

On the Basis of the Formulation of the Balance Sheet of Natural Resources

——Based on the Perspective of Management Attributes

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Abstract. Preparation of natural resources assets and liabilities table pilot program has been examined and approved by the Central Committee, and in Hulunbeier, Inner Mongolia and other five cities to carry out exploration and preparation of land, forest and water resources real assets, liabilities table pilot. In practice, the preparation of the balance sheet of natural resources should follow the basis of accounting or statistical accounting, there is no conclusive. In this paper, from the perspective of management properties of natural resources in the balance sheet, point out the strategy that accounting and statistical accounting coexist and statistical accounting preferred to the reality of the accounting should be adopted through carding, analysis and comparison of two different basis for the formulation of the balance sheet of natural resources based on the perspective of management attributes. The conclusion in this paper enriches the research documents about the basis of the formulation of the balance sheet of natural resources, which has important reference to the practice of China's formulation of balance sheet of natural resources.

Introduction

By 2013, the party's eighth session of the Third Plenary Session of the CPC Central Committee's decision on deepening reform of the overall number of major issues and in 2015, the Central Committee of the Communist Party of China, the reform of ecological civilization overall plan which the State Council issued put forward to investigate the preparation of the balance sheet of natural resources. In September 2015, the pilot program of the preparation of the balance sheet of natural resources through the central approval, formally proposed that carry out exploration and preparation of real assets and liabilities table pilot of land, forest and water resources in some regions, including Hulunbuir City, Inner Mongolia, Huzhou City, Zhejiang Province, Loudi City, Hunan Province, Guizhou Chishui City, Yan'an City, Shanxi.

Hangyan Zhang believes that the current preparation of natural resources assets and liabilities table has two approaches [1]: Accounting and statistical accounting, the former follows the accounting equation: “Assets - Liabilities = Net Assets (Equity)”, while the latter follows statistical identities: “Natural Resources Assets = Natural Resources Liabilities + Natural Resources Net Assets”. Ruining Yang and Shizhong Yang believe that there are two views for natural resources balance sheet: a view is based on the United Nations Environmental and economic accounting system (SEEA2012) of the logical framework that the balance in basic natural resources balance sheet follows the equation: “Opening Balance + The Current Amount of Increase = The Current Amount of Decrease + Closing Balance”, in other words, that is called "four-post balance". Another view is that natural resources assets balance sheet balance relation is the enterprise assets and liabilities in the balance sheet, it is the basic balance reflecting in the equation: “Natural Resources Assets = Liabilities + natural resources”, and it is named "consubstantial with two points"[2]. In the current pilot, the preparation of the balance sheet of natural resources should follow the basis of accounting or statistical accounting, but there is no conclusive.

Based on above, this article carries on the discussion on the realistic choice of strategy of the

basis of preparation through the carding, analysis and comparison of two different basis of the preparation, from the perspective of management properties of natural resources in the balance sheet, in order to provide a useful reference for China's natural balance sheet preparation.

The Accounting Basis of the Balance Sheet of Natural Resources

The Basic Principles. Follow the balance of the equation: “Natural Resource Assets = Liabilities + natural resources net assets”, and the focus is on an economic asset size and composition of the situation from the value angle calculation of a country (region) at a certain point, reflecting the features of resources.

Framework. Follow the accounting basis of natural resources in the balance sheet, the reference framework of the system is a system of national accounts (a system of notional accounts, abbreviated SNA). In the general format of the national balance sheet provided by SNA2008, natural resources are regarded as an important asset, under the non-financial assets. In the table, the accounting of natural resources is based on the vertical of "the sum of resources is equal to the sum of the resources" and the horizontal of "the sum of the resources is equal to the sum of the total". Specifically, the vertical natural resources according to the category is divided into land resources, mineral resources, energy reserves, the cultivation of biological resources, water resources and other natural resources, the radio spectrum and other seven resources non; horizontal natural resources are distributed into two sectors: China (including non-financial companies, financial companies, governments, households, non-profit institutions serving households five departments) and other countries. Something special needed to be pointed out is that although the balance of "the assets are equal to the sum of the liabilities and net assets" exists in the national balance sheet; the SNA2008 does not admit non-financial assets (including natural resources) contain liability [3]. Therefore, the balance sheet of natural resources based on the accounting can only draw on the framework of SNA2008 system, but not completely copy it.

