

# **Environmental Reports by Japanese Companies**

## **-- An analysis of environmental reports of companies listed on the First Section of the Tokyo Stock Exchange --**

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### **1. Introduction**

There is a growing awareness of the necessity for a company's disclosure of information on how much impact its business activities have given to the environment and what kind of measures the company has taken to reduce the impact. Environmental reports<sup>1</sup>(ER) in the form of brochures or on web sites are the mainstream as means for such disclosure.

The recent global trends in environmental reporting are as follows. The Global Reporting Initiative's Sustainability Reporting Guidelines issued in June 2000 (hereinafter referred to as "GRI Guidelines (2000)") are being amended in a way to describe the social and economic aspects of sustainability reporting in greater detail. The ACCA (Association of Chartered Certified Accountants of the U.K.) published guidance for sustainability reporting, particularly on web sites, in October 2001. In the U.K., various environmental reporting guidelines were published successively: guidelines for compilation of reports on greenhouse effect gas emissions (1999); guidelines for compilation of reports on waste emissions (2000); and general guidelines for environmental reporting (2001). Also, in South Korea, guidelines for environmental reporting were published in 2002.

In Japan, the number of corporate ER has been rapidly increasing and their contents have been upgraded year by year. Partly because of the influence of foreign environmental guidelines including the GRI Guidelines, more and more companies have come to make disclosure in the form of sustainability reports which include a description of social matters. Not a few companies have published ER at their web sites.

Though the present research is based on the paper "Analysis of Environmental Reports by Japanese Companies: Content Analysis and Determinants" (by Tomomi Shinabe, Akira Higashida, Yasushi Onishi, Akihiro Noda, and Katsuhiko Kokubu) presented at the 2001 meeting of the Society for Environmental Economics and Policy Studies<sup>2</sup>, it not only offers analysis data but also observations from a new perspective. While the research

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<sup>1</sup> Here, "environmental reports" refer to documents which publicize companies' environmental efforts and performance in a compiled form to the outside and contain environmental performance data and information on the time of publication although such documents may be called differently (sustainability reports, etc).

<sup>2</sup> The paper presented at the meeting was compiled as Katsuhiko Kokubu, Tomomi Shinabe, Akira Higashida, Yasushi Onishi, and Akihiro Noda (2001): "Analysis of Environmental Reports by Japanese Companies: Content

by Kokubu et al (2001) covers ER published by a specific date (the end of September 2000), Our research covers ER published in 2000 and 2001 and makes a comparison in data between the two years. Kokubu et al (2001) made multiple regression analysis of corporate characteristics as determinant factors for the quality and contents of ER using parameters such as sales, number of employees, ROA, advertisement expenses, floating stock ratio, liability-to-equity ratio, and industrial sectors. On the other hand, our research analyzes the information disclosed in ER in more detail by categorizing the industrial sectors minutely. As a new approach, it analyzes disclosed information according as whether a company is experienced or inexperienced in environmental reporting and also observes the influence of the Environmental Reporting Guidelines (2000) by Ministry of Environment (MoE) Japan.

The purpose of this research is to indicate what is needed to make corporate environmental disclosure more meaningful by revealing the reality of ER published in Japan. We believe that our research has a unique meaning in the following points: It carefully examines the relevance of information disclosed in Japanese ER with the MOE Environmental Reporting Guidelines (2000), collect ER in a more comprehensive manner, investigates year-to-year changes and introduces new parameters such as the degree of reporting experience.

This paper is composed as follows: This chapter of introduction is followed by “2. Review of Prior Researches,” a chapter which summarizes the researches which have been made by other researchers after Kokubu et al (2001). In Chapter 3 “Objects and Methodology of Analysis,” we will explain the framework for analysis which has been used to create a database of information disclosed in each ER. Chapter 4 “Current Situation of Environmental Disclosure” will include: how many companies have published ER; what kinds of characteristics there are for each industrial sector or analysis topic; whether or not there are significant differences depending on company size; and what is different in disclosing content between companies with experience in publishing ER and first-time companies. In Chapter 5 “Analysis of the Influence of the MoE Environmental Reporting Guidelines (2000),” the guidelines’ influence will be estimated by showing the difference between the ER published before and after the publication of the guidelines. In Chapter 6 “Conclusion,” what points we have clarified and what issues remain to be tackled will be indicated.

## **2. Review of Prior Researches on Japanese Corporate Environmental Disclosure**

Researches on ER which have been conducted in Japan are classified into two types: researches to explore factors which encourage environmental disclosure<sup>3</sup> and researches on the contents of ER. Along the purpose of this paper, prior researches on the contents of ER will be reviewed in this paper.

### **(1) Research by Yoshinao Kozuma and Matsumi Umezawa (1995)**

Kozuma and Umezawa (1995) collected ER and conducted a survey in 1994 when environmental disclosure began to attract attention. They screened listed companies which ranked top 100 in sales in fiscal 1992 and selected 59 companies and 87 samples for their survey. They set 45 items based on various environmental reporting guidelines, checked whether or not the samples include information on these items and made cluster analysis of the sample data. In this process, they roughly classified the reports into two clusters. One cluster concerns reports based on the Global Environment Charter by Keidanren (Federation of Economic Organizations)

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Analysis and Determinants” Kobe University Graduate School of Business Administration Discussion Paper 2001 25 and its main part was included in Kokubu et al (2002b). Hereinafter, the research paper presented at the 2001 meeting will be referred to as Kokubu et al (2001).

<sup>3</sup> One example of research on determinants of environmental reporting is Kokubu et al (2002a).

and the other cluster, ones based on the Voluntary Plan by the Ministry of International Trade and Industry (present Ministry of Economy, Trade and Industry). The ER based on the Global Environment Charter are conceptualistic, less concrete and centered on environmental policies while the Voluntary Plan based reports include reference to environmental policies, action guidelines, environmental auditing and provision of information.

Their research reveals that the government's and economic organizations' guidelines have strongly influenced Japanese corporate ER

## **(2) Research by the Network for Environmental Reporting (2001)**

This research is based on the survey which was conducted from March to April of 2001 on 184 organizations belonging to the Network for Environmental Reporting (non-governmental organization). Of the 184 organizations, 68 replied that they had compiled ER. As to the question about the content of their reports, more than 80 percent of the 68 companies replied that they included information about: a division in charge of publication and contacts; summary of business; period covered by reports; coverage (covered organizational range); environmental policies; CEO's statement; organizational structure; environmental management system; employee education; waste emissions and recycling; consumption of natural resources and energy; and social contribution.

On the other hand, less than half of them replied that they included reference to: next year's environmental goals; next year's environmental action plan; post-manufacture extended producer responsibility; noxious chemical release and transfer; negative information such as descriptions of accidents; site-by-site numerical environmental impact data; review by third parties; glossary, etc.; and social aspects (labor, safety, etc).

When the respondent organizations were divided into a group of manufacturing companies and a group of non-manufacturing companies, it has been found that a larger proportion of the companies in the former group provided information than in the latter group regarding the following topics: medium-term environmental goals; R&D and eco-friendly design; green purchase and procurement; environmental accounting; environmental communication; and greenhouse effect gas emissions. The non-manufacturing companies are more inclined to mention their unique environmental preservation activities.

## **(3) Research by the Osaka Industrial Association (2001)**

Environmental Issues Research Group, the Environmental Committee of the Osaka Industrial Association examined and analyzed environmental reports published by 165 companies during the period of August to December of 2000 and made a list of percentages of reference to various topics by industrial sector. This research uses check items based on the topics recommended in GRI Sustainability Reporting Guidelines (2000). For the purpose of analysis, they used eight topics or headings (reporting style, compliance with the GRI Guidelines, company summary, communication with readers, corporate stance towards the environment, environmental performance in business activity, environmental performance in products and services, and other performance) under which there are 155 subtopics. They investigated whether or not the reports include a description related to each of these subtopics.

What has been revealed by the investigation is as follows. Of the companies surveyed, 4% complied with the GRI Guidelines (2000) and 5% at least referred to the guidelines. Less than half of the reports included information on the addresses of business sites (parent company, subsidiaries and affiliates) or clearly indicated to which extent their report covers the business group. More than 60% attached a questionnaire to readers. For third party opinions, 16% included comments by auditing firms, 5% by individuals, and 2% by non-governmental

organizations. Approx. 60% made reference to environmental accounting and approx. 40% described green purchase.

The following environmental performance indicators characteristic of individual industrial sectors are shown by the investigation. ER of the construction industry (12 companies) tend to focus on waste produced in the process of construction work. ER of the food industry (14 companies) are generally characterized by the abundance of information on waste emissions and recycling of containers and packaging materials. Among the ER of the chemical and pharmaceutical industry (27 companies), many also serve as responsible care reports which contain a lot of information on the control of chemical substances and occupational safety and health. ER from the machinery industry (9 companies) have a general tendency to provide a plenty of information on environmental business. ER of the electric equipment industry (20 companies) generally show a positive attitude toward disclosure of information relating to PRTR and soil and underground water contamination and provide much information on the energy saving performance of products and recovery and recycling systems for scrapped products. ER of nine retailers and ten cooperative societies emphasize energy saving, reduction in the consumption of packaging materials and recycling, waste reduction and environmental impact reduction in distribution systems and also mention foods which do not use pesticides, chemical substances and the like. Three financial companies describe eco-funding. The bulky reports from five electric power companies are characterized by descriptions of stable supply of energy and three city gas companies out of the four gas companies comply with the GRI Guidelines (2000).

