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ECO-BUDGET APPLICATION ORIENTED BY ENVIRONMENTAL GOVERNANCE: EVIDENCE FROM BEIJING

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Abstract

Environmental governance is extremely urgent facing the severe environmental pollution, ecosystem degradation and resource constraint in China. Chinese government attaches great importance to it and integrates it into national development strategies. Eco-budget is a comprehensive environmental governance instrument successfully piloted in some European and Asian countries, and has great enlightenment and reference for China's environment governance. Ecological environment in Beijing especially needs more effective control and protection. The goal of this paper is to design eco-budget scheme and pilot in Beijing combined with field research and official announcement data, using the method of completing an eco-budget cycle including budget preparation, budget implementation and budget evaluation. The result is to provide suggestions for improving eco-budget, help Beijing government evaluate the performance and make decisions on environmental governance, achieve strategic goals for sustainable development.

Keywords: eco-budget, ecological resources, environmental governance

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1. Introduction

The United Nations' Millennium Development Goals call for a comprehensive resource management system to promote environmental governance and protection. Facing serious environmental pollution, ecosystem degradation in China, The Chinese government pays more attention to ecological governance and integrates it into the national development strategies. Effective environmental governance methods urgently needs to solve serious ecological problems.

For the first time eco-budget put forward in the first European Sustainable Towns Conference held by ICLEI in 1994. It uses financial management structure as a guiding strategy (Erdmenger, 1998), and imitates the procedure of fiscal budget, sets annual, medium and long-term goals for environmental resources, monitoring the actual indicators of budget year, evaluating the achievement of goals at the end of the

budget year and formulating the next round of budget (Robrecht and Frijs, 2004). Eco-budget is an application of responsibility budget in ecological resource management (Liping and Xiongwu, 2010; Martin et al., 2001; Weixia and Li, 2005; Weixia, 2006), should be parallel to fiscal budget to realize comprehensive environmental resource management (Rio de Janeiro, 2010).

Eco-budget ensures the use of ecological resources is restricted within the limits of the Master eco-budget, leads the sustainable development process of cities. Germany (1996~2000), Kaiserslautern (2001~2003) and Europe (2001~2004) eco-budget demonstration project were successfully piloted. Subsequently, Asian countries, India and the Philippines, also tried out eco-budget in 2005-2007 and achieved satisfactory results. Eco-budget had incorporated into the environmental governance of these cities, providing experience and reference for the promotion and application worldwide.

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With the development of the research and practice, the application method of eco-budget put forward. Eco-budget can reconstruct the overall decision-making chain based on comprehensive management method (Robrecht and Frijs, 2004). Water resources budget management model by using eco-budget was established (Jehng-Jung et al., 2008). Due to the decentralization of responsibility subjects caused by the traditional sectoral management, organizations overriding these departments are needed to conduct unified management of environmental behaviours, government eco-budget performance evaluation index system was established (Liping and Xiongwu, 2010; Liping et al, 2012).

Eco-budget is a relatively new research field, existing research is mostly around the Eco-budget Guide, and has not conducted in-depth and systematic research on framework construction and application scheme design. This paper selects Beijing-the capital of China as the pilot city, tries to design an eco-budget pilot framework and an application scheme according to its ecological resource and environmental management level. In this way the government can explore an effective environmental management method, accumulate experience for the further promotion of eco-budget in other cities in China.

2. Material and methods

2.1. Experience reference in eco-budget demonstration projects

The pilot implementation of three demonstration projects in Europe and two in Asia has achieved great success, which has verified the feasibility of eco-budget and created great value and contribution for urban environmental management. ICLEI (2007) highly recognized and actively promoted the demonstration projects. Through research and comparative analysis of foreign practices of eco-budget, five key points put forward:

Firstly, eco-budget is a universally applicable environmental management method, which is suitable for different cities in developed and developing countries. Eco-budget schemes aim to the development of different cities, focusing on local environmental problems and can flexibly adjust according to the latest development in the implementing process.

Secondly, eco-budget pilots in these cities fund by different organizations. For example, the German federal environment foundation funds the German eco-budget project and the European local environment association funds the European eco-budget project.

Thirdly, a special management institution composed of personnel from relevant government departments is set up to organize and implement the eco-budget, guide and coordinate the actions of various stakeholders, and emphasize the coordination and cooperation between departments.

