

Environmental Reporting Guidelines

(Fiscal Year 2000 Version)

Guidance for Publishing Environmental Reporting

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The Ministry of the Environment
Government of Japan

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Introduction –Publication of the Guidelines

1. Purpose of the Publication of the Guidelines

1) Background

In the 21st century, there is increasing pressure to move away from the current socio-economic system, which is based on mass production, mass consumption, and mass disposal and to establish an environmentally sound, sustainable society. In order for this to take place, the voluntary and positive efforts of businesses that play a significant role in socio-economic activities are crucial.

For businesses, management benefits can be achieved, through operating business of higher quality such as a reduction in the consumption of resources and energy, less disposal of wastes, or by providing environmentally conscious products and services.

For businesses to move towards environmental conservation, it is essential to; establish a system that plans and drives policies or programs to reduce the environmental burden generated (an environmental management system), to prepare processes which records and evaluates concrete efforts (environmental performance) made towards the reduction of environmental burden, and also to select indicators.

In terms of environmental management systems, The International Organization for Standardization (ISO) established ISO 14001 (JIS Q 14001) (Environmental Management Systems – Specification with guidance for use) in 1996, and since then has issued many of certificates (in Japan, 5,222 by the end of the year 2000). ISO14031 (JIS Q 14031) (Environmental Performance Evaluation – Guidelines) was issued in 1999 for the purpose of environmental performance evaluation.

The Ministry of the Environment has published “Environmental Performance Indicators for Businesses (Fiscal Year 2000 Version)” for the purpose of providing a common framework of environmental performance indicators. The Ministry has also published “Guideline for Introducing an Environmental Accounting system (2000 Version)” as one of the frameworks for the quantitative evaluation of costs and effects of environmental efforts by businesses.

In recent years, it has become increasingly aware that businesses have social obligation to disclose their own environmental information. The importance of publishing and disclosing environmental reporting, which summarizes the state of environmental management, environmental performance, environmental accounting information, and also promoting environmental communication with stakeholders, e.g. consumers, investors, customers, local public, has been increased.

For businesses, positive environmental communication can often result in improvements in operational activities and can also increase the confidence which society has in the business, since businesses that are making positive steps towards environmental conservation will be evaluated appropriately.

However, the publishing trend of environmental reporting is still in its infancy except for some

pioneer cases. Therefore, a set of guidelines, which easily and appropriately demonstrate the principles and necessary components of environmental reporting, is required. The former Environment Agency of Japan issued “Environmental Reporting Publication Guideline” in June 1997 and this has acted to encourage the undertaking of environmental reporting by businesses.

In recent years, the number of businesses that have published environmental reporting is rapidly increasing, and the contents of the reporting have also been improved. Furthermore, there has been an increase in third party evaluation of environmental performance of businesses, based on their environmental reporting. Various guidelines for environmental reporting are also being made internationally.

Accordingly, the Ministry of the Environment have revised the 1997 guideline, in order to encourage the publication of environmental reporting of higher quality. This revision also aims to draw up guidelines that conforms to the current conditions of Japan taking international guidelines into account, and which is easy to understand. A “Committee for the Revision of Environmental Reporting Guidelines” was installed in September 2000, and examined the contents of these guidelines, through four meetings.

2) Objectives and Contents of the Environmental Reporting Guidelines

These guidelines summarize the directions and contents that are considered to be preferable, based on domestic and international trends on environmental reporting. The Ministry issued the guidelines to give practical guidance for those who are planning the publication of environmental reporting and also who already published environmental reporting(s).

The former businesses could begin to plan the publication by referring Chapter 1, which shows the necessity of publishing environmental reporting and gives descriptions of potential stakeholders and Chapter 2, which shows principles of environmental reporting. Further, it is recommended that such businesses examine the items and contents of their own environmental reporting, by referring Chapter 3, which summarizes the Necessary Components of Environmental Reporting.

The latter businesses could use these guidelines to assess their own environmental reporting and make improvements.

Chapter 3, “What should be Included in Environmental Reporting”, shows eighteen headings of “Necessary Components of Environmental Reporting”. In principle, each heading includes “Significant Components”, “Significant Components for Specific Sectors”, and “Further Recommended Components”. “Significant Components” refers to the key contents which domestic and international environmental reporting guidelines commonly deal with. The needs of stakeholders for these components are also particular. “Significant Components for Specific Sectors” are components which should be included dependent on individual business sectors and characteristics. “Further Recommended Components” are components which although not essential, could help the reader’s understanding and increase the objectivity of the contents as an environmental communication tool or increase the degree of social accountability.

These guidelines also explain the significance of each heading and how to include them,

therefore, it is anticipated that stakeholders will use these guidelines as guidance when reading or evaluate environmental reporting.

3) Intended Readers of the Guidelines

In Japan, there are about 6,000 companies which are either listed on the stock market or employ relatively many employees (more than 500 employees). Among them, it is estimated that about 300 companies publish environmental reporting. In the future, although ideally all businesses would publish environmental reporting, initially it is expected that the major companies which have relatively plentiful human and monetary resources will positively face the challenge to publish environmental reporting.

Accordingly, these guidelines assume that the businesses that will publish environmental reporting, including headings and contents showed in these guidelines, will be companies that are listed on the stock market or those which employ relatively many employees (more than 500 employees). Businesses that have recently initiated the publication of environmental reporting or smaller businesses (including site units) could phase in the publication of environmental reporting by adopting contents and boundaries, where possible. The Ministry of the Environment has separately issued “Environmental Activity Evaluation Program (Eco-Action 21)”, which aims to enable smaller businesses to carry out environmental conservation activities and publish environmental reporting with relatively ease.

4) Recommendation of Originality

The purpose of environmental reporting is to provide a significant tool for environmental communication and to discharge accountability of the environmental burden of a business. Therefore, there are certain items or contents that should be included in environmental reporting. On the other hand, management policies, company ethos, corporate culture, and/or characteristics should also be reflected within the environmental reporting. From this perspective, the headings or contents of environmental reporting and the disclosing media, (including the decision over using printed paper or the internet), should be unique to each business. Superior environmental reporting satisfies such commonality and originality at once. It is hoped that environmental reporting which reflects each business’s characteristics are published and disclosed, based on the purport of these guidelines.

To provide information on the distribution and uptake of these guidelines and to make continuous improvements, the Ministry of the Environment would appreciate if reference is made to these guidelines if they are referred to when publishing environmental reporting. However, those businesses that have recently begun the publication of environmental reporting might face difficulties in mentioning all of headings as shown within these guidelines. In this case, if one or more “Necessary Components of Environmental Reporting”(s) (18 headings on page 30 to 31) are not mentioned, in principle, the reason(s) for the omissions should be mentioned. It is also anticipated that it should clearly mention the phased enrichment of the contents of the environmental reporting.

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2. State of Environmental Reporting

1) The Distribution of Publications and the Disclosure of Environmental Reporting

The number of the businesses which have published environmental reporting is increasing, and more than 15% of companies listed on the stock market have published environmental reporting. The purposes of publication are; to discharge social responsibility, such as information disclosure, to advertise the environmental conservation activities of the businesses, to enhance environmental communication, to educate their employees, etc.

According to “Survey on Environment-Friendly Companies” by Environmental Agency, 40.9% of listed companies and 25.8% of non-listed companies disclosed environmental information, such as data or activities, in 1999. This is an increase for listed companies of 5.2 points, compared with the results in 1998.

The survey showed that methods of information disclosure were various, and included the use of Internet homepages, an environmental pamphlet, and environmental reporting. In particular, more than 15% of listed companies publish environmental reporting, and in recent years, the number of businesses which publish environmental reporting is on the increase.

Businesses listed “social responsibility”, “proportional representation”, “stakeholder relations”, and “environmental education for employees” as the main purpose for the publication of environmental reporting.

2) Social Trends on Environmental Reporting

Environmental reporting functions as a tool for environmental communication, provides basic information for the evaluation of business, and is a tool for the enhancement of the publisher’s own environmental conservation activities. Also as a result of environmental reporting, various social trends and services, such as environmental accounting, the eco-fund, third party verification of environmental reporting, occur.

1. Environmental Reporting Guidelines

Examples of guidelines for environmental reporting, globally, are provided by CERES (Coalition for Environmentally Responsible Economies), PERI (Public Environmental Reporting Initiative), UNEP (United Nations Environment Programme), and WICE (World Industry Council for the Environment) who have issued environmental reporting guidelines. Since 1997, The GRI (Global Reporting Initiative) has begun to integrate various guidelines in order to establish a global standard. Its outcome, “Sustainability Reporting Guidelines on Economic, Environmental, and Social Performance”, was issued in June 2000.

In Japan, the first attempt was “Environmental Reporting Guideline” issued by the Environment Agency in 1997.

Some countries (e.g., Netherlands, Denmark) have a mandatory environmental reporting scheme

and the European Union enforces “The Eco-Management and Audit Scheme”, which includes disclosure of environmental reporting.

2. Environmental Reporting Awards

Awards for superior environmental reporting are put into practice in many countries. In 1997, The Association of Chartered Certified Accountants (ACCA) in UK proposed the foundation of the European Environmental Reporting Awards. Currently, 12 countries, including the United Kingdom, Denmark, Netherlands, Belgium, France, Germany, participate in the scheme.

In Japan, Global Environmental Forum and National Association Promotion Environmental Conservation have taken place “Environmental Report Awards” since 1997 and Toyo Keizai Inc. and Green Reporting Forum have held the “Green Reporting Award” since 1998. These are indications that superior environmental reporting receives higher social evaluation.

3. Networking of Persons Concerned on Environmental Reporting

In June 1998, a network organised by businesses, NGOs, and academics, “Network for Environmental Reporting (NER)”, was established for the purpose of developing environmental communication through environmental reporting. NER has held working groups, symposiums. The Ministry of the Environment and other bodies also hold symposiums or other activities on environmental reporting. The degree of networking between persons and bodies concerned with environmental reporting is increasing

4. Efforts to Implement Environmental Accounting

In recent years, the number of businesses that attempt to implement “Environmental Accounting” and mention it in their environmental reporting is rapidly increasing. “Environmental Accounting” is one of the frameworks that quantitatively estimates environmental conservation efforts in monetary terms. It is also one of the significant techniques which can indicate the state of environmental conservation to stakeholders.

With regard to Environmental Accounting, the Environment Agency’s “Study Group for Developing a System for Environmental Accounting” (the chairperson: Masao Kawano, Professor, Graduate School of International Social Sciences, Yokohama National University) published “Guideline for Introducing an Environmental Accounting system (2000 Version)” in May 2000.

5. Business Evaluation Based on Environmental Reporting and Diffusion of Eco-Fund

There is a global increase in the evaluation of businesses’ state of environmental conservation based on disclosed environmental reporting, this is known as “Environmental Rating” In Europe and the United States, some rating bodies are already operational, and are beginning to rate more Japanese

companies. In Japan, there are cases in which private research institutes, universities, and newspapers, have surveyed a businesses' state of environmental conservation and announced the results of the evaluation.

For those who wish to invest in businesses which demonstrate a strong motivation towards environmental conservation, that is, the "Eco-Fund" has been available since Autumn 1999 and has received huge popularity. When the "Eco-Fund" selects the investment targets, it takes information on environmental reporting into account.

6. Spreading Third Party Review of Environmental Reporting

To ensure that communication through environmental reporting is effective, it is important to ensure and promote the reliability of environmental reporting. In the first instance is it the responsibility of the business to produce proper environmental reporting based on facts. Some domestic and international businesses however, require a third party review (verification) and such cases are increasing in order to promote the further reliability of environmental reporting. At the same time, the opinion that there is a need to examine fair procedure during third party review is also increasing.

7. Studies on Indicators for Environmental Performance Evaluation

Environmental reporting contains various indicators, for example, CO₂ emissions, quantities of wastes, percentage of waste recycled etc., to show the state of environmental burden and/or mitigation methods (Environmental Performance). Each business should originally select indicator(s) and the way in which it is represented, to emphasize important aspects based on the nature of the business. However, if each business separately applies indicator(s) without fundamental consistency between headings or estimation methods, it will not be possible to compare environmental performance based on indicators.

Accordingly, the Ministry of the Environment has established "the Study Group for Environmental Performance Indicators of Business Operators" (the chairperson, Ryoichi Yamamoto, professor, Center for Collaborative Research, the University of Tokyo) and through the discussions within the study group, the Ministry issued "Environmental Performance Indicators for Businesses (Fiscal Year 2000 Version)". Based on the "Environmental Performance Indicators for Businesses (Fiscal Year 2000 Version)", section 4 and 5 of Chapter 3. of the guidelines are provided.

Chapter 1. Why Environmental Reporting

1. Necessity and Merits of Publication and Disclosure of Environmental Reporting

1) A Businesses' "Open-Window" for Society

-Environmental Reporting as Environmental Communication Tool-

Environmental reporting can be considered as “an open-window of businesses and significant tool for environmental communication”. External stakeholders are able to “view” the intended business’s ideas and measures on environmental issues through the “window”. Businesses can also understand the needs and the ideas of stakeholders through the “window”.

By disclosing activities concerning environmental conservation to society, a deeper understanding of the business can be achieved, and by maintaining mutual communication, businesses can achieve greater social confidence. Environmental reporting is a significant tool when a business is carrying out such environmental communication.

Businesses must decide on the size, design, and decollation of the “window”, which they present to society, that is, environmental reporting. Since third parties perceive a business by combing such information, environmental reporting should appropriately reflect the characteristics of the business.

In addition, environmental reporting is a tool for environmental communication, therefore, appropriate correspondence to enquiries from outside stakeholders and devices to maintain mutual communication is necessary.

When one says “*environmental reporting*”, it should systematically summarise ideas on environmental issues, detailed efforts, results, and future targets and it is necessary to clarify the intention to maintain environmental communication with the society by disclosing and committing these ideas, efforts, results, and future targets.

2) Publication of Environmental Reporting as Social Accountability

Businesses, occupying the main part of socio-economic activities, generate huge environmental burdens through their business operations. The environment, is the common heritage of mankind, and it could therefore be considered that businesses should discharge accountability to report their environmental burdens, mitigation methods, and environmental conservation efforts.