#### **(4) Research by Masao Kawano (2000)**

Kawano (2001) asked 1,433 companies listed on the first sections of the Tokyo Stock Exchange, Osaka Securities Exchange and Nagoya Stock Exchange for copies of their ER and received copies from 218 companies. From these 218 companies, he selected 193 companies (including 13 companies making environmental disclosure only on their web sites). The items for the analysis were determined by reference to the “Environmental Reporting Benchmarks (1998)” compiled by the Environmental Auditing Research Group and the Valdez Society, and the GRI Guidelines (2000). In his paper, Kawano discusses ER formats and structures and future problems.

For the purpose of the present research, we here concentrate on his analysis of report structures. About 80% of all ER give some form of information concerning: CEO’s statement, introductory remarks or greetings; company summary; and covered period and coverage and the date of issue. All the companies describe their environmental policies. About 60% of all the reports include descriptions of environmental purposes and goals and action plan; however, as far as the fields of electric and transportation equipment are concerned, 65% to 80% do. More than 90% of all the reports contain some reference to such topics as environmental management systems and environmental conservation systems. The percentage of ER which mention employee education is less than 70% on the whole but more than 80% in the fields of machinery, transportation equipment and energy (electricity and gas). Reference to eco-friendly products/services and research and development has been made in almost 80% and about 70% of all ER, respectively. More than 80% mention social contribution. In the analysis, environmental performance data is categorized into physical data and financial data which are further itemized; the percentage of reports which include the former is over 90% but that for the latter hovers around 50%.

The topics to which reference was made only by less than 50% are “overall picture of environmental impact,” “guidance, support and requests to business partners and affiliates,” “green procurement,” “state of communication,” “external evaluation (awards, etc),” “compliance with laws and regulations,” “PRTR” and “third party opinions and verification.”

### **(5) Research by Kokubu et al (2001)**

Kokubu et al (2001) made two analyses of 204 companies (excluding financial companies) listed on the First Section of the Tokyo Stock Exchange which published ER before the end of September 2000. One analysis deals with report contents. They investigated how the companies disclosed environmental information according to the eighteen topics to which the MoE Environmental Reporting Guidelines (2000) require reference. Using their content analysis data, they also made an analysis on factors which determine the quality of ER.

The content analysis has demonstrated that more than 80% of the companies disclosed information about the following topics: “state of environmental burden from output of refuses, and mitigation measures”; “state of environmental management system”; state of environmental burdens from material/energy input, and mitigation measures”; summary of policies, targets, and achievements in environmental conservation”; “CEO’s statement”; “summary of the nature of the business”; and “state of social contribution related to environment.” On the other hand, less than 50% of the companies made reference to: “state of compliance with environmental regulations”; “a complete picture of environmental burdens”; “state of environmental burdens from cumulative soil contamination, land utilization and other environmental risks, and mitigation measures”; “state of environmental burdens from transportation, and mitigation measures”; and “state of disclosure of environmental information and environmental communication.”

In their study of factors which determine the quality of environmental reports, a point was allocated to each of the eighteen topics (maximum 18 points) used in the content analysis to evaluate the quality and the score was taken as a proxy variable representing the quality of an ER and treated as an explained variable. Multiple regression analysis was carried out using explanatory variables such as company size (number of employees and sales), economic performance (ROA), consumer relevancy (advertisement expenses), debt dependency (debt-equity ratio), capital market dependency (floating stock ratio) and the type of business. As a consequence, it has been found that company size and consumer relevancy have a significant influence on the quality of ER with a level of significance of 1% but no other variables have any significant influence on it. It means that the larger the company size and the higher degree of consumer relevancy, the higher the quality of ER.

Prior analytical studies of ER contents have been reviewed so far. However, there remain several issues to be discussed. Firstly there have been no studies which deal with change over time in the quality of ER. Although the research by Kozuma and Umezawa (1995) takes qualitative change over time into consideration, seven years have passed since its publication and the situation of ER has drastically changed. Thus, it seems meaningful to investigate year-to-year change up to the present time in the quality of ER.

In addition, the above-mentioned researches are all studies of ER compiled before the publication of the MoE Environmental Reporting Guidelines (2000). It, therefore, may be necessary to investigate the influence of the guidelines through analysis of ER compiled after the publication. A major object of the present research is to draw a conclusion on these issues.

## **3. Objects and Methodology of Analysis**

### **(1) Objects of analysis**

The present research covers ER published by some of the 1,474 companies listed on the First Section of the Tokyo Stock Exchange (as of June 2001) from January to December of 2000 and from January to December of 2001.<sup>4</sup> Of the listed companies, 236 companies issued their ER in 2000 and 297 companies in 2001. Here, an

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4 Although Nippon Paper Industries and Daishowa Paper Mfg. Co., Ltd. were amalgamated into Nippon Unipac

ER is defined as a publicized document which describes an organization's environmental policies and performance and meets the following two requirements:

- 1) It should contain environmental performance data
- 2) It should include information which clarifies or clearly suggests the time of issue or the year of issue.

Whether they are published as brochures or on web sites and whatever they are called (for example, "environmental reports" or "sustainability reports"), all reports that meet the above requirements were considered as reports to be analyzed.

For requirement 1), we evaluated the suitability of reports for analysis according as whether or not they contain some numerical data concerning the situation of environmental impacts (burdens) related to materials, energies and so on and measures to mitigate the impacts.

For requirement 2), we evaluated the suitability of reports for analysis according as whether or not, even if reports do not mention the time of issue, their publication in 2000 or 2001 is clearly assumable. If any of the following conditions exists, reports were considered as suitable for analysis.

- The year and month of issue appear in a foreword
- The year and month of issue appear in a letter of greeting
- The year and month of issue appear in an attached questionnaire
- Figures (e.g. 2000.10) which are assumed to indicate the time of issue appear on the cover or the like
- The period covered by reports or the period covered by environmental accounting statements is clearly shown
- A company summary includes an expression like "as of ..."

To collect ER for 2000 to be covered in our research, we picked up reports issued from January to December of 2000 among the reports covered by the previous research (Kokubu et al (2001)), and also ones issued from January to December of 2000 among the reports collected by Professor Kokubu's group of Kobe University and the IGES Kansai Research Center. To collect ER for 2001, the Kansai Research Center sent all of 2,525 listed companies letters of request for copies of their ER in September 2001 and, from among the received reports, selected ones issued from January to December of 2001. For the companies which informed us of their plan to issue ones by the end of December, we again requested them to send copies, by telephone around the end of the year.

For categorization of businesses, we basically used 33 industrial sectors according to the Securities Identification Code Committee but a few sectors in which the number of report issuing companies is very small and which are similar to each other were grouped as one sector (see Fig. 1). Specifically, the sector of "land, marine and air transportation" includes "land transportation," "marine transportation," and "air transportation"; the sector of "services and telecommunications" includes "services" and "telecommunications"; the sector of "finance and insurance" includes "banking," "securities and commodity future trading" and "insurance." Since a major object of the present research was to analyze the contents of reports on a sector-by-sector basis, we did not reduce different types of business to a fewer groups in order to make the number of samples per population almost equal. The resulting twenty-four industrial sectors were used for a basic framework for analysis.

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Holding in March 2001, the former companies have published environmental report individually after the amalgamation. Therefore, we treated each of them as an independent company.

However, for comparison of disclosures among industrial sectors (see 4. (2) Comparison among sectors) and analysis of disclosures in each industrial sector regarding the eighteen topics on which disclosure is required by the MoE Environmental Reporting Guidelines (2000) “Chapter 3 What should be Included in Environmental Reporting” (see 4. (3) Topic-by-topic comparison) the sectors of “oil and coal,” “rubber products,” “services and telecommunications” and “real estate” were excluded because in these five sectors less than five companies published ER in 2000 and 2001. Also, service-related industrial sectors such as “land, marine and air transportation,” “wholesale,” “retail” and “finance and insurance” (“services and telecommunications” and “real estate” had already been excluded as mentioned above) were excluded because it was thought that the companies in these sectors made environmental disclosures on fewer topics than the companies in the other sectors did. As a consequence, the remaining sixteen industrial sectors, namely “construction,” “foods,” “textiles,” “pulp and paper,” “chemicals,” “pharmaceuticals,” “glass/cement/concrete/ceramics,” “iron and steel,” “nonferrous metals,” “metal products,” “machinery,” “electric equipment,” “transportation equipment,” “precision machinery,” “other products,” and “electricity and gas” were used for comparison among sectors and comparison by topic.

## **(2) Methodology of analysis<sup>5</sup>**

We prepared a check sheet and also created analysis criteria for individual check items (evaluation criteria for ER content analysts). The check sheet and analysis criteria were based on those prepared by Kokubu et al (2001) but more comprehensive and more detailed. The eighteen topics required by the MoE Environmental Reporting Guidelines (2000) (Chapter 3 What should be Included in Environmental Reporting) were subdivided into 51 subtopics, to which two subtopics concerning dioxin, two subtopics for third party review, and two subtopics concerning the economic and social aspects of the GRI Guidelines were added to make a total of fifty-seven subtopics.

