

# A Review of Natural Resource Asset Accounting Literature

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## Abstract

The preparation of natural resources balance sheet is an important topic for both theoretical and practical circles, but there is few literature sorting on this aspect. Starting from the three report projects of resource type, environmental and economic relations and natural resources balance sheet, this article reviews the research and discussion of the academic circle on its accounting scope respectively, and puts forward the research evaluation and outlook, hoping to provide some help to the preparation of natural resources balance sheet in the future.

## Keywords

Natural Asset Resources; Literature Review; Accounting.

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## 1. Research Background

Natural resources play an important role in supporting modern social and economic development. However, the negative relationship between natural resources and economic performance was discovered in the last century, defined as a curse of natural resources. Most areas with rich natural resources such as oil and coal have failed to achieve better economic development due to unreasonable exploitation and overuse. While some efforts have been made to mitigate such negative effects by applying state of advanced technologies and implementing appropriate resource management policies, sustainable utilization of natural resources has not been achieved, leading to depletion of natural resources and corresponding environmental emissions.

## 2. Research significance

Paying attention to the effective management of natural resources, strengthening the accounting research of forest resources, focusing on the accounting of natural resources, can better determine the real value of all kinds of natural resources, and formulate more appropriate resource protection policies.

## 3. Literature Review

### 3.1 Resource Type Review

Previous studies have found that key resources with a direct impact on economic development include water, energy, forests, land and urban ecosystems. The research hotspot has also shifted from pure monetary value to considering the integration and intrinsic value of ecosystem services. Meanwhile, in order to better compute the value of natural resources, various methods such as Life Cycle Assessment (LCA), ecological footprint (EF), Input-output (I/O) analysis, and material flow analysis are tested and applied.

### 3.2 Review of environmental and economic relations

The study of the relationship between economic growth and ecological environmental damage has an important influence on economic development theory and the direction of economic decision. It

mostly adopts the environmental Kuznetz curve for the discussion of the relationship, which is also the main method to analyze the relationship between carbon dioxide emissions and economic growth. The state space model between CO<sub>2</sub> per capita and GDP per capita is not simple for the inverted U type relationship [1], Some countries present linear structures in [2]. Subsequent studies made comparative studies and prediction of CO<sub>2</sub> Kuznets curve in China using traditional environmental Kuznets model simulation and prediction based on CO<sub>2</sub> emissions prediction [3] The empirical and evidence showed that the carbon emission Kuznetts curve and the theoretical inflection point were 3313.05,4105.17 and 2751.78 Yuan [4] However, the "inverted U" relationship between environmental and economic growth is not the endogenous mechanism of economic growth, but the result of many external control measures. environmental pollution is difficult to be automatically along with economic growth [5] China's low-carbon economic policy should fully take into account the stage of economic development, the differences of regional development and the hierarchy of carbon emission drivers, use the financial performance of the media in carbon information disclosure, and formulate differentiated carbon emission reduction strategies in different regions [6] [7]. For China, as environmental pollution increasingly threatens social and economic development, scholars are studying how to strengthen environmental governance and ecological protection. These goals are considered from the perspective of industrial restructuring, green technology progress, environmental regulation and resource utilization efficiency to promote coordinated environmental and economic development [8][9][10].

### 3.3 Natural resources balance sheet

Chinese scholars emphasize the development and preparation of the natural resources balance sheet, which is a research theme with outstanding Chinese characteristics. Since the introduction of the concept of the Natural Resources Balance Sheet, scholars have conducted a series of studies on the relationship between the meaning and functions, composition, preparation principles, calculation properties, and the formal paradigm and expression of the natural resources balance sheet [11][12]. Regarding its meaning and role, some scholars state that the "natural resources balance sheet" is a "financial statement" or "management statements" [13][14]. The composition of natural resources balance sheets, existence and accounting methods are the priorities and challenges of research, as no country in the world has experience to learn from. But learn the experience of Green GDP exploration [15] In terms of preparation principles and accounting properties, considering the property rights and valuation of natural resources, scholars emphasize the need to solve a series of problems, unclear definition of assets and liabilities, uncertain relevant concepts and connotation, and imperfect value system [16] At the third plenary session of the 18th party proposed that China should "explore the preparation of natural resources balance sheet, the leading cadres natural resources assets outgoing audit" requirements, at present, the theoretical and practice of the audit content and the focus of great differences, the reason is that the basic audit of leading cadres, the audit elements research is not enough [17][18] To Prepare and apply natural resources balance sheet, fully understand and learn from the international norms of SEEA2012 and SNA2008, pay attention to value quantity accounting, take the important step of physical quantity to value conversion; build information channel and platform for natural resource data collection and handle the rights and responsibility relationship between departments in the preparation of natural resources balance sheet [19].