In addition, environmental information becomes a crucial factor when one chooses products and services, selects investment targets, and evaluates businesses.

From this perspective it can be considered that businesses have “social accountability” on environmental issues.

In today’s socio-economic climate, businesses play a huge role. Stakeholders, e.g., consumers, investors, customers, need environmental information on businesses, such as the state of environmental burden, the state of environmental conservation efforts, the extent of research into environmental technologies, and environmental risk management, when they choose products and

services, select investment targets, and evaluate businesses.

Local public or local authorities, in some cases, need environmental information on businesses, since there is the potential for suffering problems in prompting environmental conservation.

Accordingly, *it could be considered that businesses have accountability to publish environmental reporting.*

3) Environmental Reporting as a Tool for Enhancing Businesses' Environmental Conservation

<p>The publication of environmental reporting provides not only external, but also internal effects and merits. It is also useful to drive environmental conservation activities themselves.</p>
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By disclosing environmental reporting, firstly, it is expected that businesses will voluntarily improve the contents and quality of environmental conservation in order to enrich the contents of the environmental reporting. In addition, an internal correcting system of environmental information should be established to provide an opportunity to revise or establish courses, targets, and action plans concerning the environment.

Secondly, employees may not know the details of company's environmental conservation efforts, and, environmental reporting can be used for training employees in order to increase their understanding of the businesses environmental conservation efforts, and motivate their environmental consciousness. Furthermore, the pride which employees have in the company is increased through environmental conservation. In addition, by including top management commitment, it could potentially motivate CEO's environmental consciousness, as well.

Third, green purchasing will be enhanced and environmental reporting can be used as a point of reference if a business's information on environmental conservation activities is required, especially in the selection of customers.

In summary the publishing and disclosure of environmental reporting enhances environmental conservation activities themselves and also produces various effects and merits, such as motivating employees' consciousness.

4) Environmental Reporting as Significant Tool for Constructing an Environmentally Sound Society

<p>The increase in the publication of environmental reporting has socially significant implications. From the following four perspectives, environmental reporting is recognised as a significant tool for driving voluntary environmental conservation.</p>
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First, by disclosing targets and the state of businesses' environmental activities, steady improvements in these activities would be expected. This is because the disclosure drives an effect known as "pledge and review" in which businesses commit policies and targets on environmental conservation activities and society in turn evaluates them.

Second, it is expected that a businesses' environmental activities are fairly and effectively

carried out according to the market principle, if various stakeholders use the environmental information contained within environmental reporting in order to judge businesses, products, and services. In particular, on the one hand environmental labels can function as information media in the products and services market, on the other hand, environmental reporting could play a significant role as information media in the capital market and/or labour market. This effect has been realized under the increasing trend of the “eco-fund.”

Third, progress in environmental conservation by the whole society may be achieved through external interest or comparison among companies within the same business sector when the business publishes environmental reporting and makes positive efforts.

Fourth, the practice of “environmental communication” among broader stakeholders increases the environmental consciousness of the whole society. If it deepens the understanding of each actor’s state of activities and difficulties faced, it is expected that environmental communication can be useful for “sophistication” of the environmental activities of the society within the partnership in accordance with each role.

2. Readers and Stakeholders of Environmental Reporting

Environmental reporting is a significant tool for environmental communication between businesses and society, further, the readers of environmental reporting are various. If businesses are aware of who the ‘target audience’ is for their environmental reporting and the information they require, businesses can publish appropriate environmental reporting. In an increasingly complicated society, the concept of a “stakeholder”, who has some interest in the businesses or the business activities, is expanded. There is also a trend that stakeholders positively require environmental information of the businesses.

Businesses should decide upon the intended readers of their environmental reporting and there could be various preconceptions of potential readers depending on the nature of the business or the policies. For example, a transactional company may target mainly investors; a major company may target their employees from the point of view of environmental education; businesses which are concerned with consumer perception, such as retailers, may target consumers; manufacturing companies may target users; sites or plants may target the local public or authorities. Businesses may also consider information mediators such as mass media as the key target.

As mentioned, businesses could assume various potential readers of their environmental reporting, such as, consumers, shareholders, financial institutions, investors, customers, academics, environmental NGOs, consumer organizations, local public, and authorities. Businesses publish environmental reporting, targeting not only external stakeholders, but also employees and their families.

The contents and quality of information required in environmental reporting varies depending on the intended targets. Priority may be given to the amount of detailed information provided, or to the ease with which the environmental reporting can be read. The former would give priority to experts, such as, investors, research institutes, and/or media, and the latter case gives priority to

consumers. To cover broader stakeholders, NGOs, research institutes, and mass media that can summarize and interpret information and translate it to society, could play a significant role. There could be an overlapped approach in which a business makes environmental reporting contain much information, and at the same time, prepares another communication tool such as a non-technical environmental pamphlet especially for consumers.

There are various activities aimed at the introduction of efforts towards environmental conservation. For example, other than environmental reporting, businesses may publish environmental pamphlets or leaflets for general consumers, or prepare introductory page(s) in its corporate annual report or recruitment pamphlet, it may publish site environmental reporting together with related companies or by individual site unit. In some original cases, businesses print all of their environmental reporting on their homepage, sometimes including large amounts of detailed information. Moreover, the number of businesses that use advertisements which disclose environmental conservation activities through newspapers, magazines, and television are increasing.

Ultimately, it is important to sufficiently assess the type of readers or stakeholders are to be targeted. In some cases all potential target audiences will be focused upon if a business publishes comprehensive environmental reporting. These guidelines are edited presuming all possible readers and stakeholders, and the following lists a considerable number of main potential readers and stakeholders (No special order is observed).

- Consumers

First, consumers could be listed. Environmental issues are becoming more acute, and consumers' environmental consciousness is growing, and increasingly influences decisions when choosing products or services. For example, very few consumers choose an appliance or a car without considering energy-saving or fuel efficiency. Consumers also prefer packing and products that produce less waste.

At the very least, an earnest attitude and efforts toward environmental issues would provide confidence in the business and could ultimately have an effect on revenue.

- Shareholders, Financial Institutions, and Investors

Shareholders, financial institutions, and investors are becoming readers of environmental reporting. In Europe and the United States, one generally considers business's state of activities on environmental issues as one of the decision support materials when investment or financing is carried out. These groups are likely to prefer to support those businesses that show a motivation towards environmental conservation activities, or to manage environmental issues, as these factors could influence future sales. The environmental rating of businesses will use environmental reporting.

- Customers (Commercial Transacts)

Customers may request environmental reporting. In Europe and the United States, some businesses condition that commercial transaction companies must receive ISO 14001 certification. In Japan, appropriate environmental conservation is becoming one of the conditions during transactions

with other businesses. This means that in addition to technologies, the state of finance, and the quality of products of possible commercial transacts, businesses are now choosing customers based on the total perspective, which includes environmental conservation activities.

- Academics, Environmental NGOs, and Consumer Organisations

Academics, Environmental NGOs, and Consumer Organisations are also one of the potential readers of environmental reporting. These groups play the role of “opinion-leaders” and hold a strong influence on general consumers or mass media. They have the potential to disclose the results of comparisons between businesses’ environmental reporting and/or activities the environment.

- Local Public

Local public (for example around particular sites or stores) are also potential readers of environmental reporting. The local public are interested the environmental conservation activities being carried out, or how precautionary actions especially to prevent environmental pollution or to avoid accidents are being taken.

Accordingly, the disclosure of environmental information and enhancement of environmental communication play an important role in increasing the confidence of the local public. If necessary, businesses should also enhance the publication and disclosure of site environmental reporting, which is mentioned in the latter part of the guidelines.

- Administrations

Administrations are potential readers of environmental reporting. The “Law on Enhancement of the Measures against Global Warming” enacted in 1998 and the “Law Concerning Reporting, etc. of Releases to the Environment of Specific Chemical Substances and Promoting Improvements in Their Management (the PRTR Law)” enacted in 1999 recognize the positive effect of disclosure of businesses’ activities. In the legal system, information disclosure is considered to be a significant political method.

Local authorities are also seeking to put pressure on local businesses to mitigate environmental burden. The Local Basic Environment Plan or Action Plan against Global Warming, is aimed at local businesses, and local authorities to enhance the voluntary environmental activities of businesses within the local area. To positively support businesses, superior in environmental aspects, local authorities have begun to use the “Environmental Activity Evaluation Program -Eco Action 21-” or environmental reporting. With regard to the advancement of green purchasing, it can now be presumed that authorities will request the publication and disclosure of environmental reporting as one of the conditions for participation in a bid or be a successful bidder.

Administrations themselves are beginning to draw up Action Plans for Greening Operations or receive certification ISO 14001. Furthermore, pioneer cases in which authorities publish and disclose environmental reporting have emerged.

- Employees and Their Families

Employees and their families are potential readers of environmental reporting. If a business wants to employ excellent employees, motivate employees, or make them proud of the business, it is important to show the business's stance on environmental activities and to receive recognition for it. Environmental reporting is an effective tool for these activities. In the future, the businesses attitude towards environmental issues will be an important factor in attracting high calibre employees.

3. Boundaries and Disclosure Media for Environmental Reporting

When businesses publish environmental reporting, it is expected that they sufficiently examine the boundaries of reporting in the organization, media used for the disclosure, and the contents of the reporting.

Dependant on who the intended readers of environmental reporting are, various boundaries within organizations could be applied when publishing environmental reporting. Basically, each business needs to decide the boundary of environmental reporting, according to the aims and the intended readers.

Essentially the application of boundaries, can be classified into two broader categories. One applies an entire organization (co-operative or group unit) and the other considers specific facilities in setting the boundaries of environmental reporting.

The former considers investors and consumers as principal readers, and the latter considers local public and local authorities as significant.

Many business operations are carried out by more than one corporation, for example they might transfer production or consign logistics. Therefore, to correctly and fairly show the total environmental burden of a business, it is necessary to disclose the environmental information of the whole organization including subsidiary companies. However businesses should be realistic when deciding upon the boundaries of reporting, taking availability of data, cost of data collecting and ease of comparison with other companies into account. It is expected that the boundaries of environmental reporting should ultimately be as consistent as possible, with that of consolidated financial accounting.

Businesses also need to examine on the media used to disclose environmental reporting. Most existing environmental reporting is printed on paper, and this media is superior in terms of physical easiness to read. However, an increasing number of businesses disclose environmental reporting through the Internet, and this media has the advantage of the potential for renewal at the most appropriate time. Although paper based environmental reporting and on-line reporting are the same in principle, it is reasonable to consider that environmental reporting on the Internet can contain more detailed information which could not be printed. It is necessary to devise the contents of the environmental information disclosed, based on the nature of each media.

4. Environmental Reporting of Relatively Small Businesses

1) Environmental Activity Evaluation Program and Environmental Action Plan

-Environmental Reporting of Relatively Small Businesses-

The Ministry of the Environment has been promoting the distribution of the “Environmental Activity Evaluation Program ” for the purpose of providing a simple system of environmental management, since 1996. In this program, the Ministry proposes the publishing and disclosure of the “Environmental Action Plan ” to businesses, and this is considered to be environmental reporting for the relatively small business level.

The Environmental Activity Evaluation Program is devised so that relatively small businesses can develop concrete activities for environmental conservation by simple methods and can summarize and disclose the results as an “Environmental Action Plan ”.

As a key part of the program, environmental burdens caused by business activities are recorded by simple methods, and environmental conservation activities are self-checked based on a given checklist. Based on the result of this self-checking, businesses are able to establish the “Environmental Action Plan” which provides the targets and establishes the contents of environmental conservation activities. Those who implement the program can register participation with the program bureau and can report their “Environmental Action Plan”. Such ongoing environmental conservation activities by the business can widely appeal to society.

The program stimulates businesses to voluntarily acknowledge its relationships with the environment, to set up targets, and to make action. It supports plan-making and the implementation of environmental conservation.

It is anticipated that relatively small businesses will firstly grapple with the preparation of the “Environmental Action Plan” based on this “Environmental Activity Evaluation Program”. For many relatively small businesses, the disclosure of the “Environmental Action Plan”, can be considered to satisfy the necessary degree to which these businesses are expected to undertake environmental reporting, from the point of businesses’ scale. After the business has continued activities based on the program for a couple of years, businesses may go on to publish environmental reporting, to improve the environmental activities or the quality of disclosed contents.

The aforementioned “Environmental Report Awards” has a section which considers the “Environmental Action Plan” which supports the publication of the program by relatively small businesses. The superior program receives “the prize of the director-general of the Environment Agency”.

2) Site Environmental Reporting

To follow the environmental reporting disclosure of a parent company or headquarters or to enhance environmental communication with certification of ISO 14001, increasing numbers of related companies, subsidiaries, sites, and plants publish environmental reporting. This is called “Site Environmental Reporting”.

Recently, to follow the environmental reporting disclosure of a parent company or a headquarters, increasing numbers of related companies, subsidiaries, sites, and plants publish environmental reporting. Also an increasing number of sites are receiving ISO 14001 certification, voluntarily disclose environmental policy, and promote environmental communication with stakeholders. Not merely disclosing environmental policies some sites go on to publish a report which summarises the environmental objectives, environmental targets, and results of environmental activities.

Environmental reporting published by related companies, subsidiaries, sites, and plants is called “Site Environmental Reporting”.

For the local public living adjacent to a site and the local authority, activities for environmental conservation within the site, such as mitigation or prevention of noise, vibration, odour, land contamination, air pollution, and water effluents, are very important concerns, although the environmental activities of the whole corporation, such as the prevention of global warming, are also important. Furthermore, each site is required to assess those chemicals which are listed on the inventory of “the PRTR Law”. Based on this law, information on individual site is to be disclosed on demand.

Site environmental reporting promotes environmental communication with local public and is necessary to be written in brief manner, particularly emphasising local environmental issues, which may be omitted in environmental reporting of the whole corporation. Site environmental reporting plays a huge role in generating public confidence in a site, and the continued operation in the area. As it is clear, site environmental reporting has different items and contents compared with standard environmental reporting, and it should in particular clarify the nature of a site. A chart in Chapter 3, section 5 of the guidelines shows preferable components to be included in site environmental reporting as “Individual site” in the heading of “Boundary”.