Using the fifty-seven subtopics in the check sheet, we clarified what kinds of information were included in the surveyed environmental reports and created a database according as whether or not there is information on each topic. The analysis work was done by cooperation of all the participants in the present research. In order to avoid subjective judgment, we followed the predetermined content analysis methodology and arranged that every sample should be checked by more than one analyst. In this research, we define the degree of environmental disclosure as follows:

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<sup>5</sup> Refer to Appendix 1 Check Sheet and Appendix 2. Evaluation Criteria for Environmental Report Content Analysts at the end of this paper. The eighteen topics listed here refer to the eighteen elements which are recommended in Section 2. Basic Headings of Chapter 3 (What should be Included in Environmental Reporting) of the Ministry of the Environment’s Environmental Reporting Guidelines (2000). We numbered them in the order of appearance in the guidelines. In the check sheet used in the present research, we divided some of the topics into several subtopics for analysis (these topics are: (7) state of environmental management system; (12) s complete picture of environmental burdens; (13) state of environmental burdens from material/energy input, and mitigation measures; (15) state of environmental burdens from output of refuses, and mitigation measures; and (17) state of environmental burdens from transportation, and mitigation measures. In calculating the degree of disclosure on each topic, we adopted average scores of individual subtopics. Although topics (13) and (15) included water-related description and waste-related description as subtopics, these subtopics were very likely to be double-counted with other subtopics and thus excluded from the calculation of degrees of disclosure. Subject (15) includes two subtopics relating to description of dioxin but in MOE’s Environmental Reporting Guidelines (2000)’s paragraphs corresponding to topic (15) give no explanatory examples; therefore, we excluded the two subtopics from the calculation of degrees of disclosure on topic (15). Calculations of degrees of disclosure for each environmental report were carried out not only on the eighteen topics but also on all fifty-seven subtopics including “water-related description” “waste-related description,” “dioxin-related description,” third party review, and the economic and social aspects of the GRI Guidelines.

Degree of disclosure of an environmental report (%)

$$= (\text{Number of subtopics on which disclosure was made} / 57) \times 100$$

Degree of disclosure for each industrial sector (%)

$$= \sum_{i=1, n} (\text{degree of disclosure of an environmental report})_i / n$$

(n=Number of companies in each sector)

In addition to on what topics the disclosure is made, viewpoints for analysis of environmental disclosure contents may include how much detailed the disclosure is, in what format the disclosure is made, or other viewpoints. However, the present research focuses on investigating on what topics the disclosure is made.

#### 4. Current Situation of Environmental Disclosure

##### (1) Percentage of companies issuing ER

Out of the 1,474 companies listed on the First Section of the Tokyo Stock Exchange as of June 2001, 236 companies (16%) published ER from January to December of 2000 and 297 companies (20%) from January to December of 2001. When we sent them a request for a copy of their ER, we attached a questionnaire to companies not issuing ER, which asks whether they have a plan to issue one. 249 companies replied to the questionnaire that they had not issued ER in the form of brochures. However, out of these companies, 15 companies (included in the above 297 companies) replied that they had disclosed their environmental information on their web sites. There were 234 companies which sent back the questionnaire saying that they had not issued ER; 87 companies of them showed the intention to issue one in the future and 147 said that they did not have any plan to do so.

The number of companies issuing ER increased by 61 in the period from January-December 2000 to January-December 2001 (297-236=61). Besides, 87 of the companies which replied to the questionnaire in 2001 that they had not issued ER said that they had an intention to issue ones. Therefore, the number of companies which issue ER will increase steadily. Nevertheless, it must be noted that the percentage of report-issuing companies to all the companies listed on the First Section of the Tokyo Stock Exchange remains as low as 20% and it is reasonable to attribute this increase to the fact that the MoE Environmental Reporting Guidelines (2000) were published in February 2001 while our survey was being conducted. Therefore, efforts to promote environmental disclosure should be continued. According to the Survey on Ecologically-friendly Corporate Behavior conducted by the MoE in 2001, 1,867 of the 2,898 respondent companies had not issued ER; regarding the question why they had not issued ones, 595 (32.0%) replied, "because we don't think it necessary to issue an ER"; 450 (24.2%) replied, "because we have no sufficient financial and human resources for compilation of ER"; and 389 (20.9%) replied, "because we have no idea about what kind of information should be included." This implies that there exists a strong need for some guidelines for environmental reporting or information which gives them a clue about what should be stated in ER.

Among the 24 industrial sectors in the present research, top five in terms of the percentage of report-issuing companies are<sup>6</sup>:

|                     |     |
|---------------------|-----|
| Electricity and gas | 86% |
| Pulp and paper      | 56% |

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<sup>6</sup> Data in 2001

|                                |     |
|--------------------------------|-----|
| Glass/cement/concrete/ceramics | 44% |
| Rubber products                | 40% |
| Nonferrous metals              | 36% |

The five sectors which rank as the lowest in the percentage are:

|                                 |     |
|---------------------------------|-----|
| Machinery                       | 13% |
| Real estate                     | 8%  |
| Wholesale                       | 5%  |
| Finance and insurance           | 4%  |
| Services and telecommunications | 4%  |

**Fig. 1 No. of Environmental Report Issuing Companies by Industrial Sector**

| Industrial sector                    | Listed companies<br>(TSE 1 <sup>st</sup> Sec.) | 2000       | 2001       |
|--------------------------------------|--|------------|------------|
| Construction                         | 116  | 16         | 23         |
| Foods                                | 71   | 17         | 24         |
| Textiles                             | 52   | 5          | 8          |
| Pulp and paper                       | 16   | 6          | 9          |
| Chemicals                            | 114  | 32         | 39         |
| Pharmaceuticals                      | 35   | 5          | 8          |
| Oil and coal                         | 8  | 1          | 2          |
| Rubber products                      | 10   | 3          | 4          |
| Glass, cement, concrete and ceramics | 25   | 8          | 11         |
| Iron and metal                       | 37   | 9          | 9          |
| Nonferrous metals                    | 22   | 6          | 8          |
| Metal products                       | 32   | 4          | 6          |
| Machinery                            | 116  | 10         | 15         |
| Electric equipment                   | 153  | 34         | 44         |
| Transportation equipment             | 59   | 16         | 19         |
| Precision equipment                  | 21   | 8          | 7          |
| Other products                       | 45   | 6          | 9          |
| Electricity and gas                  | 14   | 13         | 12         |
| Land, marine and air transportation  | 46   | 7          | 8          |
| Services and telecommunication       | 82   | 3          | 3          |
| Wholesale                            | 102  | 7          | 5          |
| Retail                               | 98   | 15         | 17         |
| Finance and insurance                | 113  | 4          | 5          |
| Real estate                          | 25   | 1          | 2          |
| <b>Total</b>                         | <b>1412</b>                                    | <b>236</b> | <b>297</b> |

**Fig. 2 Degree of Disclosure in Environmental Reporting, by Industrial Sector**

| Industrial sector                    | 2000                            |                      | 2001                            |                      |
|--------------------------------------|---------------------------------|----------------------|---------------------------------|----------------------|
|                                      | No. of report issuing companies | Degree of disclosure | No. of report issuing companies | Degree of disclosure |
| Construction                         | 16                              | 41%                  | 23                              | 44%                  |
| Foods                                | 17                              | 54%                  | 24                              | 58%                  |
| Textiles                             | 5                               | 51%                  | 8                               | 56%                  |
| Pulp and paper                       | 6                               | 49%                  | 9                               | 53%                  |
| Chemicals                            | 32                              | 52%                  | 39                              | 59%                  |
| Pharmaceuticals                      | 5                               | 53%                  | 8                               | 56%                  |
| Oil and coal                         | 1                               | 75%                  | 2                               | 77%                  |
| Rubber products                      | .3                              | 50%                  | 4                               | 53%                  |
| Glass, cement, concrete and ceramics | 8                               | 47%                  | 11                              | 60%                  |
| Iron and metal                       | 9                               | 50%                  | 9                               | 58%                  |
| Nonferrous metals                    | 6                               | 42%                  | 8                               | 55%                  |
| Metal products                       | 4                               | 50%                  | 6                               | 56%                  |
| Machinery                            | 10                              | 54%                  | 15                              | 54%                  |
| Electric equipment                   | 34                              | 59%                  | 44                              | 60%                  |
| Transportation equipment             | 16                              | 62%                  | 19                              | 65%                  |
| Precision equipment                  | 8                               | 52%                  | 7                               | 56%                  |
| Other products                       | 6                               | 59%                  | 9                               | 64%                  |
| Electricity and gas                  | 13                              | 57%                  | 12                              | 72%                  |
| Land, marine and air transportation  | 7                               | 47%                  | 8                               | 51%                  |
| Services and telecommunication       | 3                               | 38%                  | 3                               | 51%                  |
| Wholesale                            | 7                               | 37%                  | 5                               | 37%                  |
| Retail                               | 15                              | 41%                  | 17                              | 47%                  |
| Finance and insurance                | 4                               | 43%                  | 5                               | 44%                  |
| Real estate                          | 1                               | 47%                  | 2                               | 43%                  |
| <b>Total</b>                         | <b>236</b>                      | <b>51%</b>           | <b>297</b>                      | <b>57%</b>           |

**(2) Comparison among sectors**

Fig. 1 shows the number of companies issuing ER, by industrial sector and Fig. 2 shows the degree of disclosure by industrial sector. For all the report-issuing companies surveyed, the average degree of disclosure is 51% in 2000 and 57% in 2001 as shown in Fig. 2. This means that the ER published in 2001 provide information on more topics than those in 2000.