Fourth, all these cities design a complete

process to guide the implementation of eco-budget, and provide comprehensive guidance for the prediction, in-process execution and post-supervision.

Fifth, public participation is an important guarantee for the successful implementation of eco-budget. Eco-budget demonstration cities provide various channels for the public to make suggestions and supervision. Public, enterprises, social organizations and other stakeholders' wide participation into the eco-budget lays foundation for the successful implementation of the eco-budget.

In a word, European and Asian eco-budget practices have a specific source of funds and transmission mechanism, clearly define the responsibility subject, and has wide public participation, which has important enlightenment and reference for China's implementation of eco-budget.

2.2. Feasibility analysis of implementing Eco-budget in Beijing

In the global wave of sustainable development, more and more attentions are paid to cities' ecological governance. Beijing, the capital and major functional centres of China, has strong environmental competitiveness because of rich mineral resources, vegetation species and good ecological condition. However, the rapid economic development in recent years has resulted in the decrease of urban vegetation and green area year by year, pollution of water, air and soil, frequent occurrence of haze. Environmental management is extremely urgent and comprehensive environmental management methods urgently need to ensure effective management of ecological resources. Beijing's special status and regional advantages can obtain more support for eco-budget implementation, and the following factors enhance the feasibility:

Firstly, the existing environmental prediction systems and methods provide guarantees for eco-budget. At present in Beijing, there are more than 150 environmental forecasting methods and an advanced monitoring system such as automatic atmospheric monitors, automatic surface water monitoring stations, traffic noise automatic display monitoring system, etc. Environmental management technology is more comprehensive, environmental quality and pollution source monitoring are available, and cover most of the environmental resources; At the same time, Beijing also has a large number of high-level professionals, which can provide objective data and technical support for the implementation of eco-budget.

Secondly, strong policy support is a strong backing for eco-budget implementation. Beijing Municipal Government continues to strengthen ecological progress, adhere to the path of green, healthy and scientific development, increase environmental protection efforts, accelerate pollution control, and strive to build Beijing into a green and low-carbon city. In recent years, the Beijing Municipal Government has issued a number of ecological protection policies and regulations. For example, in 2018, it issued the Beijing Ecological Protection Red

Line stressing the enforcement and strict protection of the environment in Beijing. In 2017, it released Ecological Protection Work Plan of Beijing during the 13th Five-year Plan Period etc to ensure the optimization of regional ecological functions and the safety of ecological resources.

Thirdly, Government and public's attention and active participation can ensure the smooth implementation of eco-budget. As an important ecological barrier and water source area, both government and the public pay more attention to environmental protection. The public in Beijing has relatively good quality and a good sense of environmental protection and participation. At the same time, the government held a large number of environmental protection activities to strengthen publicity and public awareness, in order to enhance the different government department's attention to environmental protection and enthusiasm for the implementation of eco-budget.

Fourth, the multi-level audit system ensures the scientific and standardized eco-budget. At present, Beijing has relatively complete and systematic audit mechanism and effective implementation. The multi-level and complete audit system, including government audit, social audit and internal audit, ensures the objectivity and independence of eco-budget audit. Beijing now has established relatively complete environmental protection policies and guiding strategic planning which provide a measure for the eco-budget audit.

2.3. The project design of implementing Eco-budget in Beijing

The practical experience of Europe and Asia shows eco-budget project generally carried out in a cycle period of one year, and its operation procedure divided into three stages: budget preparation, budget implementation and budget evaluation. The stages adjusts according to the actual conditions in different locations to establish different implementation paths and processes. This part aims to design the eco-budget of Beijing in 2019. The designation of eco-budget program bases on the data of 2017 and before, and the preparation should start from the third quarter of 2018 in accordance with the practice of fiscal budget.

2.3.1 Eco-Budget Preparation

This stage is an essential link in the whole program, especially for local governments that implement the eco-budget for the first time. In this stage, an interdepartmental eco-budget team have to be set up to carry out the allocation of roles and responsibilities, with the duty of managing and implementing the entire eco-budget process. The main tasks of this stage are: to formulate the project implementation schedule; To investigate existing environment and resources, to make a preliminary analysis of possible priority environmental problems, and to determine the eco-budget accounts; To understand the legal framework, the existing

institutional measures and the coordination between departments.