Practical Exploration. In Western countries, scholars and government research and practice the national balance sheet for nearly half a century. Currently, Asia, Australia and Japan, the UK and North America, Canada and other countries in Europe, have basically achieved periodically preparing and publishing the national balance sheet. The published results reflect that the natural resources are recognized as important national balance sheet assets, accounting for a considerable proportion. For example, the amount in the forms provided by Australia from 2009 to 2013, the maximum in 2009 is up to 44.69% and the minimum in 2013 is up to 41.84%. The value of natural resources has always occupied more than two fifths of the country's total assets during the past five years [4].

In China, the National Bureau of Statistics published the "China Balance Sheet Methodology" in 1997, and revised the edition in 2007. The official balance sheet has been compiled test, but the results were not disclosed, and in the "China Balance Sheet method", the natural resources have not been mentioned. In 2003, the National Bureau of Statistics trial compilation of the "National Inventory of Natural Resources in kind", and based on this report, the trial compilation of land, minerals, forests and water resources in China were carried out four types of accounting value [5].

Evaluate the Pros and Cons. The balance sheet of natural resources on the accounting basis of the preparation can well reflect the value of assets and liabilities of a country (region) at a certain point, and it can realize the effective connection with the state of the balance sheet. It reflects the rights and interests of the natural resources, but also facilitates the establishment of the system of responsibility for leading cadres to carry out the responsibility of ecological environmental damage. And in view of the fact that SNA has some of the exploration and practice in China, based on the accounting basis and SNA concept framework for the preparation of the natural resources balance sheet, the balance sheet may be more feasible in operation practice and popularization of the use.

Because of the fragmented nature of the administrative system-level diversity and natural resources management, China's natural resources ownership interest is often difficult to define, and the defect existing resources metering technology, resulting in that the value of natural resources is also difficult to measure. The diversity of natural resources itself also exacerbate the difficulty of its

value measurement. Liabilities, especially natural resources, are the major difficulty of the current environmental accounting, which can be said insurmountable obstacles at this stage. The SNA2008 and SEEA2012 avoided liabilities in order not to affect real promotion and use of natural resources from which the difficulty of the problem can be seen. The current conditions do not have the reality-based natural resource accounting basis for the preparation of the balance sheet, unless the environmental accounting theory and method solve the problem of recognition and measurement of liabilities over natural resources.

Statistics Based Natural Resource Accounting Balance Sheet

The Basic Principles. Following the balance in the following equation: “Opening Balance + The Current Amount of Increase = The Current Amount of Decrease + Closing Balance”, it focuses on a change rule of the increasing or decreasing number of natural resources in a given period, classifying the causes of the change on natural resources .

Framework. Follow statistical accounting-based natural resource balance sheet, which is a comprehensive reference framework for System of Integrated Environment and Economic Accounting (System of Integrated Environment and Economic Accounting, abbreviated as SEEA). In the SEEA 2012, with respect to natural resources classification, measurement and presentation, there are more detailed provisions. It is particularly worth mentioning that in the presentation of the relevant provisions, following the relationship that source of assets (category) is equal to asset management (occupation), SEEA2012 set up two categories of converting and value different presentation. Meanwhile, taking resources and national differences into consideration, SEEA2012 provided a special accounting system of different resources to be chosen for the Member States in order to facilitate the operation.

Practice and Exploration. In view of the advantages of SEEA2012 for ease of operation, under the guidance of some countries, some countries combined with the characteristics of their natural resources, conducted with its characteristics of natural resources accounting, respectively. There are some successful countries, for example, Australia does not only successfully bring water resources, land resources and other environmental assets that the country is rich in into the national environmental economic accounting statistical system, and the accounting system also includes the energy and resource consumption and waste emissions project through the release of AEEA2014 (Australian Environmental and economic accounts) [3]. Japan has initially established a physical and value, including the amount of the national environmental economic accounting matrix. The practice of America seems to go further by the flow of natural resources account system established under the framework of SEEA, and the America carries out the actual accounting of environmental liabilities (resource depletion cost, environmental protection expenditure, environmental degradation costs).

