

A Study on the Environmental Costing Methodology of the Automobile Manufacturing Industry under the Management Model of China's Emission Permit System

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Abstract

In recent years, a series of environmental problems have emerged to sound the alarm and people have gradually become aware of the important role that environmental protection plays in human survival and development. As a highly polluting industry, does the automotive industry systematically account for and fully disclose the environmental costs it incurs? After the new car brush factory, the air inside the car formaldehyde or benzene content of serious burning standards, volatile time can last more than 6 months, thus making the driver during this period of driving discomfort, and even acid into a car accident In addition, the car in the production process will also produce a large number of exhaust gas, wastewater, etc., causing great impact on the surrounding environment. This paper presents a systematic description of the accounting and disclosure of environmental costs in the automotive industry, and proposes corresponding suggestions for improvement from a macro perspective.

Keywords

Automotive industry, environmental costs, environmental cost accounting, environmental cost disclosure

1. Introduction

When the automobile is no longer an unattainable luxury for us ordinary people, while it brings great convenience to our life, it has to make us face a new heap of scenery—environmental pollution. When it comes to the environmental pollution of cars, the latest thing we know is the problem of atmospheric pollution caused by car exhaust, in fact, the environmental pollution of cars is much more than that. After the new car brush factory, the air inside the car formaldehyde or benzene content of serious burning standards, volatile time can last more than 6 months, thus making the driver during this period of driving discomfort, and even acid into a car accident In addition, the car in the production process will also produce a large number of exhaust gas, wastewater, etc., causing great impact on the surrounding environment.

The automotive industry, as an industry with huge resource consumption, is subject to both environmental and resource constraints. Accurate environmental costing will not only help the automotive industry to determine its costs reasonably, but will also improve the motivation of the automotive industry to protect the environment and achieve sustainable development of the automotive industry.

2. From the current situation of the implementation of the emission permit system

Emission permit system is the basic system of pollution emission, the implementation of pollutant emission permit

management is the international environmental governance of developed countries and regions proved to be effective in practice advanced experience. China's discharge permit system was first introduced in the Interim Measures for the Administration of Water Pollutant Discharge Permits formulated by the former State Environmental Protection Administration on 20 March 1988 to implement the Water Pollution Prevention and Control Law and the Marine Environmental Protection Law. Over the past 30 years, neither the system itself nor its implementation has been as effective as it could have been. By the end of 2015, the number of discharge permits issued by China's environmental protection departments was more than 200,000", accounting for about 1% of the total number of enterprises in the country - at the end of 2015, the number of domestic and foreign-funded enterprises in the country was 21,858,200 PL. According to the Bulletin of the First National Pollution Source Census shows that the total number of industrial, agricultural and domestic pollution sources and centralised pollution control facilities emitting pollutants in China in 2007 alone was 5,926,000. Of course, unlicensed emissions do not necessarily create an environmental regulatory vacuum. According to Chen Jining's "Report of the State Council on the Completion of the 2015 Environmental Situation and Environmental Protection Targets", made at the 20th meeting of the Standing Committee of the 12th National People's Congress on 25 April 2016, environmental protection departments at all levels inspected a total of 1.77 million enterprises, investigated and punished 191,000 enterprises for various types of violations, ordered 20,000 to be shut down and banned, 34,000 to be suspended, and 89,000 to be corrected by a deadline. According to statistics, in recent years China has approved an average of 400,000 EIA documents per year, of which the report accounts for about 5%, the report form for 45% and the remaining 50% for registration. There is a general crossover, disconnection and lack of data between these emission permits, pollution source monitoring and EIAs, and the crucial problem is that there is still no sign of reversing the deteriorating trend of environmental pollution.

