

The Institutional Scaffolding of Sustainable Development and its Approach in China

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As a result of rapid development of the world economy since the 1960s, aggravations caused by population expansion, excessive consumption of resources and environmental pollution, have seriously hampered the development of many economies and are even threatening human existence itself. Given the pressures of these harsh realities, mankind has no choice but to re-examine its social and economic behavior and its path of development. The traditional development mode of “treating after polluting” is no longer appropriate. Since the 1980s, a new mode for development, sustainable development, has been advocated. Sustainable development is development that satisfies the current needs of society without compromising the needs of future generations. The United Nations Conference on Environment and Development, held in June 1992, made sustainable development the strategy for common development in the future, and this won wide acclaim from the governments of all countries represented at the conference.

China has been undergoing rapid economic growth, despite the weak fundamentals of having a very large population, insufficient per capita resources and relatively low levels of science and technology capabilities. From 1978 to 2004, the average annual rate of economic growth reached 9.4 percent. Such growth has made the already insufficient resources and fragile environment face even greater pressures. The old road of high input, high consumption and low output that boosted China's economic growth has come to its end. Which mode of development to choose has turned out, historically, to be an issue of paramount importance to the survival of the Chinese people.

Since the 1992 UN Conference, the Chinese government has regarded sustainable development as an important principle to guide social and economic development. A national sustainable development strategy has been established and actively implemented. In implementing the strategy of sustainable development, the emphasis for China is to create a new mode of development to replace the traditional ones that have been proven unsustainable. Meanwhile, it is also important to co-ordinate the economic and social development with sustainable use of natural resources and environmental protection so that current development provides a foundation for the future.

Sustainable development progress in China is obvious, but there are still many problems, especially institutional defects, which hamper the implementation of a sustainable development strategy. This paper proposes to discuss the institutional scaffolding of sustainable development and its approach in China.

1. The Institutional Scaffolding of Sustainable Development

A. The meaning of sustainable development institutions

In the process of economic development, the role of institutions is becoming more and more significant. Institutions stimulate the development of human beings and they are the basic elements in implementing a new sustainable development strategy. What are institutions? There are many ways to view institutions. Aoki Masahiko regards the

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economic process as a game process, and summarized three views of institutions: (1) Institutions are the participants or organizations who take part in games; (2) Institutions are the rules of the game, including formal rules and informal rules; (3) Institutions are the balanced-decisions among the participants in games.¹ North supports a second view. He said: “institution is the rules of the game in the society, or more precisely, is the restricting conditions designed by humans……in economic terms, institution defines and restricts the individual decision.”² He also points out “institution offers a frame of mutual effects among human beings, and makes a kind of relationship for cooperation and competition, or more clearly, a kind of economic order, in the society.”³ Based upon these researches, in my opinion, institutions are rules or moral codes developed by humans to regulate political, economical and social relationships. The former are called formal institutions, and the later are called informal institutions.

According to the analytical framework of Institutional Economics,⁴ institutions have some characteristics: (1) Institutions are the results of people adapting themselves to the world. In addition, institutions restrict, facilitate and support the behavior of human beings. (2) There are two ways of explaining the origination and formation of institutions: Institutions can be naturally formed, or designed by man. (3) Institutions and organizations are closely related, but they are different. Institutions are the rules of social activities, while organizations are the participants in social activities. However, institution itself cannot be separated from its carriers, such as families, enterprises and states. (4) Institutions offer the basic condition for people’s connection, cooperation and transaction because institutions define the range of people’s choices and help to reduce the transaction cost. Thus, as a general moral code, institutions deeply affect the behavior of individuals and organizations.⁵

In my opinion, sustainable development institutions have some specific meanings: (1) the key point of sustainable development institutions is to solve the problem of conflict of interest as sustainable development seeks harmony among human beings, and balanced interest between the present generation and future generations. However, in real life, people always seek their own interests. For instance, corporations pursue profits. Moreover, since the lack of representatives, interests of the future generation are seldom considered when the existing generation makes decisions. Therefore, it is necessary to build a kind of cooperative mechanism so as to coordinate the interests among individuals, regions, countries, and intergenerations by sustainable development institutions. (2) Sustainable development institutions should be designed by man for it takes the responsibility of dealing with a wide-range and long-term issues and cannot be naturally formed. Therefore, only cooperation in the international community, among countries and organizations, can help perfect the institution. (3) Formal institutions are powerful and enduring for SD implementation, however, informal institutions should not

¹ Aoki, Masahiko *Towards a Comparative Institutional Analysis*, Shanghai, Shanghai Fareast Press, 2001.