The Ministry of the Environment would expect that any distribution trends of the publication of site environmental reporting, which refer to the guidelines, are expanded.

Column - Important Notice to Drawing Environmental Reporting -

There are many points that should be considered when preparing the publication of environmental reporting. However, the most important point is to publish it, regardless of its format or contents. The second most important point is to improve the contents of the reporting rather than its cosmetic appearance. It is unwise to spend excessive amounts of money initially, and it is more important to gradually improve the quality of the environmental reporting, over several years.

- To Publish is Important

When one prepares the publication of environmental reporting, reference may first be made to the environmental reporting of the major companies and other companies within the same sector. If one reads the environmental reporting of major established companies, there may be many pages in full colour, it may have contents of high quality, and it may overwhelm the potential publisher. Faced with such high quality reports a business might consider that “Such high quality environmental reporting is unfeasible”, or “If our business does not produce environmental reporting in colour, it is shameful”, or “We don’t have the necessary budget to publish such environmental reporting”, and so on.

However, it is important to realise that superior environmental reporting is not necessarily one which has many pages in full colour, but one which contains all the relevant and necessary information. Even businesses that currently publish superior environmental reporting would not have started in this way. All businesses would have published brief environmental reporting at first.

The main point is whether one publishes environmental reporting or not, and to complete the contents is the next step. The first step is to try to publish environmental reporting by making reference to the guidelines. One does not necessarily need to depend on external assistances and it is important that the business starts preparations itself by using a computer or a word processor.

- Gradual Improvements in Environmental Reporting and Extensions to Boundaries are Important

When one publishes environmental reporting, it is important to prepare it according to the possible organisation and fields to be reported. Concretely it may be better to begin from the perspective of saving energy and resources, waste reduction, and recycling with the boundaries of the headquarters or principal sites. If ISO 14001 certification has been attained, it is a possible idea to begin to report in terms of environmental policy, targets, and achievements.

These guidelines recommend the gradual expansion of the boundaries and the field of reporting, with the simultaneous gradual improvement of items and contents.

- Try to Publish Environmental Reporting which Appropriately Expresses the Nature of the Business

Environmental reporting should appropriately reflect the nature of the business itself. To satisfy this, it is necessary to explain what the businesses operations are. Including not only environmental aspects, it is desirable to mention business courses or policies. It is also important that environmental reporting appropriately mentions business specific contents, environmental burden according to the business characteristics, and environmental conservation efforts.

- Give Importance to the Contents of Environmental Reporting

Environmental reporting which gives importance to the overall appearance of the report first, is not essentially environmental reporting, but more a PR pamphlet. Although following points, “easy to see”, “easy to read”, and “understandable”, are important points when one publishes environmental reporting, it is important not to depend on external companies which may undertake the publication of environmental reporting. The most important point is that the necessary items and contents, which take the character of the business into account, are appropriately mentioned. In other words, businesses that are passive to environmental conservation activities cannot publish environmental reporting of quality.

Environmental reporting should systematically summarise a business’s ideas on environmental issues, efforts, achievements and future targets. Environmental reporting is a tool for environmental communication and to appropriately enhance environmental conservation activities is crucial.

Chapter 2. Desirable Environmental Reporting

1. Foundations of Reporting

When businesses publish environmental reporting, it is necessary to clarify foundations such as the reporting organisation, the reporting period, and reporting field. Such foundations should clearly be mentioned in environmental reporting.

1) Clarification of Reporting Organisation (Boundary)

It is essential that businesses clearly define the boundary of the reporting organisation in environmental reporting.

A major consideration should be whether the boundary of the reporting includes: an independent company only, a consolidation or group companies, sites in Japan, or sites all over the world.

Some existing environmental reporting inconsistently applies different boundaries within one environmental reporting (e.g. the corporate profile applies independent settlement data, environmental performance refers to data corrected at principal sites but not all sites, statements on environmental conservation activities include overseas sites or subsidiaries).

Although this may be unavoidable due to the accuracy of corrected data or labour, it is necessary to specify the boundaries applied to each component, should they be different to the boundaries applied to the whole environmental reporting. In this case, the use of a chart which gives an outline of the whole organisation, mentions the business strategy of the whole organisation, and explains the position of each organisation will help readers' understanding on the reporting organisation.

2) Clarification of Reporting Period

It is essential that businesses clearly define the period of the reporting in environmental reporting.

Firstly, the reporting period of various data within environmental reporting, such as corporate profile, financial information, and environmental performance information, should be unified where possible. If the reporting periods are different for different components of the reporting, it is crucial to clearly mention the difference(s).

Secondly, the period of environmental conservation activities mentioned in environmental reporting should be consistent with the applied period of the environmental reporting. However, not all activities may have finished within a fixed period, past environmental activities may have a continuous effect over a period of time, and reported environmental activities carried out within a fixed period may not accurately reflect all of the business's environmental conservation activities. In such cases, it is essential to clarify the differences.

3) Clarification of Reporting Field

It is essential that businesses clearly define the field of reporting in the environmental reporting.

Recently, in Europe and the United States, the notion that the aspects of reporting are not just limited to “the environment” and can be expanded to social and economic fields, is becoming popular and businesses are publishing this as “sustainability reporting”. Social aspects refers to, for example, occupational safety & health, employee benefit policies, equal opportunities (barrier-frees), minimum wages, freedom of union activities, philanthropy, and so on. Economic aspects refers to, for example, net sales and benefit, assets, amount of investment, wage, labour productivity, employment creation, and so on.

However, in contrast to the environmental field, the reporting of social and economic aspects is still under development. It is crucial to accumulate various relevant researches and examinations in future.

Many businesses do however deal with environmental measures and occupational safety & health at once within the same section in a company. Further, there are cases in which these issues are very closely related to each other. The headings and contents which these guidelines adopt are the recommended minimum from the perspective of environmental conservation. It is desirable that each business extends the fields of reporting to social and economic aspects at their discretion.

2. Principles of Reporting

Environmental reporting is published as a tool for environmental communication from the perspective of social accountability. The following six principles are essential in order to make environmental reporting an effective tool for environmental communication and discharging social accountability. Environmental reporting which does not meet with these principles is not considered to be true environmental reporting, but more as an environmental pamphlet.

1) Relevance

The nature of a disclosed environmental reporting differs according to intended readers and stakeholders. For example, the intended readers of environmental reporting could be consumers and customers, or investment institutes and environmental NGOs that have expertise. The contents of environmental reporting vary depending on principal readers intended. It is crucial to sufficiently consider the expectation and needs of each reader toward the business and environmental reporting. Environmental reporting should suit the expectations and needs of its readers.

2) Reliability

Whether various stakeholders accept and trust the contents of a published environmental reporting depends on the business’s posture on the publication of environmental reporting.

In order to promote the reliability of environmental reporting, it is necessary to take the

following points into consideration.

- To include contents based accurately on facts
- To comprehend that it is necessary to provide substantial information on environmental conservation activities and mitigation of environmental burdens to be carried out by the business
- To describe neutrally, and without bias, information which could have an impact upon the decisions and opinions of readers with regard to socially contentious issues
- To carefully express the contents in a way which will not lead to misunderstandings, with regard to uncertain facts or data and predictions of the future

3) Clarity

The potential readers of environmental reporting are various and it is important to take into account the need for clarity and the need to avoid misinterpretation when businesses publish environmental reporting.

Some environmental reporting only mentions businesses environmental activities. They almost fail to mention quantitative data (results and targets) and the state of environmental burdens caused by their activities. To inform readers of facts accurately, it is essential to indicate such quantitative data. Environmental reporting should mention not only index numbers but also the absolute values. If the absolute values are excluded or only an index is applied, it could damage the evaluation of the business or raise needless doubts, and it may lead to the misconception such as, “Actually, they are not taking any action at all” or “They actually produce larger environmental burdens”.

Further, to promote a deeper understanding of readers, it is important to show continuous changes which have occurred in the last few years.

After that, environmental reporting, as a communication tool, should be easy to see, read, and understand. It is also necessary to devise particular expressions that attract the readers’ interest to read.

In order to promote the clarity of environmental reporting, it is desirable to do the following.

- To enhance the use of straightforward sentences and styles
- To use graphs or pictures in addition to text
- To appropriately explain the meaning of efforts made or quantities mentioned

Expressions and terms that can only be understood by someone in the trade or company should be avoided where possible, or if unavoidable, explanatory notes should be added.

It is especially expected that site environmental reporting should be summarised in easy manner, with emphasis on information of interest to the local public.

4) Comparability

Although environmental burdens vary in accordance with the nature of business or sector, it is desirable that environmental reporting can be comparable among businesses in both the same and different sectors. If it is incomparable, a business cannot refer to other businesses' activities and stakeholders will face difficulty in selecting businesses that show positive motivation in environmental conservation.

The enhancement of the reliability of environmental reporting and comparability among businesses, will result from, the clear description of data corrected and methods of data measurement, the publishing of environmental reporting which conforms to the guidelines, and/or the measurement of environmental performance information by applying commonly agreed standards within the trade.

In addition, it is necessary that information included should not be only for a single year, but should it enable to compare historical trends (for at least the previous three to five years) of the business.

5) Verifiability

In the process of promoting reliability in environmental reporting, it could be considered that verifiability of information mentioned in environmental reporting from an objective standpoint is necessary. To be verifiable means that, first; estimation methods and boundaries of each piece of information within environmental reporting are clearly mentioned. Second, verifiability also requires certain sources for each information in environmental reporting, and calculation systems to allow confirmation of the reliability of data by a third party. In this case, the third party does not necessarily mean external person(s), and could refer to internal auditor(s). The next section of these guidelines can be referenced, with regard to the third party review.

6) Timeliness

It is important that environmental reporting is published periodically, appropriately including the business's environmental conservation activities, environmental accidents, and/or policies or targets that are established or revised.

3. Systems for Promoting Reliability of Environmental Reporting

It is not sufficient for business to merely publish environmental reporting. Even if the environmental reporting is either published from the view of social responsibility or used for a tool of environmental communication, the environmental reporting must be accepted and must be able to be relied upon by society. In this context, the method of the promotion of the reliability of environmental reporting is as essential as the contents.

To promote the reliability of environmental reporting, it is possible to assume various methods

or systems, as given in the examples below. Pioneers have already begun such activities.

Businesses should decide which of methods they apply and/or how to implement them, according as own business sector, business peculiarities, or reported contents.

1) Securing Mutual Communication

As a consequence of the various guidelines on environmental reporting which have been issued, most environmental reporting cite the date issued, scheduled date for the next issue, and contact person(s) for the environmental reporting. Moreover, by attaching a questionnaire or a postcard which enables readers to respond to the business, increasing numbers of recently published environmental reporting clearly express the posture of actively seeking readers' comments or requirements. Also increasing number of businesses use the Internet in order to secure a means of mutual communication.

As mentioned, it can be said that to secure method(s) of mutual communication regarding environmental reporting and to positively correspond to stakeholders comments or enquiries are the most fundamental methods of promoting the reliability of environmental reporting.

Likewise, if readers can access not only the information mentioned in environmental reporting, but also the various baseline data, it greatly increases the reliability of all of the information. Such methods will be a discussion topic in the future.

2) Publication with Reference to Neutral Guidelines

Although it is important that each business prepares environmental reporting with devised manner, commonality and comparability in some degree are also necessary. Further, comprehensiveness is necessary. For example, environmental reporting should mention information on the actual implications of current environmental burdens taking the nature of the business into account, the state of the environmental conservation activities, and so on.

Therefore, the publication of environmental reporting in accordance with common guidelines issued by neutral organisations and the clear referencing of such guidelines would contribute to enhance comparability, comprehensiveness, and reliability. Some businesses have already published environmental reporting in accordance with the guidelines issued by the Environment Agency, PERI, GRI, and others, and this has been clearly referenced. There are cases in which specific industries draw up agreed standards for the process of estimation of the green house gasses emissions or guidelines for environmental accounting.

One of the aims of the publication of these guidelines is to enhance the reliability of environmental reporting through businesses' publishing environmental reporting in accordance with the guidelines and making clear reference to it.

In addition to making reference to specific guidelines, in the event that the business does not include required headings, it is necessary to mention the exclusions.

3) Strict Internal Management and Its Disclosure

Environmental management systems, systems for the correction and management of environmental information, and standards of internal environmental management and internal environmental audit should be strictly established. The basis of the reliability of environmental reporting is the implementation of such internal management and auditing.

Further, the disclosure of such standards or the results of auditing within environmental reporting would be useful to promote reliability. Pioneers have already begun such activities.

4) Third Party Review

To enhance the reliability of reporting, businesses may receive review or statement from an independent and neutral party, with respect to the reliability and comprehensiveness of the environmental reporting. In Europe, the United States, and Japan, the incidence of businesses receiving third party reviews is increasing.

Current third party reviews include the verification of:

1. “the accuracy of information” within the environmental reporting,
2. “the comprehensiveness of reported contents” in environmental reporting,
3. “the appropriateness of measures” actually implemented, and
4. the compliance with legal requirements.

These verification are not necessarily implemented separately, yet there are cases in which several are implicated in a compounded manner.

These verification activities are highly valued as representing positive challenges designed to promote the reliability of environmental reporting. Current third party reviews, however, use different terminology, such as “third party”, “verification”, “auditing”, “third party statement”, etc. and the definitions of these terms are not clear. As above, if such trends spread easily without clear rules or guidelines for verification, and with ambiguous endowments of the reviewer(s) or organisation, it could lose social confidence.

The Ministry of the Environment recognises the trend of the third party review as one of the significant measures in enhancing the reliability of environmental reporting, and is to examine the effects and problems of this practice in the future.

4. Environmental Performance Indicators

For businesses to promote their voluntary environmental conservation activities effectively, it is essential to accurately assess the scope of environmental burdens they are generating and to assess the outcomes of the measures they are taking (environmental performance). “Environmental performance indicators” measure this environmental performance. Businesses cannot truly perform significant environmental conservation activities until they select appropriate environmental

performance indicators from the point of view of environmental conservation.

By making good use of environmental performance indicators, businesses will be able to make better assessment and decisions regarding their internal environmental conservation activities, and to promote more appropriate disclosure/provision of environmental performance information in such means as environmental reporting.

