

Considerations of environmental information disclosure of the chemical company triggered by APEC blue

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ABSTRACT: With the continuous rapid economic and social development, as an important reflection of the company's environmental activities, the environmental accounting information disclosure can promote the company to attach importance to the economic and environmental benefits, and find out the existing problems of the accounting theory, methods, content and nature of the environmental accounting information disclosure, and also analyze the reasons for the problems and suggestions, aiming at playing a significant role in the improvement of China's economic system. This paper takes the listed company in the heavily polluted chemical industry as samples, and analyzes the status quo of environmental accounting information disclosure of listed company in the chemical industry from 2012 to 2014, thus improving the environmental accounting information disclosure, and promoting the environmental protection.

Keywords: APEC blue; chemical industry; environmental accounting; information disclosure

1 INTRODUCTION

In November 2014, during the APEC conference, people in Beijing really had a sense of passing through the spatio-temporal tunnel, and seemed to suddenly return to 30 years ago under a blue sky with fresh air and smooth road. Some people were very admiring and called such a blue sky as "APEC blue". However, in order to create an "APEC blue" environment during the conference, Beijing, Tianjin, Hebei, Shanxi, Shandong and Inner Mongolia required the chemical, steelmaking, cement and other heavy pollution industries stop or restrict the production; restrict the construction of fixed asset investment n; restrict the vehicle model and driving time of motor vehicles, and prohibit some motor vehicles causing heavy pollution. Correlation analysis pointed out that, due to the impact of these measures, the growth rate of the domestic industrial added value in November would reduce 0.2% to 0.4% and the overall growth rate of the industrial added value would reduce from 8% in September to about 7% and 7.4% on year-on-year basis. Thus, China is currently faced with serious environmental pollution problems, and to grasp the environmental

information and understand the environmental pollution has important practical significance.

2 NECESSITY OF ENVIRONMENTAL INFORMATION DISCLOSURE OF CHEMICAL COMPANY

Chemical industry plays an indispensable role in the development of the national economy. From the health care to communication vehicles, and the architecture to food and water, more than 96% of the products in the world are related to the chemistry. Meanwhile, the chemical industry is also a pollution industry, and the chemical company is a major source of ecological destruction and environmental pollution. 70% of the total pollution in China is produced by chemical companies. In recent ten years, the impact of the chemical company on the destruction of ecological environment and environmental pollution caused about 10% of the gross domestic product in national economy. In economic activities, the chemical company gives more considerations to the resource acquisition costs, without considering the consumption costs of the value of non-renewable natural resources; only concerns about the economic benefits, rather than the resource utiliza-

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tion rate; only cares for acquiring more economic values, rather than the value of natural resources consumed^[1]. It is believed that the economic growth of the chemical company is mostly based on the premise of the destruction of the basic natural conditions for survival and environmental destruction.

With the non-renewable resources reduced continuously on the earth, these natural resources become more and more important^[2]. If the previous economic mechanism is not changed, we cannot eliminate people's evil doings of plunder and profligacy of natural resources. Therefore, to achieve sustainable development of social economy, there is a need to establish an ecological economic model with an inherent unification of economy and environment. To incorporate the environmental factors into a mandatory disclosure system, and sufficiently and timely disclose the environmental impact of the chemical company's activities will be more conducive to accurately and comprehensively evaluate the company's value and performance, and also beneficial to strengthen the supervision efforts of the government departments at all levels on the environmental conditions^[3].

3 STATUS QUO OF ENVIRONMENTAL INFORMATION DISCLOSURE OF CHEMICAL ENTERPRISE

There are many chemical industries. According to the industry classification results of China Securities Regulatory Commission, the chemical-related companies include chemical raw materials and chemical products manufacturing industry, petroleum processing, coking and nuclear fuel processing industry, pharmaceutical manufacturing industry, and chemical fiber manufacturing industry, as well as rubber and plastic product industry etc.^[4] In order to eliminate different impacts caused by the industry difference, and ensure comparability of the relevant data, this paper selects the companies (a total of 17, excluding the listed companies less than two years) in petroleum processing, coking and nuclear fuel processing industry with more serious air pollution listed in the Shanghai Stock Exchange as the research objects, and analyzes the annual report of environmental information disclosure, internal control evaluation report, social responsibility

report and annual environmental report from 2012 to 2014, which can help us better understand the status quo of environmental information disclosure of the chemical company.