² North, D. *Institution, Institutional Change and Economic Performance*, Cambridge, U.K. and N.Y., Cambridge University Press, 1990.

³ North, D. *Structure and Change in Economic History*, Shanghai, Shanghai Renmin Press, 1994.

⁴ In economics, the institutional economics school goes beyond the usual economic focus on markets, to look more closely at human-made institutions. Institutional economics school including such famous but diverse economists as Thorstein Veblen, John R. Commons, Ronald Coase, Oliver Williamson, and Douglass North, etc..

⁵ Lu, Xianxiang *The New Institutional Economics*, Beijing, Development Press of China, 2003.

be neglected. Sustainable development is a kind of new developmental view which is far different from other traditional development views, so the process of implementation of sustainable development also means the leap of development view. Therefore, as a subtle force, the power of ethics and morality should be noticed.

B. The basic elements of sustainable development institutional scaffolding

According to the above meaning of Sustainable Development Institutional Scaffolding, the basic elements are:

(1) The actors of sustainable development. The actors of sustainable development include international organizations, state governments, non-governmental organizations (NGOs) and enterprises. As international relationships are becoming strengthened, international organizations play more and more important roles in promoting sustainable development. The specific organizations in charge of sustainable development in the UN, such as United Nations Environment Programme (UNEP), Commission on Sustainable Development (CSD), are now essential in the area of global environmental governance and sustainable development. However, the international organization is not equal to the “world government”. They cannot put forward any proposals without the empowerment of governments of member countries. Their duty is just to construct the platform for countries to dialogue and negotiate. The role of modern sovereign states is decisive in sustainable development. They are not only responsible for formulating the sustainable development strategy and policies, but also responsible for balancing the interests of different regions and sectors. In addition, international commitments should be fulfilled by national authorities. NGOs are a unique force in promoting sustainable development. Since the 1980s, NGOs effectively remedy government failure and market failure by linking up information, coordinating actions and offering services. As the main body of production and technological innovation, the actions of enterprises exert a tremendous influence on sustainable development. As time goes on, the attitude of enterprises on sustainable development has changed a great deal. In the time of free market economy, maximum profits were the primary goal that enterprises pursued, and the responsibility of sustainable development was always neglected. But nowadays more and more enterprises have recognized that undertaking sustainable development responsibility will not only benefit them to meet the “green need” of the market, but also help to win competitive advantages.

(2) The formal and informal institutions of sustainable development. The formal institution lays a foundation to promote sustainable development. Sustainable development requires wide and close international cooperation for it is closely related to the existence and development of all human beings. As a result, over the last four decades, a series of international pacts and treaties on sustainable development have been formulated and signed by various countries, such as United Nations Framework Convention on Climate Change (UNFCCC). On the state level, the sustainable development institutions include: national sustainable development strategy and policy systems, sustainable legal systems and economic systems (i.e. property institution, price institution). Informal institutions are also a necessary part of sustainable development. It not only complements the role of the formal institution, but also influences man’s behavior continuously. Informal sustainable development institution include the ideas of harmony between man and nature, the scientific philosophy of development, and the customs and moral codes that are in accordance with the values of sustainable

development. It will take a long time to formulate informal institutions of sustainable development.

(3) The implementation mechanisms of sustainable development. The implementation mechanisms are the key factors that decide if the institution is effective. Without the implementation mechanisms, any institutions will fail. These mechanisms would include a comprehensive decision-making system, a reasonable assessment system and incentives for local authorities, a fund-raising mechanism conducive to sustainable development, the channels of public participation, and the ability to enforce laws.