Therefore, it is necessary to choose appropriate environmental performance indicators and to mention them when businesses publish environmental reporting.

The Ministry of the Environment has established “the Study Group for Environmental Performance Indicators of Business Operators” (the chairperson, Ryoichi Yamamoto, professor, Center for Collaborative Research, the University of Tokyo) and has researched and debated desirable environmental performance indicators. As outcome, the Ministry of the Environment has issued “Environmental Performance Indicators for Businesses (Fiscal Year 2000 Version)”.

In this paper, the following points describe the necessary aspects of environmental performance indicators.

- (1) Environmental performance indicators should accurately reflect the important environmental burdens and efforts of organisations, based on the current status of environmental issues and trends in environmental policy. (Relevance)
- (2) Environmental performance indicators should properly enable yearly comparisons, comparisons among corporations of the same trade, comparisons with other industries, comparisons with local and nationwide environments, comparisons with legal requirements and others. (Comparability)
- (3) Information related to the indicator should be verifiable from neutral standpoints in order to make them be reliable. (Verifiability)
- (4) Environmental performance indicators should be easily understood by people within organizations and by stakeholders. (Clarity)

Based on these conditions, a framework for environmental performance indicators (system and classification) is summarised in the following chart.

In addition, environmental performance indicators are classified into three categories based on the framework. They are:

- Common Core Indicators
- Industry-Specific Core Indicators
- Indicators Selected by Business Operators

The headings and contents that should be mentioned in environmental reporting, given in Chapter 3 “What should be Included in Environmental Reporting”, Section 4 “State of Environmental Management” and Section 5 “State of Activities for Reduction of Environmental Burden” of these guidelines, are summarised based on the said “Environmental Performance Indicators of Business Operators”. Therefore, it is expected that reference will be made to this paper

when businesses publish environmental reporting.

Chart: Framework for Environmental Performance Indicators (System and Classification)

			Environmental burdens within business areas (Area where businesses can manage direct influences on the environment)	Environmental burdens at upstream and downstream (Area where businesses can manage indirect influences on the environment)	
Indicators related to environmental burdens (Operational Performance Indicator (O P I))	Input	Materials	Total input of materials	Indicators for Green Purchasing etc, according to the characteristics of products and services purchased	
		Energy	Total energy consumption		
		Water	Amount of water used		
	Output	Air	Amount of greenhouse gases and ozone depleting substances released		
		Water/soil	Total amount of drainage		
		Wastes	Total amount of disposal, Amount reused and recycled, Amount of final disposal, etc		
		Products/services		Indicators for environmental burdens according to the characteristics of products/services e.g., Energy consumption rate of each product group, Amount of product used, containers and packaging collected.	
	Transportation		Total volume of transportation, CO ₂ emissions resulting from transportation		
	Cumulative soil contamination (Stock pollution)				
	Land utilization				
Other environmental risks					
Indicators related to environmental management (Management Performance Indicators (M P I))			Environmental Management Systems, Design for the Environment, Environmental accounting, Disclosure of information and Communication, Compliance with regulations, Social contributions		
Management-related indicators			Sales, Output (total price and amount), Total amount of floor space, Number of employees, etc.		

*Management-related indicators are also mentioned in order to allow an estimation of intensity of environmental burden or environmental efficiency (eco-efficiency) that accounts for both environmental performance and economic performance.

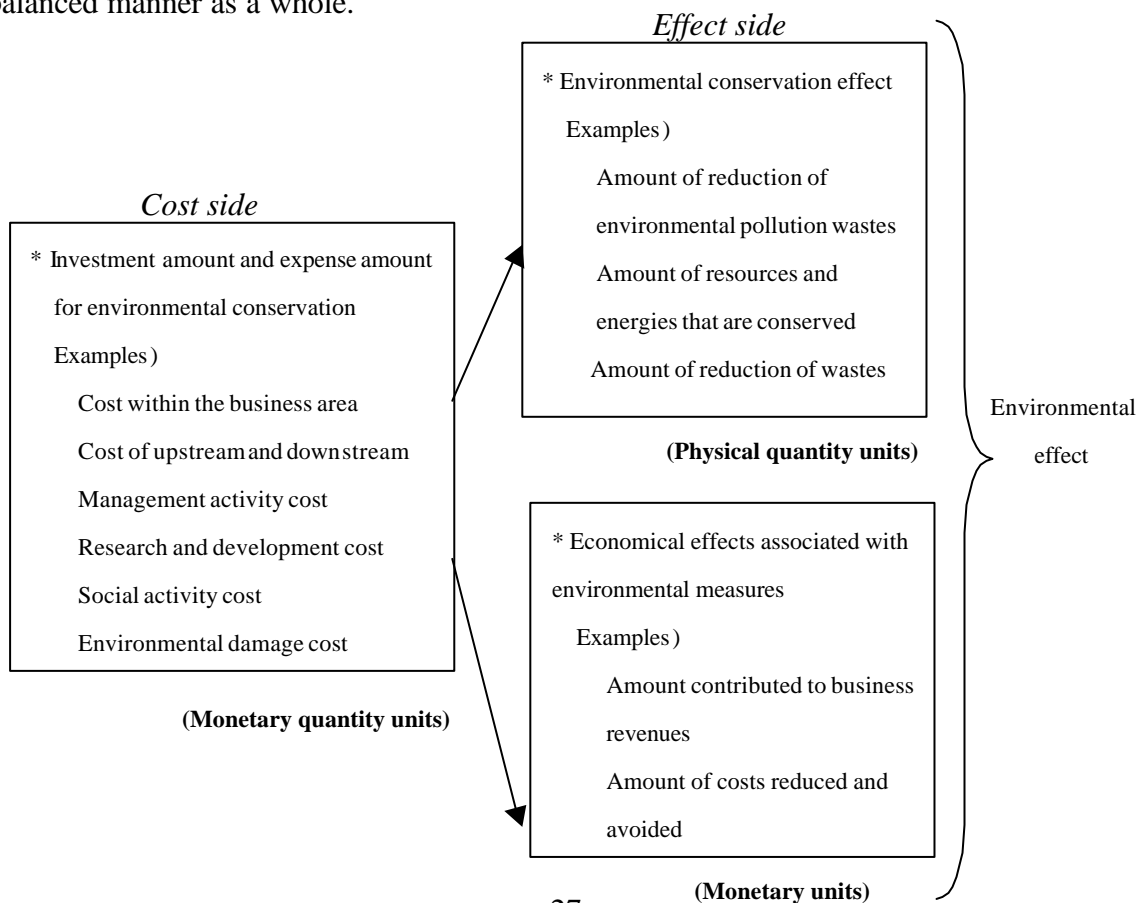
5. Environmental Accounting Information

Environmental accounting is one of the frameworks that can be used for quantitatively evaluating the attempts made towards environmental conservation by businesses. For businesses, environmental accounting is a management analysis method designed to increase the rationality and effects of tackling environmental conservation within the businesses when they promote environmental management. On the other hand, socially, environmental accounting is an effective method for understanding how businesses approach environmental conservation through a standardized framework. Social interest in environmental accounting is increasing.

Accordingly, environmental accounting information has become one of the significant headings, necessary in environmental reporting.

The Ministry of the Environment has established “Study Group for Developing a System for Environmental Accounting” (the chairperson: Masao Kawano, Professor, International Graduate School of Social Sciences, Yokohama National University) and had examined the desired environmental accounting system and its guidelines. The results of the examination were issued as “Developing an Environmental Accounting System (Year 2000 Report)” in May 2000.

In the “Guideline for Introducing an Environmental Accounting system”, with respect to the framework of environmental accounting, the guideline enables the correlation of each item in terms of “environmental cost” with “environmental effects” as much as possible and includes the elements of the "economical effects associated with environmental measures" in an appropriate form. The guideline proposes developing a system that can display environmental costs and associated effects in well balanced manner as a whole.



In the guideline, “environmental cost” is defined as the “investment amount and expense amount for environmental conservation”. In principle, the purpose of the expenditure determines whether individual costs are applied to "environmental costs" and the method of measuring the costs is directly applied. When this method is difficult, practically possible methods (e.g., aggregation of balances, or apportionment aggregation) are recommended as alternatives.

The following shows the definitive classifications of “environmental cost”.

- (1) Environmental cost for controlling the environmental impacts that are caused within a business area¹ by production and service activities (Abbreviated as business area cost).
- (2) Environmental cost for controlling environmental impacts that are caused upstream or downstream as a result of production and service activities (Abbreviated as upstream/downstream cost)
- (3) Environmental cost in management activities (Abbreviated as management activity cost)
- (4) Environmental cost in research and development activities (Abbreviated research and development cost)
- (5) Environmental cost in social activities (Abbreviated as social activity cost)
- (6) Environmental costs corresponding to environmental damages (Abbreviated as environmental damage costs)

Further, the guideline proposes two methods available to measure effects relating to environmental measures. They are:

- (1) “physical quantity units” suitable for measuring the amount of environmental impact and quantitative change; and
- (2) “monetary units” suitable for measuring the business revenues achieved by companies and cost reduction or avoidance due to environmental measures.

When examining costs and benefits of environmental measures implemented, businesses should first measure “Environmental conservation effects”, which controls or avoid environmental burdens from business operation. Companies should individually measure the effects by making associations with environmental costs wherever possible. The guideline classifies them under environmental effects occurring in a business area (business area effects), environmental effects occurring in the upstream/downstream (upstream/downstream effects), and other effects.

Demonstrating yearly changes by using physical quantity units sometimes cannot report a business’ efforts for environmental conservation, therefore, the guideline shows examples of some comparative indexes.

With regard to “Economical effects associated with environmental measures”, which measures effects, in a sum base, contributing to business revenue, there are economical effects calculated based on a credible basis and those based on hypothetical calculations. The “economical effects calculated

¹ Area where companies including material distribution and sales activities can manage directly influences on the environment

based on the credible basis” refer to those that substantially appear and can be included in environmental accounting. Since economical effects based on hypothetical calculations, include assumed calculations, their disclosure is not requested at this current stage (To be disclosed, the calculation basis used for the assumptions must be indicated).

For the disclosure of environmental accounting information, four kinds of formats, namely, “Environmental cost oriented type (two types)”, “Environmental effect correlation type”, and “Comprehensive effect correlation type”, are attached in the guideline taking the convenience of disclosure into account.

As above, when including environmental accounting information in the environmental reporting, the business could refer to this “Guideline for Introducing an Environmental Accounting system”. The guideline (English version) is available at the homepage of the Ministry of the Environment (<http://www.env.go.jp/policy/kaikei/report00e.pdf>). The Ministry also provides the “Environmental accounting support system” and the “Environmental accounting guidebook” (available only in Japanese) at the homepage (<http://www.env.go.jp/policy/kaikei/index.html>).

Chapter 3. What should be Included in Environmental Reporting

1. Structure of Environmental Reporting

There are “Necessary Components of Environmental Reporting”. These are components, essential for making environmental reporting a tool for environmental communication, and for discharging social accountability. The most current environmental reporting contains these components.

The necessary headings of environmental reporting are divided into four categories. They are: Basic Headings, Summary of Policy, Targets, and Achievements of Environmental Conservation, State of Environmental Management, and State of Activities for Reduction of Environmental Burden. In each category, the necessary headings of environmental reporting are the following eighteen.

1. Basic Headings

Including CEO’s statement, the foundation of reporting, and a summary of the nature of the business, this contains fundamental components to ensure the reporting functions as a communication tool between the business and the society. It is also necessary that CEO’s statement includes not only a greeting, but also commitments to society.

The necessary components are the following three headings.

- (1)CEO’s statement
- (2)Foundation of reporting (Reporting organisation, time period, fields, division in charge of publication, and contacts)
- (3)Summary of the nature of the business

2. Summary of Policies, Targets, and Achievements in Environmental Conservation

This component summarises policies, targets, plans, and achievements with regard to business’s environmental conservation activities. It is appropriate for targets, plans, and achievements, including state of environmental burden, to be summarised in a table.

The necessary components are the following three headings.

- (1)Business policies and posture regarding environmental conservation
- (2)Summary of policies, targets, and achievements in environmental conservation
- (3)Summary of environmental accounting information

3. State of Environmental Management

It is necessary to summarise all aspects of environmental management, such as environmental management systems, state of research and development of technologies for environment-conscious products/services (Design for the Environment (DfE)), state of the disclosure of environmental information and environmental communication, state of compliance with environmental regulations, and state of social contribution.

The necessary components are the following five headings.

- (1)State of environmental management system
- (2)State of research and development of technologies for environmental conservation and environment-conscious products/services (Design for the Environment (DfE))
- (3)State of the disclosure of environmental information and environmental communication
- (4)State of compliance with environmental regulations
- (5)State of social contribution related to environment

4. State of Activities for Reduction of Environmental Burden

The current state and records of environmental performance that indicates businesses' efforts to mitigate environmental burdens should be mentioned. If necessary, it should summarise yearly changes. This component may contain the greatest amount of information in environmental reporting.

The necessary components are the following seven headings.

- (1) A complete picture of environmental burdens (Perception and valuation of whole life cycle of operation)
- (2) State of environmental burdens from material/energy input, and mitigation measures
- (3) State of environmental burdens at the upstream (purchase of products/services), and mitigation measures
- (4) State of environmental burden from output of refuses, and mitigation measures
- (5) State of environmental burdens at the downstream (providing products/services), and mitigation measures
- (6) State of environmental burdens from transportation, and mitigation measures
- (7) State of environmental burdens from cumulative soil contamination, land utilization and other environmental risks, and mitigation measures

Each of the headings consists of "Significant Components", "Significant Components for Specific Sectors", and "Further Recommended Components".

"Significant Components" refers to the contents that domestic and international environmental reporting guidelines commonly deal with and are of common importance to all businesses. "Significant Components for Specific Sectors" are components that are considered to be significant dependent on the business sector and its nature. "Further Recommended Components" refers to components that are not significant compared with the above, although they will help the reader's understanding and increase the objectivity of the contents as an environmental communication tool or a tool to disclose social accountability.

With regard to said headings, "3. State of Environmental Management" and "4. State of Activities for Reduction of Environmental Burden", their contents are edited based on "Environmental Performance Indicators for Businesses (Fiscal Year 2000 Version)" established by the Ministry of the Environment.