As far as the ER issued in 2001 in the sixteen industrial sectors as described in 3.(1) “Objects of analysis” are concerned, the following five sectors rank as the highest in the degree of disclosure:

|                                |     |
|--------------------------------|-----|
| Electricity and gas            | 72% |
| Transportation equipment       | 65% |
| Other products                 | 64% |
| Electric equipment             | 60% |
| Glass/cement/concrete/ceramics | 60% |

It should be noted that the degree of disclosure for the “electricity and gas” sector significantly increased from 57% in 2000 to 72% in 2001.

On the other hand, the following sectors rank in the lowest in the degree of disclosure in 2001.

|                   |     |
|-------------------|-----|
| Textiles          | 56% |
| Nonferrous metals | 55% |
| Machinery         | 54% |
| Pulp and paper    | 53% |
| Construction      | 44% |

From this data, it can be assumed that industrial sectors such as “transportation equipment,” “electricity and gas,” and “electric equipment,” which are more closely connected with final consumers, have higher degrees of disclosure while industrial sectors such as “nonferrous metals” and “pulp and paper,” which are less connected with end consumers, have lower degrees of disclosure.

### **(3) Comparison by topic**

For each of the eighteen topics to which reference is required in Chapter 3 “What should be Included in Environmental Reporting” in the MoE Environmental Reporting Guidelines (2000), how the degrees of disclosure for all the companies which issued reports in 2001 are characterized will be discussed below.

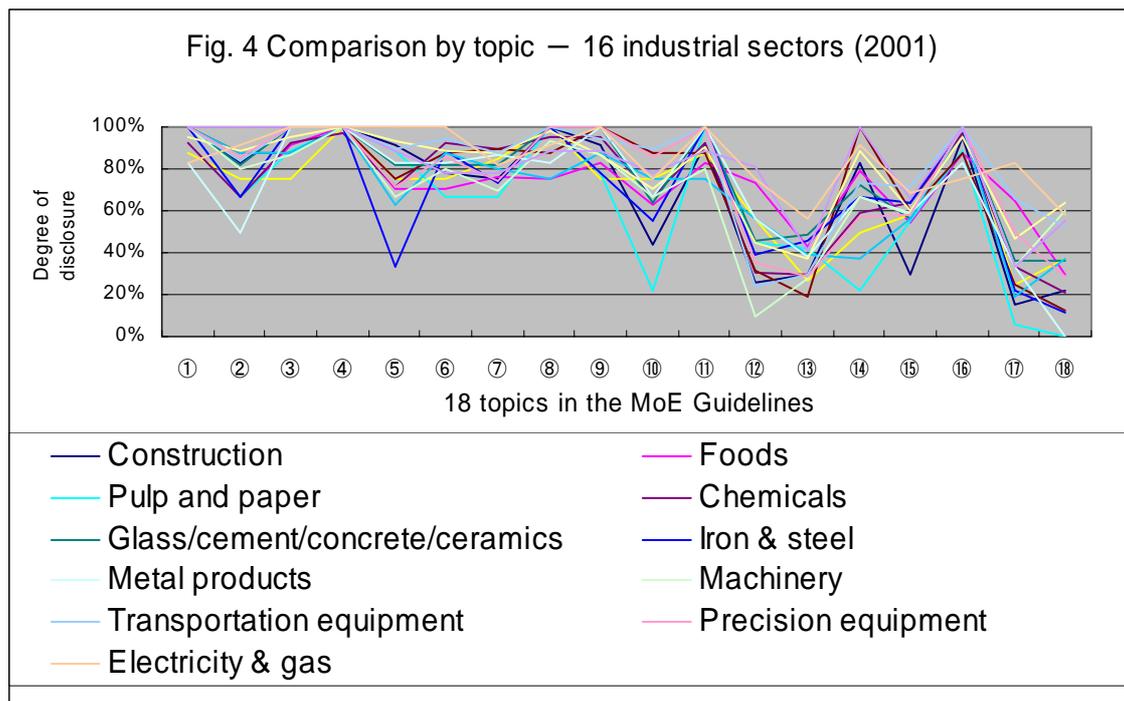
More than 90% of all the report-issuing companies give information on the following topics:

- (4) business policies and posture regarding environmental conservation 99%
- (1) CEO’s statement 97%
- (16) state of environmental burdens at the downstream (providing products/services), and mitigation measures 95%
- (3) summary of the nature of the business 93%
- (8) state of research and development of technologies for environmental conservation and environment-conscious products/services 92%
- (11) state of social contribution related to environment 92%

On the other hand, only less than half of the report-issuing companies give information on the following topics:

- (17) state of environmental burdens from transportation, and mitigation measures 44%
- (12) a complete picture of environmental burdens 40%
- (13) state of environmental burdens from material/energy input, and mitigation measures 35%
- (18) state of environmental burdens from cumulative soil contamination, land utilization and other environmental risks, and mitigation measures 33%





From these graphs, it can be understood that the degree of disclosure on each topic largely varies among the industrial sectors. Shown next are the industrial sectors which demonstrate the highest and lowest degrees of disclosure on several topics.

(2) foundations of reporting (basic information -- coverage, time period, fields, division in charge of publication, and contacts)

Highest: "Other Products" (100%)

Lowest: "Metal Products" (50%)

(10) state of compliance with environmental regulations

Highest: Transportation Equipment (89%)

Lowest: Pulp and Paper (22%)

(14) state of environmental burdens at the upstream (purchase of products/services), and mitigation measures

Highest: "Pharmaceuticals" and "Other Products" (100%)

Lowest: "Pulp and Paper" (22%)

(17) state of environmental burdens from transportation, and mitigation measures

Highest: "Electricity and Gas" (83%)

Lowest: "Pulp and Paper" (6%)

One of the reasons for the differences in the degree of disclosure among industrial sectors may be that information on topics (2) and (10) is not directly connected with environmental performance data and some companies are apt to think that topics (14) and (17) are irrelevant to their businesses.

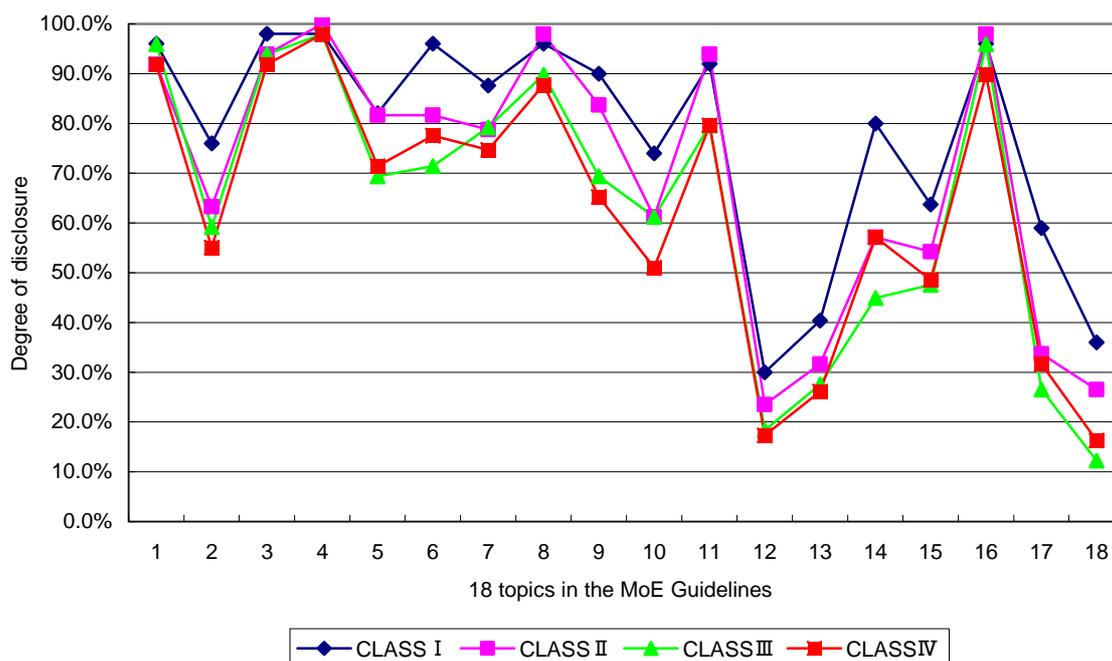
According to the above-mentioned report on the survey concerning the test use of "Environmental Performance Indicators for Businesses (Fiscal Year 2000)" (the Ministry of the Environment, March 2002), regarding the question about the "number or percentage of low emission/fuel-efficient cars employed," four out of the twenty-one companies which participated in the test mentioned, "the question is irrelevant to our line of business." This demonstrates that companies in some sectors tend to consider topic (17) (transportation) as irrelevant to them, which leads to differences in the degree of disclosure among industrial sectors.