2. The Progress of Sustainable Development Institutions in China

A. The administrative organizations for implementing the sustainable development strategy have been established.

After the UN Conference on Environment and Development held in 1992, the Chinese government began the process of formulating China's Agenda 21. A Cross-sector leading group for formulating China's Agenda 21, led by the State Planning Commission and the State Science and Technology Commission was established. At the same time, in parallel with approving China's Agenda 21, the Administrative Center for China's Agenda 21 (ACCA21) was established to deal with routine management matters. In 2000, the leading group changed its name to the National Leading Group for Promoting Sustainable Development Strategy. It has organized some sectors to formulate the programs of action for China's sustainable development, and decided the priority areas.

B. The framework of sustainable development strategy and action plans have been formulated

In 1994, The State Council, the top administrative organization, published China's Agenda 21-White Paper on China's Population, Environment, and Development in the 21st Century. China's Agenda 21 sets up a strategic goal of sustainable development that can promote coordinated development of the economy, society, resources, and environment. It consists of four main parts: comprehensive strategy and policy of sustainable development, sustainable economic development, sustainable social development and rational utilization of resources and environmental protection. In addition, the Priority Programme for China's Agenda 21, directly derived from China's Agenda 21, serves to transform China's Agenda 21 to a phased, operational programme of priority projects, which combine pressing issues to be solved, capacity building, key technologies and demonstration projects for China's sustainable development.

The implementation of China's Agenda 21 requires efforts from the whole of society. Under the present economic system, Planning, especially the five-year plan, is an important means of achieving macro-control for China's economic and social development. Thus, the fundamental measure for implementing China's Agenda 21 is to integrate the sustainable development strategy into social and economic development plans, policies, and programmes at all levels.

In the meantime, government authorities under the State Council have engaged in formulation of various sectoral Agenda 21s and Action Plans which were suited to their specific areas and requirements. For example, the Ministry of Forestry formulated the "Forestry Action Plan for China's Agenda 21" which deals with sustainable development of forestry; The State Oceanic Administration drafted "China's Ocean Agenda 21"; China's National Environmental Protection Agency formulated "China's Agenda 21 for Environmental Protection", etc. (See below).

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Agenda, plans and programs of SD in China⁶

	Name	Ratification body/time	Main points
1	The Ten Policies for Environment and Development in China	The State Council August, 1992	The guiding document for environmental protection and development
2	The Action Plan for Environmental Protection (1991-2000)	The State Council Jan. 1993	The environmental protection action plan in different areas
3	China's Agenda 21	The State Council Mar., 1994	The white paper about population, environment and development in China
4	China's Agenda 21 for Environmental Protection	National Environmental Protection Agency 1994	Sector Agenda 21
5	Forestry Action Plan for China's Agenda 21	The Ministry of Forestry 1995	Sector Agenda 21
6	China's Ocean Agenda 21	The State Oceanic Administration Apr., 1996	Sector Agenda 21
7	National "the Ninth Five-Year Plan" and the Goal in 2010 on Environmental Protection	The State Council Sep., 1996	The document for guiding the work of environmental protection in 5 or 10 years.
8	China Trans-Century Green Project	The State Council Sep., 1996	Specifically targeted on areas with critical pollution problems, river basins, and some fundamental environmental problems.

⁶ Zhang, Kunmin *On Sustainable Development*, Environment science Press of China, 1997; *The People's Republic of China National Report on Sustainable Development*, Environment Science Press of China, 2002

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9	The Program for Controlling the Total Amount of Main Pollutants	The State Council Sep., 1996	To cut down the total amount of pollutants in the “ninth five-year plan” period
10	The Plan on Building of the Ecology and Environment	The State Council 1998	To advance the goal of ecology and environmental protection and the main point in different regions
11	The National Programme for Ecology and Environmental protection	The State Council 2001	Establish the goal of ecology and environmental protection in 50years
12	The National Tenth Five-Year Plan for Environmental Protection	The State Council 2001	The main goal and action of environmental protection in the tenth five-year plan period
13	The Key Special Tenth Five-Year Plan on Environmental Protection	The State Council 2001	The plan attached to the national tenth five-year economic and social development plan