These guidelines do not intend to prescribe and enumerate the headings and contents, but it summarises the results of current studies. Therefore, the inclusion of environmental topics of public concern should be judged at management level based on market significance of the topics, even if their environmental impacts are scientifically uncertain. It is also expected that for such topics businesses will voluntarily examine and develop the headings and contents of environmental reporting accordingly. Further, it is expected that a business should positively mention an aspect, which is judged as significant environmental information, even if it is not mentioned within these guidelines.

As above, these guidelines mention the components of environmental reporting and do not prescribe any order of headings and the contents to be added under each heading. It is expected that businesses will devise the structure of the environmental reporting according to the nature of the business.

* **Environmental Performance Indicators of Business Operators**

Within the report: “Environmental Performance Indicators of Business Operators”, those indicators that meet the following requirements are defined as “Common Core Indicators”.

- Important from the point of view of environmental issues and environmental policy trends
- Applicable to a great majority of business operators regardless of the characteristics of organizations, such as industry types, regions and stakeholders
- Methods of measurement and estimations of these indicators available at this stage

These indicators are expected to be assessed by all businesses. This environmental reporting guidelines define these summarised core indicators as “Significant Components”, (although it is acceptable to leave them out if they are obviously unrelated to the business).

Furthermore, those indicators that meet the following requirements for each industry are defined as “Industry-Specific Core Indicators”. The relevant businesses are expected to examine the appropriate headings of indicators from the perspective of business characteristics, based on given headings of indicators in the paper. This environmental reporting guidelines define these summarised, “Industry-Specific Core Indicators” as “Significant Components for Specific Sectors” (However, at this stage, only a few sectors have been roughly selected and assessment is under examination. It is also not consistent with all types of business. Therefore, it is necessary to exclude or add indicators according to each business characteristic s.) .

2. Basic Headings

1) **CEO’s Statement**

Concurrently with the greeting for the publication, the CEO or environmental management representative provides a statement, which recapitulates the meaning of the issues and contents of the environmental reporting. The statement clarifies a business’s posture on environmental conservation and its commitment to society.

It is necessary that the statement includes policies and targets on environmental conservation, based on the particular industry, operational scale, and individuality, which will enable the businesses core activities on the environment to be understood.

The CEO’s statement to be added at the beginning of environmental reporting, includes the business’s own ideas, current status, and future targets on environmental conservation, and is extremely significant. The commitment to society, in which the CEO officially makes a commitment to society, is so significant that the CEO must make up his or her mind to bear certain responsibility if commitments cannot be achieved.

Further, the contents of the statement are necessary to be appropriate to the industry, operational scales, and individuality. The statement will be incomplete if any generalisations are made.

Significant Components

- The recognition of the necessity of environmental conservation activities within the business and of the prospect of sustainable society which will orientate environmental conservation, in future

- Environmental aspects according to the industry, operational scales, and individuality and policies or targets corresponding to the environmental aspects
- Basic posture on the disclosure of environmental information
- Commitment to the society concerning said components

Further Recommended Components

- The signature of the CEO
- Details of the results of environmental conservation to date, achievements of targets, and future challenges
- Comparisons between the businesses state of environmental conservation and that of industry standards or society in general

2) Foundations of Reporting

(Reporting organisation, time periods, fields, division in charge of publication, and contacts)

This specifically mentions the reporting organisation, reporting period, reporting field, and other aspects that detail the foundations of reporting when businesses publish environmental reporting. In addition to this, clarification should be made of the division of the business to be in charge of publication and contacts, furthermore, methods of receiving feedback and/or enquiries should also be devised. These are necessary in order to make environmental reporting an effective tool for environmental communication.

Significant Components

- Reporting organisation (the boundary of reporting may contain specific sites, plants or subsidiary companies, and the differences with consolidated companies should be explained). If boundaries do not yet include the whole organization, a projected timescale for complete coverage should be provided
- Reporting time period, the date issued, and schedule for the next issue (and date of the most recent previous environmental reporting, if any)
- The reporting field (contents, if it includes fields other than environmental)
- The division in charge of the publication and means of contact (including telephone number, fax number, e-mail address)
- Any feedback methods, such as attaching a questionnaire or postcard which states that the business will provide a reply to correspondences

Further Recommended Components

- The company Web address
- Contacts with branches (national or global)
- Lists and outlines of principal related materials which are also disclosed (such as, a corporate pamphlet, securities reports, environmental pamphlets, technical pamphlets, or employee manuals and details of how these can be obtained)

3) Summary of the Nature of the Business

It is necessary to provide a simple outline of the nature of the business, i.e. what does the business undertake, and on what scale. If the outline of the business is not provided, it is difficult to comprehend the likely environmental burden according to the nature of the business and which environmental conservation activities are likely to be significant. It is therefore necessary to include brief descriptions of the business, and the products or services involved.

If the type of operations carried out by a business can be understood, i.e. what is the scale of the business, and what are its peculiarities, it is possible to predict the sort of mitigation of environmental burden which should be taking place.

In addition, management related information, such as sales, output of products or services, and the number of employees can be used as a basis for the estimation of environmental burden per unit of product or service output (the intensity of environmental burden) or value of products or services per unit of environmental burden (eco-efficiency).

Significant Components

- Details of a business and its products and services (the field of the business)
- The total management policy
- The address of the headquarters
- The number of plants and facilities, addresses of principal plants and sites, and a list of productions of each
- Number of employees (including historical trends for at least the previous three years)
- Sales or output (including historical trends for at least the previous three years)

Further Recommended Components

- An outline of the history of the business and its environmental conservation activities
- Regions in which the business's operations and sales are located (with regard to regions of mining, and purchasing of principal raw materials, or selling products and services). It should mention whether operations are limited to Japan, specific regions, or overseas)
- The nature of markets or customers served (such as, retailers, wholesale, or governments)
- Details of significant changes in size, structure, ownership, or products/services that have occurred in the reporting period (if any changes such as, mergers, reorganisation into in-house companies, advances into new business, or construction of new plants)
- Other information on the scale of activity of the reporting organisation (e.g., total assets, profits, or total floor space)

3. Summary of Policies, Targets, and Achievements in Environmental Conservation

1) Business Policies and Posture regarding Environmental Conservation

When businesses make efforts to address environmental issues, it is crucial to establish management policies and posture for environmental conservation, and disclose this in their environmental reporting. The management policies or ideas should be appropriate to individual business operations and also be consistent with the CEO's statement.

As well as including management policy and ideas for environmental conservation, details of the background and justification for the establishment of the policy based on the business individual traits, (e.g., existing environmental burden, necessary environmental conservation efforts) should be provided in order to make the environmental reporting more understandable.

With respect to management policies on environmental conservation, it is necessary to include not only operational areas within the business, but also upstream and downstream (e.g., purchase of (raw) materials, transportation, use and disposal of products/services) in their targets, thereby taking the entire life cycle of the business into account.

Significant Components

- Management policies and posture on environmental conservation (these should be appropriate to the nature and scale of operations and products/services and also the environmental burden caused by the businesses operations)
- Date of the establishment of the policy, measures taken to establish policy, and consistency with other management policies

Further Recommended Components

- Easy explanation of the intended contents of management policy concerning environmental conservation, vision for the future, and the background to the establishment of policy
- The identification of and contents of the environmental charters or agreements to which the business conforms

2) Summary of Policies, Targets, and Achievements in Environmental Conservation

It is clearer if a business draws up a tabulated description of the targets, plans, and data to be followed by baseline data, this might include medium and long term targets, current targets and targets to be set in the next term; the targets set correspond to each policy on environmental conservation; a summary of data (actual records) which demonstrates environmental burden during the reporting period and the state of the business's efforts toward mitigating them.

If necessary, the provision of a summary of the total environmental reporting may also make the information provided more understandable.

A business should mention medium and long term targets (the goals of environmental

conservation and mitigation methods) and targets for the current reporting period and those for the next period. These are not simply theoretical targets but ones that should be actually achieved. The targets should be as concrete and measurable as possible.

It is necessary to include not only operational areas within the business, but also operations upstream and downstream (e.g., purchase of (raw) materials, transportation, use and disposal of products/services), when setting targets, thereby taking the whole business life cycle into account.

Furthermore, summarised data, such as an outline of plans corresponding to targets, records of environmental burden during the reporting period, environmental accounting information (costs of environmental conservation, namely, “environmental cost” and economical effects), should also be mentioned. This could best be presented, through the use of tabulated descriptions, indicating corresponding page(s) in the environmental reporting which describe “the state of activities for the reduction of environmental burden” given in Section 5 of this Chapter, and where necessary, by summarising the contents.

In order to clarify the progress of efforts, it is necessary to include records of environmental burden within a set time period (e.g. over a calendar or financial year).

Because the components of environmental reporting are various, potential readers (other than those with relevant experience) may find it difficult to assess the extent to which business operations are related to environmental issues and the efforts taken to mitigate environmental burden. It is also anticipated that businesses will briefly mention the individual efforts and the fruits of these efforts, compared with the previous environmental reporting.

Therefore, a summary of the total environmental reporting in the form of a table or chart, over one or two pages, is desirable in order to facilitate the readers’ understanding of the relationship between a business’s operation and the environment and future challenges.

Significant Components

- Medium / long term and current / next term targets for environmental conservation (appropriate to the characteristics of the business and its scale)
- Established time (date), “yardstick” period and intended duration of medium /long term targets
- Plans corresponding to said (medium/long term and current / next term) targets regarding environmental conservation
- Summarised data relating to environmental burden and the state of the business’s environmental efforts during the reporting period, corresponding to the targets
- Evaluation of the results of environmental burden and the business’s environmental efforts
- Data collected within the “yardstick” period

Further Recommended Components

- A summary of the total environmental reporting with each page of the report corresponding to the contents of the summary
- Challenges for environmental efforts made by the business corresponding to details of the

operation and particular products/services.

- Characteristic efforts made during the reporting period
- Additional or improved efforts since previous reporting

3) Summary of Environmental Accounting Information

Making reference to the guidance given in “Developing an Environmental Accounting System”, a business should assess (measure) and analyse, as quantitatively as possible, costs and effects of environmental conservation during operations, and should mention the current state of the implementation of environmental accounting, giving details in summary form.

Since the publication of “Developing an Environmental Accounting System” by the Ministry of the Environment, businesses’ efforts to implement environmental accounting are rapidly progressing.

It is important to promote efficient and effective environmental measures through appropriate management decisions, supported by managing environmental cost and analysing costs and benefit of environmental measures.

Further, the disclosure of environmental accounting information provides an effective means of enabling an impartial understanding and evaluation of the state of environmental conservation efforts.

In this context, it is necessary that many businesses implement an environmental accounting system, and simply mention and disclose the quantitative information estimated within environmental reporting in summary form.

A business can disclose environmental accounting information in summary form by using the announcement formats shown in “Developing an Environmental Accounting System”.

Significant Components

- Basic information, such as scope of aggregation, and time period
- Environmental cost and details of principal efforts
- Effects Relating to Environmental Measures (environmental conservation effects and economical effects associated with environmental measures)
- Additional information, such as, methods applied in the aggregation of environmental accounting information
- If reference is made to “Developing an Environmental Accounting System”, state it

4. State of Environmental Management

1) State of Environmental Management System

This provides information on; the progress made towards the establishment of an environmental management system, organisations of environmental management system, state of ISO 14001 certification, education provided for employees, and/ or environmental auditing.

In order for businesses to improve their environmental performance, they must establish and implement a recognised environmental management system (EMS) which will be the basis for all of their activities. Details of the make up and implementation of the environment management system is significant information that should be mentioned in environmental reporting.

The way in which environmental management systems are established and implemented is likely to differ largely depending on the type and the size of a corporation. It is necessary however to describe the current state of the system which will depend upon the characteristics of the company.

Significant Components

- The overall progress made in the establishment and utilization of EMS (including an explanation of the system)
- The overall organisation of the EMS (including details of responsibility, authority, and organisation) and a chart showing the organisation
- The number and proportion (e.g., number of employees working at the certified sites as a proportion of the total number of employees) of sites that have acquired ISO14001 certification, and the period of the certification(s)
- The state of education for employees in environmental conservation
- Details of emergency plans and the state of emergency preparedness
- State of the implementation of means of monitoring and measurement of environmental impacts
- Standards for EMS audit, the state of implementation, results of the audit and corresponding measures

Further Recommended Components

- A flow-chart which gives an overall view of the EMS
- The number and proportion of sites that participate in Environmental Activity Evaluation Program
- Quantitative information on the state of implementation of environmental education for employees (e.g., number or proportion of employees who have received environmental education, average hours of education per employees over year)
- Reflection of the results of environmental conservation as personal achievement evaluation
- In-house certification

2) State of Research and Development of Technologies for Environmental Conservation and Environment-Conscious Products/Services (Design for the Environment (DfE))

This include details of the state of research and development of technologies for environmental conservation and environment-conscious products/services (DfE)

In order for businesses to make environmental efforts, it is desirable for them to promote from their own initiative, research and development of technologies for environmental conservation, and environment-friendly products/services. Their research and development activities will lead to future improvements in environmental performance.

The methods employed in promoting research and development of technologies for environmental conservation, environment-friendly products/services etc., and the resulting outcome is significant information, and it should be mentioned in environmental reporting.

Although the state of research and development of technologies for environmental conservation, environment-friendly products/services etc. is likely to differ largely depending on the type and size of corporation, it is necessary to clearly mention the state of research and development according to the characteristics of the business.

Significant Components

- State of research and development of technologies for environmental conservation and environment-conscious products/services (DfE)

Further Recommended Components

- State of research and development by using the Life Cycle Assessment (LCA) method

3) State of the Disclosure of Environmental Information and Environmental Communication

This includes details of the implementation of environmental information disclosure through environmental reporting, environmental labels and the state of environmental communication with stakeholders.

In order for businesses to make environmental efforts and to win the confidence of society, they need to disclose their environmental information and try to develop improved environmental communication from their own initiative. Environmental reporting written and published by businesses is increasing rapidly, and great progress is being made in terms of quality. Efforts are also being made to transmit environmental information to consumers and others through environmental labels, advertisements related to the environment, and other means. Furthermore, the need for environmental communication is being increasingly recognised from the point of view of businesses' "social accountability regarding environment."