#### (4) Comparison by size

We classified the 234 companies which issued ER in 2000 and the 295 companies which issued ones in 2001<sup>7</sup> according to company size and made a comparison in the degree of disclosure among the classes. In order to measure the company size, we used consolidated sales in the companies' statements of accounts made in the period from September 2000 to August 2001.<sup>8</sup> Taking it into consideration that the nature and scale of environmental impacts caused by business activities differ according to the type of business, we divided the above report-issuing companies into a manufacturing company group<sup>9</sup> and a non-manufacturing company group<sup>10</sup> for the purpose of analysis. We divided the manufacturing companies which issued reports in each year (197 companies in 2000, 255 companies in 2001), into four classes (I, II, III, IV) according to company size where the number of companies in each class is equal and Class I is a class for the largest size companies), and also the non-manufacturing companies (37 companies in 2000, 40 companies in 2001) into three classes (I, II, III).

Figs. 5 and 6 graphically show the degrees of disclosure in 2000 and 2001 by company size in the manufacturing company group, respectively.

Fig. 5 Comparison by company size (sales) in 2000 — manufacturing company group



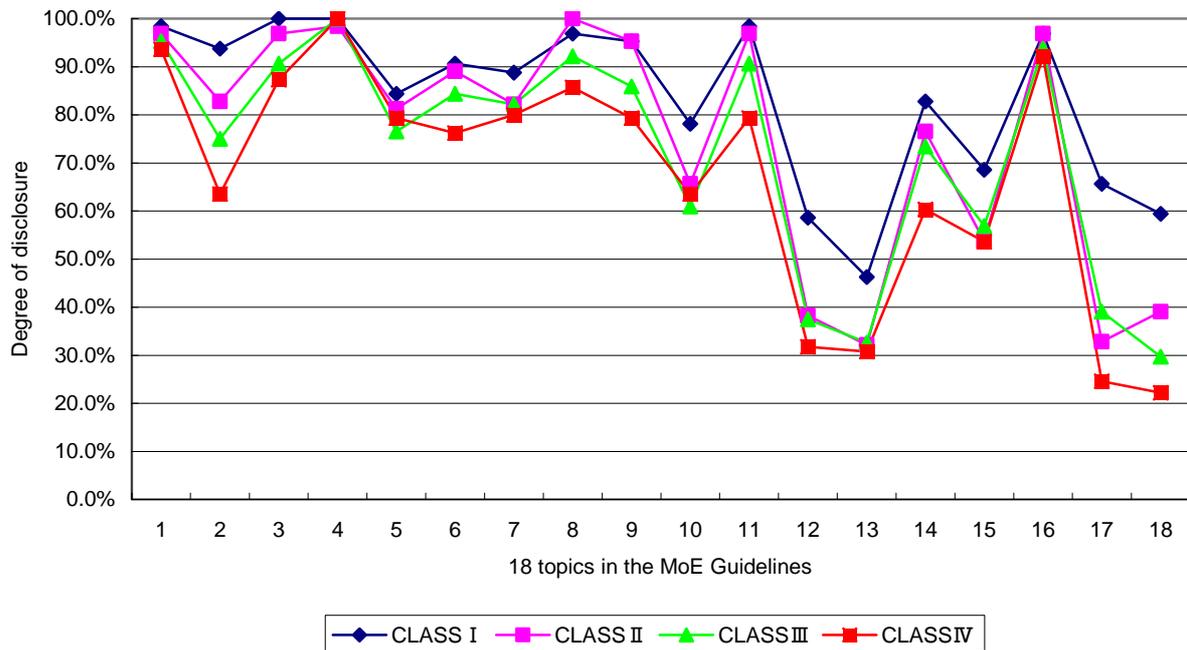
<sup>7</sup> Nippon Unipac Holding (Nippon Paper Industries and Daishowa Paper Mfg. Co., Ltd.) was excluded.

<sup>8</sup> We also made analysis based on consolidated numbers of employees and obtained similar results.

<sup>9</sup> 18 industrial sectors (construction; foods; textiles; pulp and paper; chemicals; pharmaceuticals; petroleum and coal; rubber products; glass/cement/concrete/ceramics; iron and steel; nonferrous metals; metal products; machinery; electric equipment; transportation equipment; precision machinery; and electricity and gas)

<sup>10</sup> 6 industrial sectors (land, marine and air transportation; telecommunications and services; wholesale; retail; finance and insurance; and real estate)

Fig. 6 Comparison by company size (sales) in 2001 — manufacturing company group



From the ER published in 2001 by the companies in the manufacturing group, it is known that the average degrees of disclosure for Class I, Class II, Class III, and Class IV are 68.1%, 56.3%, 55.7% and 51.9%, respectively. This indicates a tendency that the larger the company is, the higher the degree of disclosure is. From their reports published in 2000, it is also known that the average degrees of disclosure for Class I, Class II, Class III, and Class IV are 62.6%, 53.7%, 48.4%, and 47.9%, respectively. For all the classes, the degree of disclosure improved in 2001. Generally speaking, their environmental disclosures may be said to be at an adequate level.

The number of topics in regard to which the degree of disclosure is higher as the company size is larger increased from 4 in 2000<sup>11</sup> to 8 in 2001<sup>12</sup>. While in 2000 there was no topic in regard to which the degree of disclosure is higher as the company size is larger and also the difference in the degree of disclosure between Class I and Class IV is 25% or more, there were three such topics in 2001 ((2) foundations of reporting, (12) a complete picture of environmental burdens, and (18) state of environmental burdens from cumulative soil contamination, land utilization and other environmental risks, and mitigation measures). For the three topics, there was a significant improvement in the degree of disclosure for Class I in 2000 as compared to that in 2001 and the difference in the degree of disclosure among the classes increased. This indicates a growing tendency that larger companies make more disclosures. The probable reasons for this tendency are: for topic (2), larger companies may

<sup>11</sup> (2) foundations of reporting; (9) state of the disclosure of environmental information and environmental communication; (12) a complete picture of environmental burdens; (13) state of environmental burdens from material/energy input, and mitigation measures

<sup>12</sup> (1) CEO's statement; (2) foundations of reporting; (3) summary of the nature of the business; (6) summary of environmental accounting information; (11) state of social contribution related to environment; (12) a complete picture of environmental burdens; (14) state of environmental burdens at the upstream; (18) state of environmental burdens from cumulative soil contamination, land utilization and other environmental risks, and mitigation measures

have stronger incentives to better environmental reporting styles; for topic (12), larger companies may have more sophisticated data collection systems; and for topic (18), larger companies may be more aware of the importance of information disclosure as the problem of cumulative soil contamination is becoming more and more serious. On the other hand, for topic (13) (state of environmental burdens from material/energy input, and mitigation measures), the degrees of disclosure for all the classes were less than 50% and there was only a slight improvement in the degree of disclosure as compared to that in 2000.

From the ER published in 2000 by the companies in the non-manufacturing group, it is known that the average degrees of disclosure for Class I, Class II, and Class III are 49.5%, 45.2%, and 44.0%, respectively. This indicates there is a tendency that the larger the company is, the higher the degree of disclosure is. From their reports published in 2000, it is also known that the average degrees of disclosure for Class I, Class II, and Class III are 44.0%, 42.8%, and 37.2%, respectively. For all the classes, the average degree of disclosure improved in 2001. Generally speaking, their environmental disclosures may be said to be at an adequate level.

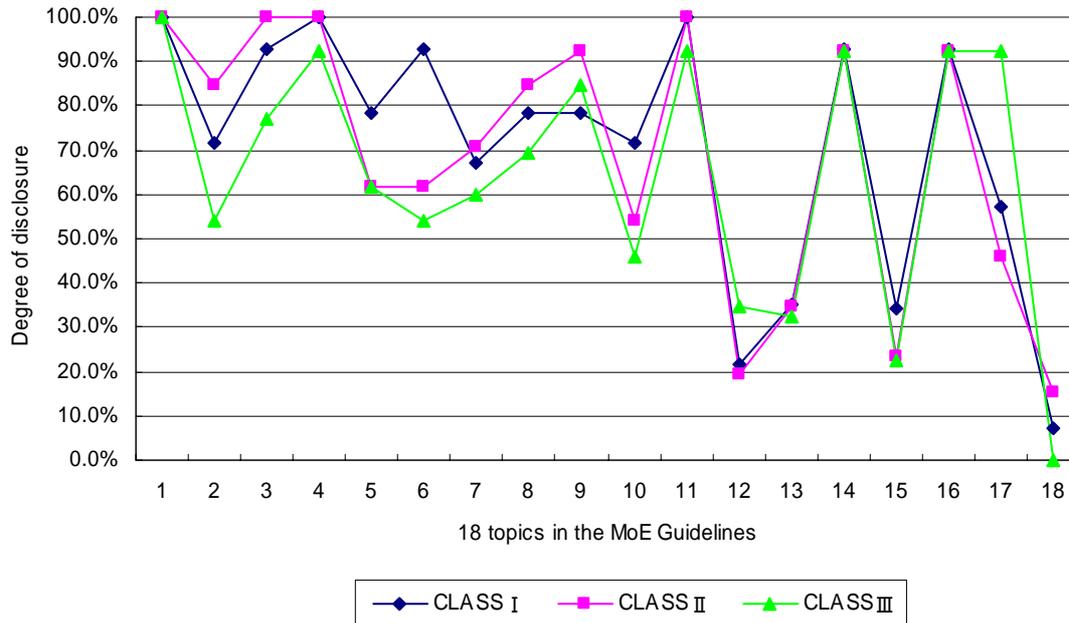
However, in the non-manufacturing company group, the number of topics in regard to which the degree of disclosure is higher as the company size is larger decreased from 6 in 2000<sup>13</sup> to 4 in 2001.<sup>14</sup> In contrast to the manufacturing company group, it seems that the correlation between company size and degree of disclosure has weakened. On the other hand, attention should be paid to the fact that in regard to topic (6) (summary of environmental accounting information) and topic (10) (compliance with environmental regulations) among the above four topics in 2001, the difference between Class I and Class III is more than 25%. As compared with the degree of disclosure in 2000 in regard to topic (10), the degree of disclosure improved by about 35% for Class I and Class III though there was little change for Class II. This demonstrates that there was a progress in information disclosure on compliance with environmental laws and regulations regardless of company size. Another factor contributing to this progress may be the MoE Environmental Reporting Guidelines which helped standardization of ER.