(1) Setting up an eco-budget team

Since Beijing has not implemented the eco-budget before, it is necessary to establish an eco-budget team to be responsible for the preparation and implementation of the eco-budget program, and determine the roles and responsibilities of each department. The eco-budget team is the main subject of the whole eco-budget process, and its establishment must ensure the independence of eco-budget and the use of resources. The Beijing eco-budget team leader can be the mayor, who is responsible for coordinating the issues of various departments and has the highest discretion in making decisions. Team members are composed of senior officials with rich experience who are highly professional, coordinated, elected respectively from different government departments. These departments involve natural resources, human resources and financial resources, including Bureau of Ecological Environment, Landscape Planting Bureau, Water Affairs Bureau, Municipal Committee of Planning and Natural Resources, Meteorological Bureau, Municipal Transportation Committee, Municipal Agriculture Bureau, Municipal Committee of City Management, Municipal Finance Bureau, Municipal Party Committee Organization Department etc. Responsibility of each department should be determined at first. For example, Water Affairs Bureau should be responsible for the budget of water resource, including surface water, living water, etc.; Landscape Planting Bureau is responsible for plans related to forest resources, such as forest ecological management; Municipal Committee of Planning and Natural Resources is responsible for the statistics and monitoring of land resources and the protection of soil quality. The team sets eco-budget schedule, analyses the legal framework and existing measures, and coordinates between departments.

(2) Determine eco-budget accounts and prepare the general eco-budget scheme

The core of eco-budget is the general eco-budget scheme. The main task of this step is determining the resource accounts based on analysing the existing ecological environment and prominent environmental problems in Beijing (select the items urgently to be solved rather than all of them); to investigate the existing environment and resource consumption, determine the specific index list of each resource, and establish the priority classes of resource protection.

According to Sustainable Development Remote Sensing Monitoring Report of China (2016) released by Chinese Academy of Sciences, Beijing's per capita water resources are less than 100 cubic meters, only 1/20 of the national average. Beijing has implemented the joint prevention and control of regional air pollution, as well as clean air action plan, and the air quality has gradually improved. In the data of 2018 released by Beijing Ecological Environment Bureau, SO₂ meets the national standard, but NO₂, PM₁₀ and PM_{2.5} exceed the national standard by 5%,

11% and 46% respectively. The economic development and urban population overload in Beijing have caused the "disease of big cities". The urban vegetation and green area have diminished year by year, and the city is facing with the noise, water, atmosphere, and soil pollution. Based on the situation of ecological environment of Beijing, according to the 13th Five-Year Plan of Beijing and the needs of government departments and different stakeholders, and in accordance with the principles of operability and predictability, five accounts of Beijing's overall eco-budget have been selected, namely water, atmosphere, green space, soil and noise. Indicators of the specific resources. These accounts select by three criteria: the major proportion of natural resources in Beijing, the great relevance to the urban development, and the well-being of the national economy and people's living quality. Table 1 is the eco-budget accounts of Beijing.

Based on the eco-budget accounts determined, the general eco-budget scheme is prepared, and the

short-term and long-term goals of eco-budget are determined, which are the main reference documents for the government and the public. The general eco-budget scheme includes base year data, annual budget targets, and medium and long-term goals (3-5 years). The benchmark year is 2017 and the environmental policies and background are similar to the present, so the data are more referential. The setting of medium and long-term goals refers to the *Ecological Protection Work Plan of Beijing during the 13th Five-year Plan Period* and the *overall urban planning of Beijing (2016-2035)*.

Because of the first-time implementation, the medium-term plan of three years has selected, which can extend gradually in the following years. The target data of 2019 calculates by the moving weighted average method in the time series model combined with the fixed-base index and chain index in the trend analysis, based on the trend of Beijing's resource status in recent years. The general eco-budget scheme of Beijing designs as Table 2.