In addition, to implement China’s Agenda 21 at the local level, ACCA21 selected 16 provinces and municipalities including Beijing and Hubei for piloting local Agenda 21. At present, more than half of the provinces, municipalities and autonomous regions as well as many other localities in China have formulated their local Agenda 21 or Action Plans. Led by State Planning Commission (the present State Development and Reform Commission) and the State Science and Technology Commission (the present Ministry of Science and Technology), ACCA21 have also conducted regional sustainable development demonstration work in the form of “National Sustainable Communities” in the representative central districts of big cities, counties and small towns. To date, 45 State-level communities and more than 70 provincial-level communities were identified, forming primarily the local pattern of sustainable development with individual characteristics.⁷

C. The legal system related to natural resources and environmental protection has been shaped

Over the last decade, China has been integrating environmental, social, and economic factors in developing its legislation on natural resources and environmental

⁷ Wang, Weizhong “Face Challenges in an Effort to Achieve Our Mission”, web@acca21.org.cn

protection. By now, China has established six laws concerning environmental protection, thirteen resources management laws, more than thirty administrative regulations, and four hundred and twenty seven environmental standards. As a result, the structure of environment and resource protection legal system in accordance with the socialist market economy has been set up, and the legal system plays an important role in implementing the SD strategy. The legal implementation of the sustainable development strategy is planned to be finally fulfilled in the year 2010.

This legislation constructed many policies such as follows: (1) the policy of environmental influence assessment. (2) “Three-at-the-same-time” policy, i.e. facilities for preventing and controlling environmental pollution and destruction shall be planned, constructed and put into use at the same time as the main production projects. (3) The “polluter pays” policy. (4) The policy of goal responsibility for environmental protection, which means governments at various levels should take responsibility for environmental quality of their regions, and the governors of provinces, the mayors of cities should sign the responsibility agreement for the goal of environmental protection in their term years. (5) The policy of comprehensive urban environment evaluation. (6) The policy of licenses for draining off pollutants.

China attaches equal importance to the establishment of an environmental administrative system. It has established a system in which the National People's Congress enacts the laws, governments at different levels take responsibility for their enforcement, the competent department of environmental protection administration under the State Council conducts unified supervision and management of the environmental protection work throughout the country, and the competent administrative departments of land, minerals, forestry, agriculture and water conservancy conduct supervision and management of the protection of natural resources in accordance with the provisions of relevant laws.

D. Participating in international co-operation on SD

As the biggest developing country and a big environmental country, China has been actively participating in international cooperation on SD. The Chinese International Environment and Development Commission, which was established in 1992, is the high level international advisory organization. Its main duty is to put forward suggestions concerning China's environment and development, and give exemplary policies and projects. Over the past decade, the organization has played an important role in promoting the co-operation between China and other countries.

China has signed environmental co-operation agreements or memoranda with 27 countries, and joined in 20 international pacts such as the Vienna Treaty of Ozonosphere, the Montreal Protocol, and the Biological Diversity Pact. Furthermore, China strengthened the work of carrying out the international pacts that have been subscribed, and worked out several action plans such as The National Scheme of Obsolescing the Material Harm to Ozonosphere and The Action Plan for Biological Diversity Protection. In addition, China actively used the technology and funds offered by these pacts. By now, China has used about US\$300 million offered by the Global Environment Fund (GEF), which is the largest total amount in the world.

3. Main Institutional Constraints in the Sustainable Development Strategy

Though implementation of the SD strategy is an urgent need for China, the difficulties are obvious. On one hand, China is now facing a conflict between rapid

economic growth and voluminous consumption of resources and ecological deterioration, so the extensive economic growth model should be transformed; on the other hand, China is undergoing a transformation in an economic system. The lack of institutions in the old system and developmental views lead people away from the SD track; Non-perfection of the new system also makes the economic body ignore the values of SD as short-term economic growth is taken as the top priority. All of these institutional defects pose serious challenges for the implementation of the SD strategy.