Progress made in the disclosure of environmental information through environmental reporting, environmental labels etc., and environmental communication with interested parties, is significant information that should be included in environmental reporting.

Progress in the disclosure of environmental information through environmental reporting,

environmental labels and others, as well as environmental communication with interested parties is likely to differ largely depending on the type and the size of a corporation. It is however necessary to clearly mention the state of environmental communication and other related aspects according to the characteristics of the business.

Significant Components

- State of implementation of environmental information disclosure through environmental reporting and environmental labels and state of environmental communication with stakeholders

Further Recommended Components

- State of consultation with principal stakeholders (e.g., implementation of research, informal meetings with local public, periodic visiting and reporting, informal meetings with customers, communication by the publication of a newsletter, to including the number of times by each consultation event and the state of each consultation event)

4) State of Compliance with Environmental Regulations

This includes details of the state of compliance with environmental regulations and of any violations, fines, accidents, and complaints.

In order for businesses to make environmental efforts and to win the confidence of society, they need to promote environmental communication from their own initiative. At the same time, they also need to comply with laws and ordinances, and to disclose information on their adherence to such laws. Compliance with environmental regulations is a matter of particular concern for local residents living near to a business.

The state of compliance with environmental regulations is significant information, and should be included in environmental reporting.

Although the content of environmental regulation is likely to differ largely depending on the type and the size of a corporation, it is necessary to clearly mention the state of the regulations and compliance according to the characteristics of each business.

In addition, it is appropriate to mention the state of compliance with environmental regulation connected with “Other environmental risks”, which is shown in the next section, “State of Activities for Reduction of Environmental Burden”. This will make the environmental reporting easier to understand.

Significant Components

- According to business operations, which environmental regulations are adopted, what are the contents of the regulations, and how does the business comply with the regulations
- If the business has violated environmental regulation(s) and/or an accident has occurred within the last five years, including details, causes, and correspondence

- Any fines paid and actions taken regarding the violation /or accident(s)
- Contents of and correspondence with lawsuit(s), if the business is a party concerned
- Details and frequency of complaints received relating to environmental issues and the requirements of stakeholders

5) State of Social Contribution Related to Environment

With regard to environmental conservation, this mentions the state of voluntary social contributions in those areas, which are not related to the businesses field or contributions made by employees out of office hours.

It is desirable that businesses make environmental efforts, and at the same time, make efforts to build an environment-conserving society through co-operation with various other sectors. One of the specific means of co-operation is by making a social contribution to the environment – which may include voluntary social contribution activities to the environment by employees and businesses, support for environmental non-profit organisations (NPOs), and efforts of industrial groups. It is necessary to promote these kinds of positive social activities voluntarily.

How social contribution to the environment is taken place is important information that should be included in environmental reporting.

Although the degree social contribution to the environment is likely to differ largely depending on the type and the size of a corporation, it is necessary to clearly mention the state of social contribution according to the characteristics of the business.

Significant Components

- Voluntary social contributions to the environment by the business or employees

Further Recommended Components

- Membership of or support for environmental organization(s) (NPOs, the industry organizations)
- Donations made to environmental NPOs

5. State of Activities for Reduction of Environmental Burden

1) A Complete Picture of Environmental Burdens (Perception and valuation of whole life cycle of operation)

With regard to the complete picture of environmental burden produced, businesses should assess and give an evaluation of the burden, taking the whole life cycle of the operation into account. It is appropriate that businesses show a flow-chart or similar to show clearly the inputs and outputs of principal materials and items.

Significant Components

- A complete picture of Environmental Burdens (Perception and evaluation of whole life cycle of

operations (Description to show inputs and outputs of principal materials and items))

Further Recommended Components

- A flow-chart which quantitatively shows input and output of principal materials and items

2) State of Environmental Burdens from Material/Energy Input, and Mitigation Measures

With respect to environmental burdens within business areas, businesses should describe the state of environmental burdens from material, energy, and water input, and mitigation measure(s) employed.

Today's economic society, is one which exploits a large amount of resources, releases a large quantity of waste, surpasses the restorative ability of the environment, and causes various environmental problems. To find drastic solutions to these environmental problems, and to build an economic society that allows sustainable development, it is necessary to make efforts to devise resource-conserving operational processes and develop resource-conserving products and services. It is also necessary to promote internally the sustainable use of resources (reuse, recycle, and thermal recycle) to reduce the total input of materials as much as possible.

In addition, the exploitation and combustion of large quantities of fossil resources, such as petroleum, coal and natural gas, from the environment, and the releasing large quantities of carbon dioxide (CO₂) into the environment as a result is a major cause of global warming. In order to build an economic society that allows sustainable development, it is necessary to reduce the energy consumption from fossil resources and improve the efficiency of energy consumption, as much as possible.

Furthermore, water is essential for the survival of humans, and it is also a basic resource, essential for agriculture, manufacturing industry and many other industries. Excessive abstraction of water, especially groundwater, may cause environmental hazards such as land subsidence. Therefore, it is necessary to reduce the amount of water resources used and to promote efficient recycling of water resources as much as possible.

It is therefore necessary to disclose the following key information along with details of mitigation methods in environmental reporting.

- (1) Materials flow, i.e. the quantity of resources businesses, factories and sites are using (input), and how much discarded material (refuse) they are releasing (output)
- (2) Energy flow i.e. how much energy businesses, factories and sites are using (input), and how much carbon dioxide and other greenhouse gases they are releasing (output)
- (3) Water flow i.e. the water resources businesses, factories and sites are using (input), and how much waste water they are releasing (output)

Significant Components

(1) Total input of materials and measures for its reduction

(2) Amount of sustainable use of materials within a business and measures for its increase

[Notices to disclosure]

(A) Unit used should be “Ton” (t)

(B) The total input of materials related to flow includes:

- a. Raw materials for products and services
- b. Parts and components for products and services

In addition, it includes:

- c. Those that are regarded as production and capital assets such as facilities, equipment and others of factories and sites
- (C) Regarding raw materials (given as a.), it is desirable to disclose not only total weights, but also a breakdown of different materials including quantity of metal (iron, aluminium, copper, lead and others), plastic, rubber, glass, wood, paper, and farm products. (Regarding materials that are technically difficult to be perceived in terms of weight (t), such as wood, other units (such as m³) could be applied.)
- (D) Regarding parts and components (given as b.), it is considered that weight alone should be disclosed and there is no need to mention a breakdown of materials used the time being, since it is difficult to quantify. However, it will be preferable to assess and disclose this in the future
- (E) Regarding production and capital assets (given as c.), there are many fluctuation factors, for example the amount of input may increase noticeably in a certain year when facilities are rebuilt and equipment is replaced. It is therefore acceptable to make estimations without including production and capital assets
- (F) The sustainable use of materials (reuse, recycle, and thermal recycle) within a business should be excluded from “Total input of materials” and should be separately included in “Amount of sustainable use of materials within a business”

(3) Total energy consumption and measures for its reduction

(4) Renewable energy consumption and measures for its increase

[Notices to disclosure]

(A) Unit used should be “Joule” (J)

(B) When estimating the total energy consumption, assess separately the amount of electricity, fuels and other energy resources used, and combine and convert these figures to estimate the total energy consumption

(C) The amount of electricity used should be estimated by using the receiving end electricity

(D) Transfer coefficient from electricity to energy shall be used 10,250 (kJ/kWh) based on “Enforcement Regulations for the Law Concerning Rational Use of Energy”

(E) It is desirable to also provide a breakdown of the type of energy resource used (electricity, fuel, etc.)

- (F) Include the energy consumption of in house transportation etc. in the total energy consumption. The energy consumption of the transportation of products etc. which is contracted out to outside operators, however, should be monitored separately and not included
- (G) “Renewable energy” refers to that, which is generated from or supplied by sunlight, solar heat, wind, geothermal energy, and/or small-scale hydroelectric power

(5) Amount of water used and measures for its reduction

(6) Amount of sustainable use of water within a business and measures for its increase

[Notices to disclosure]

- (A) Unit used should be “cubic metre” (m³)
- (B) When estimating the amount of water used, add up the total amount by kind, including tap water, drain, industrial water, and groundwater
- (C) The amount of water recycled and reused within a site should not be included in the “Amount of water used” and should be separately included in “Amount of sustainable use of water within a business”

Significant Components for Specific Sectors

Significant Components for Specific Sectors	Problems from the perspective of environmental conservation	Unit	Considerations for Inclusion	Sectors that should include it	Boundary
Input of recycled resources and recycled parts and their conversion measures	It is necessary to reduce environmental burdens resulting from mass exploitation of natural resources, and to use more recycled resources and parts rather than natural resources for promoting waste recycling and reducing waste generation.	t	Monitor “recyclable resources” and “recyclable parts” stipulated in the “Law for Promotion of Effective Utilization of Resources.”	Material, Processing & Assembly, Construction, etc.	Entire organization
Input of hazardous materials and its mitigation measures	Hazardous materials, which have harmful influences on human health as well as animals and plants, do not produce environmental burdens immediately after they are used. However, they are destined to become wastes themselves or become wastes via products, and they will be released into the environment eventually. Therefore, it is necessary to use less hazardous materials.	t	Basically disclose chemical substances subject to the “Law Concerning Reporting, etc. of Releases to the Environment of Specific Chemical Substances and Promoting Improvements in Their Management (the PRTR Law).”	Material, Processing & Assembly, etc.	Entire organization or Individual site
Input of tropical timber, genetically modified organisms etc. and its mitigation measures	For monitoring environmental burdens due to exploitation of resources, it is appropriate to consider animals and plants which are important components of nature.	t	Disclose the areas that have issues from the perspective of environmental conservation, such as timber produced from tropical rain forests which are found to be decreasing, and genetically modified organisms for which the influences on ecosystems have yet to be confirmed.	Construction, Foods, etc.	Entire organization

3) State of Environmental Burdens at the Upstream (Purchase of Products/Services) and Mitigation Measures

Businesses should mention the state of environmental burdens at the upstream, and the mitigation measures employed.

As a means to reducing environmental burdens as much as possible, and to promote sustainable use of resources and energy, it is necessary to enhance efforts at the upstream of the business, in addition to making efforts within their own business areas. The upstream of the business areas refers to purchase customers that transact products, raw materials, parts, and services². An important measure in enhancing efforts at the upstream, is provided by “green purchasing”, which gives priority to the purchase of products/services that could contribute to the mitigation of environmental burden. The extent of green purchasing and its effects are significant information that should be included in environmental reporting.

As the purchasing of services/materials differs largely depending on the type and the size of a corporation, it is necessary to clearly mention the state of green purchasing according to the characteristics of the business.

Significant Components

(1) State of green purchasing (current prior purchasing of products/services that could contribute to the mitigation of environmental burdens)

(2) Quantity or proportion of products purchased that could contribute to the mitigation of environmental burdens such as Eco Mark products which are certified by environmental labels.

[Notices to disclosure]

(A) Unit used will be “Ton” (quantity of purchasing), “Japanese Yen”(sum of purchasing) or “Percentage”(ratio occupied in the total purchasing)

(B) “Products/services that could contribute to the mitigation of environmental burdens” refers to “Environmental products” that are defined in Clause 2, Article 1 of the “Law on Promoting Green Purchasing”, these are:

- Raw materials or components that could contribute to the mitigation of environmental burdens (recycled resources, recycled parts, etc.)
- Products that could contribute to the mitigation of environmental burdens (products that use recycled resources and parts, products that reduce the use of materials which pollute the environment, products that consume less energy, re-useable and recyclable products, etc)
- Services that could contribute to the mitigation of environmental burdens (transportation services by low-gas-emission cars)

(C) State of green purchasing should be disclosed, according to the actual situation of each industry type

² Hereafter described as “products/services”.

and corporate size, and based on green purchasing programs etc. carried out by the businesses. In this case, it is necessary to clearly define “products/services that could contribute to the mitigation of environmental burdens” as well as to state the concept and reasons for using the relevant indicators

- (D) Besides products/services, it is also appropriate to monitor commercial transacts’ environmental care. For example, environmental care in the business activities of transacts includes the acquisition of ISO14001 certification, checking the progress in Environmental Activity Evaluation Program, and so on
- (E) “Environmental labels” refer to products which conform to ISO14024 (JIS Q 14024 : Certified environmental labels such as Eco Mark and ISO14021 (JIS Q 14021 : Self-declaration environmental labels)
- (F) In selecting “Products that could contribute to the mitigation of environmental burdens”, products that are certified of environmental labels such as Eco Mark or standards for purchasing specific items or products based on Clause 2, Article 1 of the “Law on Promoting Green Purchasing ” can be reference
- (G) Environmental labels are usually given to standard products (catalogue products). Therefore, when estimating the percentage of products certified by environmental labels, it is appropriate to have the “total quantity of standard products purchased” as a denominator

4) State of Environmental Burdens from Output of Refuses, and Mitigation Measures

In terms of environmental burdens within the business area, businesses should mention the state of environmental burdens as a result of output to air, water, and soil and output of wastes and the associated mitigation measures employed.

(1) Emissions to Air

The earth is warmed by solar light that reaches the earth’s surface, and the earth’s surface releases infrared light back into outer space to grow cold. The atmosphere has greenhouse gases which absorb infrared light, and the infrared light which is released from the earth’s surface is absorbed by the gases which act to maintain the temperature of the earth. This is an exquisite balance, which maintains an atmospheric temperature appropriate for organisms to live.

Recently, however, a large quantity of greenhouse gases, such as carbon dioxide, has been released into the atmosphere as a result of the aggressive economic activities of human beings. As the atmospheric density of greenhouse gases rises, the amount of heat trapped in the atmosphere is increasing, and global warming is progressing at a rapid pace. If it continues to progress at the current pace, it is expected that the average atmospheric temperature of the earth will rise about two degrees by the end of the 21st century, and sea levels will rise about 50 centimetres across the globe. Furthermore, due to climatic changes caused by global warming, it is feared that rainfall patterns will change and floods and droughts will become serious (source: IPCC 1995 Second Assessment Report).