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<sup>13</sup> (2) foundations of reporting; (5) business policies and posture regarding environmental conservation; (6) summary of environmental accounting information; (7) state of environmental management system; (14) state of environmental burdens at the upstream; (15) state of environmental burdens from output of refuses, and mitigation measures

<sup>14</sup> (6) summary of environmental accounting information; (10) state of social contribution related to environment; (13) state of environmental burdens from material/energy input, and mitigation measures; (15) state of environmental burdens from output of refuses, and mitigation measures

Fig. 7 Comparison by company size (sales) in 2001 – non-manufacturing company group



In the non-manufacturing company group, each class had some bias toward a specific industrial sector<sup>15</sup>, so we did similar analysis focusing on the commercial sectors (retail and wholesale) which account for the majority of the non-manufacturing company group. As a consequence, it was found that in 2001 the average degree of disclosure for Class I of the commercial sectors is 45.2%, that for Class II 44.4% and that for Class III 45.1%, while in 2000 that for Class I 37.5%, that for Class II 40.4% and that for Class III 41.4%. As far as the commercial sectors are concerned, company size does not seem to influence the degree of disclosure. In addition, considering that the average degrees of disclosure for all the classes became closer to each other in 2001, it can be said that the MoE Environmental Reporting Guidelines (2000) largely contributed to standardization of environmental information disclosure in the commercial sectors.

Next, let's take a look at the degrees of disclosure in the commercial sectors in 2001 topic by topic. In respect to topic (8) (state of research and development of technologies for environmental conservation and environment-conscious products/services (Design for the Environment (DfE))), the larger the company size is, the higher the degree of disclosure is and the difference between Class I and Class III is more than 40%. By contrast, as regards topic (12) (a complete picture of environmental burdens) and topic (17) (state of environmental burdens from transportation, and mitigation measures), the smaller the company size is, the higher the degree of disclosure is and the difference between Class III and Class I is around 40%. Particularly, the degree of disclosure on topic (12) for Class I is very low, or 12.5%. This is probably because Class I includes several major trading houses<sup>16</sup> which engage in a variety of business fields and it is not easy for them to grasp the kinds and volumes of materials they deal with. The degree of disclosure on topic (12) is less than 50% for all classes. The other topics on which the degree of disclosure is less than 50% for all classes are as follows: (13) state of environmental burdens

<sup>15</sup> One third of Class I companies engage in land, marine and air transportation and more than 80% of Class III companies are retailers.

<sup>16</sup> Among the nine companies of Class I are Mitsubishi Corp., C. Ito & Co., Ltd., Sumitomo Corp. and Tomen Corp.

from material/energy input, and mitigation measures 35%; (15) state of environmental burdens from output of refuses, and mitigation measures; and (18) state of environmental burdens from cumulative soil contamination, land utilization and other environmental risks, and mitigation measures.

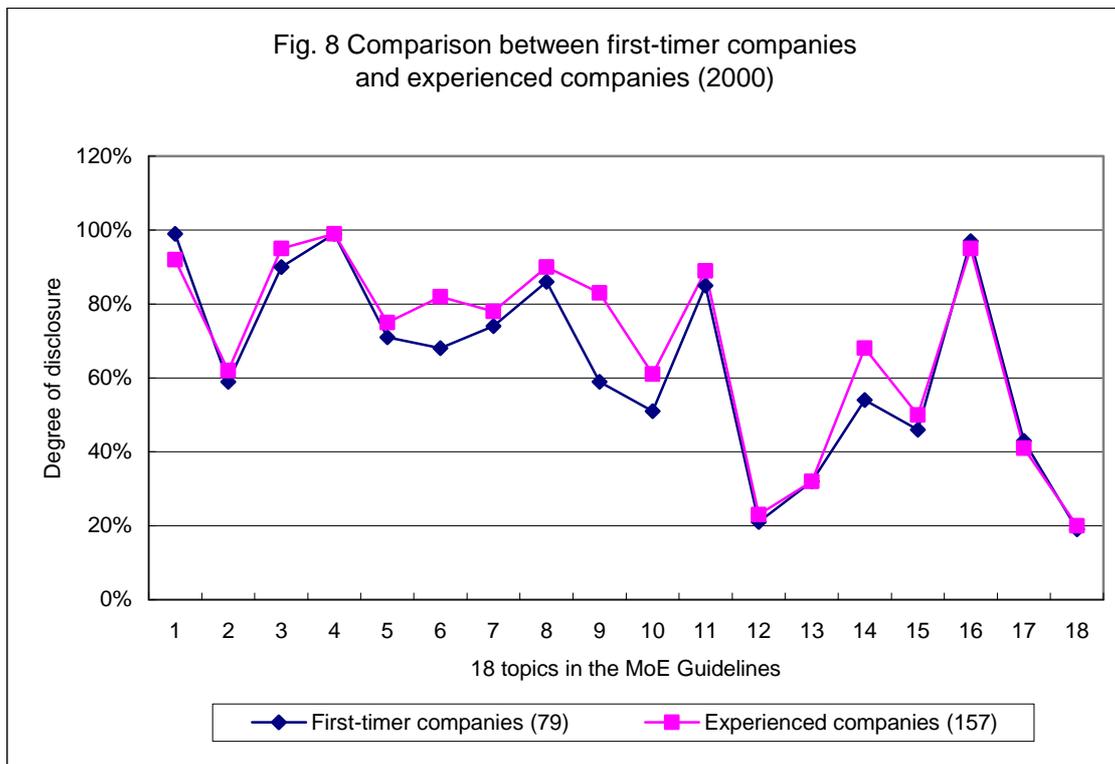
**(5) Comparison between first-timer companies and experienced companies**

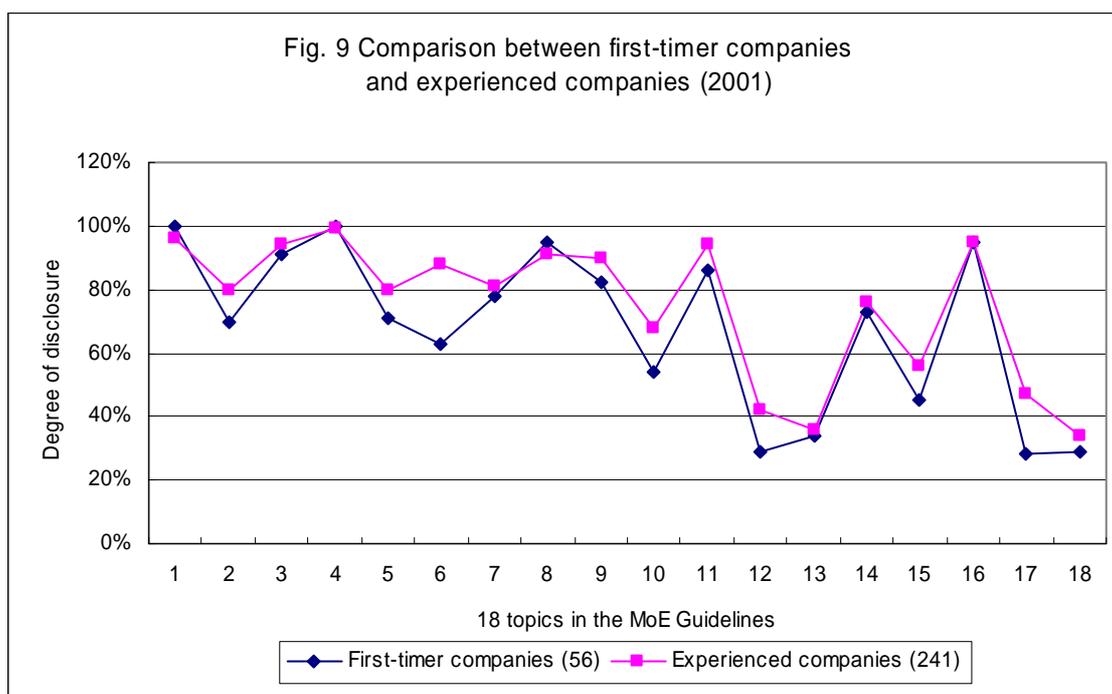
To make analysis from the viewpoint of experience in environmental disclosure, we divided the companies issuing ER in 2000 and 2001 into two groups: companies which published ones for the first time (first-timer companies) and companies which had already published ones (experienced companies).

Out of the 236 companies which published ER in 2000, 79 companies were first-timers and 157 companies experienced. The average degree of disclosure in 2000 was 49% for the 79 first-timer companies and 53% for the 157 experienced companies.