A. The barriers to the implementation mechanism of the SD strategy

The goal of SD in China is clear, but institutional barriers exist in the process of implementing the SD strategy. They are as follows: (1) the SD policy lacks a comprehensive decision-making mechanism. Under the present decision-making mechanism, economic sectors play a leading role. They pay more attention to economic development rather than environmental and resource protection. The position of environmental sectors is lower than economic sectors. For example, the position of the National Environmental Protection Bureau, which is the administration sector of the State Council, is lower than other commissions or ministries and the local environmental protection bureaus are also subordinate to the local governments. Therefore, it is difficult for the National Environmental Protection Bureau to directly give instructions to the local environmental protection bureaus. This situation seriously affects the implementation of environmental policies. (2) The present assessment systems and incentive measures do not fit the requirements of SD. The economic growth rate is viewed as the most important index in the present assessment system and it stimulates the local governments to pursue the extensive economic growth pattern. In order to highlight its political achievements, the local government will often sacrifice the environment to GDP growth rate. Environmental sectors are even regarded as barriers in some areas. So it is hard for the local government to cooperate with the central government in implementing SD strategy.

B. The economic institutions for SD are not well structured

In a market economy, the market mechanism is the basic means to distribute resources. However, market failure is a barrier to SD. China's socialist market economic system has some imperfections that cause challenges to SD. (1) The property rights of natural resources are not clear. According to the law, the natural resources predominantly belong to the state, except for some that are collectively owned. The state is not only the owner of natural resources, but also the administrator and the user. Confusion between the ownership and the rights for exploitation and handling of resources and the lack of clear guidelines defining the economic relations between the central government, the local government and various economic entities are common. Under such circumstances, the state has to share the rights with local governments, and these rights are not clearly defined. As a result, the local governments tend to transform these rights into interests, which have resulted in the irrational allocation of natural resources and low efficiency in the exploitation and utilization of resources. (2) The price system of natural resources is distorted. Affected by the traditional view of "no-price on natural resources", the price of natural resources is lower than their real value decided by their scarcity and the values of utilization, which leads to the squandering of natural resources. For example, the low price of water results in the waste of water in the industrial sector, agriculture sector and daily life. (3) The obligations and rights of companies, especially private companies, for environmental protection are not well defined. Private businesses developed rapidly in

recent years, and they are more independent than state owned enterprises, so the government should take effective measures to guarantee their actions in accordance with SD requirements. (4) The current economic policy system for environmental and resource protection is not adequate to mitigate the complex problems for meeting the need of SD. For example, the pollution levy system has been applied since late 1970's. Due to the very low fee rate, however, the levying of pollution fees contributed only a little percentage of the environmental investment; in 1984, the levying of resource tax was implemented in China. However, such tax does not currently reflect the allied cost of ecological degradation caused by the utilization of resources.

C. The imperfections of the legal system for natural resources

The defects of the legal system concerning natural resources and environment are as follows: First, the present laws about natural resources and environment belong to sector law and are formulated by the natural resources and environmental protection sectors, so it is difficult to make these laws correlate with other laws. Furthermore, some of these laws are contradictory to each other. Second, the present environmental laws are focused on the "last stage harness", neglecting the whole-process control and the cut-down from the beginning. Third, the law is not executed seriously so that the effects of the law cannot be put into full play.

D. The building of informal institutions are neglected

In our traditional culture, there are many ideas emphasizing the harmony between humans and nature and they are beneficial to SD. However, the culture formed in the small agriculture economy, such as the view of egoism, the inclination to "free-ride", is opposed to the values of SD.

On the individual level, the popularizing of SD idea should be stressed, because the SD view in citizens' minds is blunted, and the life style and habits that are beneficial to environmental protection have not yet been formulated. From most citizens' view, the government is still the major player in implementing SD strategy, and only a few citizens have the interest in participating in SD activities.

On the NGOs level, Non Governmental Bodies are taking over part of the governmental function. But NGOs are required to register under a government department and are supervised by the latter, and hence, are only partly independent in their work. Among them are a number of important contributors to sustainable development, e.g. the Chinese Sustainable Development Association and the Chinese Association of Environmental Sciences. At present real NGOs, e.g. Friends of Nature, Green Homeland are growing, mainly engaged in environmental and natural resource protection. The human and financial resources of both groups are different. Also their participation in the planning process differs. The semi-NGOs, supervised and partly financed by governmental organizations are really taking part in the SD formulating process, but their possibilities to criticize the official national policy are limited. The latter are mainly engaged in implementing the SD from the grass roots and concentrate their activities on education and propaganda.