According to the 2015 China Environmental Status Bulletin released by the Ministry of Environmental Protection (MEP), of the 338 cities above prefecture level nationwide, 265 cities, or 78.4%, exceeded ambient air quality standards in 2015. Also according to the Monthly Report on Groundwater Dynamics released by the Ministry of Environmental Protection in January 2016, the monitoring of 2,103 groundwater wells distributed in the Songliao Plain, the Yellow Huaihai Plain, the basins and plains of Shanxi and Northwest China, and the Jiangnan Plain in 2015 showed that the water quality evaluation results were generally poor, with no Class I water, 19.9% of the total Class II to Class III water, 32.9% of Class IV water and 47.2 %. This is corroborated by the monitoring results of the 2015 China Land and Resources Bulletin for 202 prefectural and municipal administrative districts and 5,118 monitoring points nationwide: the percentage of monitoring points with excellent, good, better, poor and very poor water quality were 9.1%, 25.0%, 4.6%, 42.5% and 18.8% respectively. It is worth noting that in the monitoring reports of the two departments, whether the proportion of more than 80% of the IV, V shallow surface water or more than 60% of the poor, very poor deep groundwater, "three nitrogen" and heavy metal exceed the standard are the main culprits. Such an alarming scale and degree of pollution, to a large extent, shows that the enterprises accounting for 65% of the national industrial emissions of major pollutants and more than 50% of the national industrial production of major pollutants into the national list of key monitoring enterprises, as well as for the provincial and municipal monitoring enterprises list of emissions permit policy back, the efficiency and effectiveness of its implementation is far from the original design of the system and social expectations.

To address the current situation of the implementation of the emission permit system, we need to first objectively judge the current environmental situation and rationally understand the current governance dilemma in China and its crux. According to the Sustainable Development Strategy Research Group of the Chinese Academy of Sciences, China is in a transitional stage from black development, where economic growth mainly drives the growth of resource consumption or pollutant emissions, to green development, and the rigid growth trend of resource consumption and pollutants in the consumption sector determines that it is quite difficult for China to achieve the peak of per capita environmental impact and total environmental impact in a short period of time. Therefore, both the design of the system and the choice of ecological civilization objectives need to fully consider and combine the stage characteristics of China's resources, environment and development evolution, and scientifically analyse the complexity of the pollution problem and the comprehensive, systematic and targeted nature necessary for its management. In line with this, the General Programme for the Reform of the Ecological Civilisation System clearly puts forward the reform objectives of "a systematic and complete ecological civilisation system with clear property rights, diversified participation, equal emphasis on incentives and constraints, and the modernisation of the national governance system and capacity in the field of ecological civilisation" and "adhering to both incentives and constraints". In addition to forming an interest-oriented mechanism to support green development, recycling development and low-carbon development, the Regulations should also adhere to strict prevention at source, strict control in the process, strict punishment for damage and accountability, so as to form effective constraints on various market players and gradually realize marketization, rule of law and institutionalization". It can be seen that the Regulations are seriously inconsistent with the requirement of "protecting the ecological environment with a strict legal system, accelerating the establishment of a legal system for ecological civilization that effectively restrains development practices and promotes green, circular and low-carbon development" (Decision of

the Central Committee of the Communist Party of China on Several Major Issues in Comprehensively Promoting the Rule of Law), [1] and in addition to the common or similar legislative shortcomings with other legislation and the technical difficulties specific to the Regulations, the Regulations In addition to the common or similar legislative drawbacks and the technical difficulties specific to the Regulations, the administrative-led path dependence of the Regulations will seriously restrict its proper function and run counter to its legislative positioning as the top-level design of emission permits.

3. Definition of environmental costs

The study of environmental costs is not yet mature, so the definition of the concept of environmental costs is a matter of opinion and wisdom, and there is no unified and clear definition. There are many scholars and institutions that have more or less addressed environmental costs in their respective fields of study. However, the definitions that they have given are clearly coloured by the specialisms of their respective disciplines. Some of the more representative definitions are as follows.

ISAR defines environmental costs as "the cost of measures taken, or required to be taken, to manage the environmental impact of an enterprise's activities in an environmentally responsible manner, and the cost to the enterprise of implementing environmental objectives and requirements. And the cost of implementing environmental objectives and requirements." [2].

Economist Yu Guangyuan defines environmental costs as "the costs incurred to prevent the emergence of a bad environment and the costs resulting from the emergence of a bad environment." This definition of environmental costs includes the following aspects: environmental protection costs, environmental detection costs, environmental internal failure costs and environmental external failure costs.

This paper focuses on the definition of environmental costs as proposed by Yu Guangyuan and analyses the environmental costs of the automotive industry.