Out of the 297 companies which published ER in 2001, 56 companies were first-timers and 241 companies experienced. The average degree of disclosure in 2001 was 49% for the 56 first-timer companies and 58% for the 241 experienced companies.

From the above data, it is obvious that the experienced companies showed higher degrees of disclosure than the first-timer companies, namely the former provided information on more topics than the latter.





When we checked the disclosed information topic by topic, we found that the degrees of disclosure on most of the eighteen topics by the experienced companies were higher than those by the first-timer companies in both 2000 and 2001. Given below are the topics on which the degree of disclosure of the reports issued in 2001 was far higher in the experienced companies than in the first-timer companies. Here, the description of each topic is followed by the degree of disclosure in the first-timer companies and then that in the experienced companies.

- (6) summary of environmental accounting information 63%, 88%
- (17) state of environmental burdens from transportation, and mitigation measures 28%, 47%
- (10) state of compliance with environmental regulations 54%, 68%
- (12) a complete picture of environmental burdens 29%, 42%
- (15) state of environmental burdens from output of refuses, and mitigation measures 45%, 56%

Since an established data collection system is a prerequisite for disclosure relating to the above topics, it is not easy for the first-timer companies to make disclosure on these topics. In other words, it is understandable that the experienced companies showed higher degrees of disclosure than the first-timer companies.

On the other hand, the topics on which the degree of disclosure in the reports issued in 2001 was lower in the experienced companies than in the first-timer companies are given below:

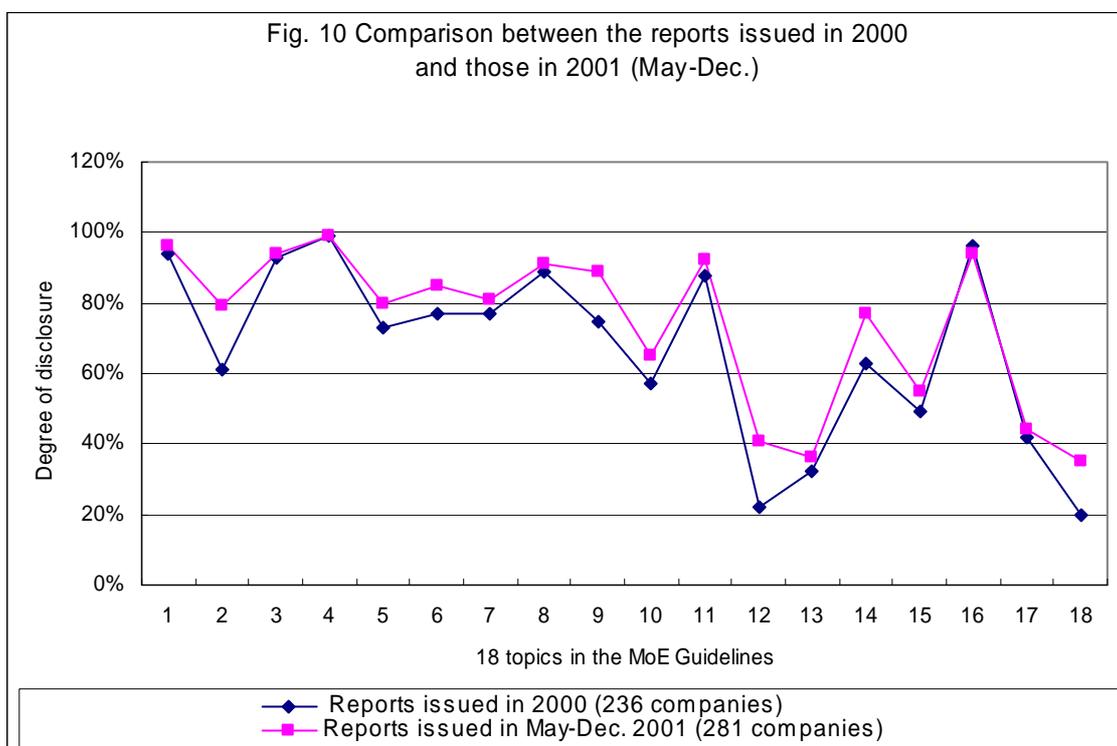
- (1) CEO's statement 100%, 96%
- (8) state of research and development of technologies for environmental conservation and environment-conscious products/services (Design for the Environment (DfE)) 95%, 91%
- (4) business policies and posture regarding environmental conservation 100%, 99%
- (16) state of environmental burdens at the downstream (providing products/services), and mitigation measures 95%, 95%

As far as the above topics except topic (16) are concerned, it is possible to make disclosure without an established data collection system and whether a company is experienced or not does not matter so much.

### 5. Analysis of the Influence of the MoE Environmental Reporting Guidelines (2000)

The MoE Guidelines were published in February 2001. We compared all the 236 ER issued in 2000 (reports not influenced by the Guidelines) with all the 281 ER issued during the period of May-December of 2001 which were thought to be influenced by them.

The overall degree of disclosure increased from 51% in 2000 to 57% in 2001 (May-December). From this fact, it may be assumed that the publication of the MoE Guidelines (2000) encouraged the companies to disclose information on more topics.



There was an increase in the degree of disclosure on all the topics other than topic (16) on which the degree of disclosure declined from 96% to 94%; particularly the degree of disclosure increased more than 10% on the following topics (here, the percentage which follows the description of each topic represents the rate of increase).

- (12) a complete picture of environmental burdens 19%
- (2) foundations of reporting 18%
- (18) state of environmental burdens from cumulative soil contamination, land utilization and other environmental risks, and mitigation measures 15%
- (9) state of disclosure of environmental information and environmental communication 14%
- (14) state of environmental burdens at the upstream (purchase of products/services), and mitigation measures 14%

In order to demonstrate that the MoE Environmental Reporting Guidelines (2000) contributed to the fact that companies made disclosure on more topics in their ER, we compared the descriptions given in the Guidelines with those in other guidelines which may have influenced corporate ER. The guidelines which were compared are listed below:

- Chapter 3 “What should be Included in Environmental Reporting” (27 pages in all) in the MoE Environmental Reporting Guidelines (2000)
- Chapter 2 (a chapter which concerns how to make environmental reports – 28 pages in all) in Environmental Report Publication Guideline (June 1997) by the National Association for Promotion of Environmental Conservation (edited by MoE) (hereinafter called the “Publication Guideline (1997)”)
- “III. Environmental Reporting Guidelines (By Stakeholder Group)” (30 pages in all) in the “Environmental Reporting Guidelines 2001 – With Focus on Stakeholders –“ (published in June 2001) by the Ministry of Economy, Trade and Industry (hereinafter called the “METI Guidelines”)

In Japan, before the publication of the MoE Environmental Reporting Guidelines (2000), the Publication Guideline (1997) had been widely used among people responsible for environmental issues in companies. Also the METI Guidelines were issued just after the publication of the MoE Environmental Reporting Guidelines (2000) in February 2001. In assessing the influence of the MoE Environmental Reporting Guidelines (2000) on the contents of corporate ER, it may be necessary to evaluate the influence of other guidelines.

It should be kept in mind that the required topics in ER suggested in these guidelines are not necessarily suitable for comparison. While the Publication Guideline (1997) include actual examples of ER, the MoE Environmental Reporting Guidelines (2000) contain a table (entitled “Significant Components for Specific Sector”) showing specific topics important for specific industrial sectors. The METI Guidelines list mandatory topics and different state stakeholder needs for them. In an attempt to assume the influence of the MoE Environmental Reporting Guidelines (2000) on the corporate ER covered by the present research, we compared, in terms of content and volume, the descriptions in the above guidelines relating to the five topics (topics (2), (9), (12), (14), (18)) on which the degree of disclosure is far higher in the ER issued in 2001(May-December) than in those in 2000.

### **Topic (2): foundations of reporting (basic information)**

In the MoE Environmental Reporting Guidelines (2000), more than half of Chapter 3 (29 pages) is used for the description concerning basic information for reporting. In the Publication Guideline (1997), the description (p. 9) concerning divisions in charge of publication of ER and contacts and the description (p. 11) concerning the period covered by the ER and the schedule for the next issue may be considered as descriptions of basic information for reporting. Although one page is used for each description, actual examples of ER take up most of the pages and only one third of a page is used for descriptive information. The corresponding portion of the METI Guidelines is II.1 “Basic Information of Environmental Reporting” (pp. 22-23), a section of 1.5 pages in length.

It is estimated that one reason for the general tendency towards improvement in the degree of disclosure about this topic is the influence of the MoE Environmental Reporting Guidelines (2000), but we cannot say for certain that the improvement in ER issued in 2001 (May-December) is attributable to the MoE Environmental Reporting Guidelines (2000).

### **Topic (9): state of disclosure of environmental information and environmental communication**

The MoE Environmental Reporting Guidelines (2000) includes a description concerning this topic (0.5 page, pp. 34-35 in the Japanese version). The description includes reference to environment-related communications, concretely reference to the following matters: environmental reports, eco-labels, etc.; and surveys, meetings with local residents, periodic visits and reporting, consultation with customers, newsletters, and so on. This description may be considered to correspond to the list of materials published and distributed to the outside in addition to ER in the Publication Guideline (1997). Although this list occupies one page in the Guideline, most space is spent for examples and only one fifth of the page is spent for the descriptive information. However, it is stated there that published information not only on environmental issues but also on any other matters should be clarified, and that concrete examples are corporate brochures, financial reports, pamphlets for environmental issues, technical brochures, manuals for employees and so on. This statement may not be interpreted as corresponding to the description of this topic in the MoE Environmental Reporting Guidelines (2000). For example, reference to explanatory meetings on environmental issues for local residents is considered irrelevant to topic (9) in the Publication Guideline (1997) but relevant to it in the MoE Environmental Reporting Guidelines (2000); in the METI Guidelines, III. 12 “Environmental Communication” (a bit longer than 1 page) almost corresponds to topic (9) in terms of content.

