

# Carbon Accounting Information Disclosure under the Background of Green Development

**Song Zhi-hong<sup>1</sup>, Wang Yue<sup>2</sup>, Lee Dong-mei<sup>2</sup>**

<sup>1</sup>*Institute of Management and Decision, Shanxi University, Taiyuan 030006, China;*

<sup>2</sup>*School of Economics and Management, Shanxi University, Taiyuan 030006, China)*

**Abstract** Under the background of global industrialization, the consumption of natural resources and carbon emission has become increasingly severe and the climate environment has been getting worse. Thus, it is urgent for the world to create a new path of green development and to boost the global economy. The paper elaborated the significance of information disclosure of carbon accounting under the background of green development. Taking Fangda Special Steels Technology Co., Ltd. as an example, the paper analyzed its method and content of the information disclosure of carbon accounting, pointed out the deficiencies in the field and put forward four managerial suggestions.

**Key Words:** Carbon accounting; Information disclosure; Green development

## I. Introduction

Since the reform and opening policy in 1978, Chinese economy has developed rapidly and created many economic miracles that have surprised the world. The living standard of the Chinese people as a whole has undergone a historical leap from a relatively low level to the level of moderate prosperity. However, the bad thing for China about good news on the economy is that it cannot be sustainable given the status of environmental issues such as global warming or the depletion of natural resources (Wang et al., 2019). At the same time, the soaring carbon emissions seriously affect growth quality and constrain the economic development of China. The 2019 Government Work Report of State Council emphasized that it is urgent to prevent environment pollution and construct ecological civilization with green development. Green development is an inevitable requirement for building a modern economic system and a fundamental policy to solve pollution problems. Relevant systems must be established to promote high-quality development and ecological environmental protection.

At the same time, the relationship between accounting and sustainable development has always been an issue being discussed by academics. In the context of green development, corporate stakeholders may not only pay attention to the company's profit, but also pay attention to other indicators related to the company's carbon accounting (Halkos & Skouloudis, 2016). The use of low-carbon technology in enterprise production is conducive to reducing resource waste and carbon dioxide emissions. In the long run, companies can even save costs, improve economic efficiency and enhance market competitiveness. Therefore, in order to better fulfill social responsibilities, provide business operation information for stakeholders, and seek a better way of business development, it is particularly important for companies to disclose carbon accounting information.

## II. Literature review

### 2.1 Carbon accounting

Carbon accounting stems from the international community's worries about the gradual deterioration of the climate environment. The third meeting of the participating countries of the United Nations Framework Convention on Climate Change was held in Kyoto, Japan in 1997. The "Kyoto Protocol" issued at the meeting raised the severity of global warming and the urgency of reducing carbon emissions to an unprecedented level (Tyler, 2020). It was signed to prevent the world from being threatened by the negative consequences of climate warming. Its fundamental purpose is to take measures to stabilize the greenhouse gas content in the atmosphere within an appropriate level, thereby reducing the threat of environmental damage to the world.

Carbon accounting is an important branch of environmental accounting. It was first proposed by Stewart Jones and others in 2008. It mainly includes accounting issues such as carbon emissions and carbon trading. After that, based on traditional accounting theory, carbon accounting has expanded its field (Rahman et al., 2014). With the goal of energy conservation and pollution reduction, and the vision of green development, carbon accounting has been given more meanings and involving other fields of accounting, such as carbon financial accounting, carbon management accounting, carbon audit, and so on.

### 2.2 Carbon accounting information disclosure

Carbon accounting information disclosure, also known as carbon accounting information transparency, is not only the main manifestation of carbon accounting information, but also an important part of carbon accounting (Pichancourt et al., 2018). Carbon information refers to carbon accounting information that can be accounted for by companies and is comparable. Carbon accounting information disclosure in China requires listed companies to quantitatively reflect the company's low-carbon activities in currency and regularly disclose corporate carbon accounting information in annual reports and social responsibility reports. The reason for doing so will ensure the freedom of corporate stakeholders and information users to obtain information in order to help companies make appropriate business decisions, strengthen internal carbon accounting information management and accelerate the establishment of a carbon accounting information disclosure system.

Carbon accounting information disclosure methods can be divided into disclosure of on-balance sheet and off-balance sheet (Chen et al., 2019). Disclosure of information on-balance sheet refers to the presentation of corporate carbon accounting elements in financial statements based on the basic characteristics of transactions or events with a unified currency unit, including carbon assets, carbon liabilities, carbon equity, carbon costs, and carbon profits. Disclosure of information off-balance sheet refers to carbon accounting information that cannot be expressed in financial reports in a quantified form, but it can better serve users of corporate information, and can clearly and clearly show the company's current operating conditions and future development (Zhang 2018; Tang et al., 2017).