Among the greenhouse gases that cause global warming, carbon dioxide (CO₂) accounts for 88.9% of the total amount of greenhouse gas emissions in Japan. This is the largest percentage among

greenhouse gases that contribute to global warming and a large quantity of CO₂ is emitted from combustion of fossil fuels such as coal and petroleum. The total amount of carbon dioxide emissions in fiscal 1998 in Japan was 1,188 million tons (9.39 tons per capita). Compared to fiscal 1990, this represents an increase of 5.6% in the total amount, and an increase of 3.2% in the amount per capita.

The ozone layer exists in the stratosphere at an altitude of over 10,000 meters. It absorbs almost all hazardous ultraviolet rays contained in solar light, protecting human beings, animals and plants from harmful influences. Artificial chemical substances such as chlorofluorocarbons rapidly disrupt this important ozone layer. If the ozone layer is disrupted, the amount of hazardous ultraviolet rays that reach the earth's surface increases, which causes harmful effects such as the increase of skin cancer and also has harmful influences upon ecosystems.

Considering these issues, to disclose the following data and provide details of mitigation measures are important information that should be mentioned in environmental reporting.

- (1) Greenhouse gas emissions
- (2) Amount of ozone depleting substances released

Significant Components

(1) Greenhouse gas emissions and measures for its reduction

[Notices to disclosure]

- (A) Unit used will be “t- CO₂”
- (B) When estimating the amount of greenhouse gas emissions, separately assess the amount of the six kinds of gases stipulated in the Law Concerning the Promotion of the Measures to Cope with Global Warming; carbon dioxide (CO₂), methane (CH₄), dinitrogen monoxide (N₂O), hydrofluoro-carbons (HFC), perfluoro-carbons (PFC), and 6-sulfur fluoride (SF₆). Then, multiply each by the global warming coefficient (coefficient to make it a CO₂ equivalent) and then totalise
- (C) When the amount of greenhouse gas emissions is estimated, the amounts of fuels / electricity / heat used, amount of incinerated wastes, etc should be assessed and emissions should be estimated by using the emission coefficient range stipulated in “the Enforcement Order of the Law Concerning the Promotion of the Measures to Cope with Global Warming”
- (D) Emission coefficients for estimations, stipulated in “the Enforcement Order of the Law Concerning the Promotion of the Measures to Cope with Global Warming” should basically be applied. However, it is inevitable to sufficiently assess the effects of each measure aimed at the reduction of greenhouse gas emissions (e.g., implementation of co-generation system, which applies electricity and heat at the same time, or implementation of electricity generation by using natural energy). An emission coefficient should be applied, if an accurate coefficient can be made with the actual state of each measure.

For example, when estimating CO₂ emissions from generation of electricity supplied by electricity supply businesses over a year, the average emission coefficient of all power sources, 0.357 (kgCO₂/kWh) shall be applied. However, if consumption of electricity supplied by electricity supply businesses is reduced because of reduction measures taken by the efforts of the business, and if the emission efficient corresponding to the amount of reduction is significantly different from

0.357(kgCO₂/kWh), it is acceptable to estimate the effects of the measures taken by applying another emission coefficient, which meets with the actual conditions. In the case of the production of emissions from the generation of electricity supplied by other businesses, an emission coefficient, which meets with the actual conditions of the generation source, should be used wherever possible (for example the CO₂ emission coefficient of electricity, which is generated using natural energy sources, is 0.). If an emission coefficient cannot be assessed, 0.602 (kgCO₂/kWh) should be used for the estimation

- (E) Emissions produced from the incineration of wastes includes that produced by external operators (consignment)
- (F) Include greenhouse gas emissions from in house transportation. Emissions from transportation of products etc. contracted out to external operators, however, should be separately mentioned and not included in this component
- (G) Emissions in related sites overseas should be estimated based on given coefficient in that country or region, if any
- (H) For the conversion coefficient for emissions, see the fiscal 2000 report prepared by the Committee on the Estimation Measures of Greenhouse Gas Emissions in the Ministry of the Environment, scheduled to be established after March 2001

(2) Amount of ozone depleting substances released and measures for its reduction

[Notices to disclosure]

- (A) Unit used should be “ODP t”
- (B) When estimating the total amount of ozone depleting substances released, estimate the amount of each material stipulated in the Enforcement Act of the Law Concerning the Protection of the Ozone Layer, Article 1, including CFC, halon, HCFC and 1,1,1-trichloroethan, multiply it by the ozone depleting coefficient (coefficient to make it a CFC-11 equivalent), and then totalise
- (C) The amount of each material released includes both the amount used in a business’ site and released to the environment, and the amount released to the environment as a result of discarded air conditioners, car air conditioners, refrigerators, etc
- (D) It is desirable to also disclose the amount of the ozone depleting substances released by type and how they are released
- (E) For halon included in fire extinguisher agent, the amount released could be; the amount used for extinguishing a fire, the amount released during repair or inspection, or that released when demolishing facilities for fire extinguishing

Significant Components for Specific Sectors

Significant Components for Specific Sectors	Problems from the perspective of environmental conservation	Unit	Considerations for estimation	Sectors that should include it	Boundary
Air SOx emissions and its mitigation measures	May damage to the respiratory organs, and causes acid rain that has harmful influences on forests, lakes and ponds.	t		Material, Processing & Assembly, etc.	Entire organisation or Individual site

NOx emissions and its mitigation measures	May damage to the respiratory organs, and causes acid rain and photochemical oxidants.	t		Material, Processing & Assembly, etc.	Entire organisation or Individual site
VOCs emission and its mitigation measures	Generate photochemical oxidants, may stimulate eyes and throat, and may damage the respiratory organs.	t		Material, Processing & Assembly, etc.	Individual site
Emissions of substances subject to the PRTR Law and its mitigation measures	May have harmful influences on human health and obstruct the development and growth of animals and plants.	t	Make estimations for each of the chemical substances subject to the “Law Concerning Reporting, etc. of Releases to the Environment of Specific Chemical Substances and Promoting Improvements in Their Management (the PRTR Law).” (Make separate estimations for hazardous air pollutants listed in the Air Pollution Control Law (materials subject to voluntary control)).		Entire organization or Individual site
Density of the emissions of items under emission control (SOx, NOx, soot and dust, dioxins, etc.) and their mitigation measures	May have harmful influences on human health and living environments.	Maximum density (ppm, etc.)	Make estimations for each item.	Material, Processing & Assembly, Construction, etc.	Individual site (facilities in the site)
Density of the emissions of materials under emission restraint (benzene, trichloroethylene, tetrachloroethylene) and their mitigation measures	Among the air pollutants that may damage to human health if inhaled continuously, and those that need immediate control upon release and dispersal.	Maximum density (mg/m ³ N)	Make estimations for each item.	Material, Processing & Assembly, Construction, etc.	Individual site (facilities in the site)
State of noises and vibrations and their mitigation measures	Have psychological influences on people.	dB		Material, Processing & Assembly, Construction, Retails, etc.	Individual site
State of odour release and its mitigation measures	Have psychological influences on people.	Maximum value (m ³ N/minute)		Material, Processing & Assembly, etc.	Individual site

(2) Emissions to “Water and Soil”

An increase in the amount of drainage without recycling of water resources leads to water shortages, and causes water pollution by increasing COD, levels of nitrogen, phosphorus, heavy metals and organic compounds, in waste water, as well as the eutrophication of lakes, marshes and sea

areas. In the future, it is desirable to reduce not only each hazardous material included in wastewater, but also the quantity of waste water released.

Considering these issues, the total amount of drainage and the details of its mitigation measures are significant information that should be mentioned in environmental reporting.

Significant Components

Total amount of drainage and measures for its reduction

[Notices to disclosure]

- (A) Unit used should be “cubic meter”(m³)
- (B) When estimating the total amount of drainage, add up the total amount of waste water passed to the public waters and sewerage
- (C) The amount of rainwater not recycled/reused should not be included in the amount of drainage

Significant Components for Specific Sectors

	Significant Components for Specific Sectors	Problems from the perspective of environmental conservation	Unit	Considerations for Inclusion	Sectors that should Include it	Boundary
Water and soil	Emissions of substances subject to the PRTR Law and its mitigation measures	May have harmful influences on human health and obstruct the development and growth of animals and plants.	t	Make estimations for each of the chemical substances subject to the “Law Concerning Reporting, etc. of Releases to the Environment of Specific Chemical Substances and Promoting Improvements in Their Management (the PRTR Law).”	Material, Processing & Assembly, etc.	Entire organization or Individual site
	The level of COD, emissions of, nitrogen, phosphorus and their mitigation measures	Cause eutrophication of closed waters.	t		Material, Processing & Assembly, Retail, Construction, etc.	Individual site
	Density of emission of items under drainage control and its mitigation measures	May have harmful influences on human health and living environments.	Maximum density (mg/l)		Material, Processing & Assembly, Construction, etc.	Individual site

(3) Emissions of Wastes

To reconsider systems based on mass production, mass consumption and mass disposal, businesses need to reduce the amount of resources they use, promote reuse and recycling, and reduce the amount of wastes as much as possible. To assess how they are coping with these tasks, it is appropriate to take a look at the total amount of wastes etc. generated.

No matter how aggressively one restrains the generation of wastes, there are types of wastes that are unavoidably generated, or it may be for economic and technological reasons. The Basic Law for

Establishing the Recycling-based Society regards them as “recyclable resources” and promotes their utilisation in cycles (reuse, recycling and thermal recycle). Therefore, it is necessary to promote reuse, and if reuse is difficult, promote recycling. No matter how completely one promotes sustainable use, there are wastes that must unavoidably be treated or discarded, and there are wastes that are difficult to reuse/recycle for economic and technological reasons. It is also recommended that these wastes are regarded as “recyclable resources” and make good use of them. Measures to make effective use of these wastes include thermal recycling by incineration, methane utilization by anaerobic fermentation, and utilisation as coke and blast furnaces. It is necessary to promote these measures within the required scope and to reduce the amount of wastes that go to final disposal (landfill etc.) as much as possible.

If the amount of recyclable resources reused or recycled is increased compared to the amount of wastes that go to final disposal, it is likely that we are departing from mass production, mass consumption and mass disposal, and heading toward a recycling-based, sustainable society.

Considering these issues, efforts to reduce the following (1), increase in the following (2), (3), and (4) with this order of priority, and reduce the following (5) and (6) are significant information and should be mentioned in environmental reporting.

- (1) Total amount of wastes
- (2) Amount of reuse of recyclable resources produced by own
- (3) Amount of recycle of recyclable resources produced by own
- (4) Amount of recyclable resources that are thermally recycled
- (5) Amount of wastes incinerated
- (6) Amount of final disposal of wastes, which is total amount of final output

Significant Components

(1) Total amount of wastes and measures for its reduction

[Notices to disclosure]

- (A) Unit used should be “Ton”(t)
- (B) When estimating the total amount of wastes generated, total everything the business has generated / carried out external to the site (beyond the control of the site), except for things shipped along with the products/services of the business, will be estimated. The amount of wastes recycled within a business site should not be included in the “amount of wastes” and should be separately assessed and evaluated in “Amount of sustainable use of materials within a business” (although wastes released to the environment through reclamation within the site should be included)
- (C) “Wastes” refers to wastes, used or unused articles collected or discarded, and secondary articles generated from business activities (those stipulated in Clause 2, Article 2 of the Basic Law for Establishing the Recycling-based Society)
- (D) “Wastes” includes construction-wastes, which are produced by rebuilding or demolition of facilities and equipment in factories or sites. However, facilities and equipment of factories and sites are regarded as production and capital assets, so there are many fluctuation factors for example the amount

of output increases noticeably in a certain year when facilities are rebuilt and equipment is discarded. Therefore, it is desirable to estimate and disclose the amount of construction-wastes produced separately

- (E) It is desirable to disclose a breakdown of wastes by type, and provide information on how they are treated/discarded, and where they are treated/discarded

(2) Amount of recyclable resources reused and measures for its increase

(3) Amount of recyclable resources recycled and measures for its increase

[Notices to disclosure]

- (A) Unit used should be “Ton”(t)
- (B) “Recyclable resources” refer to useful resources within “Wastes”
- (C) When estimating the amount of recyclable resources reused and recycled, it is expected to disclose each recyclable resource reused and recycled within total recyclable resources that the business has discharged / carried out external to the site (beyond the control of the site)
- (D) However, residue after reuse and recycling has taken place should be excluded from the amount reused/recycled. If the amount of residue cannot be estimated and excluded, this should be clarified
- (E) The conversion of waste plastics into oil resources should be considered to be recycling
- (F) It is desirable to also disclose the state of reuse and recycling
- (G) In addition to the absolute amount of recyclable resources reused/recycled, it is also effective to monitor it in terms of the percentage in the total amount of wastes generated

(4) Amount of recyclable resources that are thermally recycled and measures for its increase

[Notices to disclosure]

- (A) Unit used should be “Ton”(t)
- (B) When estimating the amount of recyclable resources that are thermally recycled, it should total everything from which the business has recovered heat, within the recyclable resources that the business has discharged/ carried out external to the site (beyond the control of the site)
- (C) It is also desirable to disclose the state of thermal recycling

(5) Amount of wastes incinerated and measures for its reduction

(6) Amount of final disposal of wastes and measures for its reduction

[Notices to disclosure]

- (A) Unit used should be “Ton”(t)
- (B) Regardless of whether it takes place inside or outside of the site of the said business, disclose the amount of wastes that are incinerated and/or go to final disposal (landfill etc.)

- (C) “To Incinerate” refers to incineration without thermal recycling
- (D) The amount of final disposal includes residue after reuse and recycling, as well as residue after thermal recycling and incinerating, however, it is desirable to disclose the amount of these residues distinguished from direct final disposal. If the amount of residual waste as a result of these processes cannot be estimated and excluded, this should be clarified
- (E) It is desirable to also disclose the state of disposal
- (F) It is desirable to separately disclose the state and the details on the quantities by type of waste which cannot be easily disposed by landfill and which are normally kept or stored (including radioactive wastes and hazardous wastes)

Significant Components for Specific Sectors

Significant Components for Specific Sectors		Problems from the perspective of environmental conservation	Unit	Considerations for estimation	Sectors that should include it	Boundary
Wastes	Amount of hazardous wastes generated and its reduction measures	May have harmful influences on human health and living environments.	t	Make estimations for general wastes under special control and industrial wastes under special control stipulated in the “Waste Disposal and Public Cleansing Law.” Also disclose the types and the treatment methods.	Material, Processing & Assembly, etc.	Entire organization or Individual site
	Amount of wastes transferred subject to the PRTR Law and its reduction measures	May have harmful influences on human health and obstruct the development and growth of animals and plants.	t	Make estimations for each of the chemical substances subject to the “Law Concerning Reporting, etc. of Releases to the Environment of Specific Chemical Substances and Promoting Improvements in Their Management (the PRTR Law).”	Material, Processing & Assembly, etc.	Entire organization or Individual site

5) State of Environmental Burdens at the Downstream (Providing Products/Services), and Mitigation Measures

Businesses should mention the state of environmental burdens at the downstream, and the mitigation measures employed.