Table 1. Eco-Budget Accounts of Beijing

<i>Accounts</i>	<i>Environmental Problems</i>	<i>Environmental Pressure</i>
Water Resource	River pollution	Decrease of Available fresh water resource
	Waste of water	
Atmosphere Quality	Air pollution	Atmospheric degradation
Landscaping	Ecological destruction	Reduction of urban greening
Soil	Soil pollution	Land desertification
	Irrational development	
Noise	Traffic and area noise	Destruction of residents' living environment

Table 2. The general eco-budget scheme of 2019 in Beijing

<i>Accounts</i>	<i>Index</i>	<i>Units</i>	<i>Base Year (2017)</i>	<i>Annual Target (2019)</i>	<i>Medium and Long-Term Goals (2022)</i>
Water Resource					
	Total annual water supply (water use)	hundred million cubic meters	39.5	39.2	<39
	Water-saving quantity	Ten thousand cubic meters	10262	10312	11299
	Sewage treatment percentage	%	92.4	93.67	>95
Atmosphere	Daily Mean Value of inhalable PM (particulate matter)	mg/cubic meters	0.084	0.082	0.0813
	Daily Mean Value of SO ₂		0.008	0.0081	<0.0078
	Daily Mean Value of NO ₂		0.046	0.045	<0.04
Greenland	Green area of park in the end of year	hectare	31019	31340	33246.5
	Forest coverage	%	43	43.86	>44
	Urban green coverage	%	48.4	49.1	51.3
	Nature reserve area	Ten thousand ha.	13.8	13.81	14.31
Soil	Cultivated area	hectare	219806.48	219859.05	219867.19
	Grassland area		84939.56	84966.84	84981.61
	Land area for urban villages and industrial and mining		307012.46	308466.34	313318.23
	Land area for Water area and water conservancy facilities		78179.63	78105.26	77857.91
Noise	Mean of regional environmental noise	decibel	53.7	53.6	<55
	Mean of Road traffic noise		69.2	69.0	<68

*The data of 2017 comes from BBS, (2017); *Medium and Long-Term Goals (2022) comes from or are calculated according to *Ecological Protection Work Plan of Beijing during the 13th Five-year Plan Period* and the *overall urban planning of Beijing (2016-2035)*.

(3) Approval of the general eco-budget scheme

After the completion of the general eco-budget scheme, the eco-budget team should send the general scheme to each department and institution for feedback. These institutions should include relevant government departments, financial departments, urban management departments, as well as different stakeholders, individuals or social societies. Special attention to public discussion and suggestions needs to be paid. According to the feedback, the eco-budget team will discuss, revise and improve the general eco-budget scheme, then submit it to the Beijing Municipal People's Congress (BMPC) for approval. During the formal discussion of the eco-budget scheme, an explanatory report is essential.

The report includes all necessary information to help understand the general framework of the eco-budget. It should send to the BMPC at least two weeks before a formal vote on the general budget. The successful implementation of the eco-budget will largely depend on its acceptance as an environmental management tool, so it is very important to submit it to the Beijing People's Congress for review. Approval of the eco-budget scheme means a political binding force to ensure that the implementation of the budget. In the following implementation process, decision makers and all management departments in the team should systematically participate in the eco-budget cycle, and guide the rational use of environmental resources through political power.

2.3.2 Eco-Budget Implementation

Once eco-budget scheme approves by the Beijing People's Congress, the next step is to take measures to achieve the goals, monitor and rectify the deviations in time. This step usually lasts throughout the budget year.

(1) Management measures implementation and responsibility assignment

In this step, it is mainly the government departments to implement management measures according to their duties. Firstly, the implementation measures are determined according to each resource indicators and responsibility allocation. Significant problems in this stage are the overlapping tasks and conflicting duties of various departments, which require the mayor to coordinate the functions of various departments. When it is difficult to coordinate, a special meeting of the team could be organized to discuss a solution. In addition, an eco-budget coordination committee could be set up to supervise and the entire processes of implementation. It is essential to promote the participation of citizens, the entire society, social groups, individuals and other willing partners. Secondly, the possible impact on resource consumption is analyzed. Factors to consider include the methodology developed to achieve the eco-budget goals, ongoing projects and activities, and

possible contingencies.

(2) Monitoring and recording

After the ecological account is established, Data statistics should carry out and relevant indicators must be monitored regularly according to the budget goals. Firstly, the eco-budget team should report the latest data and point out the potential or apparent deviation from the budget target. Secondly, eco-budget stage control needs. The table of monthly implementation control need to be prepared so that the information of all individual indicators can be continuously tracked, including resources, indicators, current data and data types, short-term goals and each statistical data. Finally, if there is a significant deviation between the target and the current situation, the local government should reach an agreement on remedial measures as soon as possible, which is similar to the situation of the supplementary budget in the fiscal budget.

