coordinating institutional framework for environmental issues involved in different industries, different sectors and difference regions.
- **Comprehensive decision-making mechanism.** With the consideration of environment and resource protection and the important meaning of sustainable development, legislation should be made at national and local level to clarify the authority and the process of environmental protection and resource management departments in comprehensive decision-making.
- **Public participation mechanism.** In order to achieve people's fundamental benefit, it is necessary to establish a set of mechanism and regulation to encourage stakeholders into environmental decision-making and administration process.

40.Coordinating institution set up. It is very necessary to set up coordinating institution for resource/environment administration institution in the new situation. Constrained by its characteristics and the rank in the government, environmental protection and resource management departments are not strong enough to do the coordinating work independently. The coordinating institution for environmental protection and resource conservation at national level should be set up, such as the environment and resource protection committee of the State Council. The leader in charge of environmental protection in the State Council should preside over this institution to make sure the implementation of policies.

41.To establish sustainable socio-economic system and to take a path of sustainable Industrialization and urbanization. By taking instrument of law, regulation, standard and policy, to change unsustainable way of production to a sustainable production and consumption mode. For example, to make detailed implementing regulation and industrial performance standards and label (e.g. standards for water consumption per unit of output, generation performance standards, etc.) and to make policies for goods reuse. All actions mentioned above will encourage the taking of cleaner production and lifecycle economy, will increase the use rate of resources, will optimize the structure of energy, will decrease the pollution discharge and will control the trends of high consumption. To fully use the opportunities of development mode transfer, structure adjustment, marketing reform, WTO accession and technology advance to integrate environmental protection

principal and activities to the process of social economic transition.

42.To use the comprehensive policies of environment and development and fully take the functions of marketing. In the future, most policies involved in environment management will be the one of comprehensive consideration. Development policies including the one for poverty release, trade and investment will take a consideration of the environment cost. Methods will be taken by having the environmental cost internalized and by making ecological compensation to reduce the damage of environment; environmental policies should not constrain but encourage and promote development and the setting up of environmental friendly socio-economic system, such as the adoption of gradual environmental policies, taking market mechanism and more economic incentive policies are the direction of environment policy making in the future. For example, to clarify property of resource and environment and to impose environment tax; to broadly use waste discharge license and to effectively integrate incentive policy and the one for control only.

43.To set up partnership between government and private enterprises and to make policies for the enterprises to be involved in environmental protection actions. At present, the efforts for environmental protection mainly rely on the input of government. In order to cope with the requirements for environment improvement and with the increase of urbanization level, the financial pressure for government input increase too. Therefore, it is a trend to have market oriented mechanism or multi-formality input in the area of environmental protection. In the southeast areas, since the economic situation is relatively good, market-oriented mechanism for environmental protection should be introduced first. Mechanism and policies for environmental protection should be provided by government by taking economic and administration tools for enterprises, in which way, private input can be introduced to the urban infrastructure construction and environmental friendly technology development. Different kind of partnership can be set up between government and private enterprises, such as, through special contract or concession issuing (e.g. BOT , BOOT , BBO , BOO , BTO, etc.), to remise the development and operation of environmental service industry; meanwhile, to deregulate for concession operation (e.g. release price control), to abolish service subsidy and set up the user pay mechanism to form multi-solution system for environmental improvement.

44.To establish and improve institution of public involvement for environmental protection. To encourage the development of NGOs of environmental protection and the environmental information sharing mechanism establishment. Public involvement of environmental protection and the promotion of "good governance" will be the main trend of environmental administration reform. Environmental protection work is not only part of government function, it is also part of public affairs. The suggestion is to set polite area in the developed area, to abolish the constrains for license application for non-government non-profit environmental organization (which need a supervision unit) establishment; to increase the capacity building of NGOs of

environmental protection, to encourage public involvement in the activities of environmental protection, decision-making and environmental supervision and to increase the environmental awareness of civil society. Meanwhile, in order to have the public have the right of acknowledgement and supervision, it is necessary to set up/improve information transparency mechanism and to encourage the involvement and supervision of public including: the mechanism of administration information sharing, the information sharing of regional water quality, drinking water quality, the result of food examination and the assessment of industrial environmental activities.

45.To have broadly international cooperation. To strengthen international cooperation and take international environmental responsibility will not only set up political image as a responsible large country, to help the work of environmental diplomatic development and to protect the rights of environmental protection and economic development, it will also provide opportunities of international funds and mechanism (e.g. CDM), technology and administration experiences utilization and to promote the work of environmental protection and economic development.

Part F Conclusion

46.China is now facing a very comprehensive situation of environment and resource management, which are cause by many reasons, and new problems emerged constantly. To achieve sustainable development in China will bring great impact to the world. According to the newly raised problems and development trends of environment, this paper provides a draft analyze of environment and development, especially environmental administration innovation. Some basic suggestions, which should be improve and further studied, have been made in this paper, too. As an international consultation institution at high level, CCICED should provide strategic, foresee, innovative and operational policies for the Chinese government. According to the newly raised issues of environment protection and sustainable development mentioned above, CICCED in its 3rd phase should select some important topics to take deep study with the reference of successful experiences and failures of foreign countries to get objective conclusion and make contribution to both China and the world's sustainable development.

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