4. The environmental cost accounting system in the automotive industry

In the traditional accounting field, the concept of environmental costs is not explicitly proposed, so some expenses related to environmental costs, such as "depreciation", "sewage" and "greening", are usually grouped together in "environmental costs". The costs associated with environmental costs, such as "depreciation", "sewage" and "landscaping", are usually included in "manufacturing costs" or "administrative costs". This is an easy way to account for environmental costs, but in the automotive industry, where pollution is high, environmental costs have a significant impact on the business. If environmental costs are not separately reflected, firstly, the management of the enterprise cannot fully understand and analyse the environmental costs, and therefore cannot accurately grasp the risk of environmental costs on the production and operation of the enterprise, and cannot effectively optimise the environmental costs; secondly, the social supervision departments cannot understand the investment of the enterprise in environmental protection and management through specific financial data, and cannot effectively supervise the investment of the enterprise in environmental management. This paper takes into account the characteristics of the automotive industry [3]. In this paper, we have combined the characteristics of the automotive industry with the establishment of its environmental cost accounting system.

4.1 Environmental cost recognition

Based on basic accounting principles, the recognition of environmental costs is based on the accrual system. All environmental costs incurred in the current period are recognised as environmental costs in the current period, regardless of whether or not they have been paid [4].

In addition, the definition of capitalisation and expensing of environmental costs is also consistent with the requirements of accounting standards, where the benefit of environmental or costs is not only in the current period but also relates to future accounting periods, they should be capitalised as expenditure; where the benefit of environmental costs relates only to the current period, they should be expensed as expenditure.

4.2 Measurement of environmental costs

The measurement of environmental costs is mainly in monetary terms, supplemented by physical and technical units of measurement, such as tonnes, cubic metres and other physical units of measurement and chemical units of measurement, such as pollution concentration.

4.3 Environmental cost records

For the accounting of environmental costs, we should adopt a non-independent form of accounting without changing the existing accounting base, i.e. to add "environmental costs" to the original chart of accounts, and set up "prevention

costs", "detection costs", "environmental costs", "environmental costs", "environmental costs", "environmental costs", "environmental costs" and "environmental costs". "Costs of detection", "Costs of internal failures" and "Costs of external failures", under which four sub-accounts can be created, such as depreciation, "sewage charges", "greening me", "resource tax", "environmental education de "Environmental education de" and other tertiary detailed accounts, thus combining the accounting of environmental costs with normal accounting. The following table summarises the environmental work that may occur in the automotive industry, taking into account its own characteristics.

5. Environmental information disclosure in the automotive industry

China does not yet have accounting standards and regulations that clearly regulate the accounting of environmental costs, which makes the following problems exist in the technology of environmental cost information: 1. The disclosure ratio is low. Even for listed companies with strict information disclosure requirements, the disclosure of environmental information is significantly low. 2. Disclosure is not comprehensive. Among the companies that disclose environmental information, most of them only briefly explain the environmental information that exists in certain accounting accounts, but fail to reflect the environmental information in separate environmental items; at the same time, the items disclosed are incomplete, focusing only on environmental protection investment, sewage charges, greening and environmental-related certification.

6. Suggestions for improving environmental cost accounting and disclosure in the automotive industry

6.1 Develop environmental accounting standards and norms

Firstly, the accounting, supervision and disclosure of environmental accounting should be included in the Accounting Law by means of mandatory legislation, so as to clarify its status and role in legal form; secondly, corresponding environmental accounting standards should be issued, and like the 38 specific accounting standards issued by the Ministry of Finance in 2006, the elements of environmental accounting, as well as the recognition, measurement and disclosure issues should be clearly specified in the standards, so as to standardise the operation of environmental accounting [5]. Finally, the practical operation of environmental accounting is made feasible through detailed explanations of the accounting system.

6.2 Establishing an environmental cost control centre for enterprises

Accounting for environmental costs and being revealed is not our ultimate goal. To achieve sustainable development of society, we must use resources rationally and maximise the economic, social and environmental benefits of resources. The automotive industry has its own industry characteristics, and strengthening environmental cost accounting and disclosure in the automotive industry is conducive to promoting enterprises to pay more attention to environmental issues, and through the establishment of a unified environmental cost control centre, coordinating the relationship between various internal departments of the enterprise as a whole, carrying out scientific planning and implementing effective environmental cost control.

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