(3) Corrective measures

If the deviation is large, the eco-budget team should forward corrective measures in time within the budget year. To ensure transparency, the resolution draft should provide information on how corrective measures will affect eco-budget to legitimize environmental consumption.

For each resource index, we also made the index file as shown in the following table, to clarify the relevant responsibilities of each department, prevent the fault of budget implementation because of personnel changes, and facilitate the management of the budget index. Here only taking water resources as an example due to limited space, index file shown in Table 3.

2.3.3. Eco-Budget assessment

At the end of a budget year, the eco-budget assessment starts. This stage requires the preparation of the annual eco-budget balance table, which is to check whether the ecological income of the year can provide the ecological expenditure of the budget year. Compared with the general budget, the balance table mainly adds the actual value and the completion degree of annual targets, medium and long-term goals. The balance table uses by government and stakeholders to evaluate the implementation effect of the eco-budget, that is, the degree of achievement of annual goals and completion of medium and long-term goals.

Qualitative and quantitative assessments of technical achievements and process organization will be conducted through internal or peer audit, and then are submitted to municipal people's congress for approval. The approved budget balance report will announce to the public and receive public advice and supervision. The report also provides the basis for management decisions and preparation the next year's eco-budget.

Table 3. Index file of water resource

<i>Index</i>	<i>Total annual water supply (water use)</i>	<i>Water-saving quantity</i>	<i>Sewage treatment percentage</i>
Units	Hundred million cubic meters	Ten thousand cubic meters	%
Benchmark（2017）	39.5	10262	92.4
Annual target（2019）	39.2	10312	93.67
Medium- and long-term goals（2022）	<39	11299	>95
Prospective trend	downward	upward	
Reference for goals setting	Beijing's ecological protection work plan for the 13th five-year plan period, The red line for ecological protection in Beijing, Beijing urban overall planning (2016-2035) etc.		
Data resource	Beijing 2013-2017 statistical yearbook, The 13th five-year plan of Beijing		
Data contact	Specific personnel A		
Index director	Specific personnel B		
The main executive departments	The Beijing Municipal Bureau of Water Affair The Beijing Municipal Bureau of Ecological Environment		
Policies needed for achieving goals	Government guided program, Five-year plan of action		
Measures	Control total water consumption; Construction of additional sewage pipelines; Construction of storage tanks; Promoting the use of low-toxicity and low-residue pesticides; Strengthen compliance management of industrial waste water.		
Participants	Municipal government, enterprises, social societies and the public		

(1) Preparing the eco-budget balance sheet

At the end of the environment budget year, the eco-budget team needs to summarize the resource accounts and prepare an annual balance sheet as a core result of the budget cycle. In practice, budget balance figure, achievement of short-term and long-term goals add into the annual balance sheet. The completion degree of the short-term goal is the degree of the annual budget balance relative to the short-term goals (annual goals), which can express by the (Eq. 1):

$$\text{Achievement of short-term goals} = \text{budget balance/short-term goals} \times 100\% \quad (1)$$

Note: for negative indicators, the smaller the budget balance means the closer to the target, we should use the reciprocal of the above formula.

The degree of completion of the long-term goal indicates the distance between the equilibrium (balance) value and the long-term goal. It can express by the (Eq. 2):

$$\text{Completion degree of long-term goal} = (\text{base value} - \text{budget balance}) / (\text{base value} - \text{long-term goal}) \times 100\% \quad (2)$$

After we get the actual data of 2019 in Beijing, the two key figures-Achievement of short-term goals and completion degree of medium and long-term goals, can be calculated and added in the Table 2 to get the Eco-budget Balance Sheet of 2019 in Beijing.

(2) Preparation and audit of eco-budget balance reports

Based on the budget balance, a budget balance report should be prepared, which illustrates the figures and results of each element of the budget balance, measures, events, trends, achievements and problems of the budget year. Then the eco-budget report shall be

evaluated and audited to evaluate the performance of relevant institutions in the implementation process and budget cycle, and the results of internal audit shall be included in the report. The government then publishes the budget balance report and internal audit results for public comment, after that, the report submits to the Municipal People's Congress for approval.