3.1 Overall analysis of disclosure way

For the environmental information disclosure way, China still does not have a unified standard. From the perspective of information disclosure requirements issued by the relevant departments, there are mainly the following formats: annual accounting report, internal control evaluation report, social responsibility report and annual environmental report. The annual accounting report is the most basic and common information disclosure way, and it is main about the disclosure of the company's environmental protection policy, the annual objective of environmental protection and the data of quantitative description; the internal control evaluation report is a reflection of the effectiveness of the company's internal control design and implementation, and it is main about the disclosure of the annual objective of environmental protection, and planning and environmental protection input; the social responsibility report is also known as a sustainable development report, which is a reflection of the company's concept, strategy and method of fulfilling social responsibility, and it is main about the disclosure of the impact of its business activities on the economy, environment and society, as well as the achievements, weaknesses and other information; the annual environmental report is a reflection of the basic policy of the company's management philosophy, culture and environmental management, as well as the work done by the company for improving the environment and fulfilling the social responsibility, and it is main about the disclosure of the company's pollutants emission, environmental law observation, environmental management and other environmental information. It is the disclosure requirement issued by the Ministry of Environmental Protection for urging the listed company to actively fulfill the social responsibility of environmental protection in recent years. In order to understand the disclosure way of the chemical company, this paper collects and makes statistics of the environmental information disclosure way of 17

Table 1. Statistical table of environmental information disclosure way

Disclosure way		2014		2013		2012	
		Disclosure quantity	Disclosure ratio	Disclosure quantity	Disclosure ratio	Disclosure quantity	Disclosure ratio
Disclosed	Annual report	16	94.12%	16	94.12%	16	94.12%
	Internal control evaluation report	2	11.76%	3	17.65%	1	5.88%
	Social responsibility report	6	35.29%	5	29.41%	5	29.41%
	Annual environmental report	0		0		0	
Undisclosed		1	5.88%	1	5.88%	1	5.88%
Total		17		17		17	

sampling companies. The statistical results are shown in Table 1.

As it can be seen, from 2012 to 2014, among the 17 chemical companies, only one company, namely, Changcheng Cartoon did not use any way for environmental information disclosure, and the remaining 16 companies used at least one way for environmental information disclosure. In 2014, 6 companies simultaneously provided the social responsibility report and annual report, 3 companies simultaneously provided the internal control evaluation report and the annual report, and 7 companies only provided the annual report. For example, Yueyang Xingchang disclosed the company's environmental information with the annual report and the social responsibility report; Taiyuan Chemical Industry Co., Ltd. disclosed information with the annual report and the internal control evaluation report. Few companies issued the environmental information with the internal control report, but one third of the company issued the social responsibility report, indicating that the environmental information disclosure is gradually separated from the annual report, and transferred to the social responsibility report, and a more independent and concentrated manner is used for the environmental information disclosure. For example, the social responsibility report of Yunnan Coal and Energy in 2014 also adopted the form of picture and text, and vividly disclosed its environmental information. 5 companies issuing the social responsibility report in 2012 and 2013, and the numbers were elevated to 6 companies in 2014 with a little amplitude of variation, but it also indicated that the environmental awareness of the company was gradually strengthening, and reflecting the promotion of the status quo of overall environmental information disclosure of the listed company in chemical industry.

However, we also found that none of company discloses environmental information with the annual environmental report. The annual environmental report builds the information communication between the public and company. It maintains the right of public acquisition, participation and supervision, and also guides the company to constantly improve the internal environmental management, promote conservation of resources and energy, and reduce the pollution. On April 25th, 2007, Pan Yue, the Deputy Director of the State Environmental Protection Administration announced that *Environmental Information Disclosure*

Measures (Trial) would come into effect from May 1st, 2008. On September 14th, 2010, the Ministry of Environmental Protection publicly consulted opinions of *Environmental Information Disclosure Guidelines of Listed Company*. The disclosure guidelines do not mandatorily require the company to disclose the annual environmental report, but the pollution companies in the chemical industry should respond to the call of the Ministry of Environmental Protection, and proactively disclose the annual environmental report.