## III. Case Study

### 3.1 Case background

Fangda Special Steel Technology Co., Ltd. is an integrated iron& steel enterprises. The main businesses operations include mining, coking, sintering, iron-making, steelmaking, rolling and other production processes. The company has

successively won the Top 500 Chinese Enterprises, the Most Growth of Listed Companies, the Most Socially Responsible Listed Company, China Top 100 Enterprise Award, Jiangxi Advanced Enterprise and other honors. It was awarded Scientific Development Concept Research Base and Jiangxi Enterprise Culture Build a demonstration unit.

### **3.2 Analysis of carbon accounting information disclosure**

The paper selects the social responsibility reports of Fangda Special Steel Technology Co., Ltd., which is listed on the Shanghai Stock Exchange from 2015 to 2019 and the company's annual reports as the research case. The content of annual report is sorted and analyzed to further understand the content and method of the company's carbon accounting information disclosure. Carbon accounting information disclosure and annual report are from the website of Shanghai Stock Exchange.

#### **3.2.1 Information disclosure methods of carbon accounting**

Fangda Special Steel Technology Co., Ltd.'s disclosure method is mainly the "Social Responsibility Report" that is regularly disclosed to the public every year, and the annual report also involves the disclosure of relevant carbon accounting information. In addition, the content disclosed in the social responsibility report is diversified and specific year by year. This shows that the company's emphasis on carbon accounting information disclosure is continuously increasing, and the awareness of social responsibility is continuously strengthening, and it has gradually realized the importance of carbon accounting information disclosure in the development and operation of the company.

Most of the company's carbon accounting information is concentrated on the social responsibility report and is basically written in terms of overall carbon emissions, low-carbon technologies, and national policies. It lacks quantitative data support and does not disclose the rate of corporate resource utilization and energy, the consumption rate of water and electricity, did not directly disclose the information of the company's carbon dioxide emissions and the comparison of previous years.

No carbon accounting information expressed in currency was found in the company's financial statements, which indicating that the carbon accounting information disclosed by the company is off-balance sheet information and not on-balance sheet information. This is mainly because China has not yet issued a complete regulation and system for carbon accounting information disclosure and lacks a unified standard for disclosure methods. Therefore it is arbitrary and inconsistent.

#### **3.2.2 Contents of carbon accounting information disclosure**

After analyzing the social responsibility report and annual report of Fangda Special Steel Technology Co., Ltd. in the last five years, we find that the company's carbon accounting information disclosure content is mainly concentrated on the "Social Responsibility Report", which discloses the development of low-carbon technology, construction of environmental protection system and energy management system and other related operations and management. The company has established a relatively comprehensive carbon accounting information management system in response to the country's call for saving resources and reduction of carbon dioxide emissions, and has taken a series of measures of emission reduction. These efforts have achieved certain results. However, the content disclosed mainly focuses on off-balance sheet information, which is mostly descriptive textual content. There is almost no on-balance sheet information disclosure related to carbon accounting in the company's financial statements and there is no specific carbon information data to support it. The disclosure of carbon accounting information still needs improvement.

(1) Strategy and governance information disclosure

Through analysis of the company's 2015-2019 "Social Responsibility Report", the contents disclosed in Table 1 are as follows:

The content displayed in Table 1 shows that the company's 2015-2019 "Social Responsibility Report" mainly disclosed the construction of the environmental supervision system, cooperation with relevant national departments for supervision and inspection of energy management and control systems measures. In 2015, it mainly disclosed the construction of the environmental management system and the project construction and data collection of emission reduction. In 2016, the construction of the energy management system was newly disclosed. In 2017, a disclosure content of perfecting the monitoring system was added. A new disclosure information of improving the company's environmental governance level was added in 2018.

Table1 Strategy and Governance Information Disclosure of Fangda Company

Years	Main content
2015	1. Pay attention to the construction of environmental management system and vigorously promote environmental protection. 2. Obtain a new pollutant discharge permit to further optimize the company's energy indicators.
2016	1. Establish a comprehensive system of energy management, reduce electricity costs, implement contract energy management, and introduce advanced energy-saving projects. 2. Finish the annual environmental protection target indicators, and do a good job in the operation of the emission reduction system.
2017	1. Pay attention to the operation of the monitoring system. 2. Strengthen the construction of energy management and control system and mobilize the enthusiasm for energy saving.
2018	1. Implement the whole process to save energy and reduce consumption. 2. Carry out technological transformation and introduce clean products. 3. Build an ecological forest tourism factory.
2019	1. Finish daily tasks of environmental management and control, and maintain the company's good environmental image: do a good job in daily monitoring. 2. Implement the measures of various environmental protections, and maintain the compliance of the company's environmental management.

Generally speaking, the contents disclosed in Fangda Special Steel's "Corporate Social Report" are basically strategic information disclosures. In addition, the information disclosure on the content and quality of carbon emission reduction strategy have been improving year by year, which shows that companies are continuously paying attention to the importance of carbon accounting information disclosure. This is important for the carbon accounting information disclosure of FangDa Special Steel Technology Co., Ltd and China's green development. However, the company's "Corporate Social Responsibility Report" for the past five years is almost descriptive with little data and information support and it has not formulated a medium and long term strategy.