(3) Approval of the budget balance report

The Municipal People's Congress shall approve the budget balance report revised by eco-budget team combined with the public opinions. The approved report then announce in the local government website and post in the official publication. The public will approve the achievement of government on environmental governance, increasing confidence of the government. In addition, the eco-budget team will prepare for the next eco-budget cycle, adjust the budget for the following year based on the results of the budget balance report, and repeat the eco-budget cycle to ensure the normal operation of sustainable environmental management.

3. Results and discussion

In order to ensure the effect of the eco-budget implementation, several powerful proposals and measures forward to the government:

Firstly, the responsibilities, obligations and authorities of each responsible subject in the eco-budget team should be coordinated to avoid problems caused by the government management system. The mayor coordinates eco-budget affairs of all departments, holds regular exchange meetings to discuss and coordinate inter-departmental work. Eco-budget incorporates into the overall plan of Beijing, rather than take it as an independent plan. This is conducive to the effective implementation of the eco-budget, and means that all activities should take

environmental resources into account, rather than separate environmental management. Finally, sharing mechanism among departments establishes to break through the resource and information barriers of each department. An information interactive platform of cross-department collaboration can help to achieve resource and information sharing among relevant departments.

Secondly, the eco-budget performance evaluation mechanism improves through establishing performance appraisal system. The Beijing municipal government establishes the supervision mechanism, avoidance system and accountability system of performance appraisal according to the regional reality, and combines the appraisal results with job promotion and rewards. Then the government build diversified performance evaluation subjects, especially those independent subjects, strengthen public participation and third-party evaluation mechanisms. It expand the scope of evaluation subjects, and gradually establish comprehensive evaluation subjects, including assessment offices, the National People's Congress, professional evaluation institutions, the public, news media, experts and scholars. Finally, the government should improve the performance evaluation index, determine the evaluation standard, reasonably distribute the weight of indicators at all levels according to the practice of Beijing eco-budget to form a set of eco-budget performance evaluation system.

Thirdly, the public should be encouraged to actively participate in the eco-budget and improve the supervision mechanism. First, strengthen environmental publicity and education to raise public awareness of environmental protection. At the same time, the eco-budget manual will issue to make the public know about the importance and operation process of eco-budget, which can encourage active participation. Second, the government departments and the eco-budget team should collect public opinions extensively. In addition to the existing mailbox of the mayor, they should regularly enter into the public, social groups, experts and enterprises to understand the public suggestions and respond to the opinions. Finally, internal supervision and external supervision should take, in particular external supervision of society and public opinion.

Fourth, under the guidance of government audit, social audit should be cooperated with internal audit to perform the eco-budget audit. The planning, implementation and result report of the eco-budget perform under the guidance of the government, and the internal audit institutions of the government cannot guarantee the complete independence, fairness, openness and impartiality of the audit results. Moreover, due to the particularity and specialty of eco-budget audit, it needs a large number of comprehensive auditors with both financial audit knowledge and ecological environment management knowledge. Therefore, it is wise to choose social audit to supervise and evaluate eco-budget management. As an independent third-party audit institution, social

audit can not only ensure fairness, impartiality and fairness, but also select service institutions with resource and environmental audit expertise, which will help improve the quality and level of eco-budget audit.

4. Conclusions

As a comprehensive environmental management mode, eco-budget can bridge the gap between economy and ecological area, break through the bottleneck of current separate environmental management, and make a real contribution to the realization of sustainable development. Eco-budget has developed into a long-term mechanism in foreign countries. In the process of budget implementation, all departments should focus on collective interests and teamwork, which can not only strengthen the contact between all departments but also fully exert their advantages to achieve the effect of 1+1>2. The formulation, implementation, evaluation and summary of the eco-budget can fully reflect predict in advance, control in process and afterwards evaluation of management, and reflect the governance idea of combining social development with environmental protection. The eco-budget echoes the national statistical audit of natural resources (such as the balance sheet of natural resources, ecological red line, main functional area and other projects), highlighting the concept of green development and contributing to the environmental performance evaluation of local governments.

In the pilot implementation of eco-budget in China, it is necessary to adapt to China's national conditions on basis of learning from foreign experience. Select the essence and discard the dross, so as to make the eco-budget innovative, provide real and effective information for the public, the country, the government and other stakeholders, and help the government departments make better decisions to improve the ecological environment. Resource and environmental management is a long-term and arduous task, which urgently needs the joint participation of the whole society and all citizens. Only by joint efforts can truly achieve sustainable development of resources and environment.

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