3.2 Analysis of annual report disclosure way

Among the sampling companies, except for Changcheng Cartoon, the remaining 16 companies disclosed the environmental information in the annual report. Most companies used the form of annual accounting report to disclose the environmental information content. But we can find that the specific location of the company disclosure is not uniform, the information were disclosed in the basic situation, the director's report, or the financial statement and notes, and some were disclosed in the management layer's discussion and analysis. In order to learn more about the details of the environmental information disclosure of the chemical company, this paper analyzes the annual accounting report of 16 sampling companies, and makes statistics of the specific position of the environmental information disclosure in the annual report. The results are as shown in Table 2.

The statistical results of the environmental information disclosure way in the annual report show that, 16 companies disclosed the environmental information in the director's report and statement note, and two thirds of companies also disclosed the environmental information in the management layer's discussion and analysis. Few companies disclosed the environmental information in the basic situation of the company, and just briefly mentioned the company's situation. It indicates that the decision-making layer and the management layer of the company attach more importance to the social responsibility of the company's environmental protection. In addition to measuring, recording and disclosing the company's environmental protection input and financial information, they also disclose the company's environmental protection policy and future environmental protection plan and other important environmental information in the director's

Table 2. The disclosure ways of the environmental information in the annual report

Disclosure ways in the annual report	2014		2013		2012	
	Disclosure quantity	Disclosure ratio	Disclosure quantity	Disclosure ratio	Disclosure quantity	Disclosure ratio
Basic situation of company	2	12.50%	2	12.50%	5	31.25%
Discussion and analysis at the management layer	11	68.75%	10	62.50%	10	62.50%
Director's report	16	100.00%	16	100.00%	16	100.00%
Statement note	16	100.00%	16	100.00%	16	100.00%
Total number of disclosed company	16		16		16	

Table 3. The components of the environmental information disclosure content

Disclosure content	2014		2013		2012	
	Number of companies	Disclosure ratio	Number of companies	Disclosure ratio	Number of companies	Disclosure ratio
Environmental protection investment and environmental technology development	14	82.35%	13	76.47%	13	76.47%
Energy saving and emission reduction	14	82.35%	12	70.59%	13	76.47%
Environmental protection policy, annual environmental protection objective and performance	12	70.59%	9	52.94%	12	70.59%
Construction and operation of environmental protection facilities	7	41.18%	4	23.53%	6	35.29%
Environmental protection publicity and activities	7	41.18%	8	47.06%	5	29.41%
Type, quantity, concentration and direction of pollutants emission	5	29.41%	3	17.65%	3	17.65%
Treatment and disposal of waste generated in the production process, and recycling and comprehensive utilization of waste products	3	17.65%	3	17.65%	3	17.65%
Total annual consumption of resources	2	11.76%	2	11.76%	1	5.88%
Rewards of the Ministry of Environmental Protection	1	5.88%	0	0.00%	1	5.88%

report and in the management layer's discussion and analysis.

3.3 Analysis of disclosure content components

The purpose of environmental information disclosure is to meet the public's right to know the environment, and improve the transparency of the company's environmental information disclosure. The effect of the company's information disclosure does not only rely on the disclosure way, and more importantly, it depends on the substantive disclosure content. Viewing from the requirements of the Ministry of Environmental Protection on the environmental information disclosure, the company needs to disclose the situation of major environmental problems, pollutant discharge under certain standard, general industrial solid waste and hazardous waste treatment and disposal in accordance with law, performance of total emission reduction task, payment of pollutant charge fee in accordance with law, implementation of cleaner production and so on. In order to further analyze the specific content of the environmental information disclosure of the sampling companies, this paper makes the statistics based on the environmental information content in the annual report, the internal control evaluation report and the social responsibility report. The statistical results are shown in Table 3.