It is one of the most important missions for businesses to reduce environmental burdens generated from products/services they produce and sell. This is a task essential for building an environment-conserving and recycling-based sustainable society.

Therefore, how enthusiastically businesses are promoting the production and sales of products/services that could contribute to environmental conservation is information that should be included in environmental reporting.

Although businesses produce and sell a wide variety of products/services that could contribute to the mitigation of environmental burdens, and the actual state is likely to differ depending on the type and the size of a corporation, it is necessary to clearly mention the state of environmental efforts according to the characteristics of the business. Financial institutions such as banks, security

companies, and insurance companies, retailers, express agencies, and trading companies do not usually carry out direct production. It is therefore necessary to devise a description of environmental efforts related to services provided taking the nature of the business sector into account. For example, in the case of financial institutions publishing environmental reporting, it is desirable to mention environmental considerations taken before the investment and/or the lending to any companies.

Significant Components

(1) State of environmental burden according to the characteristics of products/services and measures for the reduction of the environmental burden.

(2) Quantity or proportion of production/sales of products/services that could contribute to the mitigation of environmental burdens and the state of efforts to increase the quantity or proportion.

[Notices to disclosure]

- (A) Unit used should be “Ton” (quantity of production/sales), “Japanese Yen”(sum of production/sales) or “Percentage”(ratio occupied in the total production/sales)
- (B) “Products/services that could contribute to the mitigation of environmental burdens” refers to “Environmental products” that are defined in Clause 2, Article 1 of the Law on Promoting Green Purchasing (including environmental considerations in investments etc. in financial institutions). Standards for the certification of environmental labels such as Eco Mark or standards for purchasing specific items based on the Law on Promoting Green Purchasing , can be referred to
- (C) Progress in the reduction of environmental burdens or contributions to environmental conservation should be disclosed according to the actual state of each industry type, corporate size, and the kind of products/services. When disclosing, it is desirable to establish quantitative indicators wherever possible, however, if this is not possible, a qualitative assessment is also acceptable. It is necessary to clearly define what “products/services that could contribute to mitigate environmental burdens” actually refer to in the business, as well as to stating the justification for using the relevant indicators
- (D) To assess environmental burdens concerning products, it is desired to consider not only burdens during the phase in which the product is used and the disposal phase, but also the whole life cycle (implementation of the Life Cycle Assessment) including the production processes. It is also desirable to comprehensively take various environmental burdens such as global warming, air pollution, water effluents, and increase of wastes into account

Significant Components for Specific Sectors

Significant Components for Specific Sectors	Problems from the perspective of environmental conservation	Unit	Considerations for estimation	Sectors that should include it	Boundary
Environment Energy Efficiency of each product type and measures for its increase	Improvement of energy efficiency contributes to reducing CO ₂ emissions.	Units stipulated in the Energy Conservation Law		Processing & Assembly, Construction, etc.	Entire organization

	Percentage of products conforming to the criteria stipulated in the Energy Conservation Law and measures for its increase	Contributes to reducing CO ₂ emissions.	%		Processing & Assembly, Construction, etc.	Entire organization
	Production quantity/percentage of low-emission vehicles and fuel-efficient vehicles	Contributes to reducing hazardous materials such as CO ₂ and NOx.	Number, %	Disclose the number or ratio of vehicles produced with low exhaust emissions (vehicles complying with the Low-emission vehicles, etc, Technical guidelines for exhaust gas) and fuel-efficient vehicles (vehicles complying with the criteria stipulated in the Energy Conservation Law).	Automobile	Entire organization
Environmental burdens at the time of production and its reduction measures	Gross weight of production and its reduction measures	Mass production of products is doomed not only to mass exploitation of resources but also to mass release of them as wastes eventually. Therefore, it is required to produce products with as little material as possible (a shift to compactness and flexibility) while maintaining and improving functional aspects of products.	t		Material, Processing & Assembly, Construction, etc.	Entire organization
	Content of hazardous materials and its reduction measures	Hazardous materials contained in products are destined to be released to the environment as wastes eventually.	t	Disclose chemical substances subject to “the Law Concerning Reporting, etc. of Releases to the Environment of Specific Chemical Substances and Promoting Improvements in Their Management (the PRTR Law)”	Material, Processing & Assembly, Construction, etc.	Entire organization
	Amount of containers and packaging used and its reduction measures	Law strongly requires businesses to reduce containers and packaging, which account for the greater part of general wastes and which are relatively easy to recycle.	t	Make estimations for containers and packaging subject to the “Law for Promotion of Sorted Collection and Recycling of Containers and Packaging.”	Processing & Assembly, Retail, etc.	Entire organization
	Average life of each product group and its extension measures	In order to fundamentally reduce waste generation, it is necessary to improve product durability and to establish better systems for repair.	Years		Processing & Assembly, Construction, etc.	Entire organization
	Percentage of reusable/recyclable portions of each product group and measures for its increase	In order to promote reuse/recycling of wastes, it is necessary to use reusable/recyclable materials at the design stage of a product.	%	On condition that there is a system to collect socially and reuse/recycle products. Thermal recyclable parts (if any). should be assessed separately,	Processing & Assembly, Construction, etc.	Entire organization
	Dismantling time for each product group and its reduction measures	In order to promote reuse/recycling of wastes, it is required to design products in such a way to make it easier to dismantle products.	Time		Processing & Assembly, etc.	Entire organization
				55		

	Amount of used products, containers and packaging collected and measures for its increase	Businesses who manufacture and sell products are required to collect and recycle the said products and to promote the sustainable use of them.	t		Processing & Assembly, Retail, etc.	Entire organization
	Amount reused, recycled, and thermally recycled, and percentage regarding used products, containers and packaging collected, and measures for its increase	Businesses who manufacture and sell products are required to collect and recycle the said products and to promote sustainable use of them.	t, %		Processing & Assembly, Retail, etc.	Entire organization
Comprehensive assessment	Quantity or percentage of products produced or sold when the products are certified by environmental labels such as Eco Mark and measures for its increase	It is required to promote products certified by environmental labels which certify that the products have a minimal environmental burden.	Quantity, %		Processing & Assembly, Retail, etc.	Entire organization

6) State of Environmental Burdens from Transportation, and Mitigation Measures

Businesses should give details of the state of environmental burdens from means of transportation which delivers raw materials etc. from supplier and removes products/services, wastes, passengers, and the mitigation measures employed.

Of the total carbon dioxide (CO₂) emissions in Japan, the proportion produced by transportation is increasing year after year. In the fiscal year of 1998, an increase of 21.1% was measured compared to the fiscal year of 1990, and accounted for 21.7% of the total amount of emissions. In addition, as automobile transportation increases and concentrates, air pollution in city areas is getting more and more serious.

In order to reduce CO₂ emissions and air pollutants from transportation, it is necessary to reduce the volume of transportation itself as much as possible, in conjunction with the promotion of a modal shift to railroad and ship transportation and to improve transportation efficiency through joint transportation/delivery and return cargo arrangements.

Considering these issues, the disclosure of the following data and details of mitigation measures is significant information that should be included in environmental reporting.

- (1) Total volume of transportation
- (2) CO₂ emissions resulting from transportation

Significant Components

(1) Total volume of transportation and measures for its reduction

[Notices to disclosure]

- (A) Unit used should be “Ton-Kilometer”(t x km) or “Person-Kilometer”(persons x km)
- (B) When making estimations, assess the volume of in house transportation and the transportation of products and services by external operators (consignment etc.) according to means of transportation (automobile, ship, railroad, air etc.), and then totalise
- (C) Although it is difficult to accurately monitor and estimate the transportation of products and services by external operators (consignment), it is desirable to assess it as accurately as possible. If accurate assessment is difficult, it is acceptable to make estimations for the major products only, or use simulation models to make estimations
- (D) For the transportation of raw materials, fuels etc., it is desirable to separately disclose this information, if they are separate to other general cargoes and are delivered by exclusive, chartered or other transportation means
- (E) It is desirable to separately disclose the proportion of transportation that is in house and that which is operated by external operators, and provide a breakdown of transportation means
- (F) Improvement of transportation efficiency (unit: % {[transportation t x km] / [capacity t x km] or [transportation person x km] / [capacity person x km]}) through joint transportation/delivery and return cargo arrangements also contributes to reducing carbon dioxide emissions and air pollutants. It is therefore also appropriate to estimate and disclose this information

(2) CO₂ emissions resulting from transportation and measures for its reduction

[Notices to disclosure]

- (A) Unit used should be “t- CO₂”
- (B) When the amount of CO₂ emissions is estimated, amounts of fuels used should be assessed and emissions should be estimated by using the emission coefficient range stipulated in “the Enforcement Order of the Law Concerning the Promotion of the Measures to Cope with Global Warming”. For example, the emission coefficient of petrol to CO₂ is 2.31 (kgCO₂/l) and the emission coefficient of diesel oil to CO₂ is 2.64 (kgCO₂/l)
- (C) When making estimations, assess the amount of carbon dioxide emissions from in house transportation, and also from the transportation of raw materials and products/services by external operators (consignment etc.) according to transportation means (automobile, ship, railroad, air etc.), and totalise (The amount of CO₂ emissions from in house transportation is repeated in the “Greenhouse gas emissions” mentioned)
- (D) If it is difficult to accurately monitor the amount of carbon dioxide emissions from transportation by external operators (consignment), it is acceptable to make estimations for the major products only, and

use simulation models to make estimations

- (E) For the transportation of raw materials, fuels etc., it is desirable to separately disclose this information, if they are separate to other general cargoes and are delivered by exclusive, chartered or other transportation means
- (F) It is desirable to separately disclose the proportion of transportation that is in house and that which is operated by external operators (consignment), and provide a breakdown of transportation means

Significant Components for Specific Sectors

Significant Components for Specific Sectors	Problems from the perspective of environmental conservation	Unit	Considerations for estimation	Sectors that should include it	Boundary
NOx emissions resulting from transportation and its reduction measures	Air pollution by NOx mainly from exhaust gas of vehicles could cause damage to the respiratory organs of people living in large cities.	t	Disclose the breakdown of own transportation and transportation by outside operators and the breakdown of transportation means (automobiles, ships, etc.).	All industries including transportation and retail.	Entire organization or Individual site
Number/percentage of low-emission vehicles and fuel-efficient vehicles and measures for its increase	Contributes to reducing hazardous materials such as CO ₂ and NOx.	Number, %	Disclose the number or ratio of vehicles of low exhaust gas (vehicles complying with the Low-emission vehicles, etc, Technical guidelines for exhaust gas) and vehicles of fuel-efficient (vehicles complying with the criteria stipulated in the Energy Conservation Law).	All industries including transportation and retail	Entire organization or Individual site

7) State of Environmental Burdens from Cumulative Soil Contamination, Land Utilisation and Other Environmental Risks and Mitigation Measures

Regarding environmental burdens within the business area, businesses should mention the state of environmental burdens from cumulative soil contamination (stock pollution), land utilisation and other environmental risks, and the mitigation measures employed.

Significant Components for Specific Sectors

Significant Components for Specific Sectors	Problems from the perspective of environmental conservation	Unit	Considerations for estimation	Sectors that should include it	Boundary
State of soil contamination and groundwater pollution and mitigation measures	May have harmful influences on human health and living environments due to spillages external to a factory site, or when the site is changed to a residential area, a school, a part and others.	State, spot, density (mg/kg, mg/l)		Material, Processing & Assembly, etc.	Entire organization or Individual site
Area of natural ecosystems affected and its reduction measures	Alteration of natural ecosystems aggravates the landscape and living environments, and causes the decrease and extinction of wild animal and plant species.	ha, details	Make estimations for altered areas of forests, grasslands, wetlands, tideland, coral reefs, natural shores and protected areas including natural parks and others.	Client of constructions such as real estate, etc.	Entire organization or Individual site

Areas of afforestation, and nature restoration and its expansion measures	Afforestation and restoration of natural habitats contributes to the improvement of landscape and living environments, and to the protection of wild animal and plant species.	ha		All industries	Entire organization or Individual site
Number of accidents and their details (name of material leaked/spilled, situation, amount, etc.)	May have harmful influences on human health and living conditions.	Number of cases Material t		Material, Processing & Assembly, etc.	Entire organization or Individual site
Amount of hazardous materials held in stock and its reduction measures	Hazardous materials held in stock do not immediately cause environmental burdens. However, since they are in danger of being released to the environment due to accidents, leakage, or volatilisation it is necessary to reduce hazardous materials held in stock.	t	Disclose chemical substances subject to the "Law Concerning Reporting, etc. of Releases to the Environment of Specific Chemical Substances and Promoting Improvements in Their Management (the PRTR Law)."	Material, Processing & Assembly, etc.	Entire organization or Individual site

Final Chapter. Toward Continuous Improvement of the Guidelines

These guidelines summarises the fruit of the examinations in the fiscal year 2000. Due to the continuous changes and development of social needs on the contents of environmental reporting and of the current state of publishing by businesses, the Ministry of the Environment believes that improvements to the guidelines are necessary at times. Therefore, the Ministry would appreciate it if businesses would publish environmental reporting based on these guidelines and also that readers evaluate a businesses efforts towards environmental conservation by referring to the guidelines. As a result, if any problems are encountered or lessons learned regarding these guidelines, the Ministry would appreciate comments on the guidelines at any time. The Ministry intends to assess and revise the guidelines.

Through such trials and feedback processes, the Ministry would like to examine the revise of these guidelines.

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