Compared to the SNA, China is more consistent with the SEEA accounting system research and practice in comparison with foreign countries. In 2004, the State Environmental Protection Administration of China established the task group of "green national economic accounting system framework research". In the same year, the China National Bureau of statistics introduced the "natural resources in the form of physical volume" into the "China national economic accounting system" in the form of a subsidiary, and formulated the corresponding accounting program. China did not only try compiling physical quantity report of national land resources, forest resources, mineral resources and water resources in 2000, but also conducted pilot accounting programs of forest resources, water resources, industrial pollution, the environmental protection expenditure in Heilongjiang Province, Chongqing city and Hainan Province[6]. In recent years, some scholars have made a useful attempt to the establishment of the national or regional special natural resources balance sheet in China. Such as professor Jianxin Geng prepared the seven physical volume statements reflecting the use of water resources in Fengtai District City of Beijing by drawing on the successful experience of SEEA and the Australian water accounting standards [7]. Huixia Li and Xuemei Zhang take SEEA (2012) as a guide, and try the balance sheet of the mineral resources of our country [8]. Dejun Han takes land resources as an example, with the technology and method of

the multi domain, including the land valuation method, system of national economic accounting, environmental and economic comprehensive accounting system and ecological service value model, through the account for the land resource economic value, ecological value and social value, eventually sets up a system of preparation of land resource balance sheet method which is both scientific and operational [9].

Evaluate the Pros and Cons. The balance sheet of natural resources on the statistical accounting basis of the preparation can well reflect the scale and structure of a country (region) during a certain period of natural resources to achieve effective convergence and system of environmental and economic accounting. It reflects the quantity and quality of natural resources, and it is easy to implement the audit of natural resource assets outgoing for leading cadres. Based on the statistical data obtained from different management departments, it is not required to calculate the value of natural resources, so that the data is not only easy to be collected and processed, but also its quality is relatively more authoritative and reliable. And these data and reports can also be used as the basis for scientific management and decision-making in daily management, and increase the practical significance of the balance sheet of natural resources. The balance sheet of natural resources based on statistical accounting has the characteristics of easy and convenient use, which makes it easier to be a realistic choice in China.

However, there are also shortcomings in the balance sheet of natural resources which are measured in physical inconvenience. A big difference in the number of units of measure different types of resources leads to the physical quantity of natural resources balance sheet, which neither realizes the sum of different kinds of natural resources, nor depicts the relationship between the association and balanced accounts. This makes resource managers cannot be cost-effective to account from the macro level when making decisions, limiting the application of management practices for natural resources of the balance sheet.

Natural Resources and Balance Sheet Management Properties

The purpose of the use of the balance sheet of natural resources determines the content of the report, and the basis of the preparation of the statement belongs to the specific content of the report. In the documents about decision of the Central Committee of CPC on several major issues of comprehensive reform, clearly state that “leading cadres to implement natural resource assets outgoing audit” and “the establishment of liability for damage to the ecological environment of lifelong accountability system” are the purposes of the preparation of the balance sheet of natural resources. Chunyu Li believes that, based on these purposes, the current balance sheet of natural resources should be the positioning of the management report"[6]. From the perspective of property management, this paper argues that the realistic choice of the basis preparation of current sheet of natural resources assets and liabilities depends on the comprehensive consideration of the urgency, feasibility, and economy of achieving the aim of statements.

Urgency: the Current Need or the Future Can Be. On the purpose of the preparation of the balance sheet of natural resources, "the implementation of natural resource assets in the outgoing audit" is current urgent need, and the establishment of liability for damage to the ecological environment of lifelong accountability system is the future can be. The reason is that the former is the premise and foundation of the latter. For the implementation of natural resource assets in the outgoing audit of leading cadres, reflecting the real quantity of natural resources quantity and quality status is more important, which requires to prepare the physical quantity of natural resources assets and liabilities as a table on the statistical accounting basis; for the establishment of the ecological damage to the environment, lifelong accountability system, and the value which reflects the value of natural resource assets and liabilities, appears to be more important, which requires to prepare the value of natural resources assets and liabilities statements on the basis of accounting. Accordingly, in terms of the urgency, we should adopt the statistical accounting basis of physical quantity of natural resources in the balance sheet, which is the direction of the current pilot in China.

Feasibility: Can the Theory of Still Realistic. Qingbin Li believes that the issues of preparation

of the natural balance sheet involved are complex and systematic, which not only need to accumulate reserves ahead of the theory and practice of long time-series data, but also need to break the natural resources valuation methodology[10]. It also reflects the double dilemmas between the true nature of the current method of preparation of the balance sheet in behind of the theory, and the realistic environment subject to the practical environment. The analysis above also shows that the preparation of the natural resources equity balance sheet on the accounting basis exists technical problems that a resource is difficult to define and measure ,and the value of liabilities is difficult to confirm, causing it in the dilemma that theoretically proves feasible, but in the reality it is difficult to realize. However, the preparation of natural resources balance sheet on the statistical accounting basis is relatively easy to use and in a wide range of convenience.