As it can be seen from the statistical results, the vast majority of companies disclosed the company's environmental protection investment and environmental technology development, the energy saving and emission reduction, the environmental protection policy, the annual environmental protection objective and the performance from 2012 to 2014. The number of companies disclosing the company's pollutants emission, environmental protection publicity and implementation activities increases, and the number of companies disclosing the treatment and disposal of waste generated in the production process, and recycling and

comprehensive utilization of waste products was three in consecutive three years, but the companies involved were different in each year. In 2012, three companies were respectively Baihua Village, Coal Gasification and Yunwei Share; in 2013, Baihua Village, Shanghai Petrochemical and Shenyang Chemical Industry; in 2014, Shanghai Petrochemical, Yunwei Share and Yunnan Coal and Energy. Viewing from the disclosure content component, the chemical company is more inclined to disclose the information beneficial to their own image, such as the environmental protection investment, environmental protection policy and planning, which can promote their environmental protection investment in society, and attract the public attention, but it rarely mentions the substantial content of environmental pollution brought by the company, such as the pollutants emission, waste recycling and treatment and so on. As a chemical company in the pollution industry, the environmental pollution problems generated are mostly involved in non-renewable resources, thus bringing a higher degree of damage to the environment. The chemical company should pay attention to its own economic benefits, and even attach importance to the environmental effects and social responsibility, so the level of environmental information disclosure must be improved.

3.4 Analysis of the nature of the disclosure content

Viewing from the nature of environmental information disclosed by the sampling companies, some of them are qualitative description, and some are quantitative description. In order to further discuss the essence of environmental information disclosure of the chemical companies, this paper makes statistics of the nature of environmental information content disclosed in the annual report, the internal control evaluation report and the social responsibility report. The statistical results are as shown in Table 4.

As it can be seen, the disclosure ratio of environ-

Table 4. Statistical table of nature of environmental information disclosure content

Item	2014		2013		2012	
	Disclosure number	Disclosure ratio	Disclosure number	Disclosure ratio	Disclosure number	Disclosure ratio
1. Quantitative description						
(1) Environmental protection indicators	1	5.88%	1	5.88%	0	0.00%
(2) Environmental protection input	14	82.35%	13	76.47%	12	70.59%
(3) Environmental protection grants and subsidies	7	41.18%	7	41.18%	4	23.53%
2. Qualitative description						
(1) Environmental protection risk	6	35.29%	4	23.53%	5	29.41%
(2) Environmental protection policy and guidelines	11	64.71%	10	58.82%	12	70.59%
(3) Environmental protection objectives and planning in the next year	6	35.29%	5	29.41%	5	29.41%
(4) Environmental protection measures taken in the reporting period	5	29.41%	5	29.41%	2	11.76%
(5) ISO and environmental management system certification	7	41.18%	3	17.65%	5	29.41%
(6) Environmental performance	2	11.76%	1	5.88%	0	0.00%

mental protection input in the quantitative description is relatively high, and the disclosure ratio in 2014 reached 82.35%, which is significantly higher than that of other environmental information, indicating that the companies generally attach importance to the environmental protection, and invests capital in the environmental protection every year; in recent two years, about half of the companies received the environmental protection grants and subsidies, indicating that the government also increases substantive support on the environmental protection; only one company, namely, Shanghai Petrochemical provided the environmental protection indicators. In the annual report in 2013 and 2014, Shanghai Petrochemical mentioned the reduction in the total amount of nitrogen oxides, ammonia, while other companies just briefly mentioned it. For example, Yueyang Changxing only mentioned the reduction in the exhaust gas emission in the annual report in 2014. In the qualitative description, the majority of companies disclosed the environmental protection policy and approach, with a higher disclosure ratio, indicating that the company regulates the environmental protection issues through the development of relevant policies, which is related to nearly half of the companies passing ISO and environmental management system certification; about one third of the companies disclosed the environmental protection risks. The number of disclosure companies increases, but with respect to the importance of environmental protection risk control, such a ratio is still quite low; few companies disclosed the environmental performance, indicating that the performance and effect of environmental protection and governance of environmental pollution in the business activities of the company is not ideal, but in recent years, some companies began to disclose this kind of information. Overall, the qualitative description of the companies is far more than the quantitative description.