(2) Risk disclosure

Through analysis of the company's 2015 to 2019 annual report, the disclosure content is displayed as follows in

Table 2.

From the content displayed in Table 2, we find that from 2015 to 2019 the company has disclosed the business and management risks caused by the gradual deterioration of the environmental climate and the environmental risks disclosed by the company from 2016 to 2019 Strategy, and governance information are gradually improved. In 2018 and 2019, the company disclosed measures to reduce risks and other related information, but did not conduct a quantitative assessment of the company's environmental protection and policy risks, nor did it implement specific emission reduction measures for each department.

Table2 Risk Disclosure

Years	Disclosure content
2015	It disclosed the risks brought about by the government's newly released environmental protection policies and the risks brought by the reform of the environmental supervision system of the heavily polluting steel industry.
2016	Disclosure of environmental protection policies and the increased risk of emission reduction costs brought to enterprises by the increase in pollution standards, and will continue to increase investment in environmental protection.
2017	The risks of environmental protection policy faced by the company are disclosed and the company's investment in environmental protection will continue to increase. In 2017, the state of the environment has improved and the environmental protection process will continue to strengthen where environmental protection results have shown a benign improvement.
2018	Disclosure of the business risks caused by the gradual harsh climate environment that the company is currently facing.
2019	It disclosed the environmental and climate risks faced by the company and will always uphold the principle of environmental protection management. Based on consolidating the achievements of building ecological forest tourism-style factories, the company will continue the process of ultra-low emission transformation and strict pollutant emission standards through the active implementation of clean production.

Carbon emissions and environmental and climate changes may have an impact on the operating conditions of enterprises. The company belongs to the high-pollution and high-emission steel industry. The pressure to reduce pollution emissions and reduce energy consumption continues to increase. The "Blue-sky" plan puts forward more demanding and stricter production emissions and energy saving and emission reduction measures. Companies should increase their investments in environmental protection operation and maintenance management and formulate strict standards and higher aims. The company must actively cooperate with the various policies and measures of government departments and adhere to the company's environmental protection and governance, strictly control pollutant emissions, and strive to increase environmental protection indicators to promote the friendly, harmonious and common development of the company.

#### IV. Conclusions and policy implications

##### 4.1 Conclusions

By analyzing information of carbon accounting information disclosure in Fangda Special Steel Technology Co.,

Ltd.'s annual reports and social responsibility reports for the past five years, we find that the company still has many problems for carbon accounting information disclosure.

First of all, the company's carbon emission information disclosure has too many textual expressions and lacks relevant data information, which may affect the authenticity of its carbon accounting information, and thereby affect the company's information users' understanding of the company's operating status and the implementation of low-carbon measures. True judgment is not good for the development of China's carbon accounting information disclosure.

Secondly, the company did not pay enough attention to the disclosure of carbon accounting information and did not discuss the risk of environmental policy on the meetings of board of directors. As a highly polluting industry, the company should raise its level of carbon accounting information disclosure.

The third is the lack of information disclosure on emission reduction results and third-party certification information disclosure. Although there are textual descriptions of emission reduction results, there is no detailed data to support it, and the implementation of carbon emission reduction targets has not been disclosed outside the company. Regarding the third-party verification, the company did not disclose the information in the corporate social responsibility report and the annual report. Therefore, the authenticity of the carbon accounting information disclosed by the company needs to be verified. The quality of the disclosed content may also decrease, and it will affect the decision-making of information users.

#### **4.2 Policy implications**

Governments all over the world are exploring the path to green development, and government agencies and researchers have made tremendous efforts. Firms play an indispensable role for the country to achieve green development. By cultivating and strengthening corporate culture, companies need to understand the impact of the environment, the importance of carbon accounting information disclosure, and bear the social responsibilities. At the same time, the public should strengthen the awareness of environmental protection and advance the process of China's carbon accounting information disclosure, and promote China's green and low-carbon economic development model. Of course, the initiative of companies to increase carbon accounting information disclosure is inseparable from the efforts of the national governments. Perfect laws, regulations, and policies may pave the ways for companies in various industries. In doing so, the autonomy of carbon accounting information disclosure will be greatly improved.

Carbon accounting information disclosure is a brand-new field with strong policy and technical characteristics. As the government all over the world has entered the trend of green development, Chinese government should formulate relevant measures as soon as possible to standardize the method and content of corporate carbon accounting information disclosure, strengthen the commanding role of national policies and measures on corporate carbon accounting information disclosure. At present, most companies in China lack the relevant knowledge of carbon accounting information disclosure to a large extent because China's carbon accounting information disclosure system is not sound and the system is not perfect. Therefore, the Chinese government should speed up the process of formulating laws and regulations for carbon accounting information disclosure, strive to improve China's carbon accounting information disclosure system so that companies can clarify their responsibilities for regularly disclosing carbon accounting information, and restrict companies with national compulsion behavior. The government should work out a set of carbon accounting information disclosure regulations and guidelines as soon as possible to speed up the legislative process.

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