On the enterprise level, the enterprises' objectives are focused on the maximization of profits rather than the social responsibility such as environmental protection, especially in the early stage of the market economy. Some companies drain off polluted water without using the sewage treatment installations and some small gold mine and coal mine companies squander mineral resources and cause serious

environmental pollution. In a word, the Chinese corporations remain indifferent towards their social responsibility.

4. The Basic Approach to Perfect SD Institutions

A. Rebuilding the implementation mechanism of SD strategy

First of all, it is necessary to set up an organization for comprehensive decision-making. The commission is a popular organizational form for consulting, coordinating, and comprehensive decision-making in the world. Based on a wide scope of members, the commission that is empowered will have a stronger comprehensive decision-making ability. In 1992, the United Nations Conference on Environment and Development adopted several important documents articulating the principles, objectives and action guidelines of sustainable development. In the same year, the Commission on Sustainable Development (CSD) was established to ensure the implementation of Agenda 21. Since then, more than 150 countries have established their state-level committees or other organizations on sustainable development. In China, the Environmental Protection Commission of the State Council (EPC), established in 1984, was a consulting and coordinating organization for environmental protection. The EPC carried out the following duties in order to meet the requirements of the Chinese government: (1) research on China's environmental protection policies ;(2) guide and solve the important environmental issues ;(3) supervise local governments and sectors to carry out the environmental protection laws. As part of the 1998 government reorganization, the EPC was cancelled, and the State Environmental Protection Agency (SEPA) was upgraded to full ministerial rank and coverage expanded to include environmental issues. However, it seems hard for SEPA to undertake the responsibility of comprehensive SD decision-making because it is just an environmental sector. Hence, in order to achieve comprehensive decision-making, it is necessary for China to set up an organization, such as SD commission, to bear the heavy responsibility. Furthermore, SD commission should be empowered to make comprehensive decisions, not only of joint meeting function. Its power should include as follows: (1) The power and the duty of decision-making and planning on SD; (2) the power of evaluation for national science and technology program on population, environment protection, resources and social development; (3) Coordinating in solving the environmental problems, that is, across regional or across river basins. At the same time, several expert commissions are attached to the SD commission, which consist of first class experts in the field of SD. These commissions should be supported by national finance and have the authority to assess decisions. They should not be symbolic organizations. The expert commission will play a key role in comprehensive decision-making, especially in the aspects of technological analysis and information handling. The technology and information offered by experts will affect comprehensive decisions.

Secondly, it is important to establish an assessment system and indicator system to measure sustainable development. As an important component of SD strategy, the SD assessment system should be a comprehensive assessment system rather than an environmental assessment system. Recently, some scholars advanced a new concept of "strategic environment assessment", which aims to analyze environmental influence in a more comprehensive view, and thus making it as an important method to implement SD

strategy⁸. As for the indicator system, China should set up the green GDP accounting system, which is an amendment of normally accepted GDP calculations by deducting the costs of environmental factors occurring during economic development. Some experts say that if environmental costs were deducted, China's average annual GDP growth rate during 1985 and 2000 would drop by about 2 percentage points. Furthermore, the performance evaluation system for governments at all levels should be revised. A standardized and rational performance review system should include more indices such as the index of environmental protection, resource saving, etc. In other words, government officials should be evaluated chiefly by their performance in implementing sustainable development.

B. Setting up the economic institution of SD

It is necessary to promote the reform of the property rights of natural resources. Therefore, we should clarify the roles to be played by the central government, local government, enterprises and individuals in respect to the ownership, obligations and rights over the use and handling of natural resources. At the same time, it is important to introduce a market mechanism for the use and allocation of natural resources which will follow the economic principle of "the user pays" to facilitate the effective exploitation of resources in favor of the environment.