Although similar information was given in the Publication Guideline (1997), the MoE Environmental Reporting Guidelines (2000) are thought to be the first guidelines which have made reference to this topic (state of disclosure of environmental information and environmental communication). There seemed to be an influence of the MoE Environmental Reporting Guidelines (2000) on the increase in the number of ER referring to this topic, but the METI Guidelines may also have contributed to the increase.

### **Topic (12): a complete picture of environmental burdens**

Regarding this topic, there is no specific description in the Publication Guideline (1997) while the MoE Environmental Reporting Guidelines (2000) uses about one third of a page (p. 36 in the Japanese version). However, the Publication Guideline (1997) includes a description associated with this topic in the paragraphs showing examples of general measures to reduce environmental impacts (pp. 26-30). In the METI Guidelines, III.6 “Relationship Between Business Activities and the Environment” deals with this topic.

The MoE Environmental Reporting Guidelines (2000) are the first guidelines which listed this topic as a necessary element for ER. There was an influence of the MoE Environmental Reporting Guidelines (2000) on the increase in the number of ER disclosing data on this topic but the METI Guidelines may also have contributed to the increase.

### **Topic (14): state of environmental burdens at the upstream (purchase of products/services), and mitigation measures**

In the MoE Environmental Reporting Guidelines (2000), there is a description concerning this topic (pp. 39-40, 1 page in the Japanese version). The Publication Guideline (1997) does not contain any description that an explanation of green purchase is essential though there is a description slightly related to this topic in an example of efforts in offices in the section concerning measures to reduce environmental impacts. Again, the MoE Environmental Reporting Guidelines (2000) are the first guidelines which listed this topic as a necessary element for ER. There is no corresponding paragraph in the METI Guidelines. The increase in the number of ER referring to this topic may be thought to be largely due to the MoE Environmental Reporting Guidelines (2000).

### **Topic (18): state of environmental burdens from cumulative soil contamination, land utilization and other environmental risks, and mitigation measures**

The MoE Environmental Reporting Guidelines (2000) include a description concerning this topic (about 1 page, pp. 51-52 in the Japanese version) while the Publication Guideline (1997) does not include any such description. Again, the MoE Environmental Reporting Guidelines (2000) are the first guidelines which listed this topic as a necessary element for ER. There is no corresponding paragraph in the METI Guidelines. The increase in the number of reports referring to this topic may be thought to be largely due to the MoE Environmental Reporting Guidelines (2000).

The above discussion leads to the following conclusion. In relation to the five topics on which the degree of disclosure was far higher in the ER issued in 2001 (May-December) than in those in 2000, it is estimated that in regard to topics (14) and (18) the MoE Environmental Reporting Guidelines (2000) had a significant influence on the improvement in the degree of disclosure; in regard to topics (9) and (12) they had a considerable influence but with some influence from the METI Guidelines as well; and in regard to topic (2), whether the MoE Environmental Reporting Guidelines (2000) influenced or not is unclear. Overall, it has been proven that the MoE Environmental Reporting Guidelines (2000) considerably influenced topics on which companies disclosed environmental information in their ER.

## **6. Conclusion**

From our analysis of the ER issued in 2000 and 2001 by companies listed on the First Section of the Tokyo Stock Exchange, we conclude as follows.

About 20% of the listed companies have issued ER and the number of report-issuing companies is expected to increase in the future. As a result of investigating the correlation between the degree of disclosure (how many topics are described) and industrial sectors, it has been found that the closer relation an industrial sector has with final consumers, the higher the degree of disclosure is. Also, we can point out that the degree of disclosure varies among industrial sectors especially on the following topics: (2) foundations of reporting; (10) state of compliance with environmental regulations; and (17) state of environmental burdens from transportation, and mitigation measures. A comparison in the degree of disclosure by company size reveals that, in the manufacturing company group, larger companies tend to disclose information on more topics than smaller companies, while no distinct tendency is observed in the non-manufacturing company group. We also made analysis about the difference in the degree of disclosure depending on experience, or whether a company had published an ER previously or published one for the first time. The analysis indicates that experienced companies tend to disclose information on more topics than first-timer companies. Furthermore, the MoE Environmental Reporting Guidelines (2000) influenced the increase in the number of topics on which information was disclosed. By and large, the number of companies publishing ER is on the increase but it will take time for a majority of the companies listed on the First Section of the Tokyo Stock Exchange to publish their ER. Apparently, however, the companies which have published ER are becoming more and more positive in disclosing environmental information.

The MoE Environmental Reporting Guidelines (2000) will continue to play a key role in efforts to promote environmental disclosure. For guidelines for ER to be more effective in promoting corporate environmental disclosure, the following points should be taken into account.

Firstly, in connection with each topic on which disclosure is desirable, guidelines should pay more attention

to characteristics of each individual industrial sector, especially whether or not there is a close relation with final consumers. To clarify what kinds of information are desired for each industrial sector is a reader-friendly approach and helpful for personnel in charge of environmental issues because they can get an idea what information should be included.<sup>17</sup> As MoE Environmental Reporting Guidelines (2000) was designed to be used in all industrial sectors, the first thing to do is to show more clearly which topics are significant for each industrial sector.

In this respect, it is a good move that Chapter 3 (“What should be Included in Environmental Reporting”) in the MoE Environmental Reporting Guidelines (2000) contains, in the explanation of some of the essential eighteen topics, a list entitled “Significant Components for Specific Sectors” directing specific industrial sectors to mention on specific subtopics or components. Furthermore, in the METI “Environmental Reporting Guidelines 2001 – With Focus on Stakeholders –” which were published in June 2001 after the publication of the MoE Guidelines(2000) in February 2001, the degrees of importance of information on each topic for readers (business partners/clients, financial institutions, local residents, etc.) are shown along with an exemplification of important topics for each industrial sector. Efforts to address different reader needs in different industrial sectors like the above-mentioned should be continued.

Secondly, the factors of company size and experience should be taken into account. The present research has demonstrated that smaller size companies and first-timer companies tend to disclose information on fewer topics. Therefore, it can be said that, in order to encourage more desirable environmental disclosure, it is necessary to indicate which topics are more important than other topics in explanations of recommended topics. If small size companies or first-timer companies know what kinds of information they should at least disclose, their ER will be more meaningful as information disclosure media.

As stated in 4. (4) “Comparison by company size,” larger companies show higher degrees of disclosure on the following topics: (2) foundations of reporting; (12) a complete picture of environmental burdens and (18) state of environmental burdens from cumulative soil contamination, land utilization and other environmental risks, and mitigation measures. Also, as explained in 4. (5) “Comparison between first-timer companies and experienced companies,” experienced companies show higher degrees of disclosure on the following topics than first-timer companies: (6) summary of environmental accounting information; (17) state of environmental burdens from transportation, and mitigation measures; (10) compliance with environmental regulations; (12) a complete picture of environmental burdens; (15) state of environmental burdens from output of refuses, and mitigation measures. Regarding topics on which the degree of disclosure considerably differs depending on company size and experience in disclosure, it seems worthy of consideration to give some suggestion (order of priority, time sequence, etc.) as to whether or not reference to a specific topic is essential for a specific type of business, whether or not the establishment of a data collection system is needed for disclosure on a specific topic, and so on.

In this aspect, the MoE Environmental Reporting Guidelines (2000) give examples of significant components and recommended components for each of the eighteen topics, though they are not described in association with company size and experience. Certainly, what components are important for each topic is clarified here; however the ordering of priority among the eighteen topics is not shown. For example, (1) “CEO’s statement” and (2) “foundations of reporting” are considered to be necessary in every corporate ER. It seems that clarifying the indispensable topics will be helpful in promoting meaningful ER as disclosure media.

In the present research, we prepared a check sheet which includes 57 items as subtopics of the eighteen

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<sup>17</sup> Attention should be paid to a problem which might arise if suggestions given by guidelines differ from sector to sector. For example, that might make comparison of the contents of environmental reports regardless of the industrial sector more difficult and complicate comparison of environmental management.

topics recommended by the MoE Environmental Reporting Guidelines (2000) and investigated each corporate ER as to whether it contains information about each item (Yes or Not) and created a database. Because some of the items are unsuitable for some industrial sectors to answer, it may have been necessary to offer an answer option “No Answer” in addition to the “Yes” and “No” options in order to obtain more adequate analysis data. This means that we must strictly check each topic to see whether it is suitable for each industrial sector to make a description. This check involves detailed analysis to find what topics are necessary for each sector to describe. In addition, for more effective environmental policies including revisions of environmental guidelines, it may also be necessary to consider what kinds of information small size companies and first-timer companies should disclose in their ER and pay special attention to the needs of readers of ER in diverse industrial sectors and their backgrounds. These are issues to be tackled from now on.

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