Economic: Complex Complete or Easy to Read. Economic reports reflected in two aspects: One is the cost of preparation of the report. Occupying the vast majority of resource of the cost of balance sheet preparation is the cost of obtaining data. When we seek completeness of the report, we are bound to make high standards on the quantity and quality of the data, which leads to the increase of the cost of collecting and sorting data. At the same time, the number and quality of reports staffing, also affect the cost of the preparation of the report. Complex reports will inevitably bring a high quantity and quality of staffing requirements, and it will also increase the cost. The other is the cost of the report. Reports in the course will have the cost. The concise reports will bring lower utility costs. From the economic point of view, the preparation of natural resource accounting balance sheet on the statistical basis cost lower.

Selection of the Basis for the Preparation of the Balance Sheet of Natural Resources

Based on the above analysis, natural resource assets in the balance sheet under the premise of meeting the maximum administrative requirements, should suit the current reality as far as possible, with minimal cost of preparation and utility to realize management needs of this core objective. Accordingly, the basis selection of the preparation of natural resources balance sheet can take two strategies.

Framework: Adhere to the Two Dimensions and the Two Level of Parallelism. Hangyan Zhang believes that the change in the number of natural resources through the disclosure of the number of natural resources to achieve economic management is just the preparation of the means of natural resources balance sheet. But the ultimate goal of the preparation of the balance sheet of natural resources is to reflect comprehensively natural resources and ecological environment of the future value of the assets, and then to achieve the protection of the environment and ecological civilization construction [1]. Therefore, in terms of the means to achieve the purpose, taking both statistical accounting and accounting for two dimensions will be better serve the ultimate goal to achieve the balance sheet of natural resources for the preparation of the balance sheet.

Although the natural resources balance sheet requires both physical volume and magnitude of value of data, the theory is not perfect at this stage and the technical means is not mature enough, so there exists order of priority between the two. Therefore, Rongbing Huang and Qian Zhao believe that natural resource accounting should be divided into two levels that the first level is the amount of physical accounting based on the statistical accounting and the second is value accounting based on accounting[11]. For the first level, the basic goal is to realize the registration for natural resource assets. And for the second level, the basic goal is the realization of the magnitude of value accounting of natural resources. The second level of accounting value based on the first level of physical accounting, is to achieve a comprehensive assessment of the status and use of the natural resource stock performance through a comprehensive accounting of natural resource assets and liabilities, .

In specific practice, it can be prepared in the form of physical assets and liabilities, the value of the balance sheet as a supplement in the early stage. And on the basis of relevant data fully accumulation and value evaluation methods gradually mature later, the material accounting data can be an important part of the value of natural resource assets and liabilities table system, with auxiliary table form provided. So, this does not only realize and value accounting master data

mutual articulation, but also can provide more comprehensive information for resource management decisions.

Practice: Adhere to the Three Principles and Three-Step Progression. In practice, Zhiming Feng, Yanzhao Yang, and Peng Li think the preparation for the basis of the natural balance sheets, should follow the three principles: "first physical and then the value, the stock first and then flow, first classified and then integrated". Specifically, it is the first statistical calculation based on the number of reports prepared priority of different types of natural resource stocks, then the basis of accounting, the preparation of the report Value of all natural resource flows [12]. In these three principles, the order of priorities is both obvious and important, and it is the key to practical success.

Rongbing Huang and Qian Zhao also believe that the preparation of the natural balance sheet should take three procedures step by step [11]. Firstly, the statistical accounting basis follows the equation: "Beginning Inventory + The Increased Amount = The Decrease Amount + Ending Stocks", in which reflects the focus point stock and changes of the period in natural resources assets, focusing in the number to find out the natural resources assets. Secondly, the introduction of appropriate natural resource valuation techniques reflects status and changes of the quality of natural resources assets, focusing on find out natural resources assets quality. Finally, follow the relationship that assets are equal to the sum of liabilities and owners' equity on the accounting basis, and reflect a focus on a point of natural resources assets and liabilities.

Conclusion

To be concluded, the preparation of China's balance sheet of natural resources currently should take a strategy on both accounting and statistics business accounting. By the method of statistical accounting in earlier stage, and the accounting method in later stage, move forward steadily. The conclusion enriches the research documents on the preparation of balance sheet of natural resources, which has provided important theories for the preparation of China's balance sheet of natural resources.

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