To reform the price system of natural resources is also an urgent task. As the economy grows, the demands for natural resources have been rising, and the value of natural resources and the environment have increased. Thus, the price of natural resources and the environment should be raised to a reasonable level so as to reflect their values suitably. In China, it is necessary to determine the price according to the scarcity and the values of utilization of natural resources in order to stimulate the effective use of natural resources and exploiting new substitute resources. Comparing natural resources, it is more difficult to reflect the value of the environment.

A comprehensive environmental and ecological taxation system should be established: (1) levying compensation tax/fee on discharge of pollutants. Environmental tax is a good means by which the price of products that pollute the environment would be raised, and the demands of these products will decline; (2) Granting environmental protection and resource conservation projects with necessary preferences in levy; (3) Providing proper preferences in taxation for the production of environmental-friendly products and waste reuse products.

C. To improve the legislation for sustainable development and its enforcement

Enforcement of the legislation will be critical for putting sustainable development strategies into action. China's legal system concerning sustainable development still has to be improved in order to comprehensively reflect the principle of coordinating environmental protection with economic and social development. First, the comprehensive management law of environmental and natural resources protection aims to solve the problems that the single law of environmental or natural resources cannot solve. Second, the law of recycle-economy promotion must be laid down, which will be beneficial to the development of recycle-economy and in controlling pollution resources. Third, the responsibilities and obligations of enterprises regarding sustainable development should be clearly defined in articles of law, and ensure that enterprises

⁸ Moffatt, *Sustainable Development: Principles; Analysis and Policies*, Beijing, Economic Science Press, 2002.

adopt effective measures to guarantee the full implementation of sustainable development principles.

D. To strengthen the building of informal institutions

The perfection of informal institutions requires: (1) to widen the channels for public participation in SD and pay more attention to environmental education for all the citizens. (2) To encourage NGOs to play a more important role in spreading SD views, facilitating the flow of information between government and the public, and guaranteeing the implementation of SD strategy. (3) To encourage corporations to take social responsibility for SD. Experiences in the developed countries show that business is turning to bear social responsibility for many reasons, including legal compliance, cost effectiveness, competitive advantage, public opinion, and long-term thinking⁹This way, comprehensive measures should be taken in China including regulatory reform, public education, and market-based incentives such as pollution charges, deposit refund systems, etc.

Conclusion

SD institution is essential to the implementation of sustainable development. The basic elements of the Sustainable Development Institutional Scaffolding include: the actors of sustainable development, the formal and informal institution of sustainable development and the implementation mechanism of sustainable development.

Through more than 10 years of work, China has made some great achievements on SD institution building, particularly in areas like formulating SD strategy, incorporating SD strategy into various programs and plans by central government ministries and local governments, establishing organization, and building a legal system.

Directed by the concept of SD and these SD institutions, China has acquired great improvements on the path of sustainable development. First, the national economy maintains a rapid and healthy growth, and GDP was over \$1.3 trillion, but the growth of the emission of pollutants is clearly slower than the economic growth. Second, the over-rapid growth of population has been controlled. Third, China has subsidized more in eco-construction and environmental management. The energy consuming pattern has been gradually optimized; Measures for controlling water pollution have been stepped up for key water systems; Breakthrough progress has been made in curbing air pollution; Comprehensive use of resources has significantly improved; the ecological environment has improved to some extent thanks to returning some fragile farmland to forest, lake and grassland.

However, there are many institutional obstacles that hamper the implementation of SD, such as the imperfection in implementation mechanism, economic and legal systems, and informal institutions. Given this situation, the problems such as waste of resources, destruction of ecosystem, fresh water shortage, is far from settled.

It is now necessary to find a path for development, wherein considerations of population, economy, society, natural resources, and the environment are coordinated as a whole. Especially, Beijing will host Olympics in 2008 and chooses Green Olympics as one of the main themes. Green Olympics means to prepare Olympic Games in accordance with the principle of sustainable development, which calls for the protection of environment, conservation of resources and maintenance of ecological balance.

⁹ Bateman, Tomas S. & Scott A. Snell *Management: Competing in the New Era*, 5th Edition, New York: the McGraw-Hill Companies, Inc., 2002.

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Therefore, it is inevitable that a new institutional framework for SD will eventually emerge. At present, the implementation mechanism of SD strategy, the economic institution, the legislation, and informal institution should be strengthened.