The qualitative description does not provide specific data, but the company makes a subjective evaluation

according to its own situation, which is susceptible to the subjective will of the company's managers, resulting in vague evaluation results, and with greater flexibility. The quantitative description uses the digital method to make value judgment of the quantitative results on the environmental information, but it has a higher requirement on the quality of the information materials and measurement methods, and the excessive quantitative description will lead to ignore the information difficult to quantify. Therefore, the combination with the qualitative description and quantitative description is the best way of information disclosure. The results of qualitative analysis have digital support, and can be more convincing, which will objectively reflect the state quo of the company's environment information, and let the public know the company's efforts to the environment protection.

4 PROBLEMS OF ENVIRONMENTAL INFORMATION DISCLOSURE OF CHEMICAL COMPANY

4.1 *Lack of independent environmental information report*

In recent years, among the chemical companies, the proportion of the companies disclosing the environmental information presents a growing trend, and these companies gradually shift the use of annual report to social responsibility report or internal control report, but none of companies uses independent annual environmental report. It indicates that these chemical companies are gradually promoting the awareness of information disclosure, but it is not enough with respect to the degree of environmental information disclosure. As a listed company, it should be more active to disclose and describe the environmental information indicators in detail, and attach importance to the company's economic benefits and the environ-

mental and social benefits as well, thus casting a good public image, and obtaining a better competitive advantage.

4.2 *Lack of comparable information content*

The annual report, internal control evaluation report, social responsibility report and annual environmental report can be used for environmental information disclosure. The disclosed environmental information content also has three expression ways, that is, qualitative way, quantitative way and the combination with qualitative and quantitative way. China is free of reference guidelines for special preparation of environmental information report, resulting in the lack of standardized disclosure guidance. The company entirely makes choice in accordance with the characteristics of the information and its own preferences. Even for the company issuing the independent "social responsibility report", the environmental information involves in diverse items and different forms, which is lack of mutual comparability between the companies.

4.3 *Lack of attested environmental information*

The environmental information attestation is the review and verification of the environmental information disclosed by the company, in order to ensure the credibility. 18 companies in the sample do not attest the disclosed environmental information, which causes a great obstacle to the users of the environmental information, so that it is unable to determine the objectivity of such information.

The disclosure problems are mainly related to the current environmental information disclosure system that has not formed as norms in China. Since the concept of environmental accounting has been introduced in China in the late 1980s, none of companies discloses. Until now, about ninety percent of the companies disclose. China really achieves a great progress in terms of the environmental information disclosure. However, the disclosure content always adheres to the principle of voluntariness, without a clear definition of the major environmental information, or supervision of the environmental information with a mandatory policy. Because of the lack of the norms of the company's environmental information disclosure, the disclosure content is uneven, and the majority of companies just disclose the information beneficial to the company's economic benefits.

4.4 *Lack of quantitative data description*

Viewing from the specific content of environmental information disclosed by the chemical company, it lays more emphasis on the environmental protection policies and measures, such as the countermeasures to be taken by the company for the environmental risks, the development of the company's environmentally

friendly products, the progress of environmental protection projects and so on, which are mostly the qualitative description, because these contents are readily available and illustrated. However, the environmental protection indicators to be disclosed and other quantitative data are rarely seen.

5 COUNTERMEASURES OF IMPROVING ENVIRONMENTAL INFORMATION DISCLOSURE OF CHEMICAL COMPANY

5.1 *To strengthen the construction of company's internal accounting control system*

The reasonable arrangement of the company's internal system is a key control procedure of really "producing" and fully opening the environmental information. In order to monitor and restrict the potential moral risks and information control right of the managers, the company should make a comprehensive sorting of the original management system, and establish an internal accounting control system suitable for the company based on the *Basic Norms of Company's Internal Control* and *Guidelines of Company's Internal Control*, and combined with the actual situation of the company. There is a need to improve the quality and professionalism of the financial and accountancy personnel through scientific and reasonable employment, training, job rotation, assessment, reward, promotion, elimination and other human resources control methods, thereby strengthening the supervision and control of the company's accounting information disclosure, timely detecting and accounting loopholes and fraud risks, and correcting or improving the new problems, new situations and weaknesses in the implementation of internal control, in order to regulate its disclosure content from the source of information generated.