## 4. Conclusion and Outlook

Natural resource accounting is essential to promoting the sustainable management of natural resources. However, due to the lack of appropriate accounting methods, their true value has been biased, leading to rapid depletion and corresponding emissions. Water and energy are the main research on natural resources due to the huge consumer demand, followed by land, forests, waste and urban ecosystems. Mathematical modeling is the mainstream research method in the field, however, no way can handle such a complex problem of natural resource accounting, so it is necessary to integrate different methods in order to obtain more comprehensive and more accurate natural resource

accounting results for scientific decision-making. According to the environmental Kuznetz curve, strengthen the ecological industry adjustment and the investment in green technology, and fully practice the sustainable development strategy. Apply and prepare the natural resources balance sheet, and give full play to the important role of the natural resources balance sheet in the construction of ecological civilization in China.

## References

- [1] Lu Hong. Analysis of Chinese Environmental Problems and Economic Development —— Taking Air Pollution as an Example [J]. *Financial Research*, 2000 (10): 53-59.
- [2] Han Yujun, Lu Yang. The Relationship between Economic Growth and the Environment-Based on an Empirical Study of the Kuznetz Curve of the CO<sub>2</sub> Environment [C]. Working Paper at the School of Economics, Renmin University of China, 2007.
- [3] Lin Boqiang, Jiang Zhu. Prediction and Impact Factors Analysis of Environmental Kuznetz Curve in China [J]. *Management World*, 2009 (04): 27-36.
- [4] Zhang Weiwei Fu, Zhou Changfu. Does China's carbon emission trajectory present the Kuznetz inverted U type? —— based on economic development and carbon emissions in different regions [J]. *Economic Management*, 2011,33 (06): 14-23.
- [5] Yanglin, Gao Hongxia. Whether Economic Growth Can automatically Solve the environmental problem —— inverted U environment Kuznetz curve is an endogenous mechanism or external control result [J]. *China Population · Resources and Environment*, 2012,22 (08): 160-165.
- [6] Deng Xiaolan, Yan Zhiming, Wu Yongyi. Are carbon emissions and economic development subject to an inverted U curve —— reinterpretation of the environmental Kuznetz curve hypothesis [J]. *Financial and trade economy*, 2014 (02): 19-29.
- [7] Wen Subin, Zhou Liuu. Mechanism of Enterprise Carbon Information Disclosure on Financial Performance The "inverted U" regulation of —— media governance [J]. *Management Review*, 2017,29 (11): 183-195.
- [8] Sun Yingjie, Lin Chun. Environmental Regulation and Quality Improvement —— Based on Environmental Kuznetz U [J]. *Shanghai Economic Research*, 2018 (03): 84-94.
- [9] Li Peng. Inspection of the U" -type curve relationship between industrial structure and environmental pollution —— is based on the perspective of industrial structure adjustment range and economic growth rate [J]. *Economic issues*, 2016 (10): 21-26 + 109.
- [10] Guo Jingjing. Research on CouRelations between Ecological Environment and Economic Development in China [D]. Beijing Forestry University, 2016.
- [11] Zhang Xiaode. A New Model of Ecological Civilization with Chinese Characteristics [J]. *People's Forum*, 2013 (S2): 60-61.
- [12] Feng Zhiming, Yang Yanzhao, Li Peng. From Natural Resources accounting to Natural Resources balance sheet preparation [J]. *Journal of the Chinese Academy of Sciences*, 2014,29 (04): 449-456.
- [13] Hu Wenlong, Dan. Research on China Natural Resources Balance Sheet Framework System of —— Based on SEEA2012, SNA2008 and National Balance Sheet [J]. *China Population Resources and Environment*, 2015,25 (08): 1-9.
- [14] Chen Yanli, bow Rui, zhaoyun. Preparation of Natural Resources Balance Sheet: theoretical basis, key concepts, framework design [J]. *Accounting Studies*, 2015 (09): 18-26 + 96.
- [15] Chen Hongrui, Huang Weiguo. The Significance and Exploration of the Preparation of the Natural Resources Balance Sheet [J]. *Environment and Sustainable Development*, 2014,39 (01): 46-48.
- [16] Feng Zhiming, Yang Yanzhao, Chen Yue. Research Progress of National Balance Sheet and Its Enlightenment on the Preparation of Natural Resources Balance Sheet [J]. *Resource Science*, 2015,37 (09): 1685-1691.
- [17] Geng Jianxin. Preparation and Application of Natural Resources Balance Sheet in China Discuss —— Based on outgoing Audit of Natural Resource Assets [J]. *China Internal Audit*, 2014 (09): 15-22.
- [18] Liu Minghui, Sun Jiping. Research on Audit Elements of outgoing Natural Resource Assets of Leading Cadres [J]. *Audit and Economic Studies*, 2016,31 (04): 12-20.

- [19]Lv Xiaomin, Liu Shangrui, Geng Jianxin. Key Issues in the Preparation and Application of the Natural Resources Balance Sheet in China [J]. China Population, Resources and Environment, 2020,30(04):26-34.