5.2 *To develop environmental information disclosure guidelines with a guiding significance*

China Securities Regulatory Commission, Ministry of Environmental Protection, Bureau of Accounts and other relevant national governments and authorities should consult together, and make a full range of in-depth integration of the company's environmental information disclosure norms from different perspectives and focuses, and develop authoritative and operable environmental information disclosure guidelines. The guidelines should clearly define the specific disclosure way adopted according to different disclosure content, rather than the environmental information disclosure way regulated according to its own requirements and by the norms, which are lack of normative provisions. In order to improve the quality of environmental information, for the quantitative disclosed information, the company must provide quan-

titative disclosure. In particular, for the monetized index, the company must provide monetized financial disclosure, and may not only take the form of text description. Therefore, it can enhance the consistency and comparability of the information, improve the quality of environmental information obtained by the information users, and also facilitate the environmental protection department or China Securities Regulatory Commission to assess the company's environmental performance, in order to effectively play a role of guiding the company's environmental information disclosure, and promote China's environmental information disclosure to a higher level.

5.3 *To strengthen the environmental information attestation by the independent third party*

The environmental information not only needs to be disclosed, but also needs to be really disclosed. In order to ensure the objective truth of the environmental information, there is a must to strengthen the environmental information attestation by the independent third party. The independent third party can be served by an accounting firm, and CPA reviews and verifies the environmental information disclosed by the company, and provides reliable guarantee for the relevant information. The environmental information attestation service can be a new service field provided by the accounting firm, which requires adding provisions and specific requirements of the company's environmental information attestation service in the existing auditing standard, and specifically regulating the requirements of the quality of environmental information. The Institute of Certified Public Accountants should also enhance the degree of importance of environmental information in the course of practice from the perspective of the industry system.

Currently, most of the environmental information of the chemical industry fails to reach the degree of pure monetized disclosure, and still contains non-monetary quantitative disclosure, such as the pollutant concentration, pollutant emission and other information. For the CPA, it is very difficult to attest the professional environmental information. In the process of attestation, there is a need of guidance of professionals, and coordination of the environmental protection department and other relevant professional departments.

CPA can use the site visits, letter of confirmation, re-test by the environmental protection department and other methods for the data disclosed in the environmental information, in order to test the reliability of the information published by the company.

At present, China's environmental accounting is still in its infancy stage, the information disclosure regulations are not perfect, and the disclosure status is not optimistic. Such a situation is not conducive to performing social supervision of the environment accountability, optimal allocation of social resources and healthy development of the company, of course, also not conducive to the implementation of sustainable development strategy in China. Therefore, this paper believes that, there is a need to strengthen the construction of internal control system of the listed chemical company, develop the environmental information disclosure guidelines with guiding significance and enhance the environmental information attestation by the independent third party to improve the environmental accounting information disclosure, thus making contribution to build an environmentally friendly society.

REFERENCES

- [1] Mi Zhiqiang & Xie Ruifeng. 2014. Research on environmental accounting information disclosure of listed company – status quo of environmental accounting information disclosure based on the logistics industry. *Friends of Accounting*, 29: 11-14.
- [2] Zhao Yonghong. 2011. Research on status quo of environmental information disclosure of listed company in China – a case study of the listed company in the extractive industry in 2010. *Eighteenth Academic Annual Conference of Advanced Engineering Colleges Branch of China Accounting Society (2011) Proceedings*.
- [3] Zhao Tingting. 2011. Research on influencing factors of environmental accounting information disclosure quality in heavy pollution industry. Shenyang: Shenyang University of Technology.
- [4] Fang Xiaojuan. 2013. Research on environmental information disclosure level, environmental performance and financial performance of the manufacturing listed company. Hefei: Anhui University.